

# SE Hawthorne Boulevard

## Evaluation Report



**PBOT**  
PORTLAND BUREAU OF TRANSPORTATION

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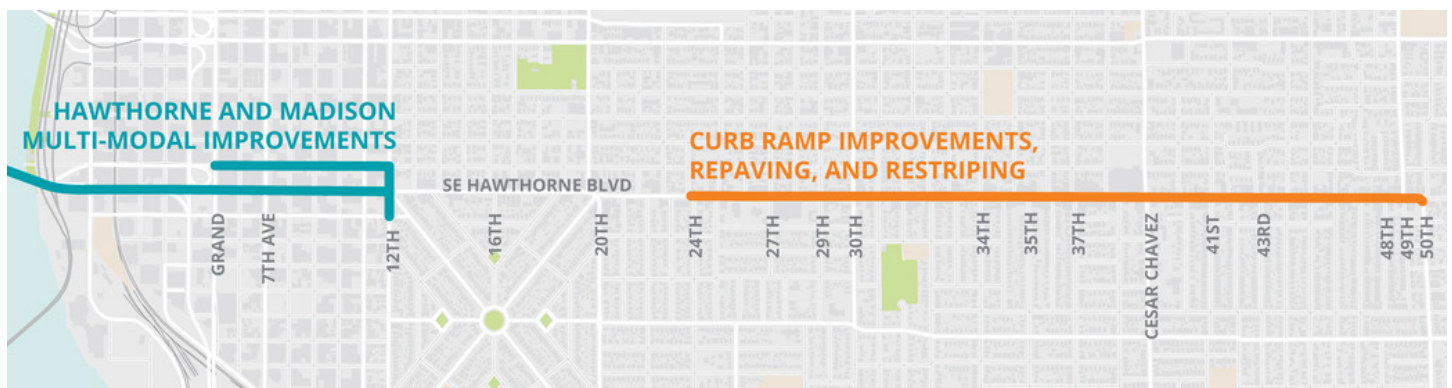
# SE HAWTHORNE BOULEVARD



**PBOT**  
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## SE Hawthorne Boulevard Multimodal Improvements and Pave & Paint projects evaluation

October 2023



### SE Hawthorne and Madison Multimodal Improvements (Grand to 12th)

This project implemented recommendations from the Central City in Motion plan, improving safety by upgrading pedestrian crossings and bike lanes. SE Hawthorne Boulevard went from three vehicle lanes, a bike lane, and parking on both sides to a parking protected bike lane, a bus and turn (BAT) lane, a vehicle travel lane, and a pro-time parking lane. The project also upgraded the existing bus lane on SE Madison Street. Completed summer 2021.

**Project goals:** Advance safety, efficiency, equity, and sustainability by upgrading walking, biking, and transit facilities.

**Project funding:** \$1.1 million from Metro's Regional Flexible Funds.

Learn more: [portland.gov/Hawthorne-Madison](https://portland.gov/Hawthorne-Madison)

### SE Hawthorne Pave & Paint (23rd to 50th)

PBOT crews repaved 28 blocks on SE Hawthorne Boulevard from 23rd to 50th avenues to create a smoother street and extend its lifespan while redesigning it as a safer, three-lane street from its previous four-lane configuration. The project also upgraded 163 curb ramps to meet the standards of the Americans with Disabilities Act (ADA), improved 10 pedestrian crossings with median islands and crosswalks, and installed 14 new streetlights. The project also retimed 10 traffic signals for improved traffic flow, added red bus-and-turn lanes approaching SE César E Chávez Boulevard and modified the signal at SE César E Chávez Boulevard. Completed fall 2021.

**Project goals:** Improve safety, reduce transit delay, support Hawthorne's Main Street, limit impact to equity focus communities riding the bus, and leverage an existing paving project.

**Project funding:** \$4.23 million (\$800,000 for the safety project).

Learn more: [portland.gov/Hawthorne-repave](https://portland.gov/Hawthorne-repave)

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## EVALUATION

The Hawthorne and Madison Multimodal Improvements project and the Hawthorne Pave & Paint project were constructed in 2021. PBOT staff collected data before and after the project construction to evaluate changes to speed, transit travel time, vehicle travel time, diversion onto neighborhood streets, and compliance with active transportation guidelines.

The report will be updated to show impacts on crashes and injury once post project crash data is available.

## RESULTS

The evaluation shows the projects achieved desirable outcomes in-line with the project goals with minimal undesirable side effects.

**Safety:** Both projects improved safety by lowering vehicles speeds, especially top-end speeding. The Multimodal Improvements Project also provided safer bike lanes and the Pave & Paint project provided new crossings.

**Transit:** Thanks to new infrastructure and design considerations, the bus is running faster on SE Hawthorne Boulevard. Faster bus times provide a direct impact to equity focus communities that ride the Line 14 bus through SE Hawthorne Boulevard.

**Traffic operations:** Traffic volumes stayed consistent following the project. Vehicle travel time increases matched pre-project modeling expectations.

## QUICK GUIDE

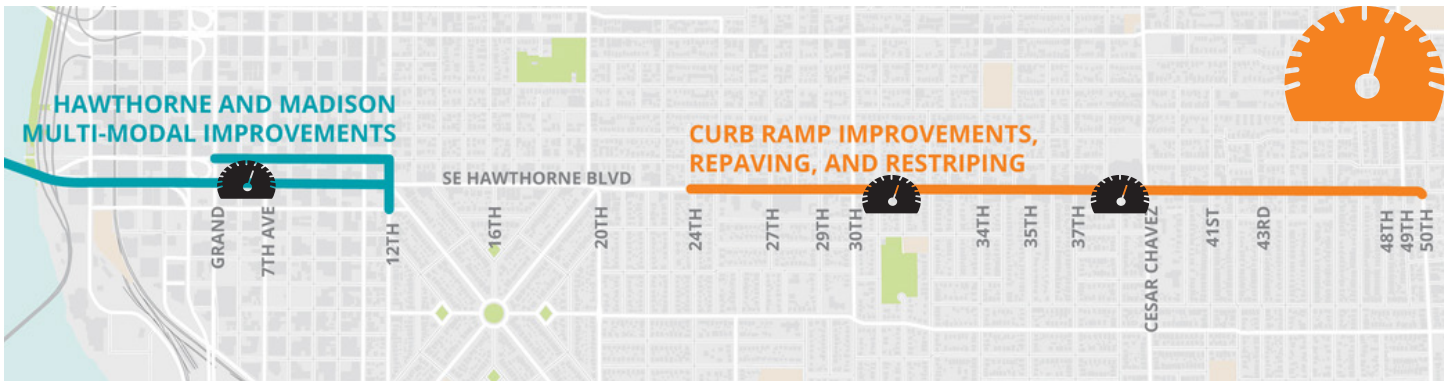
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## KEY FINDINGS

- **Top-end speeding** decreased significantly on SE Hawthorne Boulevard. Median and prevailing speeds also decreased substantially.
- In some instances, **transit became faster and more reliable**, in others it stayed the same.
- **The bus was 45 to 90 seconds faster** during peak periods.
- **Bus trips on SE Hawthorne Boulevard were more consistent by almost a full minute** in the Multimodal project during the evening peak. Bus trips were more consistent by 10 to 20 seconds in the Pave & Paint project, a 10% improvement.
- **Median travel time for vehicles** did not change significantly between SE Grand and 20th avenues. Between SE 20th Avenue and César E Chávez Boulevard, median travel time increased about 20-30 seconds overall, and 40-60 seconds in the directional peaks. This is roughly in line with expected travel time increases.
- After **ten new crossings were built**, there is a crossing close by (meeting PEdPDX guidelines) on 95% of the corridor.
- From SE Grand to 12th avenues, the upgraded **parking protected bike lane** with bike signals reduces right-hook conflicts, and transit platforms eliminate bus incursion into the bike lane.
- After the new crossings were built, **16 of the 17 bus stops are within 100 feet of a crossing and meet our guidelines.**



# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report



## SPEED ON SE HAWTHORNE BOULEVARD

**Key findings:** Top-end speeding decreased significantly on SE Hawthorne Boulevard. Median and prevailing speeds also decreased substantially. The biggest change happened east of SE 31st Avenue.

One of the primary goals of the two Hawthorne projects was to improve safety. Reducing vehicle speed, and top end speeding in particular, is a powerful tool for improving safety.

PBOT measured speed at three locations on SE Hawthorne Boulevard: east of SE 6th, 31st, and 37th avenues. Pre-project counts were collected in 2016 and 2019, and post-project counts in February and June 2022. The speed limit was lowered from 25 mph to 20 mph from SE Grand to 30th avenues in February 2022, which may have also impacted results.

Three speed measures were evaluated:

- **Median speed (50th percentile):** Half of drivers travel faster than this speed, and half travel slower.
- **Prevailing speed (85th percentile):** 85% of drivers travel at or below this speed. It is a standard engineering measure.
- **Top-end speeders:** Percent of drivers traveling 10 mph or more over the speed limit. If the speed limit is changed between before and after counts, top-end speeding measures the percent of people going 10 mph or more over the new speed limit.

	Median Speed	Prevailing Speed	Top-End Speeders
<b>SE 6th Avenue</b>	15.8% ↓	15.4% ↓	71.7%* ↓
<b>SE 31st Avenue</b>	13% ↓	10.9% ↓	63.1% ↓
<b>SE 37th Avenue</b>	17.5% ↓	10% ↓	41.5% ↓

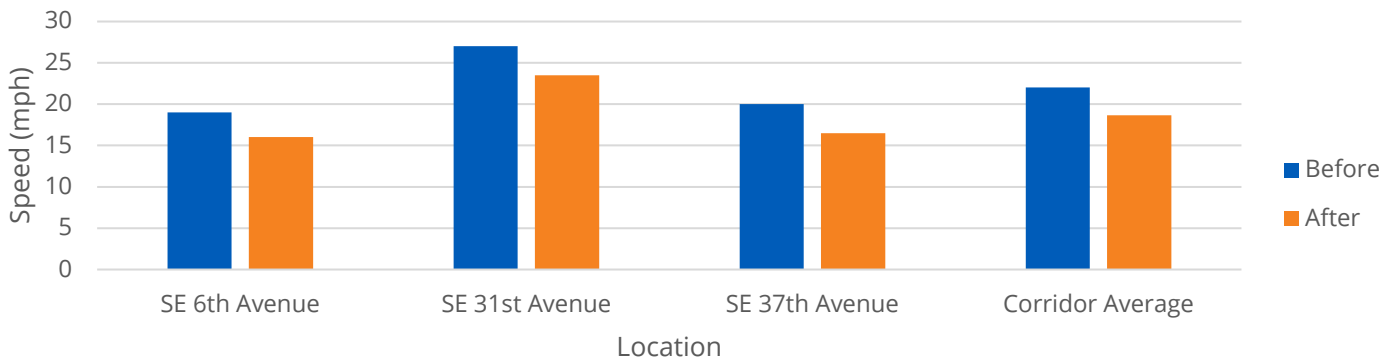
\* The speed limit was reduced at this location.

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## CHANGE IN SPEED ON SE HAWTHORNE BOULEVARD

Median speed, prevailing speed, and top-end speeding all decreased in both SE Hawthorne Boulevard project areas. The greatest decreases occurred east of SE 31st Avenue. Top-end speeding decreased significantly in both project areas.

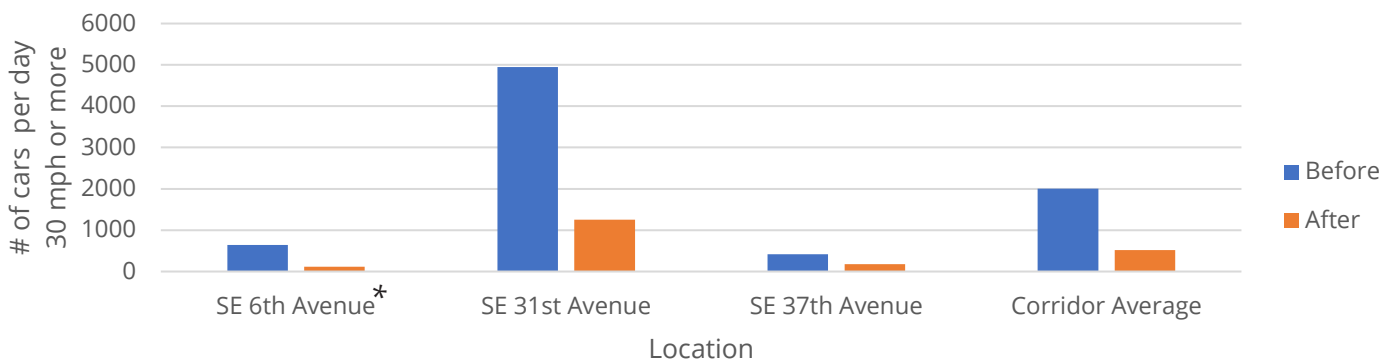
### Median Speed



### Prevailing Speed

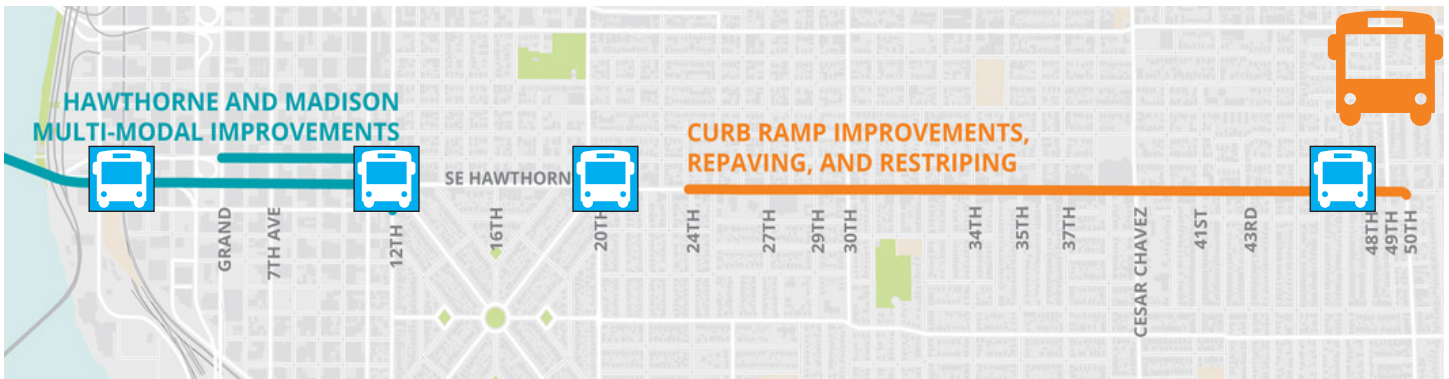


### Top-End Speeders



\* The speed limit was reduced at this location.

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report



## TRANSIT TRAVEL TIME AND RELIABILITY

**Key findings:** Transit travel time, delay, and variability mostly stayed the same or decreased along SE Hawthorne Boulevard.

Median run time for buses stayed about the same throughout the day but was shortened between 45 seconds and a minute and a half during peak periods.

Peak delay was shortened 10 to 20 seconds in the Pave & Paint project, representing roughly a 10% reduction. Peak delay was shortened almost a full minute in the Multimodal project during the evening peak.

Variability stayed very similar before and after project implementation, however it increased over 10 percentage points in the multimodal project. This is likely because the 10th percentile runtime was much shorter.

PBOT staff used data from TriMet to evaluate impact to bus service. TriMet's high quality data is also used as a proxy to measure project impact on congestion.

TriMet provided data for bus Line 14 for both projects and bus Line 10 for the Multimodal project. The data was collected for March 4th to May 31st in 2019 (before) and January 9th to May 14th 2022 (after) on weekdays only.

Three measures were evaluated:

- **Median Run Time:** Half of trips were faster than this speed, and half were slower.
- **Peak Delay:** The difference between the 90th percentile run time and the 10th percentile run time.
- **Variability:** Peak delay divided by the 10th percentile run time.

Median run time indicates about how long it takes to travel along the corridor. Peak delay and variability show the difference between bus trips during congestion and free-flow conditions. Both are key indicators used by TriMet to evaluate transit trips.

**Data limitations:** The corridor end points are at the nearest bus stops, indicated in the map above, rather than project extents. Data was collected from the Hawthorne bridge stop to SE 12th Avenue, from SE 20th to 47th avenues, and from SE 47th to 22nd avenues.

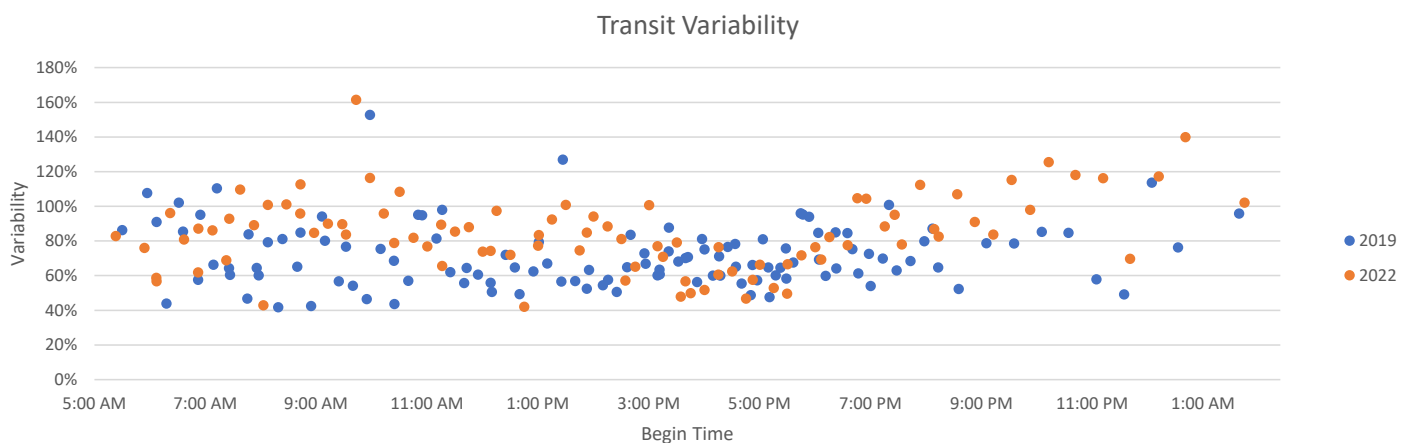
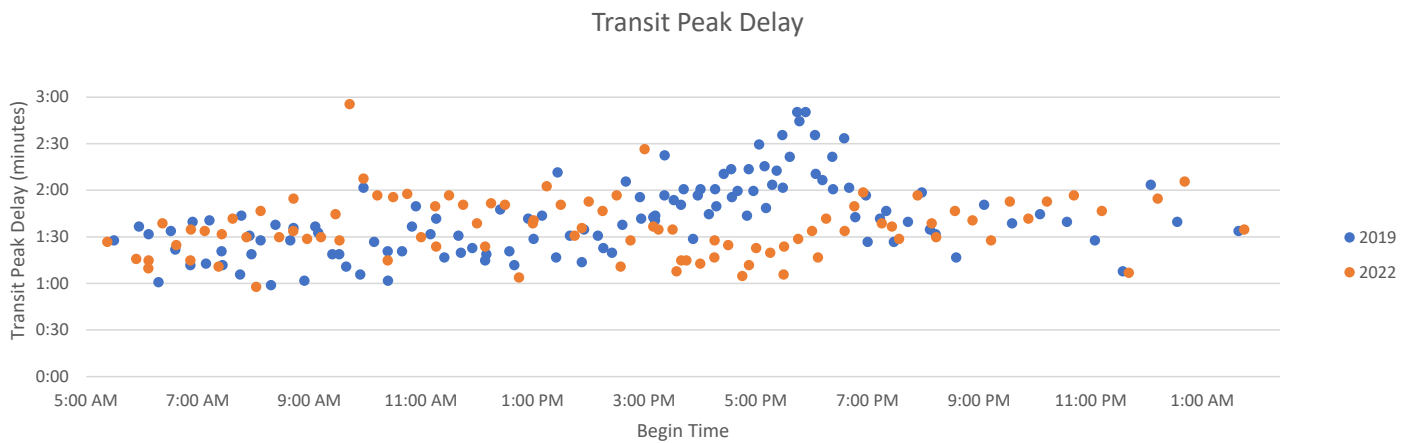
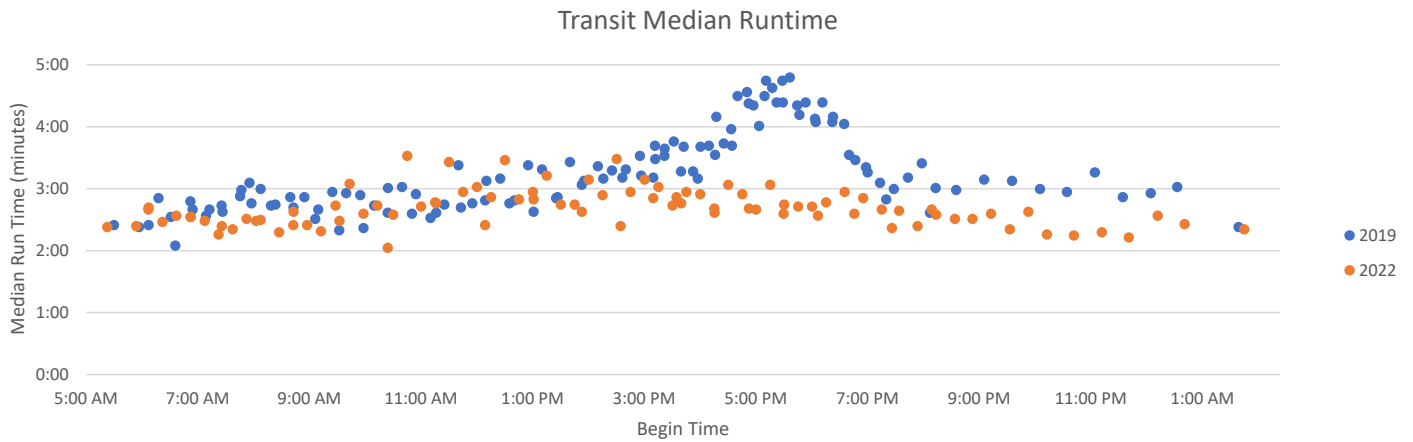
COVID-19 pandemic impacts on travel patterns likely had a significant effect on this data. Citywide, vehicle traffic was getting close to pre-pandemic levels by 2022. However, peak period travel near downtown was not at pre-pandemic levels. Bus ridership was also well below pre-pandemic levels, which can reduce transit travel times.

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## SE HAWTHORNE MULTIMODAL PROJECT (GRAND TO 12TH | LINES 10 AND 14)

Median run time on this stretch of SE Hawthorne Boulevard was shortened by over 30 seconds and evening peak run times were shortened by almost a minute and a half, a 34% reduction in travel time for people riding the bus.

Peak delay for buses was shortened by almost a minute in the evening peak, a 40% reduction.



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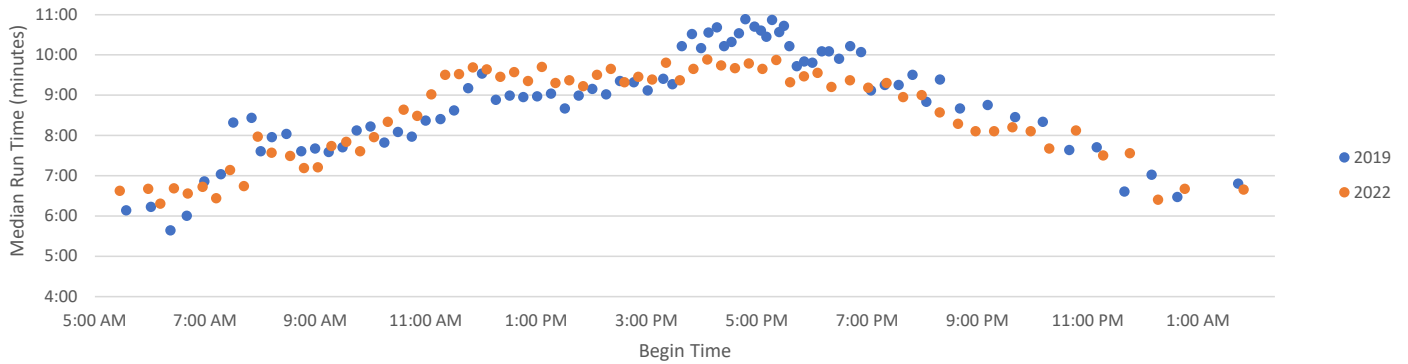
## EASTBOUND SE HAWTHORNE PAVE & PAINT (20TH TO 47TH | LINE 14)

Median runtime during the evening peak period was shortened by 45 seconds, a 7% reduction in travel time for people riding the bus.

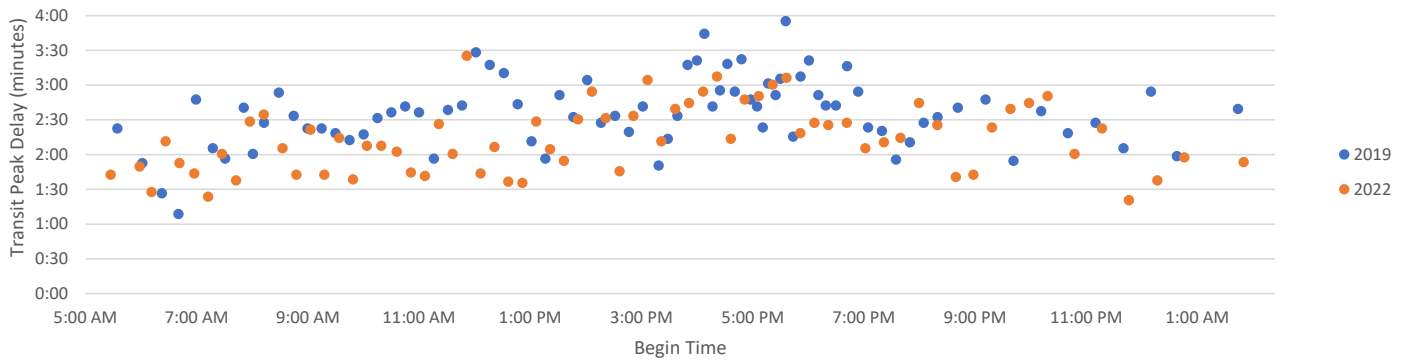
Peak delay for buses was shortened by 20 seconds, a 15% reduction.

Other changes to median runtime, peak delay, and variability are too small to report.

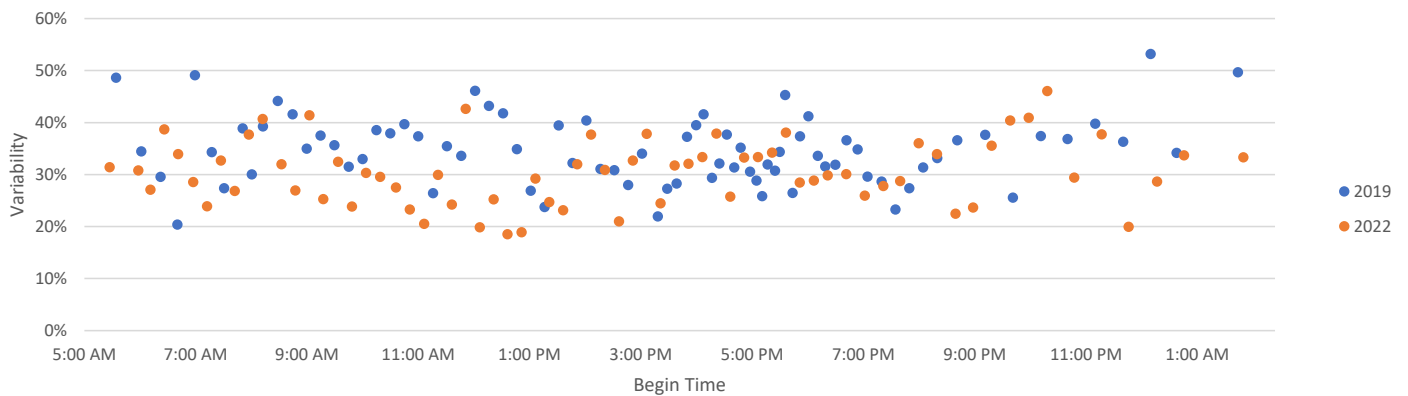
Transit Median Runtime



Transit Peak Delay



Transit Variability





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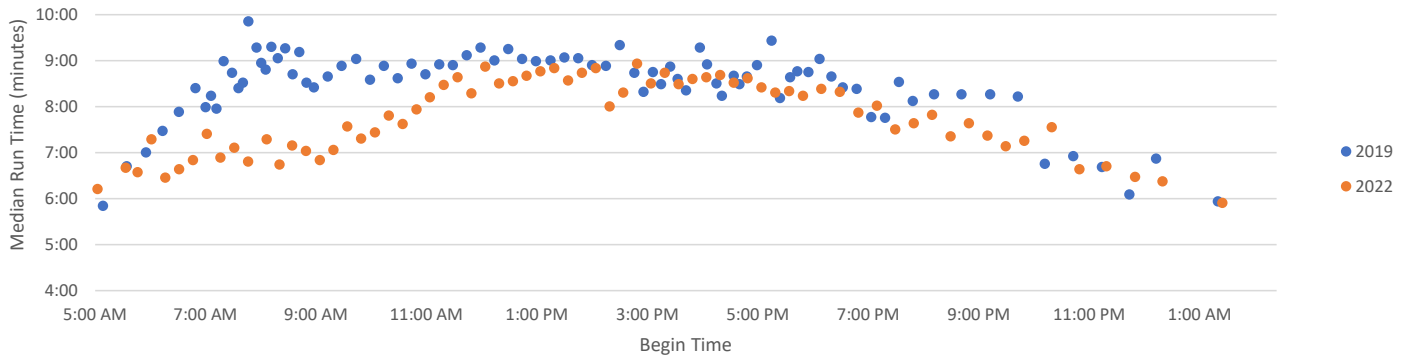
## WESTBOUND SE HAWTHORNE PAVE & PAINT (47TH TO 22ND | LINE 14)

Median runtime during the morning peak was shortened by over a minute and a half, a 20% reduction in travel time for people riding the bus.

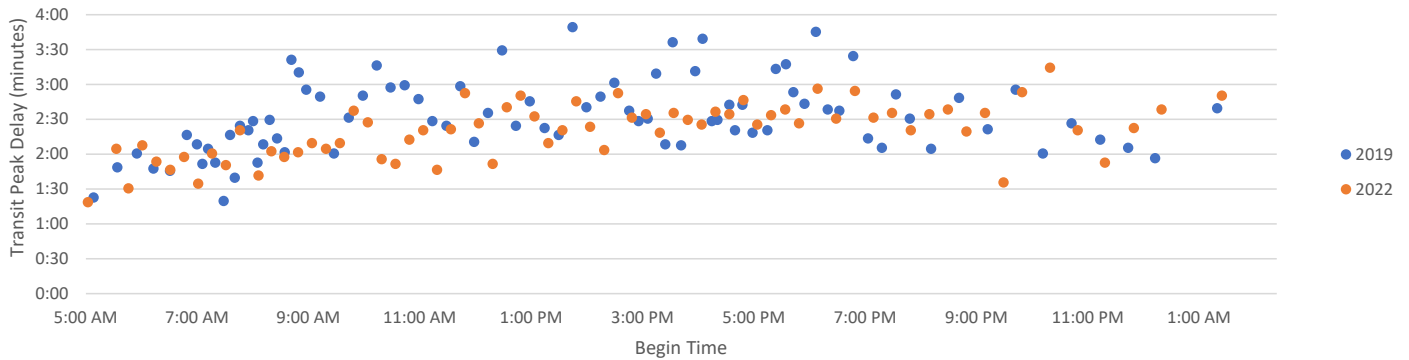
Median runtime throughout the day was shortened by 45 seconds, a 9% reduction in travel time.

Peak delay for buses in the morning peak was shortened by 17 seconds, a 12% reduction.

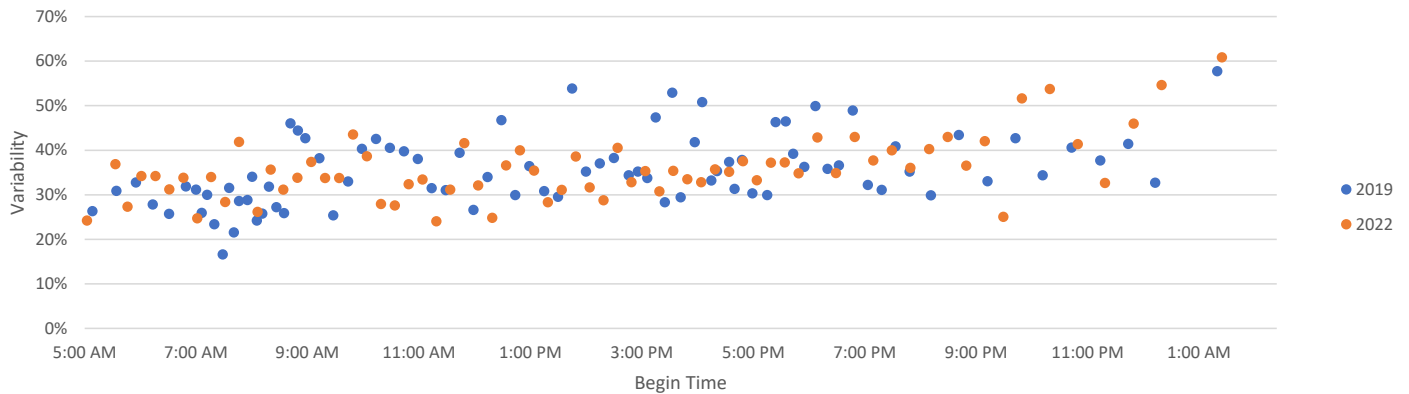
Transit Median Runtime



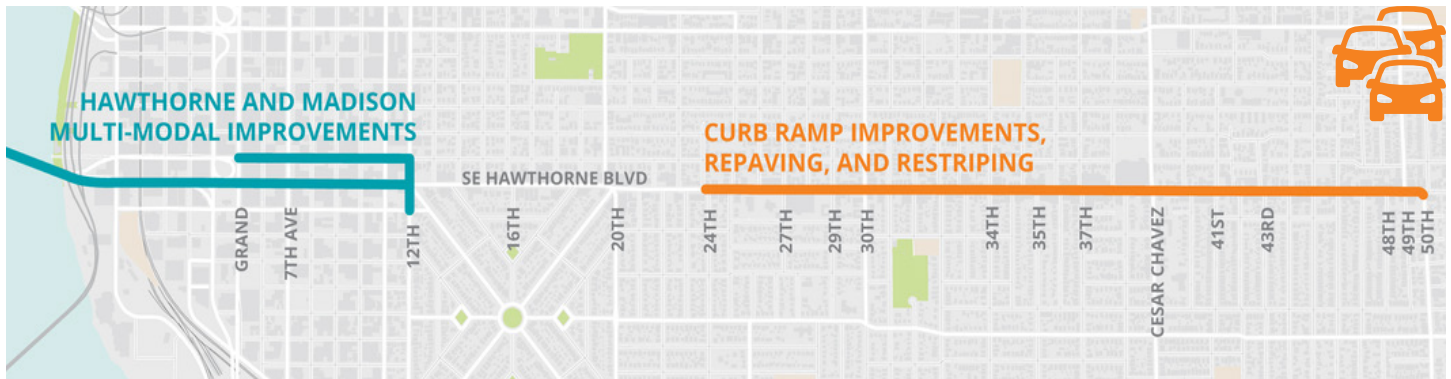
Transit Peak Delay



Transit Variability



# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report



## VEHICLE TRAVEL TIME

**Key findings:** Median travel time for vehicles did not change significantly between SE Grand and 20th avenues. Between SE 20th Avenue and César E Chávez Boulevard, median travel times increased 20-30 seconds, and 40-60 seconds in the directional peaks. This is less than half of the travel time increases PBOT expected based on pre-project modeling.

The 90th percentile travel time for vehicles between SE Grand and 20th avenues changed little, but dropped 30 seconds in the evening peak. Between SE 20th Avenue and César E Chávez Boulevard, 90th percentile travel time for vehicles increased 30-50 seconds, with no peak hour impacts.

Roadway reorganization projects like these two Hawthorne projects often raise concerns over congestion and travel time. PBOT used an INRIX data set to measure travel time in the segment. PBOT staff analyzed weekday data for March 2019 (before) and March 2023 (after), in part to reduce COVID-19 traffic impacts.

The data include corridor travel times from SE Grand to 20th avenues, which is the smallest available segment in the dataset. The other segment PBOT analyzed is from SE 20th Avenue to SE César E Chávez Boulevard in order to focus on the segment of the project where driving lanes were reallocated.

Two measures were evaluated:

- **Median Travel Time:** Half of the data were faster than this speed, and half were slower.
- **90th Percentile Travel Time:** Only 10% of data were slower than this travel time.

Median travel indicates about how long it takes to travel along the corridor segment. Ninetieth percentile travel time indicates about how long slower trips take along the corridor segment.

The graphs on the next page discuss median and 90th percentile travel time in greater depth.

Pre-project modeling projected a travel time increase of over two minutes in the eastbound evening peak. Actual travel time increases are less than half of that. **Such travel time increases correlate with slower and safer travel speeds.**

As a control, travel time was also analyzed on SE Belmont Street from 25th Avenue to César E Chávez Boulevard, where the roadway was not changed. Travel time decreased very slightly on this segment, with slightly larger decreases (15-25 seconds) in the eastbound PM peak.

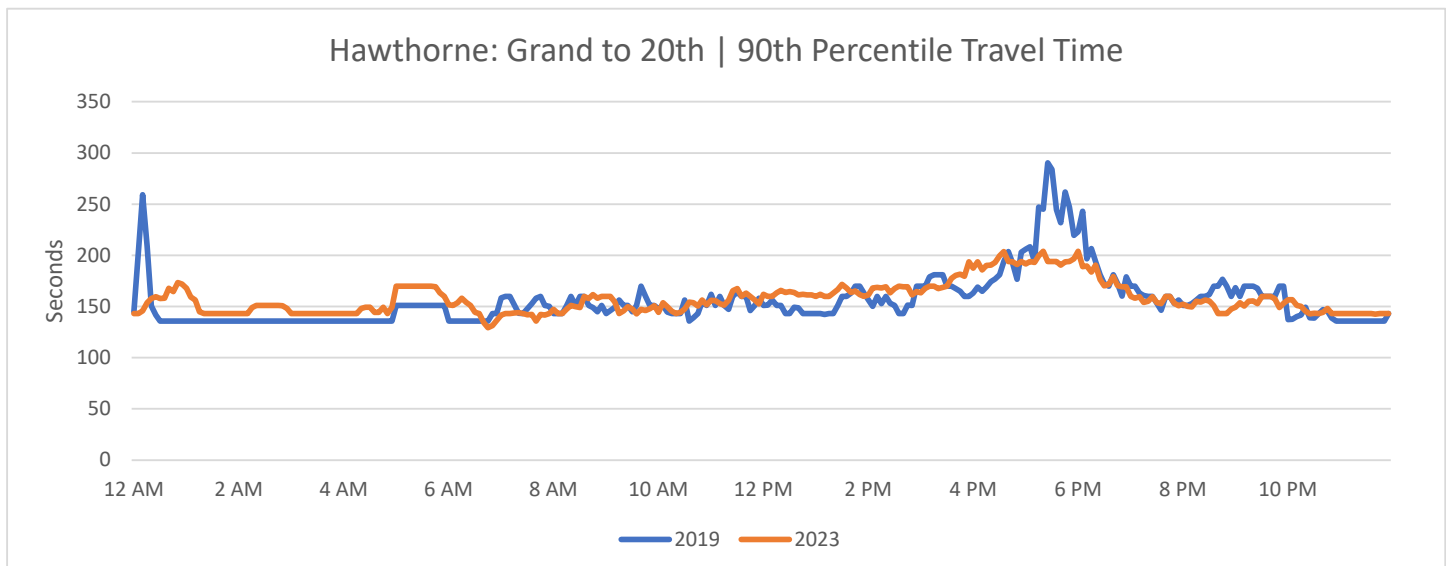
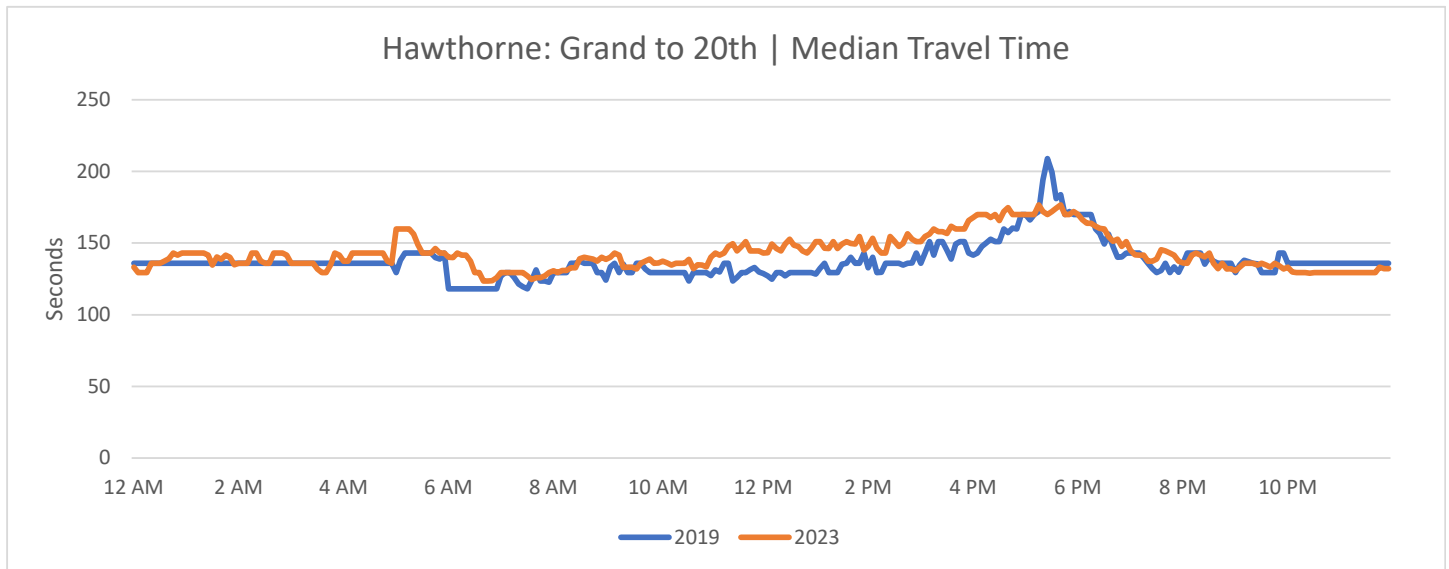
**Data limitations:** INRIX pulls data from connected devices only, and does not report the number of data points informing a data set. Some outlier results are likely because of limited data points. When there is no data, INRIX uses historical data.

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## SE HAWTHORNE BOULEVARD CORRIDOR TRAVEL TIME SE GRAND TO 20TH AVENUES (EASTBOUND)

The graphs below show vehicle travel time along SE Hawthorne Boulevard from Grand to 20th avenues eastbound. The data is averaged over five-minute increments.

The graphs show a very slight increase in median travel time for people driving throughout the day, which is consistent with the slight decrease in speed. The graphs also show a meaningful decrease in the evening peak travel time, especially for the 90th percentile travel times. This means the most intense congestion has decreased, likely because of travel pattern changes related to the COVID-19 pandemic.



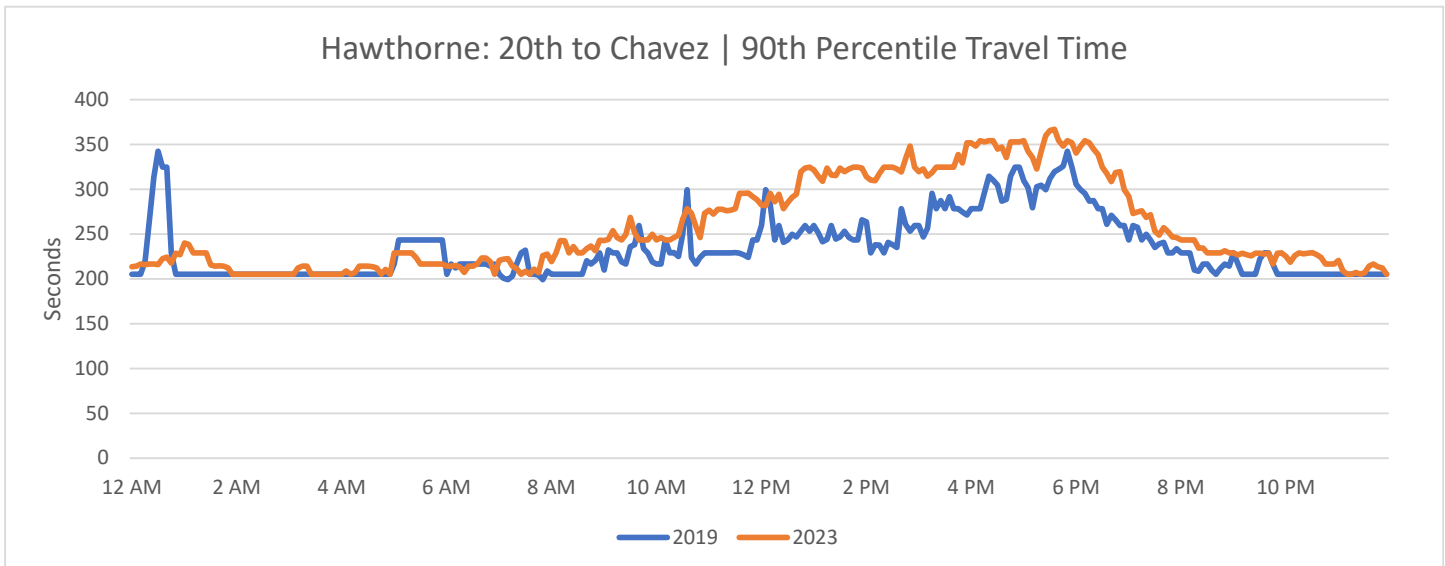
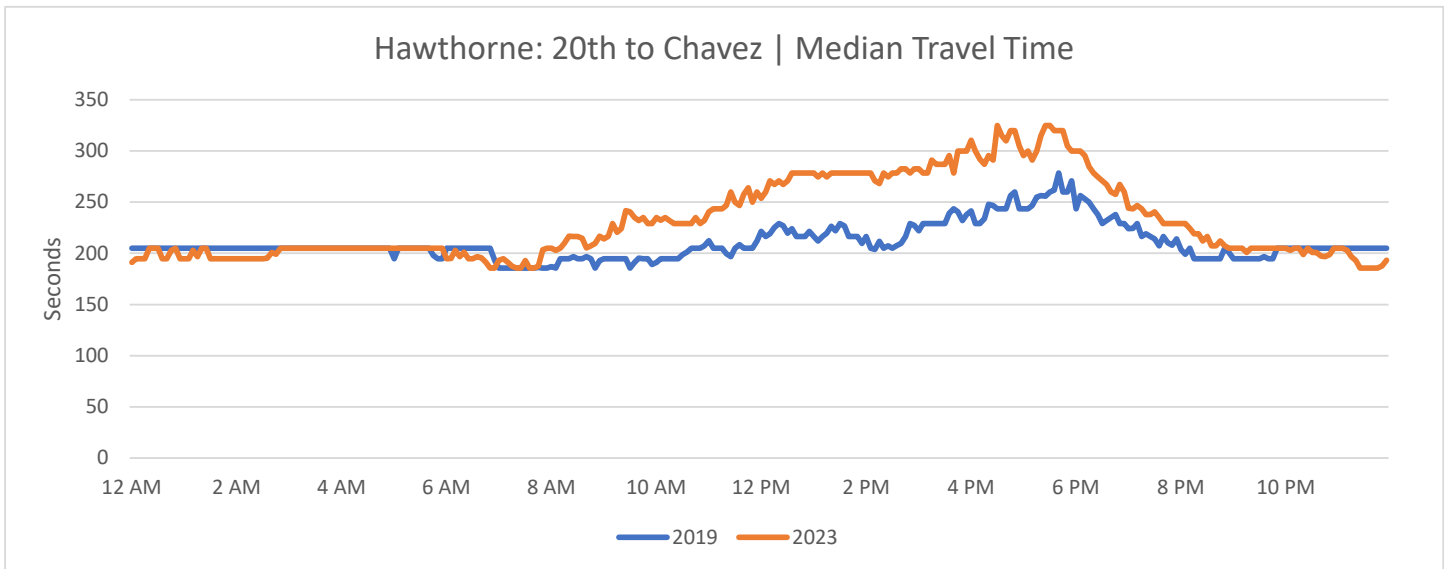
# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## SE HAWTHORNE BOULEVARD CORRIDOR TRAVEL TIME SE 20TH AVENUE TO CÉSAR E CHÁVEZ BOULEVARD (EASTBOUND)

The graphs below show vehicle travel time along SE Hawthorne Boulevard from 20th Avenue to César E Chávez Boulevard eastbound. The data is averaged over five-minute increments.

The graphs show median and 90th percentile travel times increased consistently from about 8 AM to about 9 PM for people driving. Similar before and after results overnight may be due to a lack of data.

The increased vehicle travel time generally stayed below one minute, which is in line with desired speed reductions and more pedestrian crossings. The graphs do not show large, concentrated travel time increases or peaks, which are the normal indicators of significant congestion.



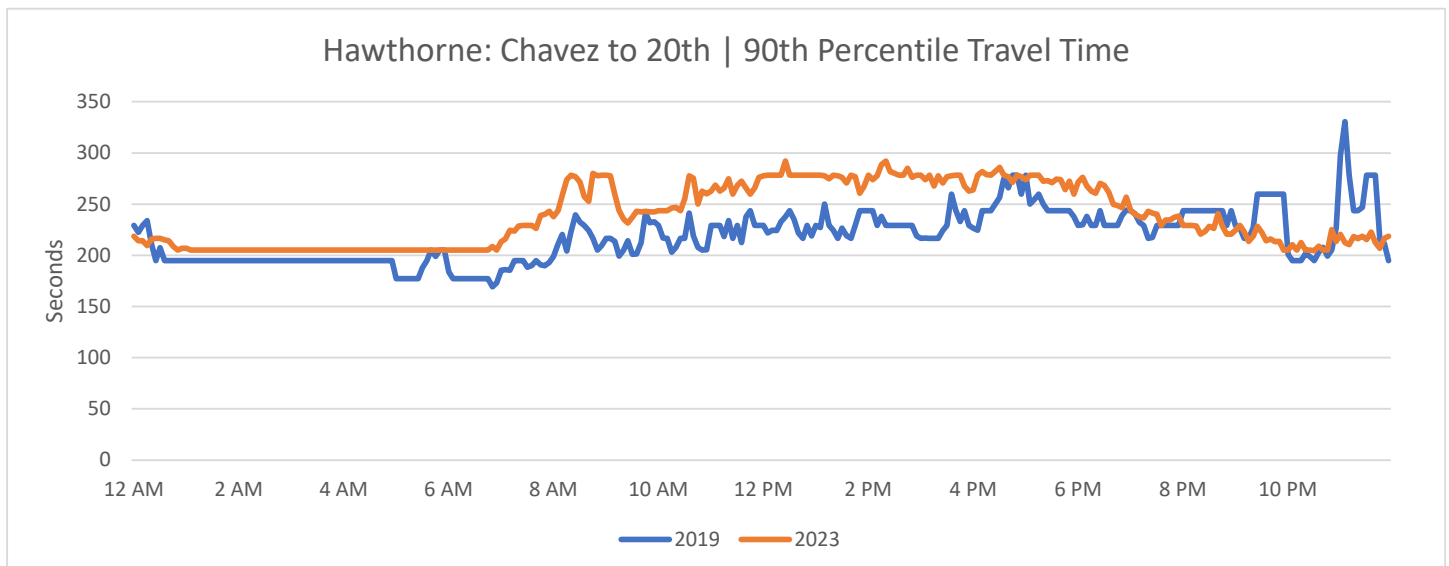
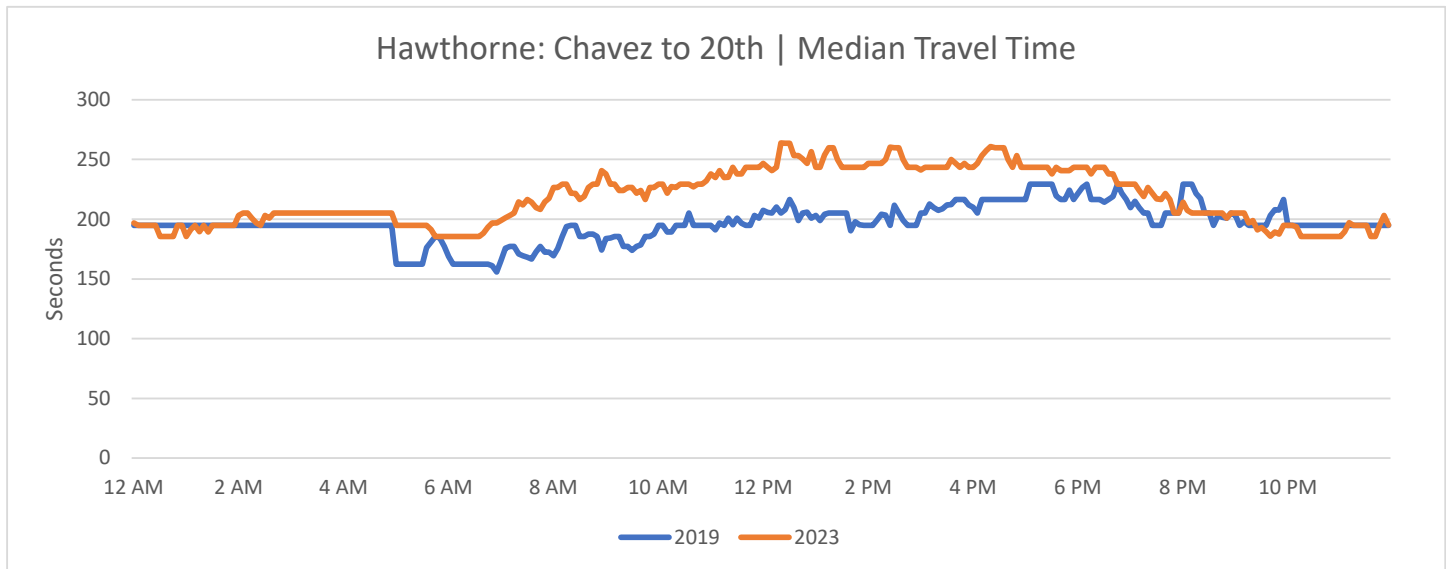
# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report

## SE HAWTHORNE BOULEVARD CORRIDOR TRAVEL TIME SE CÉSAR E CHÁVEZ BOULEVARD TO 20TH AVENUE (WESTBOUND)

The graphs below show vehicle travel time along SE Hawthorne Boulevard from César E Chávez Boulevard to 20th Avenue eastbound. The data is averaged over five-minute increments.

The graphs show median and 90th percentile vehicle travel times increased consistently from about 5 AM to about 7 PM for people driving. Similar before and after results overnight and the large spikes in the 90th percentile data from 2019 in the late evening may be due to a lack of data.

The increased vehicle travel time generally stayed below one minute, which is in line with projected travel times, desired speed reductions, and more pedestrian crossings. The graphs do not show large, concentrated travel time increases or peaks, which are the normal indicators of significant congestion.





## MOTOR VEHICLE SPEED AND VOLUME ON NEIGHBORHOOD AND PARALLEL STREETS

**Key findings:** Volumes decreased significantly along SE Hawthorne Boulevard, 25% to 30% throughout the day, and as much as 45% in the peak period.

Volumes stayed the same or decreased on all measured neighborhood streets and on SE Division Street.

When PBOT staff propose a roadway reorganization that reduces vehicle travel lanes, community members are sometimes concerned that drivers will shift to neighborhood streets or parallel routes. Previous projects have not led to this type of traffic pattern. However, PBOT staff collected before and after speed and volume counts on neighborhood streets to monitor.

On the SE Hawthorne Multimodal project, neighborhood diversion was not a concern, so data was not collected there. For the SE Hawthorne Pave & Paint project, PBOT collected data on the following street segments:

- SE Salmon Street east of 23rd Avenue
- SE 25th Avenue south of Clay Street
- SE Harrison Street west of 28th Avenue
- SE 29th Avenue north of Market Street
- SE Lincoln Street east of 35th Avenue
- SE Salmon Street west of 37th Avenue
- SE Division Street west of 28th Avenue
- SE Division Street east of 37th Avenue

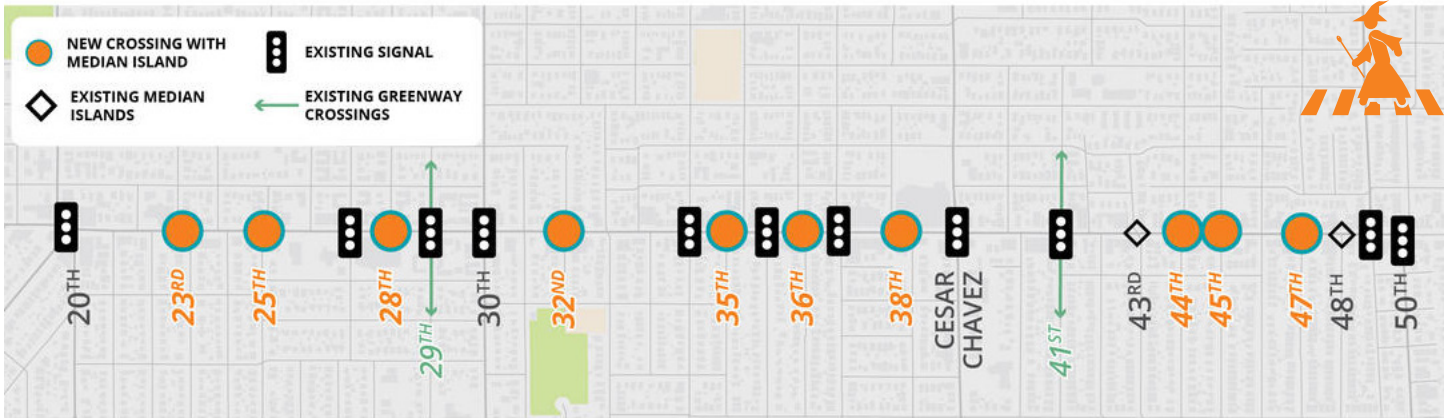
Before counts are mostly from various points in 2019, with a few from early 2020 and one from 2017. After counts were collected in late May and early June of 2022.

Speed did not change significantly on any of the neighborhood streets. Speed increased significantly on nearby SE Division Street at 28th Avenue, by as much as 7 mph in the eastbound direction. There is no reason to associate that change with the safety project.

Volumes generally stayed the same or went down on neighborhood streets, in some cases by as much as 50%. Volumes also went down on SE Division Street, by over 20% at 28th Avenue. The decrease in volume on SE Division Street is one likely reason for the increase in speed. Volumes at SE Salmon Street and 37th Avenue increased substantially, however the before data for this location is from December 2020, when traffic volumes were much lower because of the COVID-19 pandemic.

COVID-19 pandemic impacts on travel patterns likely had a significant effect on this data. Citywide, vehicle traffic volumes were getting close to pre-pandemic levels by 2022. However, peak period travel near downtown was not at pre-pandemic levels. Volumes on SE Hawthorne Boulevard were also down 25% to 30%. The significant decrease in volume in the locations measured is not likely in response to the safety project.

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report



## ACTIVE TRANSPORTATION IMPROVEMENTS

### Crossing distances

[PedPDX](#), Portland’s citywide pedestrian plan, recommends marked pedestrian crossings every 530 feet inside pedestrian districts, and every 800 feet outside of pedestrian districts. SE Hawthorne Boulevard east of 30th Avenue is in a pedestrian district. Between SE 20th and 30th avenues, Hawthorne Boulevard is not in a pedestrian district.

Crossing gaps can be identified by finding segments between crossings that don’t meet guidelines, as shown on [PBOT’s PedPDX online map](#). They can also be identified by finding areas that are more than half the guideline distance from the nearest crossing.

After ten new crossings were built on this one-and-a-half mile stretch, an additional half-mile of SE Hawthorne Boulevard meets the crossing spacing guidelines.

**Percent of SE Hawthorne Blvd (20th-50th Ave) within desired distance of nearest crossing**

Before	After
66%	95%

**Percent of SE Hawthorne Blvd (20th-50th Ave) meeting PedPDX crossing spacing guidelines**

Before	After
32%	83%

### Bicycle Infrastructure

The SE Hawthorne and Madison Multimodal Improvements projects made significant upgrades to the bicycle infrastructure.

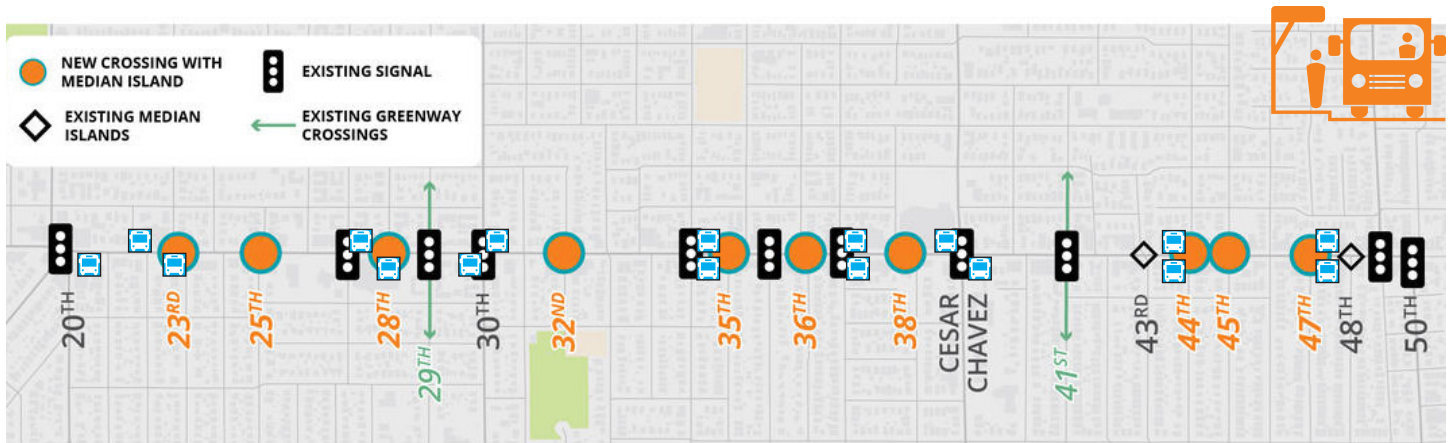
Before the project, people biking had a striped bike lane running along the door zone of parked vehicles. The project upgraded the infrastructure to a **parking protected bike lane, with bike signals to avoid right-hook conflicts, and a transit platform to avoid bus incursion into the bike lane.**

The upgrade brings the bike lane into alignment with the National Association of City Transportation Officials (NACTO) [Contextual Guidance for Selecting All Ages & Abilities Bikeways](#).



*Transit platform at SE Hawthorne Boulevard and 6th Avenue*

# SE HAWTHORNE BOULEVARD PROJECTS | Evaluation Report



## Shared Micromobility Ridership

BIKETOWN and e-scooter ridership increased significantly on SE Hawthorne Boulevard between 23rd and 38th avenues. The increases are similar to those seen on other similar streets.

PBOT has limited access to volumes of people walking or biking. However, PBOT staff has detailed data of where people were riding BIKETOWN e-bikes (Portland’s bike-share system) and shared e-scooters. Data is aggregated to street segments using the Ride Report data tool.

PBOT staff looked at all trips between June 1st and September 30th in 2021 and 2022. Staff recorded trip volumes at equal spacing at SE 23rd, 28th, 33rd, and 38th avenues and averaged across the corridor. The analysis includes volumes on SE Belmont and Division streets as a comparison to account for other factors that impact ridership.

### Ridership change

Mode	Hawthorne	Belmont	Division
<b>BIKETOWN</b>	+9.4%	+19.8%	+19.9%
<b>E-scooters</b>	+50%	+50.3%	+38.4%
<b>Combined</b>	+25.2%	+34.8%	+26.9%

*Note: PBOT staff did not analyze Ride Report data for the segment between SE Grand and 12th avenues because they could not establish a proper comparison segment.*

## Transit Access Guidelines

PedPDX, Portland’s citywide pedestrian plan, recommends that all transit stops have a crossing within 100 feet.

There are 17 bus stops on SE Hawthorne Boulevard between 20th and 50th avenues. Before the project, only 10 of those stations had a crossing within 100 feet. **After the new crossings were built, 16 of the 17 bus stops are within 100 feet of a crossing.**

### Percent of transit stops that meet crossing spacing guidelines

Before	After
59%	94%



## CONCLUSIONS

The findings in this report point to a safer and more accessible SE Hawthorne Boulevard. Vehicle speeds, especially top-end speeding, have significantly decreased. Accessibility, comfort, and safety has improved for everyone, especially pedestrians, people biking, and people taking transit. Meanwhile transit travel time improved, and travel time increases for people driving were relatively small and in-line with expected travel time increases when driving speed is reduced.

## NEXT STEPS

### *Crash Evaluation*

The Oregon Department of Transportation (ODOT) releases full crash data in calendar year batches with a two-year delay. At the time of writing this report, PBOT staff do not have access to post-project crash data. This report will be updated in 2024, 2026, and 2028 to evaluate crash impacts once the data is published.

### *Further Improvements and Modifications*

PBOT is working with TriMet to evaluate the transit performance of the bus lines serving the project area. Based on field observations, conversations with bus operators, and evaluation of the TriMet before and after transit performance data, staff concluded that further modifications could improve transit performance.

PBOT, TriMet, and Metro are partnering to fund these improvements. Installation is anticipated to be complete in 2024.

Proposed modifications:

1. Provide a bus signal queue jump and extended the BAT lane on SE Hawthorne Boulevard at 11th Avenue. This will help buses merge back into traffic and reduce transit delay during congested times. This involves installing an additional signal indication at the intersection of SE 11th Avenue and Hawthorne Boulevard. The signal will provide bus operators exclusive time at the intersection before and after the eastbound through movement.
2. Apply Next Generation Transit Signal Priority (TSP) in the SE Hawthorne and Madison couplet between SE Grand and 12th avenues.

In addition, PBOT plans to replace temporary rubber modular platforms (made by Zicla) at SE 6th and SE 12th avenues with permanent concrete platforms. The timeline is still to be determined. This will occur once final stop locations and street design are firm and funding is identified.



*Parking protected bike lane and bus only Rose Lane on SE Hawthorne Boulevard at 7th Avenue .*

## Questions?

### Evaluation Contact

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