



Washington Avenue Repaving & Transportation Safety Project

Year 1 Project Evaluation Study Results

Summary Slides

OFFICE OF 
TRANSPORTATION,
INFRASTRUCTURE
& SUSTAINABILITY



Agenda

01 | Study methodology

02 | Key findings & takeaways

03 | Summary & Next steps



01

Study Methodology





Why did we perform this analysis?

- **The Washington Avenue repaving and Transportation Safety project was enabled by City Council legislation**, which requires that OTIS complete comprehensive project evaluation studies at the 1-year and 2-year marks following implementation.¹
- **The City of Philadelphia is committed to data-driven evaluation.** This report will help us understand ways in which the project has impacted people walking, driving, taking transit, and riding bicycles on Washington Avenue and then share that information with residents.
- **The City of Philadelphia is committed to accountability and government that citizens can see, touch, and feel.** This report will help us determine how well the project accomplished the goals and objectives discussed with residents and businesses during community engagement from 2019 to 2022.

1. Project before and after analysis is standard practice for OTIS projects but the data collection and analysis for this Year 1 evaluation is more extensive and detailed than a typical evaluation.



What were our metrics for success?

1. **Increase daytime parking capacity** between Broad Street and 4th Street through updated parking regulations and consistent enforcement.
2. **Facilitate loading** between Broad Street and 4th Street by installing new loading zones based identified curbside and business need.
3. **Discourage illegal parking behaviors** between Broad Street and 4th Street by increasing available legal parking during the day and making illegal parking behavior less convenient and attractive.
4. **Calm traffic and reduce speeding** between Grays Ferry Avenue and 4th Street by installing traffic calming measures along the corridor.
5. **Avoid operational impacts to traffic and transit** between Broad Street and 4th Street, where new parking and loading regulations and a reduced lane configuration were implemented.
6. **Increase safety for people walking, driving, and riding bikes** on Washington Avenue using complete streets measures including speed cushions, painted bus boarding islands, and parking-separated bike lanes.



What data did we use for our evaluation?

- Parking and loading **occupancy** rate (*Broad Street to 4th Street*)
- Parking and loading **duration** (*Broad Street to 4th Street*)
- Parking and loading **turnover** (*Broad Street to 4th Street*)
- Instances and types of **illegal parking** (*Broad Street to 4th Street*)
- Vehicle **speeds** and **travel times** (*Grays Ferry Avenue to 4th Street & parallel routes*)
- **Route 64** speeds and travel times (*Grays Ferry Avenue to 4th Street*)
- **Bicycle volumes** (*Grays Ferry Avenue to 4th Street*)
- Vehicle **queue length and storage capacity** (*at lane drop locations*)
- Vehicle and bicycle **interactions at driveways** (*11th Street to 4th Street only*)



What about crash data?

We need at least one year of crash data to perform a meaningful crash analysis for any project. Even then, standard best practice is to use at least three years of data to avoid issues related to small data sets.

Construction on Washington Avenue was completed on March 1st, 2023. As of today, PennDOT crash data is only available through December 31st, 2022.

We plan to release 3-year and 5-year before and after crash analysis when sufficient data is available to do so.

Note: There was one KSI crash on Washington Avenue in September 2023. The crash occurred overnight, when a pedestrian crossing Washington Avenue near 20th Street was struck by two vehicles, both of which fled the scene. This is the only post-project KSI crash of which we are aware at the time of this writing. OTIS is aware of another crash at 20th and Washington on 1/25/2024 but, to the best of our knowledge, this crash did not result in any fatalities or serious injuries.



02

Key Findings & Takeaways



How did we do?

GOAL	OUTCOME
Increase daytime parking capacity between 4th Street and Broad Street.	POSITIVE 
Facilitate loading between Broad Street and 4th Street.	POSITIVE / MIXED 
Reduce instances of illegal parking between 4 th Street and Broad Street.	POSITIVE / MIXED 
Reduce speeding between Grays Ferry Avenue and 4 th Street using traffic calming measures.	MIXED 
Avoid operational impacts to traffic and transit between 4 th Street and Broad Street.	POSITIVE 
Increase safety for people walking, driving, and riding bikes on Washington Avenue.*	POSITIVE 

Note: Because a comprehensive safety analysis requires 3 years of crash data, this report primarily looks at bicycle volumes as a proxy for bicycle safety, and interactions between bicycles and motor vehicles at driveways between 11th Street and 4th Street. Additional safety analysis will be performed when 3- and 5-years of post-installation data is available.



Increase daytime parking & loading capacity (Broad to 4th)

There is more daytime parking and loading capacity now than there was before the project, and additional enforcement could free up even more.

- Average parking occupancy is now between 55% and 70% (was over 90% in 2017).
- Average parking duration is now 3.3 hours (was 7.3 hours in 2017). This is an improvement, but many cars are overstaying the time limit in regulated spots, especially 2-hour spots.
- Average parking turnover rate is 2.4 cars per day (was 1.8 in 2017).
- There are now loading zones on 9 blocks between Broad Street and 4th Street (was 2 blocks in 2017).
- Average loading zone duration is now 2.2 hours (was as high as 10.5 hours in 2017). This is a significant improvement but remains higher than the posted regulations allow.



Increase daytime parking & loading capacity (Broad to 4th)

Average parking occupancy rates are much lower today than before the regulations were installed.

A high occupancy rate means that there is very little available parking, so **the project aimed to reduce average daytime parking occupancy rates to free up daytime parking** for people visiting the corridor's diverse businesses while preserving overnight parking for neighbors.



Before: average occupancy was 90% or higher.

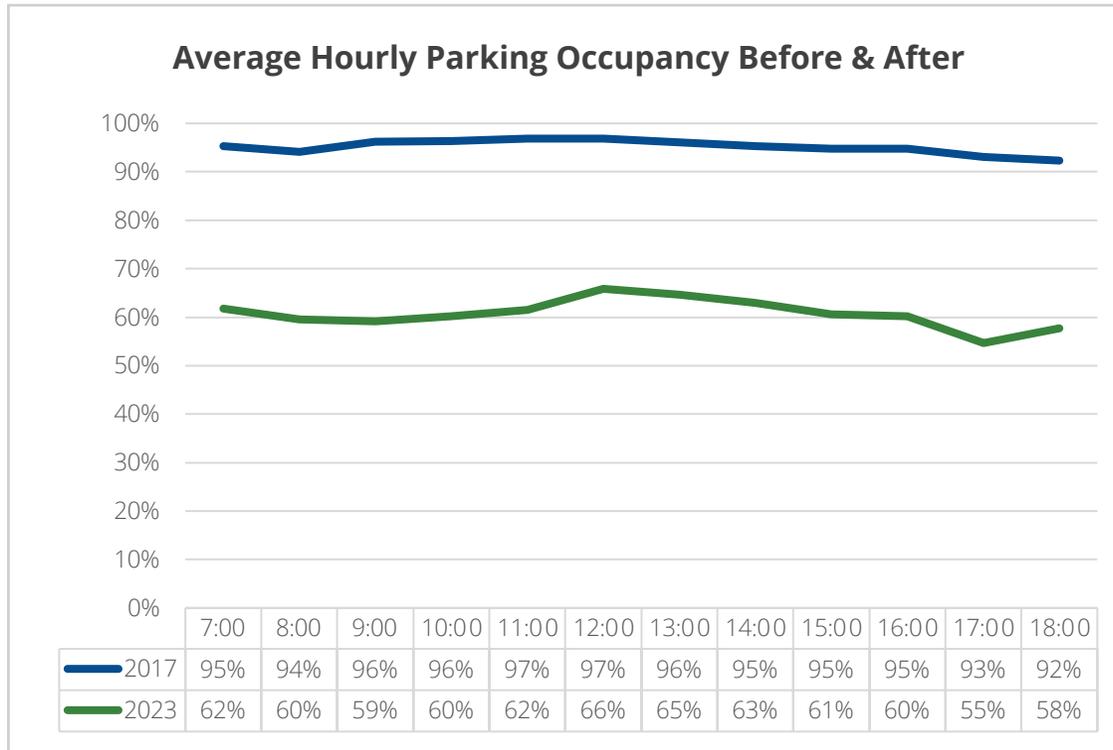


After: average occupancy is 70% or lower.



Increase daytime parking & loading capacity (Broad to 4th)

Average parking occupancy rates are much lower today than before the regulations were installed.



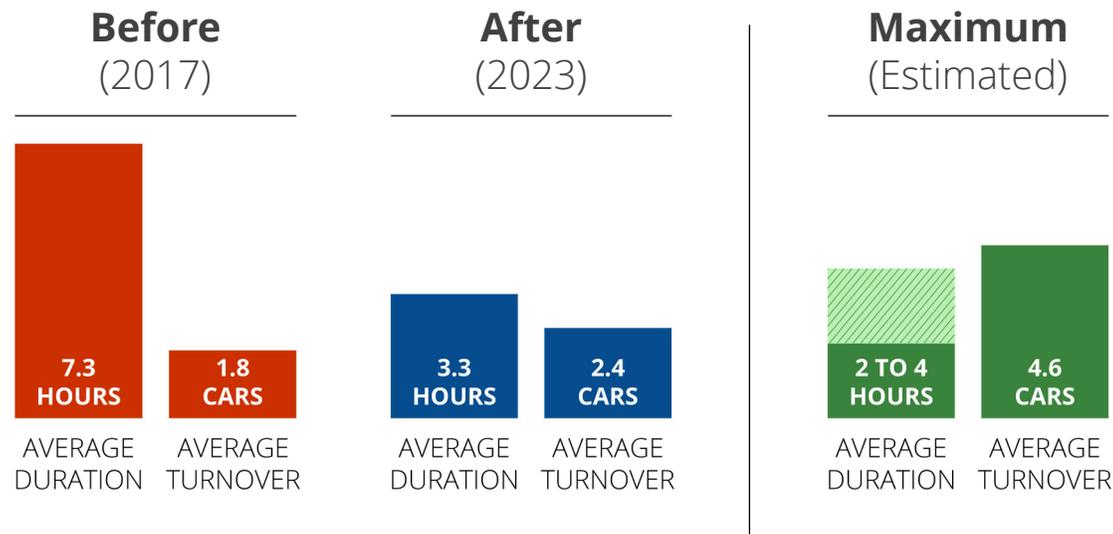
In 2017, the average parking occupancy rate **exceeded 90%** during every hour of observation on every day of data collection.

In 2023, the average parking occupancy rate **remained between 55% and 70%** during every hour of observation on every day of data collection.

Increase daytime parking & loading capacity (Broad to 4th)

There is more available daytime parking capacity now than before the project, and additional enforcement could free up even more parking.

Long parking duration means fewer cars can park in each spot over the course of a day, so the project also aimed to reduce average daytime parking duration to increase the number of cars that can park in each available spot.



Parking duration is significantly lower, now. Average turnover is higher but remains relatively low.

Observations during data collection suggest that many vehicles are parking beyond the posted time limits, especially in 2-hour parking zones, which likely contributes to turnover rates below the estimated maximum.

Recommended action(s): *Consider coordinating increased enforcement with PPA if desired.*



Increase daytime parking & loading capacity (Broad to 4th)

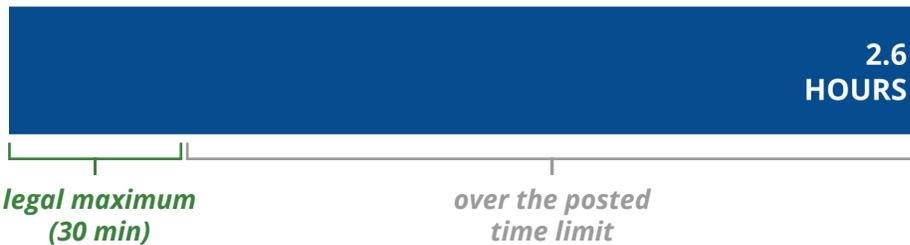
There are more daytime loading zone spots available now than there were before the project, and additional enforcement could further optimize loading.

Before the repaving and transportation safety project, **there were only loading zones on two of the ten blocks** between Broad Street and 4th Street. **Now, there are loading zones on nine of those ten blocks.**

In 2017, average loading zone duration was as high as 10.5 hours:



In 2023, average loading zone duration was 2.6 hours:



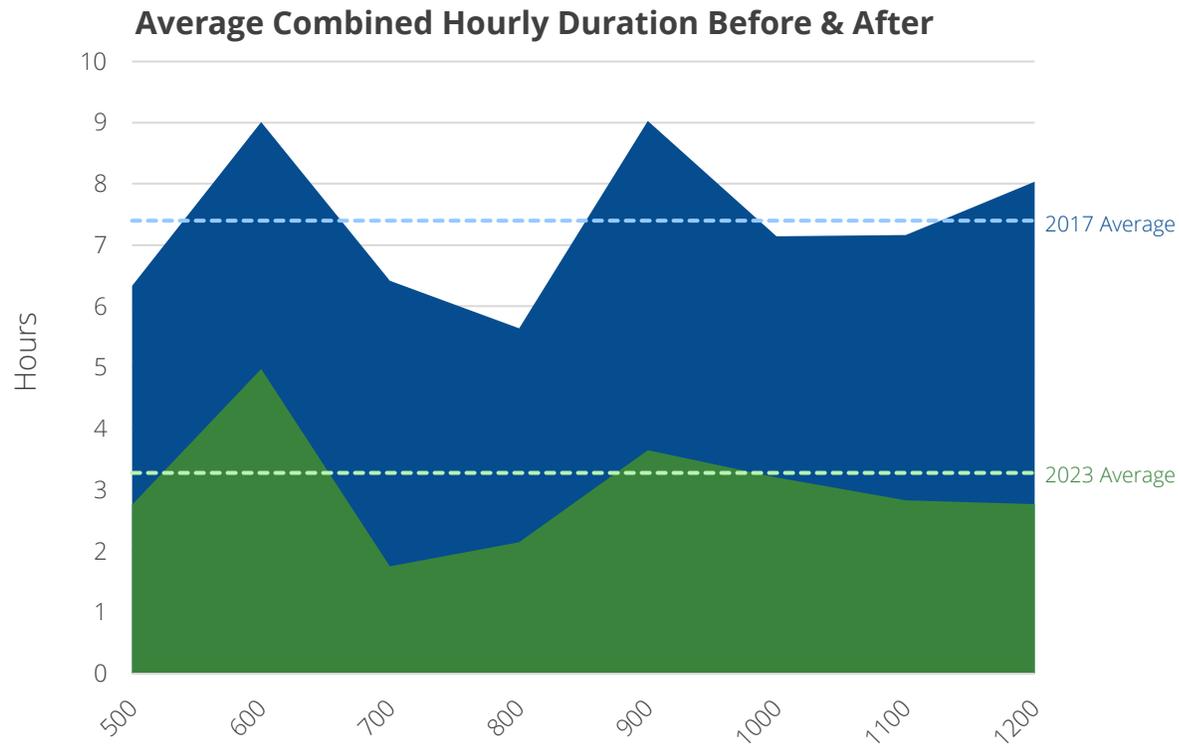
Duration is significantly lower, now, but remains higher than the posted regulations allow. Many loading zones are not being used as intended and/or regulations are not well enforced.

Recommended action(s): *Consider coordinating increased enforcement with PPA if desired.*



Increase daytime parking & loading capacity (Broad to 4th)

Overall, average occupancy and duration for parking and loading are lower between Broad Street and 4th Street, in line with project goals and expectations.



In 2017, the average duration for parking and loading averaged 7.4 hours.

In 2023, the average duration for parking and loading averaged 3.28 hours.

This represents a significant increase in overall daytime parking and loading availability on Washington between Broad Street and 4th Street.

Note: Complete occupancy and duration data for the 400 and 1300 blocks was not collected in 2017, so those blocks are not included in this chart. The average hourly duration for 2023 includes data from the 300 and 1300 blocks, which had individual average durations of 4.09 hours and 3.33 hours, respectively.

Reduce instances of illegal parking (Broad to 4th)

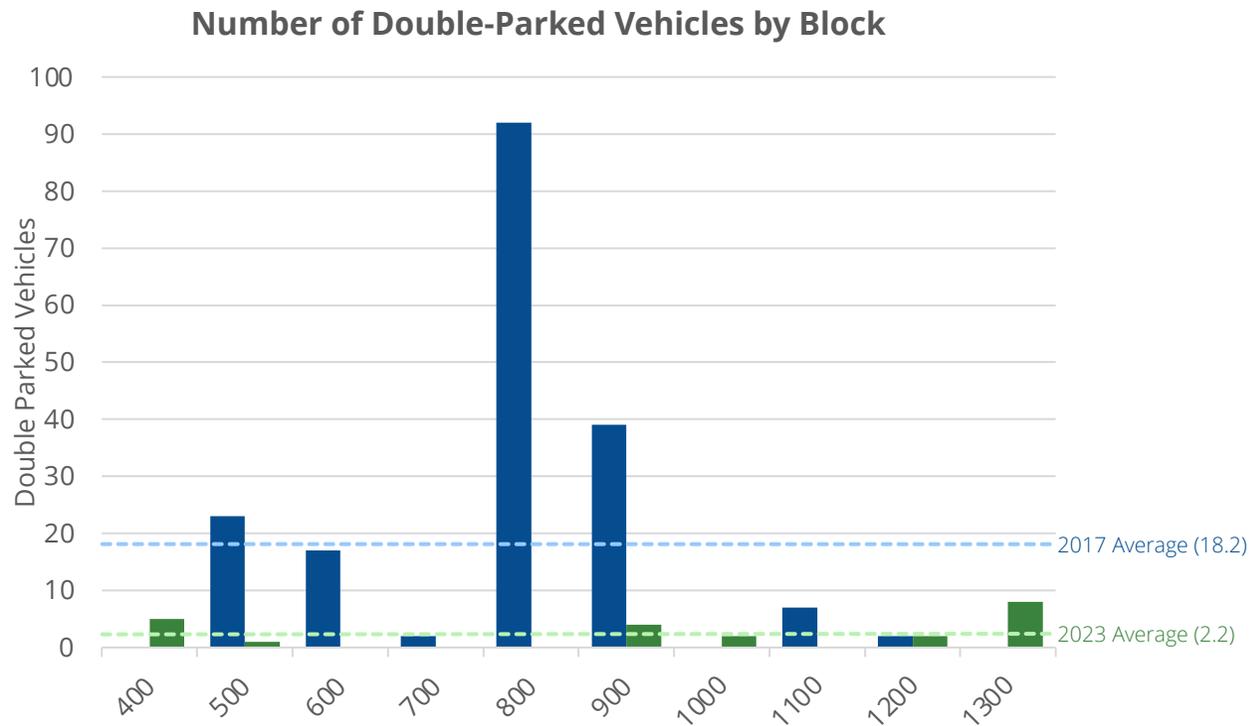
Illegal parking has decreased significantly on Washington Avenue from Grays Ferry Avenue to 4th Street, but there is room for improvement.

- **On average, instances of double parking have decreased significantly** between Broad Street and 4th Street (22 instances observed during 2023 data collection, compared to 182 instances observed during 2017 data collection).
- **On average, instances of median parking have decreased significantly** between Broad Street and 4th Street (65 instances observed during 2023 data collection, compared to 259 instances observed during 2017 data collection).
- **Sidewalk Parking remains an issue between Broad Street and 4th Street** (183 instances observed during 2023 data collection, compared to 101 instances observed during 2017 data collection). Anecdotally, this is consistent with citywide trends but remains a significant challenge to address on Washington Avenue.

Recommended action(s): *Work with businesses to identify a solution, consider increased PPA enforcement in the future if deemed necessary.*

Reduce instances of illegal parking (Broad to 4th)

On average, instances of double parking have decreased significantly between Broad Street and 4th Street.



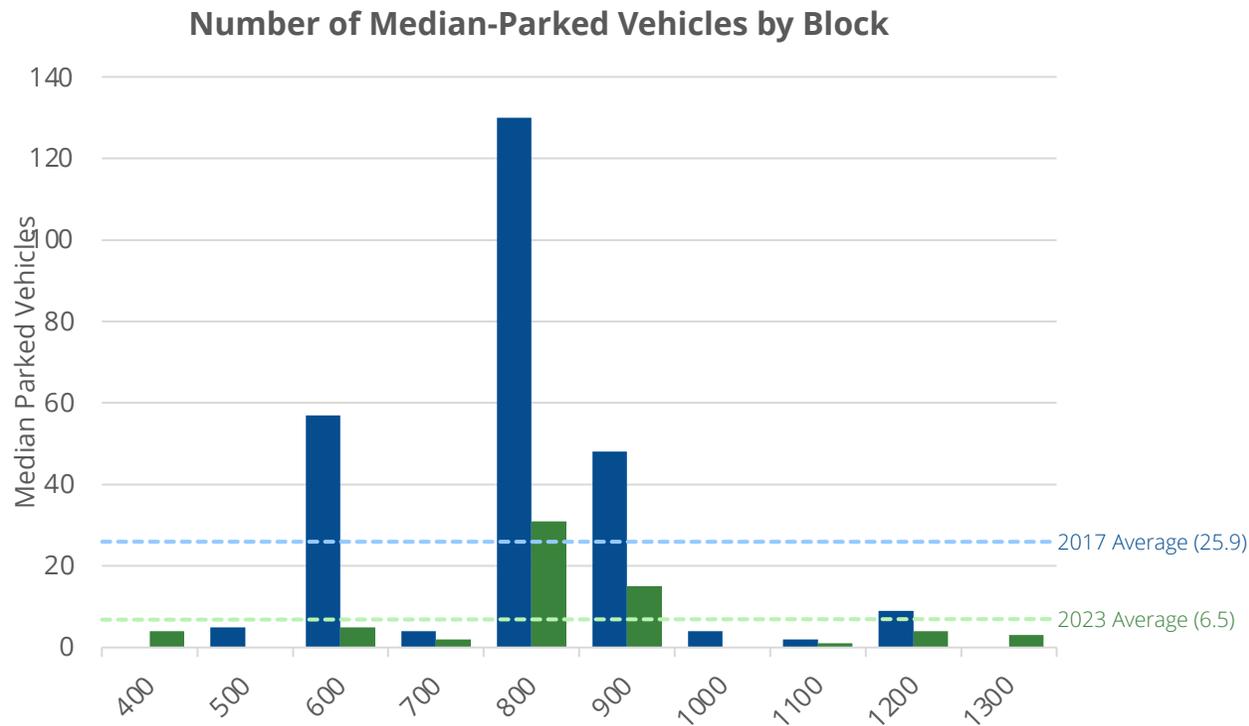
On average, instances of double parking have decreased significantly between 4th Street and Broad Street.

Observed instances of double parking decreased by 87.9% from 2017 (before the project) and 2023 (after the project).

Increased double parking on the 800 and 900 block is primarily related to loading for the Italian Market and nearby construction.

Reduce instances of illegal parking (Broad to 4th)

On average, instances of median parking have decreased significantly between Broad Street and 4th Street.



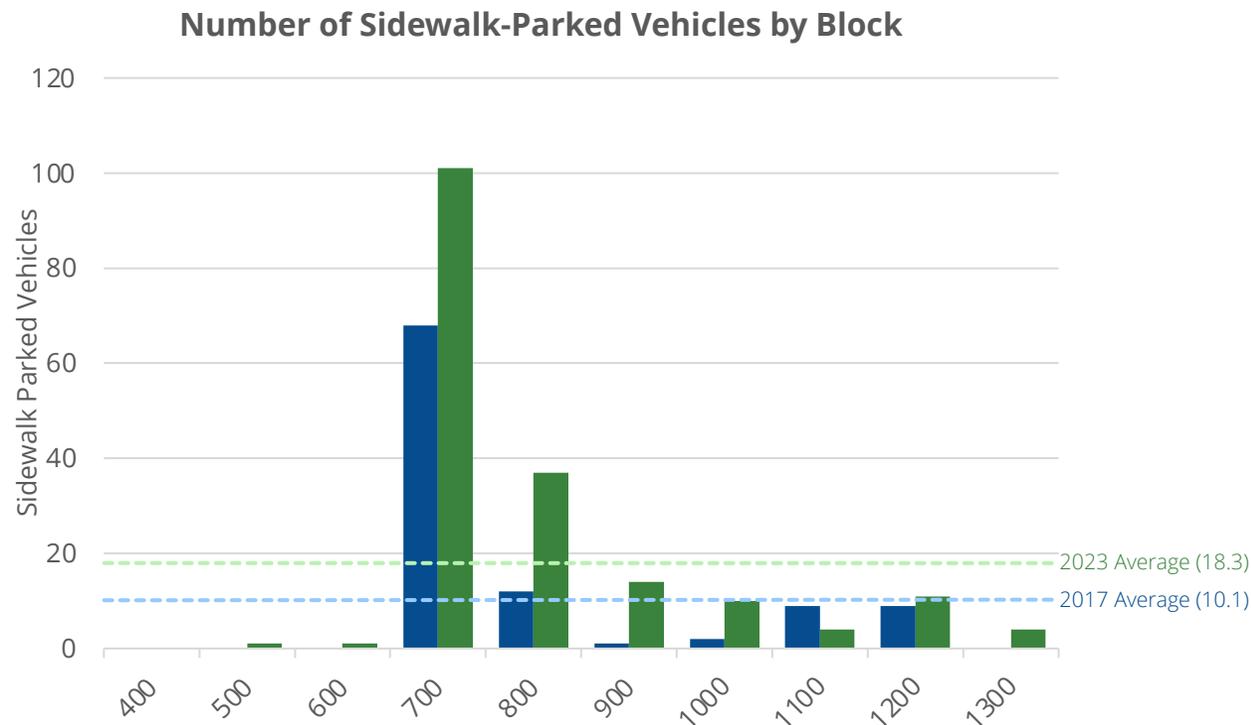
On average, instances of median parking have decreased significantly between 4th Street and Broad Street.

Observed instances of median parking decreased by 74.9% from 2017 (before the project) and 2023 (after the project).

Increased double parking on the 800 and 900 block is primarily related to loading for the Italian Market. On the 600 block, it is primarily related to shopping plaza traffic.

Reduce instances of illegal parking (Broad to 4th)

Sidewalk parking remains a persistent issue on Washington Avenue between Broad Street and 4th Street, especially on specific blocks.



Sidewalk Parking remains an issue since project implementation.

Observed instances of sidewalk parking increased by 81% from 2017 (before the project) to 2023 (after the project).

The largest increases in sidewalk parking were concentrated on the 700, 800, and 900 blocks, and instances generally corresponded with the operating hours of auto and construction-related businesses at those locations.

Recommended action(s): *Work with businesses to identify a solution; consider increased PPA enforcement in the future if deemed necessary.*



Reduce speeding on Washington Avenue (Grays Ferry to 4th)

Average top speeds and the percent of vehicles speeding went down across the corridor but speeding increased in some locations at off-peak times.

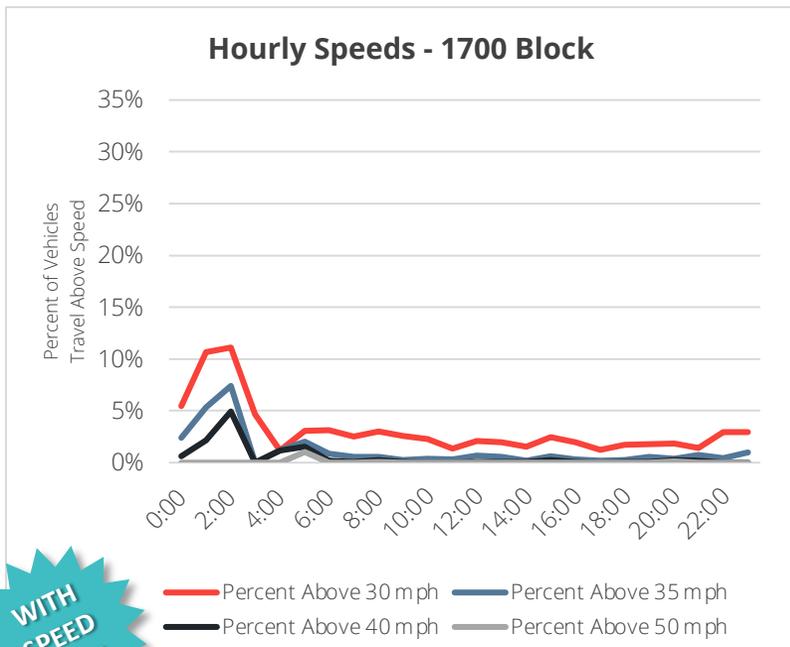
- Preliminary radar study results indicate that 85% percentile speeds and the percent of vehicles driving above the speed limit decreased both east and west of Broad Street.
- The traffic calming effects of the lane reduction between 11th Street and 4th Street may be offset by the overall lower volumes and the new 90-second signal phasing, resulting in higher off-peak speeds observed the 400 and 500 blocks.²

Recommended action(s): *Adjust signal timing between 5th Street and Front Street, evaluate the impacts, and further adjust as needed. If signal timing changes to not adequately address the issue, consider installing additional speed slots east of 9th street.*

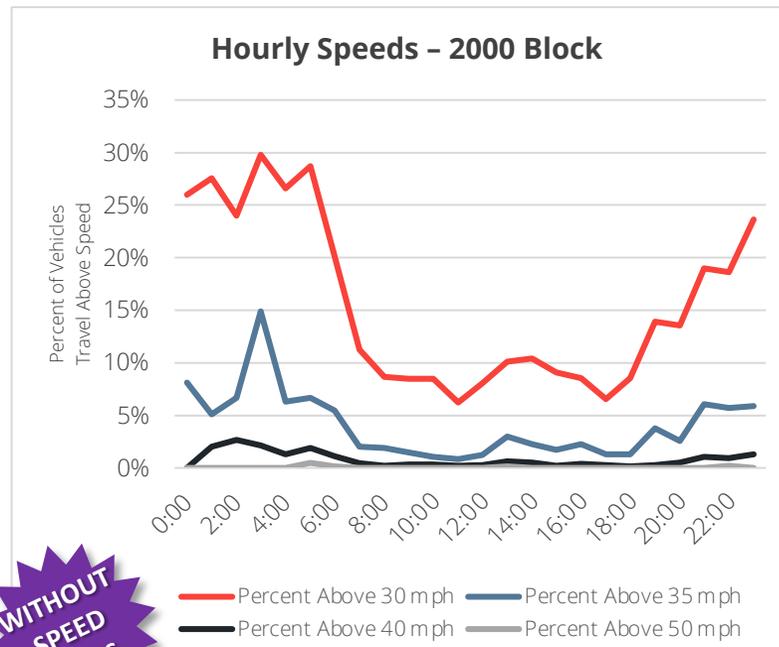
2. Citywide and National data reflects a general increase in speeding and dangerous driving since the pandemic, which may play a part in these findings.

Reduce speeding on Washington Avenue (Grays Ferry to 4th)

Speed slots effectively reduce the percent of cars travelling above the speed limit on blocks where they are installed and over 75% people driving are using them properly.



WITH SPEED SLOTS



WITHOUT SPEED SLOTS

Speed slots were installed on the 1000, 1100, 1700, and 1800 blocks of Washington Avenue.

Fewer drivers are exceeding the posted speed limit than they were before the project on these blocks, and fewer people are exceeding the posted speed limit on these blocks compared to blocks without speed slots.



Avoid operational impacts to traffic and transit (Broad to 4th)

The lane reduction between 11th Street and 4th Street has not had significant adverse operational impacts on travel time, vehicle queuing, or transit operations.

- There has been no statistically significant increase in travel time on Washington Avenue between Grays ferry Avenue and 15th Street or between 13th Street and 4th Street.
- The two statistically significant increases found when Washington Avenue is evaluated in its entirety are due primarily to signal changes at Broad and Washington, which were implemented independent of this project.
- During the weekday PM peak, travel times on Christian Street increased for eastbound traffic but decreased for westbound traffic.
- There have been no changes to travel time on Ellsworth Street.
- The project had a neutral impact on transit travel times and, in the context of a broad increase in ridership, may have had a positive impact.
- Vehicles queues are not exceeding available storage or backing up to adjacent signals.

Avoid operational impacts to traffic and transit (Broad to 4th)

When the corridor is analyzed in two segments excluding 15th Street to 13th Street, there is no statistically significant change to the travel time.

Travel Time Comparisons (13th Street to 4th Street)

Road	Direction	Peak Period	Pre-Install Travel Time	Post-Install Travel Time	Net Change
Washington Avenue	Eastbound	AM	3.54	3.92	+ 0.30 min
		PM	5.00	5.30	+ 0.38 min
		SAT	5.5	5.18	- 0.32 min
	Westbound	AM	3.29	4.21	+ 0.91 min
		PM	3.26	3.78	+ 0.53 min
		SAT	3.31	4.13	+ 0.82 min

Travel Time Comparisons (Grays Ferry Avenue to 15th Street)

Road	Direction	Peak Period	Pre-Install Travel Time	Post-Install Travel Time	Net Change
Washington Avenue	Eastbound	AM	4.06	4.51	+ 0.45 min
		PM	3.91	4.31	+ 0.40 min
		SAT	4.56	3.93	+ -0.63 min
	Westbound	AM	4.65	4.59	+ 0.06 min
		PM	4.64	4.06	- 0.57 min
		SAT	3.88	4.46	+0.58 min

The two statistically significant changes found when Washington Avenue is evaluated in its entirety are due primarily to signal changes at Broad and Washington, which were implemented independent of this project.

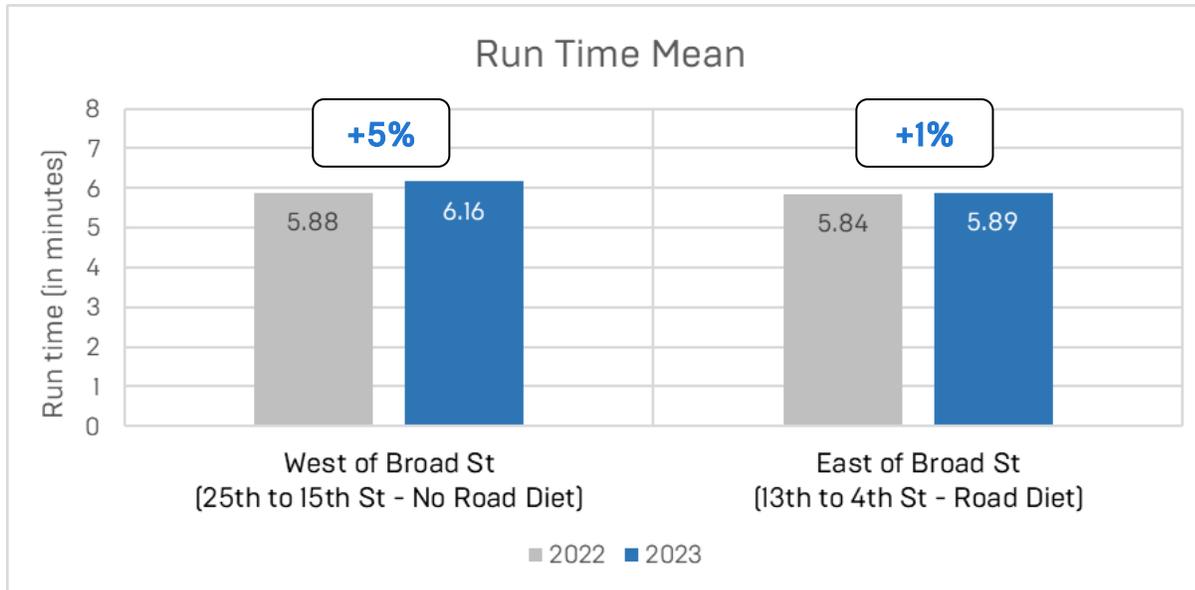
Travel Time Comparisons (Grays Ferry Avenue to 4th Street)

Road	Direction	Peak Period	Pre-Install Travel Time	Post-Install Travel Time	Net Change
Washington Avenue	Eastbound	AM	8.6	9.47	+ 0.87 min
		PM	9.48	11.42	+ 1.94 min*
		SAT	9.96	9.1	- 0.86 min
	Westbound	AM	8.59	9.4	+ 0.81 min
		PM	8.62	9.21	+ 0.59 min
		SAT	8.03	10.45	+ 2.42 min*

*Statistically significant result.

Avoid operational impacts to traffic and transit (Broad to 4th)

The lane reduction between 11th Street and 4th Street has not had adverse operational impacts on vehicle queuing or transit operations.



The project had **a neutral impact on transit travel times** and, in the context of a broad increase in bus ridership between 2022 and 2023, may have had a positive impact.

Vehicles queues are not exceeding available storage or backing up to adjacent signals.

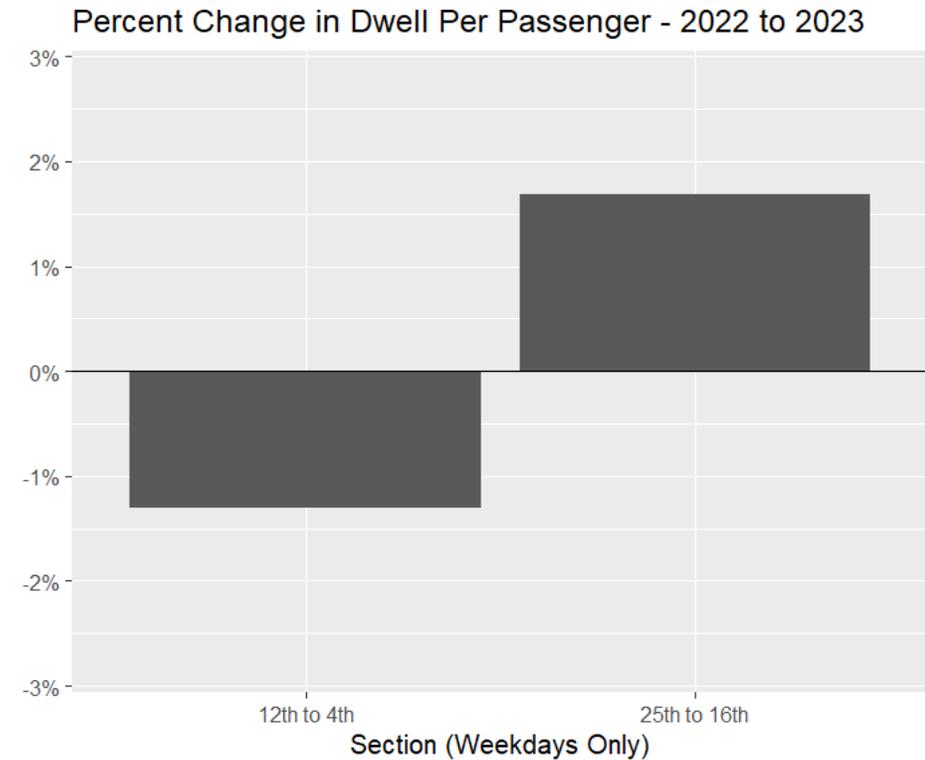


Avoid operational impacts to traffic and transit (Broad to 4th)

The lane reduction between 11th Street and 4th Street has not had adverse operational impacts on vehicle queuing or transit operations.

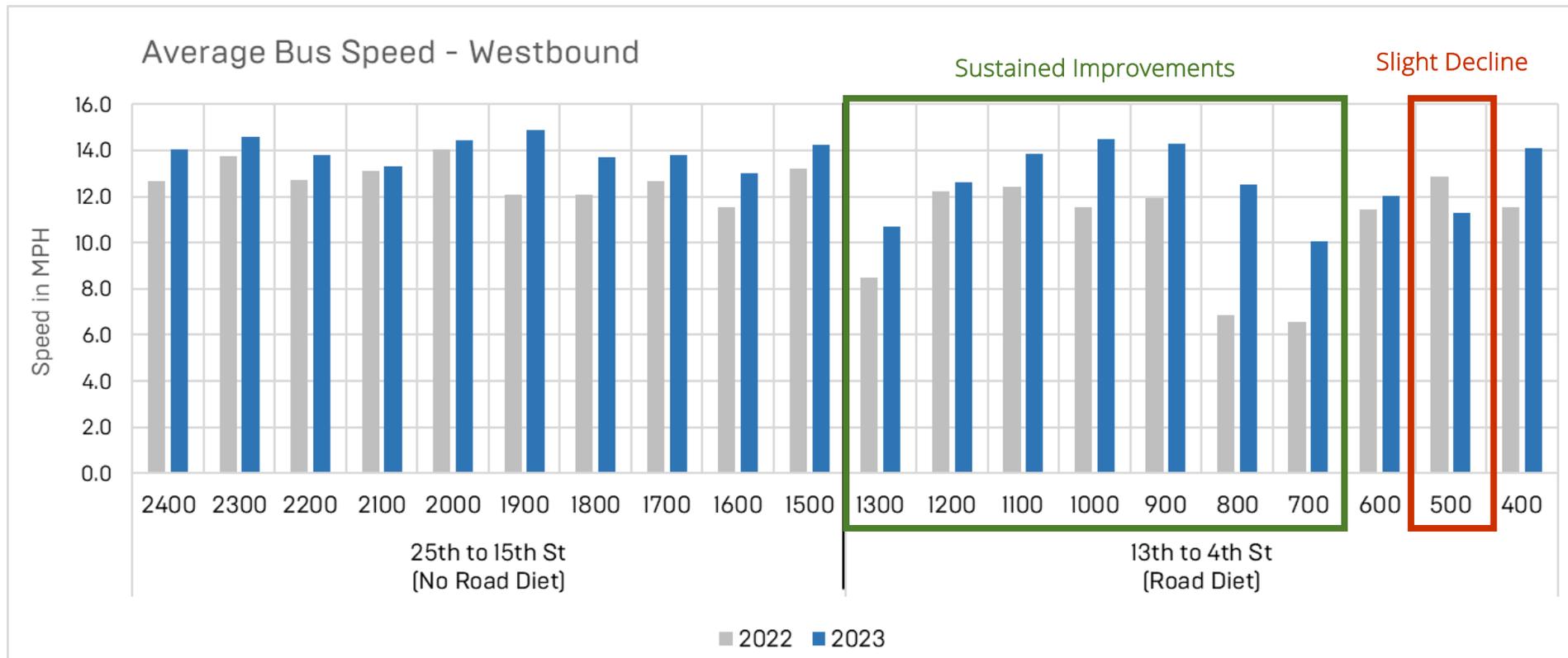
On a per-passenger basis, dwell time decreased at bus stops with interim painted bus boarding islands.

Note: Dwell time calculations excluded all observations with dwell times exceeding 2 minutes and instances where dwell was observed but no passengers were counted. Passenger activity is defined as boards and alights counted during the observed stop.



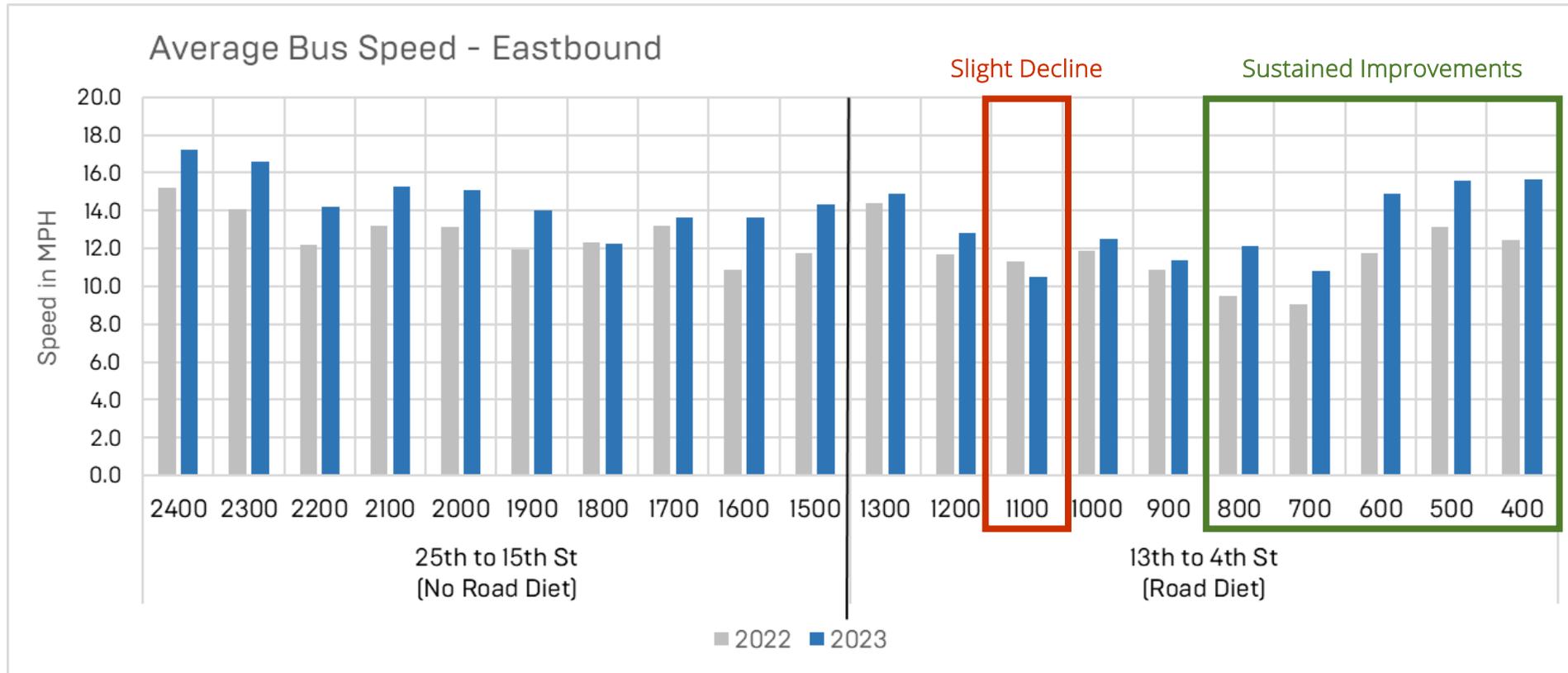
Avoid operational impacts to traffic and transit (Broad to 4th)

The lane reduction between 11th Street and 4th Street has not had adverse operational impacts on vehicle queuing or transit operations.



Avoid operational impacts to traffic and transit (Broad to 4th)

The lane reduction between 11th Street and 4th Street has not had adverse operational impacts on vehicle queuing or transit operations.



Increase safety for people riding bikes (11th to 4th)

More people are riding bikes on Washington Avenue overall, especially where there are new parking-separated bicycle facilities.



Above: A person riding a bicycle on Washington Avenue at 11th Street, using the new parking-separated bicycle facility

Overall bike volumes increased between 62% and 101% between Grays Ferry Avenue and 4th Street.

Peak hour bike volumes increased by up to 181% on blocks with protected bike lanes.

Observation of bike/car interactions at driveways indicates that sight lines are adequate, and users are generally engaging in appropriate yielding behavior.

Recommended action(s): *None currently.*

Note: Because a comprehensive safety analysis requires 3 years of crash data, this report primarily looks at bicycle volumes as a proxy for bicycle safety, and interactions between bicycles and motor vehicles at driveways between 11th Street and 4th Street. Additional safety analysis will be performed when 3- and 5-years of post-installation data is available.

Increase safety for people riding bikes (11th to 4th)

More people are riding bikes on Washington Avenue overall, especially where there are new parking-separated bicycle facilities.

Figure 38 - Washington Avenue Bicycle Volumes (AM Peak Hour)

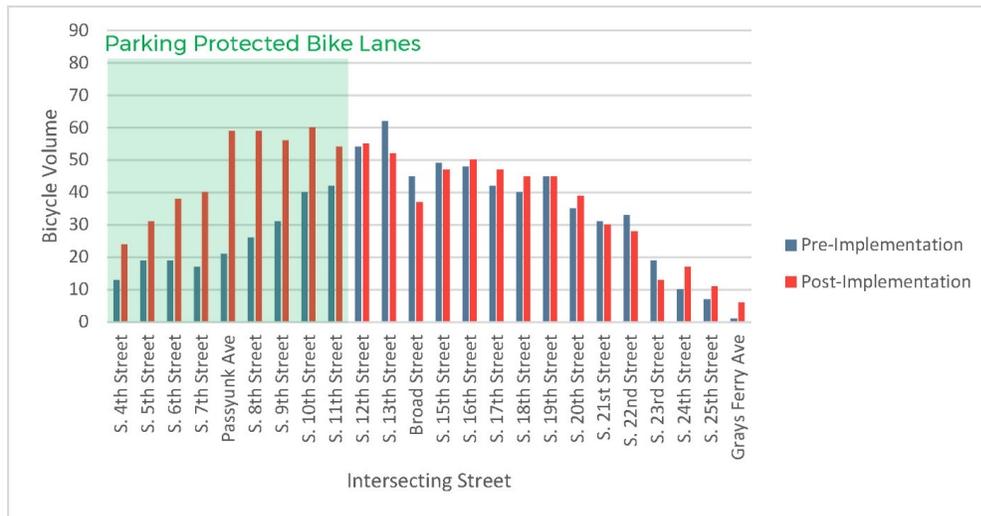
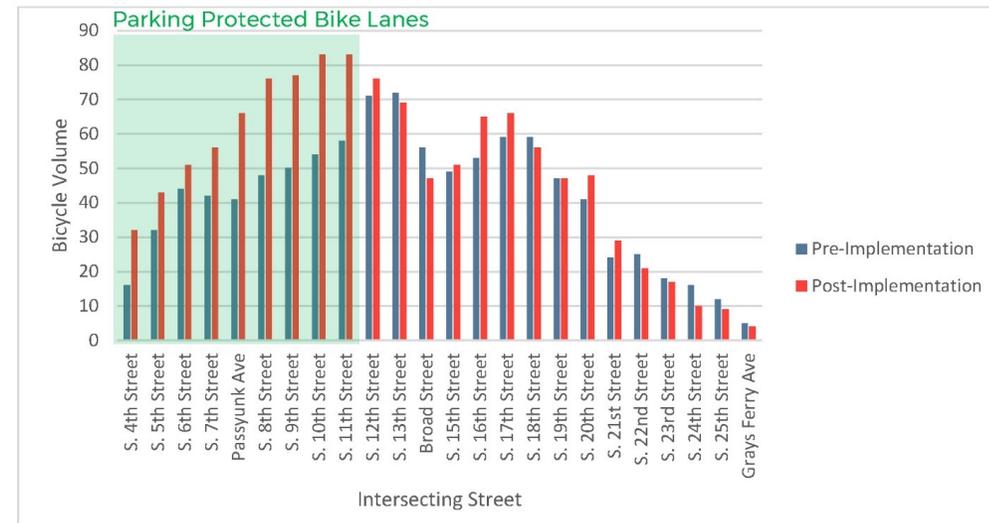


Figure 39 - Washington Avenue Bicycle Volumes (PM Peak Hour)





03

Summary & Next Steps



How did we do?

GOAL	OUTCOME
Increase daytime parking capacity between 4th Street and Broad Street.	POSITIVE 
Facilitate loading between Broad Street and 4th Street.	POSITIVE / MIXED 
Reduce instances of illegal parking between 4 th Street and Broad Street.	POSITIVE / MIXED 
Reduce speeding between Grays Ferry Avenue and 4 th Street using traffic calming measures.	MIXED 
Avoid operational impacts to traffic and transit between 4 th Street and Broad Street.	POSITIVE 
Increase safety for people walking, driving, and riding bikes on Washington Avenue.*	POSITIVE 

Note: Because a comprehensive safety analysis requires 3 years of crash data, this report primarily looks at bicycle volumes as a proxy for bicycle safety, and interactions between bicycles and motor vehicles at driveways between 11th Street and 4th Street. Additional safety analysis will be performed when 3- and 5-years of post-installation data is available.



Recommended actions from the Year 1 evaluation:

- **Increase available daytime parking and loading (Broad to 4th):** Consider coordinating increased enforcement to reduce longer-than-desired parking durations and encourage appropriate loading zone use.
- **Reduce instances of illegal parking (Broad to 4th):** Work with businesses to identify a solution, consider increased PPA enforcement in the future if deemed necessary.
- **Reduce speeding on Washington Avenue (Grays Ferry to 4th):** Adjust signal timing between 5th Street and Front Street, evaluate the impacts, and further adjust as needed. If signal timing changes to not adequately address the issue, consider installing additional speed slots east of 9th street.

Next Steps

Within 30 days

- Continue implementing recommendations to achieve project goals.
- Identify community stakeholders for additional follow-up engagement.

Within 6 months

- Present the results of the study to community stakeholders to discuss next steps and solicit additional specific project feedback.
- Begin engineering and design for the Washington Avenue Bus Island project.

Within 1 Year

- Collect additional data for Year 2 Evaluation report
- Continue implementing recommendations to achieve project goals.
- Complete engineering and design for the Washington Avenue Bus island project.

1 Year or more

- Publish Year 2 Evaluation report and accompanying documents.
- Continue implementing recommendations to achieve project goals.
- Complete construction of the Washington Avenue Bus island project.



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