

Chestnut Street Parking and Loading Pilot

Evaluation Report
March 2020



Summary

To reduce congestion and improve bus service on Chestnut Street in Center City, the City of Philadelphia has implemented changes to better manage loading and parking. The City and its partners implemented a six month pilot in August 2019 that altered parking and loading regulations on Chestnut Street between the 600 and 2000 blocks. **The objective was to reduce traffic congestion and improve bus speed and reliability by providing better parking and loading regulations.**

Why Chestnut Street

Chestnut Street is a hub of activity - within its 26-foot cartway, it carries between 5,000 and 10,000 vehicles per day at different segments and over 6,500 transit passengers per day between 22nd Street and 7th Street. Chestnut Street also serves one of the city's busiest commercial corridor's parking and loading needs. Transit speeds have been critically low, with afternoon buses moving slower than walking in many cases.

Findings

- Lane blockages due to illegal parking and loading activity reduced.
- Transit travel times improved significantly, as measured by both 50th and 90th percentile running times for the corridor, sampled in January 2019 (before) and January 2020 (after). Results, however, are impacted by Chestnut Street Bridge closure and demolition work on the 1100 block.
- Parking changes were revenue flat to positive.

Next Steps

- **The City will make the parking and loading pilot permanent** and work with PennDOT, PPA, and SEPTA on additional ways to improve Chestnut Street bus lane operations.

Key Facts

6.5 Thousand
People Per Day Using Transit on
Chestnut Street (22nd to 7th Street)

25 Percent
Improvement in 90th Percentile
Bus Travel Time between 22nd and
Broad Street

9.6 Percent
Reduction in Total Daily Obstruction
of Chestnut Street (Minutes)

Background

To reduce congestion and improve bus service on Chestnut Street in Center City, the City of Philadelphia is working actively to implement changes that will effectively manage demand for freight and passenger loading and unloading. Improving curbside management and improving bus operations on Chestnut Street are deliverables in [CONNECT: Philadelphia's Strategic Transportation Plan](#).

The rapid increase in passenger and freight loading in Philadelphia is increasing curbside demand. Previous rules for the majority of the north-side curb of Chestnut from 20th to 12th Streets were, generally:

- 06:00 a.m. - 10:00 a.m. - loading only
- 10:00 a.m. - 10:00 p.m. - parking only
- 10:00 p.m. - 06:00 a.m. - no regulations

After 10:00 a.m., when parking was permitted, the lack of loading zones caused loading to spill onto travel lanes, leading to congestion and safety problems.

Parking and Loading Pilot

The City of Philadelphia in partnership with DVRPC, SEPTA, and PPA, implemented a six month pilot in August 2019 that altered parking and loading regulations on Chestnut Street between the 600 and 2000 blocks.

This project implemented the following changes:

- All-day 80' passenger and freight loading zones with 20 minute time limits, located on the western end of each block
- All-day handicap parking space moved to the Eastern end of each block to enhance accessibility
- 06:00 a.m. - 02:00 a.m. - 2-hour enforced meter parking on the remainder of the block.

Beyond loading improvements, the strategy also included:

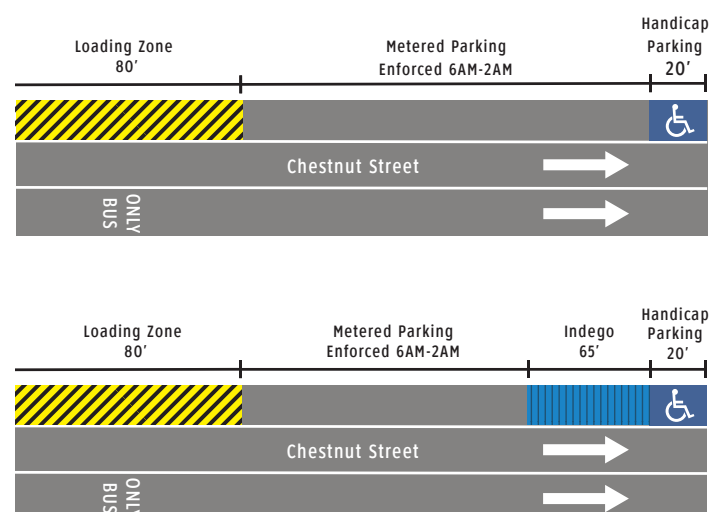
- Motorcycle parking on the 1500 and 1700 blocks;
- New Indego bike-share stations on the 1600 and 1900 blocks; and
- Valet parking on west end of the 1300 block.

Figure 1: Project Limits (20th to 6th Streets)



A bus having to divert into the travel lane due to a truck blocking traffic.

Figure 2: General Street Layout Instituted



Evaluation

Project Goals and Evaluation

- Reduce bus travel times on Chestnut Street, as measured by SEPTA running time data;
- Reduce the blockage of Chestnut Street in the project area, as measure in average daily obstructions and average daily obstruction duration; and
- Maintain or increase parking meter revenue, as measured by PPA parking data.

Lane Obstruction Results

In support of the City of Philadelphia, DVRPC conducted an analysis of the Chestnut Street Loading Pilot. The analysis conducted was collected by video before and after the pilot on the 1500 block of Chestnut Street, known to be the segment most affected by parking and loading activity. The before data was collected from March 20th to March 22nd; after data was collected from November 18th to November 20th.

The results were promising:

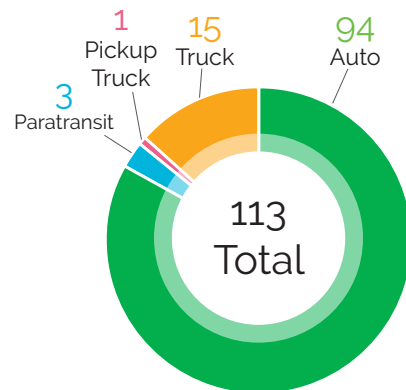
- The average number of daily lane obstruction events decreased slightly.
- The average duration of a lane obstruction decreased by 36 seconds.
- The total daily obstruction duration decreased by 50 minutes (9.6 percent).

Meter Revenue

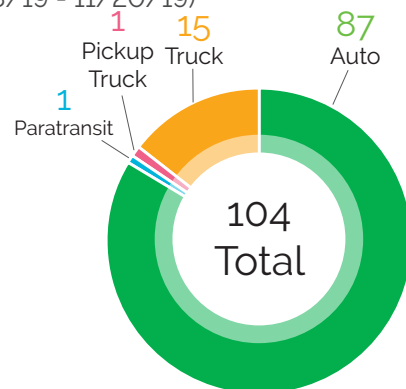
- The Philadelphia Parking Authority compared the meter revenue from Chestnut Street from September to January for both 2019 and 2020.
- **Meter revenue increased by 3.5% for the pilot period**, from \$625,863 before to \$648,382.

Figure 3: Automobiles Are Primary Offender

Average Daily Lane Obstructions*
1500 Block of Chestnut Street
Before (3/20/19 - 3/22/19)



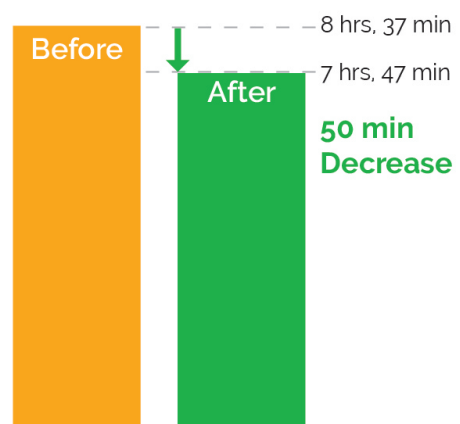
After (11/18/19 - 11/20/19)



*Data has Seasonal Adjustment Factors applied

Figure 4: Lane Obstruction Duration Dropped

Average Daily Lane Obstructions
1500 Block of Chestnut Street



Source: DVRPC, 2020

Transit Data Analysis Methodology

Transit travel time were collected and analyzed during January 2019 and January 2020 on Chestnut St from 22nd to Broad with Walnut as an control to understand how the Chestnut Loading Pilot affected travel time and to see if there has been time improvements since the pilot. The methodology for the study included the following;

- Data from SEPTA of Automated Passenger Count sample of SEPTA routes 21 and 42. Before data collected in January 2019 and after data collected in January 2020.
- Run times were calculated as the amount of time it took to go between the two stops.
- 50th and 90th percentile run times are a standard measure of transit speeds, providing a look at how much time it typically will take the bus and how much time it will take in a "worst case scenario."
- Walnut Street was selected as a control corridor due to a similar operating environment to Chestnut Street.

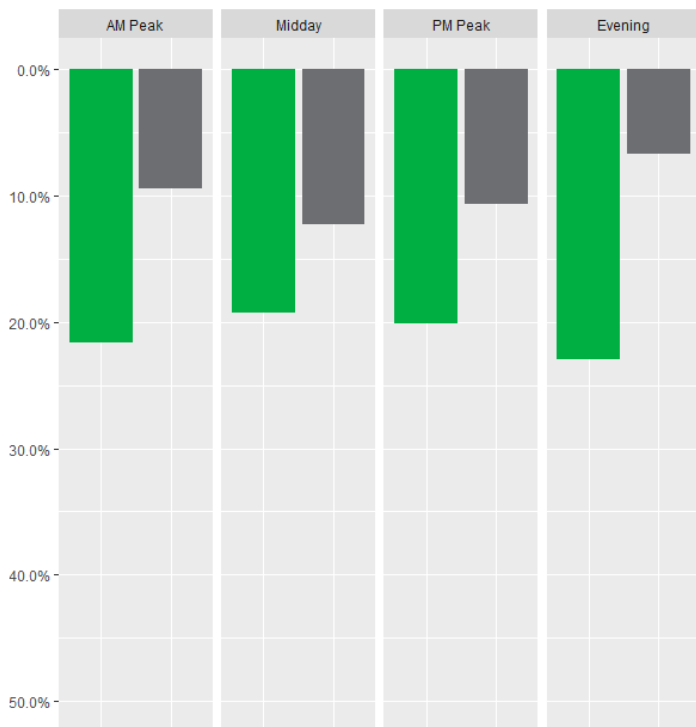
Transit Data Analysis Results

Between January 2019 and January 2020, median midday travel times for buses on Chestnut Street decreased by 19% between 22nd Street and Broad Street.

- Travel times between Broad Street and 7th street increased slightly, but started from a much better place. Overall, bus travel time and reliability on the corridor improved significantly, with the largest improvements made in the section that started out worse, 22nd Street to Broad Street.
- A key measure of transit reliability, the 90th percentile travel time, was also significantly reduced. 90th Percentile travel times between 22nd and Broad Street dropped from a 14:30 (14 minutes, 30 seconds) trip in the midday (about as fast as walking) to 10:45, approximately 25%.
- Walnut Street median bus times decreased by 10-14%. While both corridors improved for transit users, improvements were more significant on Chestnut Street.

Figure 5: Chestnut Street Transit Running Times Improved More than Walnut Street

50th Percentile Running Time Change
January 2019 to January 2020
22nd Street to Broad Street



90th Percentile Running Time Change
January 2019 to January 2020
22nd Street to Broad Street

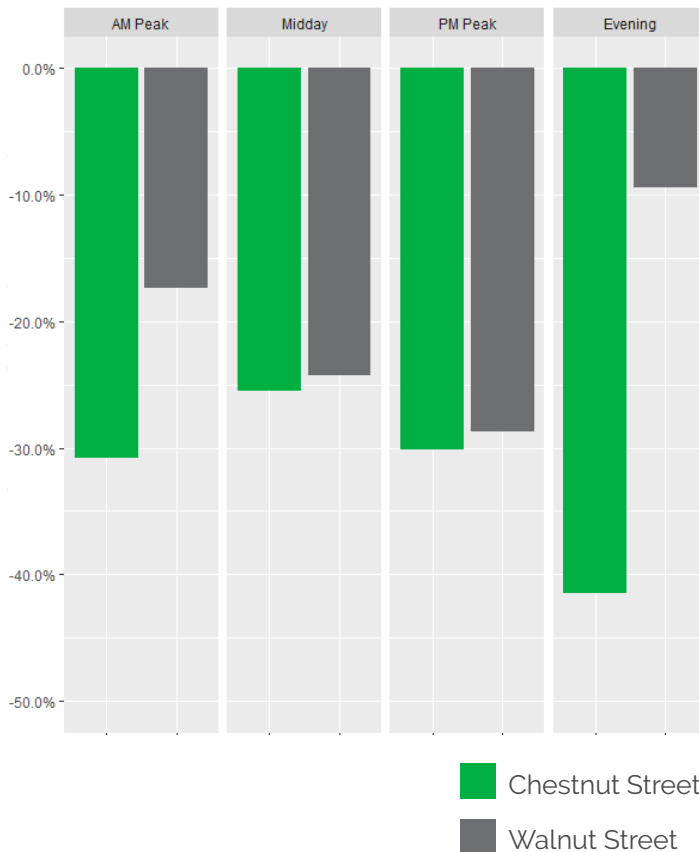
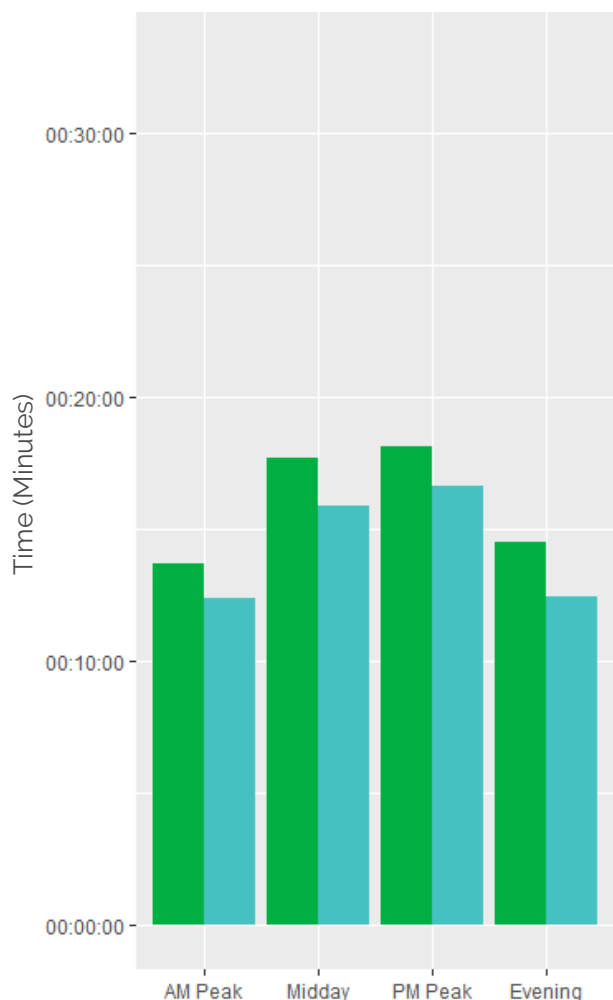
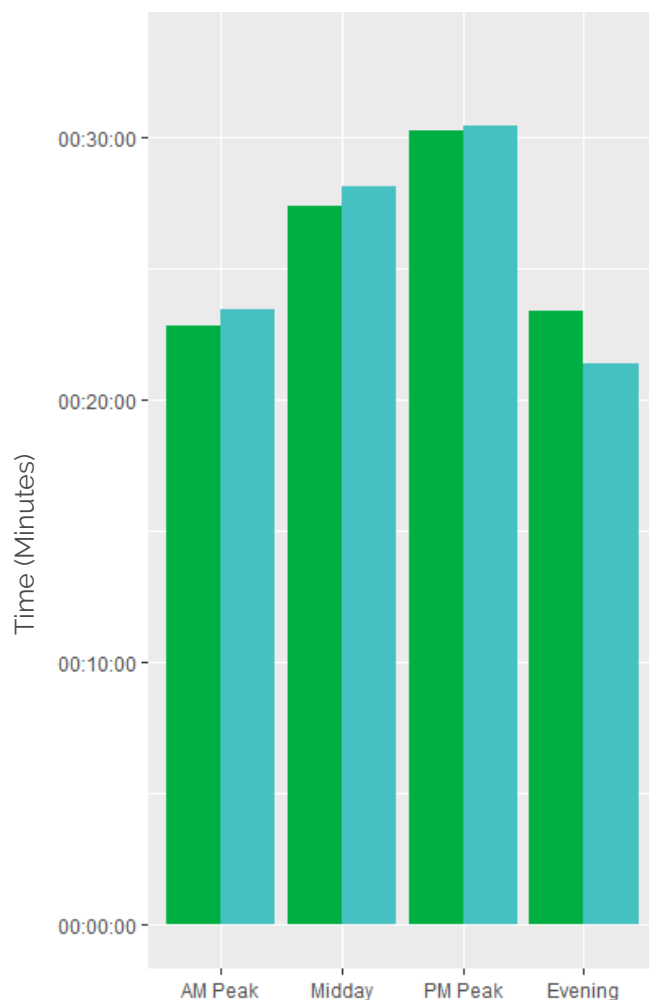


Figure 6: Improvements in Center City Offset Time Lost to Chestnut Street Bridge Detour

50th Percentile Running Time Change
January 2019 to January 2020
22nd Street to 7th Street



50th Percentile Running Time Change
January 2019 to January 2020
40th Street to 7th Street



■ January 2019
■ January 2020

Construction Impacts

The Chestnut Bridge closure forced buses to detour to the Market Street Bridge. This detour added approximately 2 minutes to the median running time in the midday. Despite the bridge detour, however, bus travel times from 40th Street to Broad Street remained fairly constant with 90th percentile run times dropping throughout the day, indicating a more reliable service. Given the concurrent time-frame of the parking and loading pilot and the bridge detour, it is not possible to separate the effects on bus travel time.

Chestnut Street has also been impacted significantly by construction in Center City. Most notably, the 1100 Block has been reduced to one travel lane due to a demolition project. In addition, the ongoing construction at 15th and Chestnut channels one of the busiest pedestrian intersections in the City into two crosswalks instead of four, limiting the abilities of vehicles to turn right onto 15th Street and for buses to continue down the transit lane.



Next Steps

After examining the results, the six month [Chestnut Street Loading Pilot](#), announced in September 2019, saw improvements in a reduction of street obstructions and transit travel times. The City plans to keep these improvements in place by making the pilot a permanent intervention. While the pilot did help to reduce congestion, there is still a need to pursue further solutions to improve transit operations and congestion on Chestnut Street. Transit operating conditions will continue to be monitored with the anticipated reopening of the Chestnut Street Bridge in Summer 2020.

Automated Enforcement of Bus Lanes and Blocking-the-Box

While the pilot was successful in creating more curb space, there are still issues with vehicles illegally blocking the lane while there was an open space on the block. **Increasing parking fines and allowing for parking tickets to be issued by cameras on buses will improve bus service on Chestnut Street** by providing consistent enforcement when needed most - when a vehicle is blocking the bus. Action on automated enforcement of parking violations will require council approval.

Dynamic Pricing and Smart Loading Zones for Curb Management

The high demand of curb space on Chestnut Street shows that this space is valuable and the current meter rates are under priced. Using dynamic pricing of parking spaces can ensure that there is always an open spot, so vehicles can find a space without blocking traffic. Technology can be used to manage the loading zones ensure efficient use of this valuable resource while providing more certainty for delivery companies. Action on dynamic pricing of parking and smart loading zones will require council approval.

Continuous Improvements

More can be done to design the bus lane to clearly prioritize it for buses. OTIS will work with PennDOT and SEPTA to look at design changes to Chestnut Street to further prioritize transit.