Market & Chestnut
Bus Lane Enforcement

March 2019
Evaluation Report

Background

Why is this project important?

Increasing the efficiency and attractiveness of transit in Philadelphia is important for mobility, equity, safety, the environment, and congestion relief. CONNECT: Philadelphia's Strategic Transportation Plan set out the goal of Transit First, recognizing the importance of promoting transit as a way of keeping Philadelphians moving in a growing city. **This project is important to CONNECT because about half of Philadelphia transit riders, 148 million per year, rely on buses, and half of residents in poverty do not have a car.** The City of Philadelphia currently has two bus lane corridors: Chestnut Street and East Market Street in Center City. When respected by drivers, bus lanes put Transit First and allow Philadelphians faster access to jobs and opportunities.

Congestion, including congestion caused by illegal traffic behaviors, delays people riding buses. This includes congestion caused by illegal behaviors, such as driving in a bus lane, blocking a transit vehicle, blocking the box, or stopping in a moving traffic lane. Because of these behaviors, **transit moves much more slowly on Chestnut Street during midday hours and the PM peak. Bus trips take approximately 8 minutes (26%) longer to go from river to river on Chestnut Street in Center City in the afternoon than during the AM commute.**

The quickest, most cost effective, and most equitable way to improve transit in Philadelphia is to take steps to improve the efficiency, affordability, and connectivity of bus service. - CONNECT PLAN

Who was involved?

Philadelphia Police Department (PPD), SEPTA Police, SEPTA Supervisors, and the Philadelphia Parking Authority (PPA) were the enforcing agencies. The Office of Transportation, Infrastructure, and Sustainability (OTIS) coordinated the partners and compiled the evaluation report. Additional data support came from SEPTA staff and the Delaware Valley Regional Planning Commission (DVRPC). The Streets Department provided support through line striping and project planning.

2000 Block of Chestnut

Estimated In-Street Mode Share

Estimated mode share generated by comparing traffic volumes, transit vehicle load data (2017), and bicycle counts. Daily vehicles were estimated by comparing manual class data from the 2000 block to the 1700 block of Chestnut Street where an AADT figure was available. Bicycle data was estimated using a range of counts from 2010-present and verified against Walnut Street counts. The high variability of bicycle counts (71 - 842) makes this a very generalized estimate.

Actions

Pre-Enforcement Actions

Infrastructure refresh - the Streets Department examined and refreshed lane markings, "bus-only" pavement legends, and the "bus and bike only" regulatory signs where possible.

Education efforts - SEPTA developed a pamphlet that was distributed in September for a few weeks leading up to the enforcement blitz to vehicles that were stopped in the bus lane that warned of upcoming enforcement. These were distributed by the enforcement partners.

Enforcement Actions

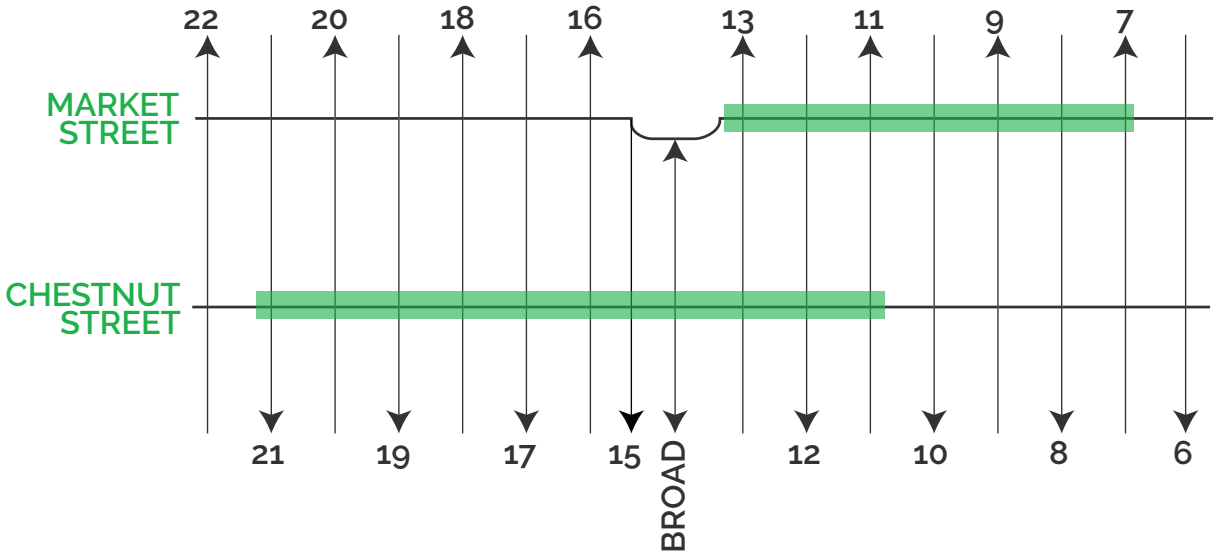
The enforcement partners worked together to **enforce laws already on the book. The bus lanes are regulated to allow only transit vehicles, bicycles, and other vehicles turning right.** Chestnut Street was prioritized for enforcement between 21st and 11th Streets; Market Street was prioritized for enforcement between 7th and City Hall. Illegal activities that were enforced included:

- Vehicles blocking the bus lane and traveling through intersections in the bus lane;
- Vehicles double parking and loading illegally in either lane;
- Illegal turns, including U-Turns, primarily on Market Street.

Bus Lane Marking and Signage

1800 Block of Chestnut Street

Enforcement Focus Areas



Data & Results

Enforcement Results

Ticketing data was provided by the partner agencies to reflect the results of enforcement between 9/28/18 and 1/28/19.

- 3,635 tickets were issued over the period – 1,347 (37%) on Market Street and 2,288 (63%) on Chestnut Street.
- 75% of all tickets were issued by the PPA.
- During each of the last two fiscal years (FY17 & FY18), the PPA issued approximately, on average, 1,500 tickets on Chestnut Street. This bus lane enforcement project resulted in over 2,000 PPA tickets on Chestnut Street over 4 months. This trend holds true for Market Street as well.
- While full historical ticketing data is not available for all of the partner agencies, these numbers show a significant increase in enforcement activity along both Market and Chestnut Streets.

Transit Results

Transit speeds were collected and analyzed for **3 weeks before and 3 weeks immediately after the bus lane enforcement project** began (on 9/20/18) to understand how intense enforcement would affect transit speeds and to reduce the chance that factors outside the scope of enforcement would affect the speeds.

- **Transit vehicles saw significant improvements in travel times due to the bus lane enforcement project.**
- While enforcement was focused on the bus lanes on Chestnut and Market Streets, the corridors saw improvements throughout their lengths as well, particularly on Chestnut Street, where a 6.4% improvement in transit travel times in the midday resulted for the whole length of Chestnut Street in Center City. This is due to a reduction in queue backups and other network effects.
- The 6.4% reduction in midday travel time on Chestnut Street adds up to 2.5 minutes per bus.

Enforcement Data

Ticketing Results (9/24/18 - 1/28/19)

Violation	Market Street	Chestnut Street	Total
Bus Zone	225	39	264
Double Parking	259	481	740
No Stopping	542	1,525	2,067
Crosswalk	25	-	25
Loading Zone	90	217	307
Blocking Mass Transit	111	26	137
Total	1,347*	2,288*	**3,635**

*Totals do not match because the table includes only the top 6 violations.

2.5

Minutes saved per bus trip on average on Chestnut Street (river to river) in the midday period

0.5

Minutes saved per bus trip on average on Market Street (7th to City Hall) in the midday period

General Traffic Travel Time Results

Travel times for all other vehicles ("general traffic") were queried by DVRPC through the RITIS Probe Data Analytics software. The analysis period is 5/21/18 through 9/21/18 for the "before" and 9/28/18 through 1/28/19 for the "after."

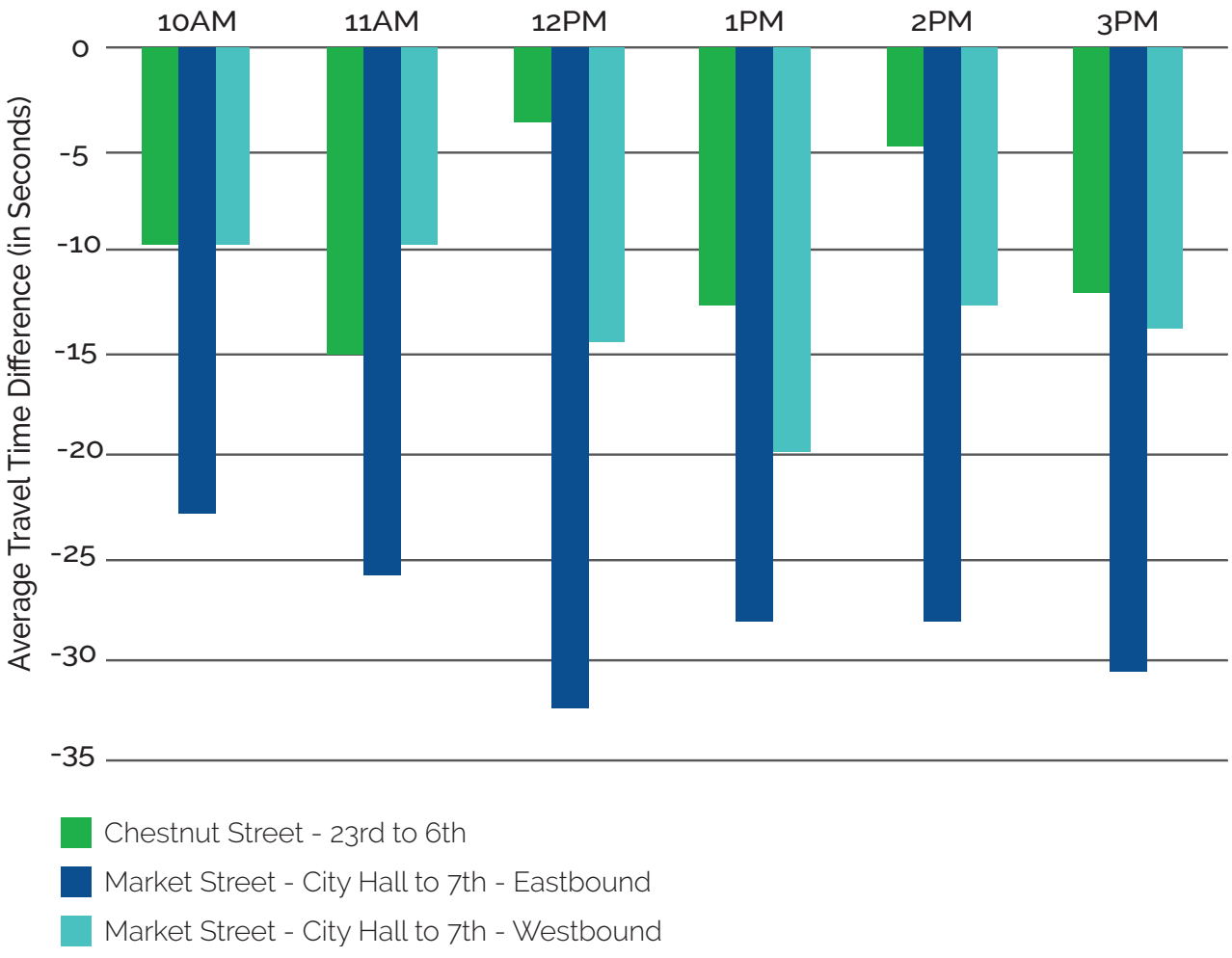
- **All three corridors saw slight reductions in travel times for all vehicles during the midday enforcement period.**
- During this period, Philadelphia as a whole saw vehicles speeds drop on average and travel times improve.
- Market Street (City Hall to 7th Street) improved slightly more, with travel time from 12pm-1pm eastbound dropping from 3.44 minutes to 2.9. The west side of Chestnut Street (23rd to Broad Streets) saw a drop from 6.26 minutes travel time to 6.16 for the 12pm-1pm period.

Congestion affects transit riders when buses are late or bunched. Some people grow tired of waiting for a bus and then use a ride-share, which only increases congestion.

- CONNECT PLAN

General Traffic Travel Time Difference

Before (5/21/18 - 9/21/18) and After (9/28/18 - 1/28/19)



Next Steps

Provide Incentives and Disincentives

Despite strict enforcement, illegal parking and loading remained an issue on the corridor. Many drivers, especially freight delivery drivers, preferred to continue to block lanes versus change their behaviors. This shows that there is a need to increase opportunities for legal loading while also increasing fines to provide enough deterrent to illegal behavior that is both unsafe and causes congestion.

Parking and Loading Issues

Chestnut Street between 12th and 19th Streets had a significant amount of illegal loading, which was worse in the middle of the day. This is because most these blocks' curb space is *Loading Only* from 6AM to 10AM but reverts to paid parking for the remainder of the day. This leaves many blocks without any open legal loading zones.

In the short term, these blocks will be examined to expand the timing and location of loading zones so that delivery vehicles legally make deliveries. In the longer term, the use of advanced technologies to manage, and even reserve spaces, is being investigated.

Fines and Fees

The level of fines is insufficient to deter illegal parking or stopping. Fines for activities such as blocking a mass transit vehicle and blocking a moving lane should be increased. A review of peer cities (e.g. DC, NYC, SF, LA) indicates that Philadelphia's fines for blocking a bus stop, hydrant, bike lane, streetcar, and others are significantly lower than our peer cities.

Traffic Engineering Improvements

At 15th & Chestnut Streets and Broad & Chestnut Streets, it was observed that high pedestrian volumes a combined with drivers legally turning right in the bus lane contributed to excessive delay for both buses and general traffic. In the short term, some of this is due to construction on the north side of Chestnut Street, but other changes may be needed. Regulations such as banning right turns at the intersection should be investigated. Throughout the corridors, some pavement markings will need to be refreshed in Spring 2019. Further evaluation of bus stop and turn locations is needed.

In the long term, both Market and Chestnut Streets should be investigated to improve the delineation of the bus-and-bike-only lanes, including better markings and limited longitudinal separation.

Automated Enforcement of Bus Lanes and Blocking-the-Box

While the bus lane enforcement project showed its effectiveness, these efforts consume a large amount of resources for PPD, PPA, and SEPTA. A comprehensive study of the Washington D.C. region found that a standard bus lane treatment (such as what exists on Market and Chestnut Streets) combined with bus mounted automated enforcement is the most cost effective way to enforce bus lanes.[1] **Using automated enforcement of bus lanes and blocking-the-box would improve safety and congestion, while ensuring equity.**

1 "Bus Lane Enforcement Study" June 2017. National Capital Region Transportation Planning Board