

TECHNICAL MEMORANDUM

March 1, 2023

Borough of West Chester
401 East Gay Street
West Chester, PA 19380

Attn: Sean Metrick, Borough Manager
From: Kelly Goff, PE, CFM, Associate
Subject: Price Street – Traffic Calming Study
Borough of West Chester, PA

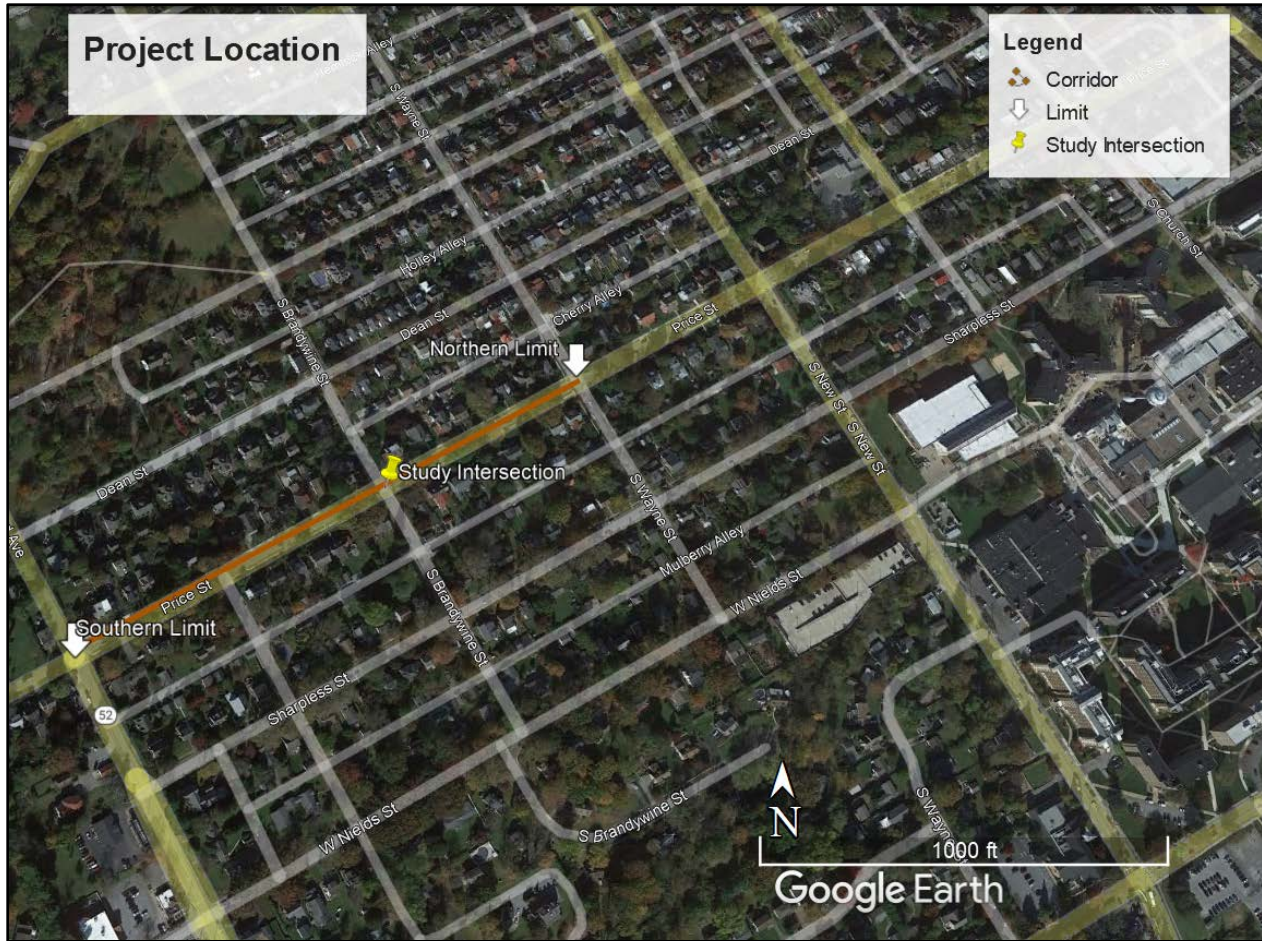
At the request of the Borough of West Chester, Remington & Vernick Engineers (RVE) completed an analysis of speed and volume data along Price Street. The purpose of the analysis was to review existing speed and volume data to determine if a change in posted speed limits is warranted along the corridor, if additional all-way stop control is warranted, or if other forms of traffic calming/traffic control would be feasible. The data reviewed does show evidence of vehicles consistently exceeding the 25 MPH speed limit. Additional data analysis would be needed to confirm if all-way stop control is warranted at key locations. Details of this analysis are described herein.

West Chester Police Department collected the data used for the analysis at an area on Price Street, just south of the intersection with Brandywine Street.

The data used in the analysis was collected from Thursday, March 17th, 2022, to Wednesday, March 23rd, 2022. Data was collected using pole-mounted radar units. Vehicular speeds in both directions were continually collected during the noted study period.

The project study limits are along Price Street from S Wayne Street (northern limit) to S Bradford Avenue (southern limit), which is approximately 0.28 miles (1,475 feet) in length and has a posted speed limit of 25 mph throughout the corridor. The corridor is primarily flat, and straight throughout. Price Street is a two-lane roadway. For the purpose of this report, it is assumed that the roadway generally runs in a north/south orientation. On-street parking is allowed along both sides of the roadway, but there are various restrictions related to permitting requirements and restrictions on corners. The project study area is illustrated below in **Exhibit 1**.

Exhibit 1 – Project Location Map



Sidewalks are provided along both sides of the roadway of Price Street. At the intersection of Price Street at Brandywine Street, Price Street is free-flowing while Brandywine Street is stop-controlled. Crosswalks are marked and provided on all approaches, as well as ADA curb ramps.

Exhibit 2 shows key design information for Price Street roadway segments near Brandywine Street. **Exhibits 3 to 6** include summaries of the speed data that was collected.

Exhibit 2 – Price Street - Roadway & Volume Info

Price St (South of S Brandywine St)						
Roadway		Functional Classification	Traffic Pattern Group (TPG)	Area Type	Lanes Per Direction	Posted Speed Limit
Local Name	State Route(s):					
Price Street	PA 52	Minor Arterials	5	Urban	1	25 mph
ADT		6,359 vehicles per day				
% Trucks		2%				
K-Factor		9%				
D-Factor		52%				

Exhibit 3 – Price Street - Speed Data Summary Table

Speed Study Summary (March 2022)			
Price St (South of S Brandywine St)			
Movement	<u>NB Thru</u>	<u>SB Thru</u>	<u>2-Way Combined</u>
Posted Speed Limit	25 MPH	25 MPH	25 MPH
Average Speed	29 MPH	31 MPH	30 MPH
10 mph Pace	25 to 34 MPH	27 to 36 MPH	25 to 34 MPH
% in Pace	75.1%	75.7%	75.1%
85% Speed	33 MPH	36 MPH	34 MPH
Percent Exceeding the Speed Limit	79.4%	90.8%	84.7%

Exhibit 4 – Price Street – Northbound Speed Data Summary Graph

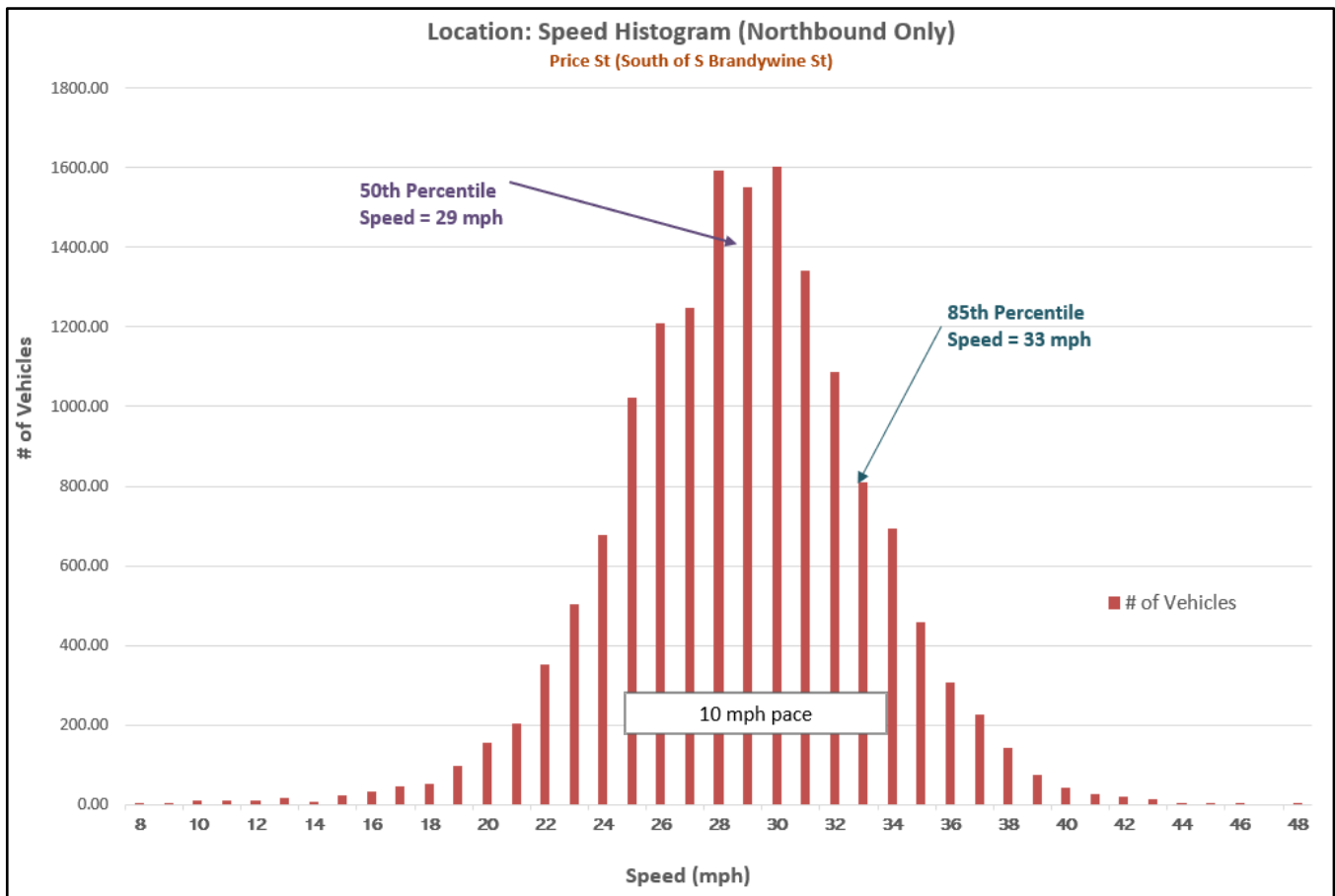


Exhibit 5 – Price Street – Southbound Speed Data Summary Graph

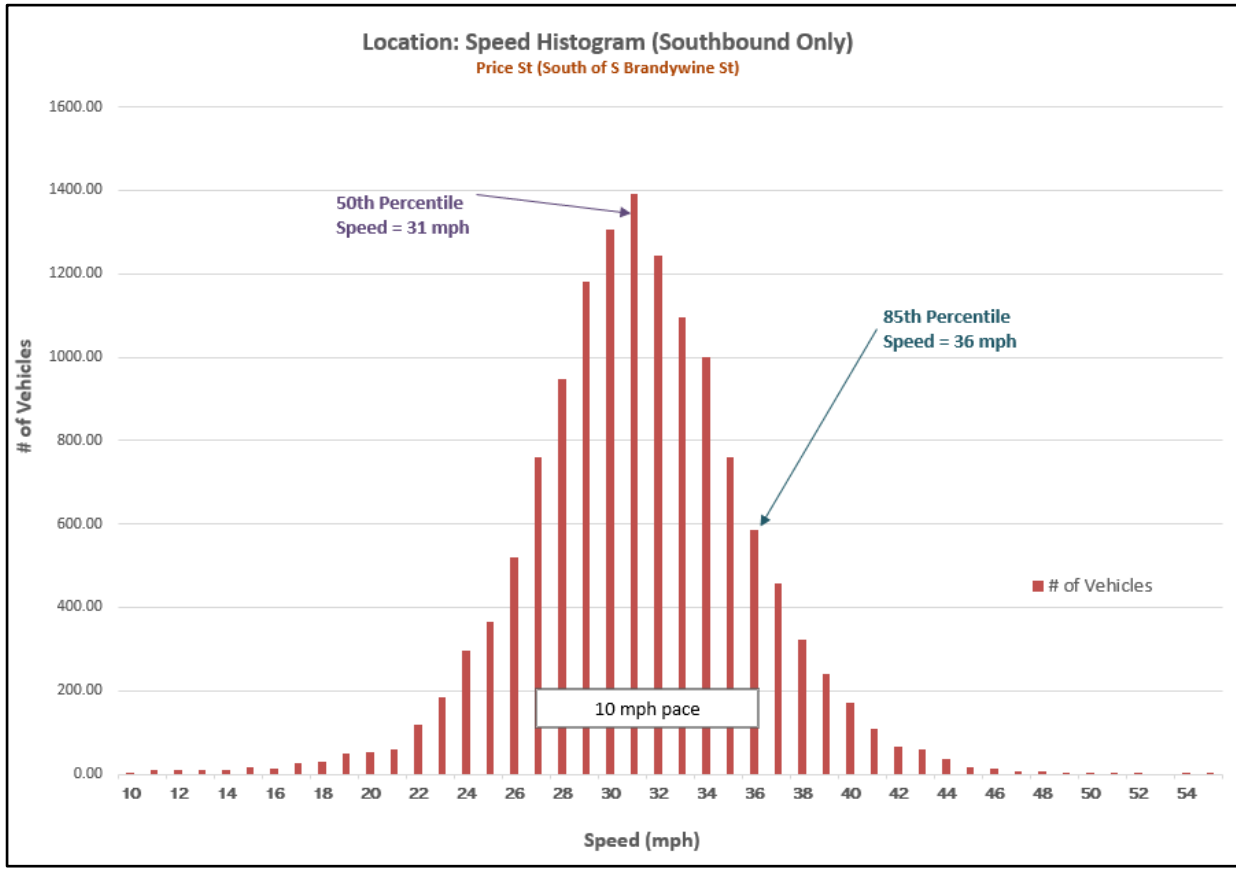
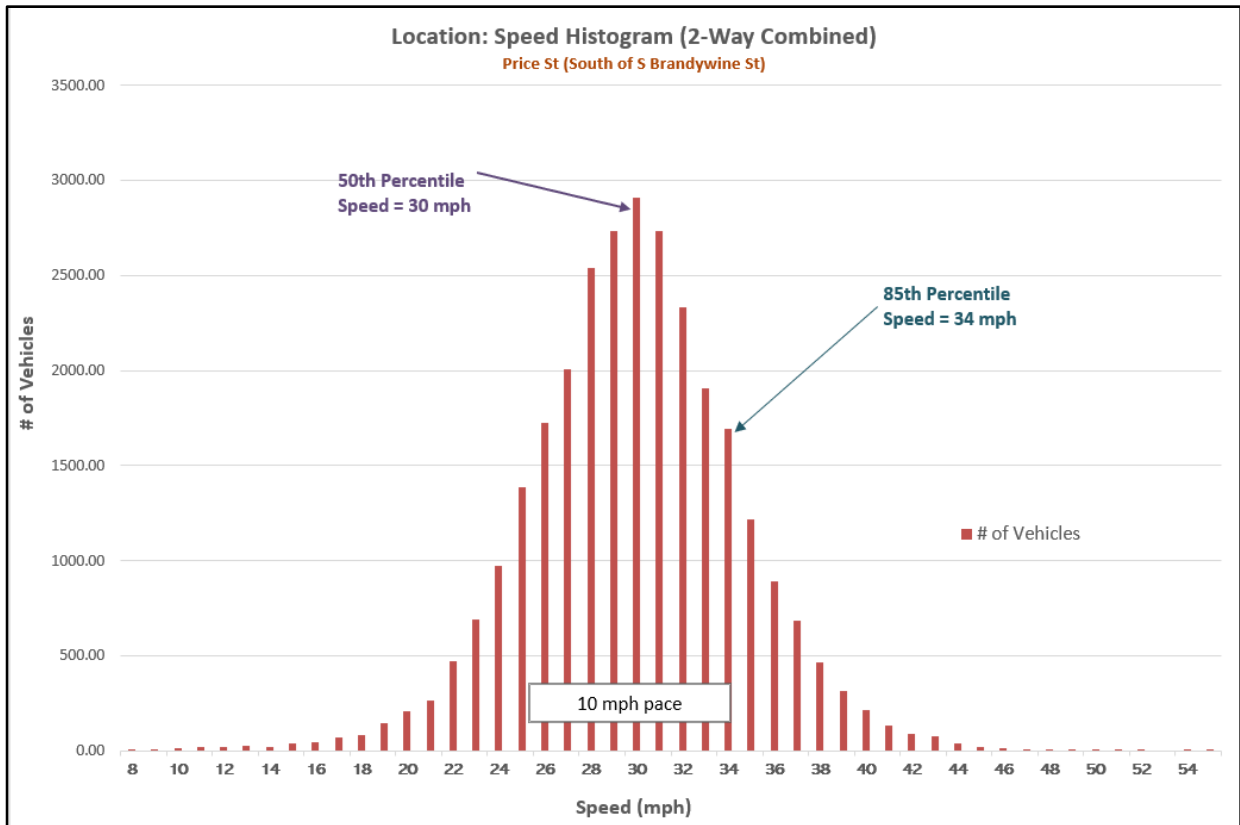


Exhibit 6 – Price Street – 2-Way Combined Speed Data Summary Graph



The results of the Price Street data shows the following 85th percentile speeds of vehicles:

- Traveling northbound 33 mph
- Traveling southbound 36 mph
- 2-Way Combined 34 mph

This shows that the 85th percentile speeds for northbound, southbound, and 2-Way combined are above the posted speed limit of 25 mph, with the majority of traffic exceeding the speed limit.

The PennDOT guidelines for posted speed limits follow the national MUTCD standard that suggests posted speed limits should be within 5 MPH of the roadway's 85th percentile speed. In this situation, the speed data suggests that vehicles are currently traveling faster than the five mph of the posted speed limit. Therefore, the posted speed limits of 25 mph may need added traffic calming measure to slow the traffic down in this area.

While traveling northbound along Price Street, approximately 79.4% of all vehicles exceed the posted speed limit and while traveling southbound 90.8% exceed the posted speed limit.

Per PennDOT and FHWA guidelines, the most important factors considered for recommending a speed limit are 85th percentile speed, followed by roadway geometry, crash exposure, and roadside development. The 85th percentile speed is the main guide for setting safe speed limits and promoting uniform traffic flow along a corridor.

To address speeding concerns, the Borough may wish to review crash history along the corridor, and more specifically at the intersection of Price Street at Brandywine Street to determine if any crash patterns or trends related to speeding are prevalent.

Warrants for an all-way Stop controlled intersection were reviewed with limited data, and the intersection may warrant the installation of stop signs along Price Street, based on volumes and crash history (if applicable), but a more complete warrant review is needed. The relevant factors for all-way stop criteria include the following:

- Five or more reported crashes in a 12-month period that are susceptible to correction by an all-way stop installation.
- The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day;
 - **On average, Price Street has 12 hours of 300 vehicles per hour combined.**
- The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour.
- An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where an all-way stop control would improve traffic operations.

Exhibits 7 & 8 include summaries of the volume data that was collected.

Exhibit 7 – Price Street – 2-Way Combined Hourly Volumes by Day

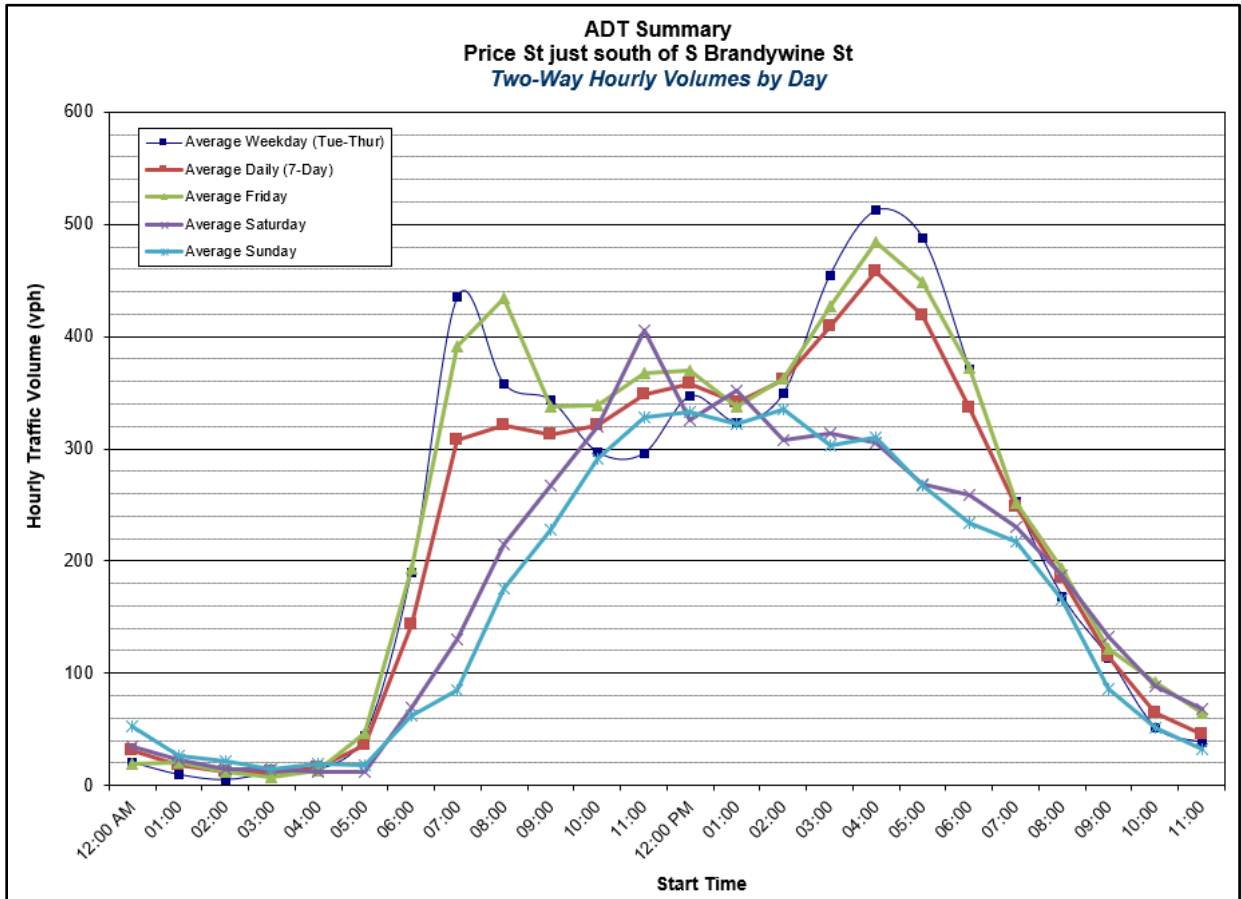
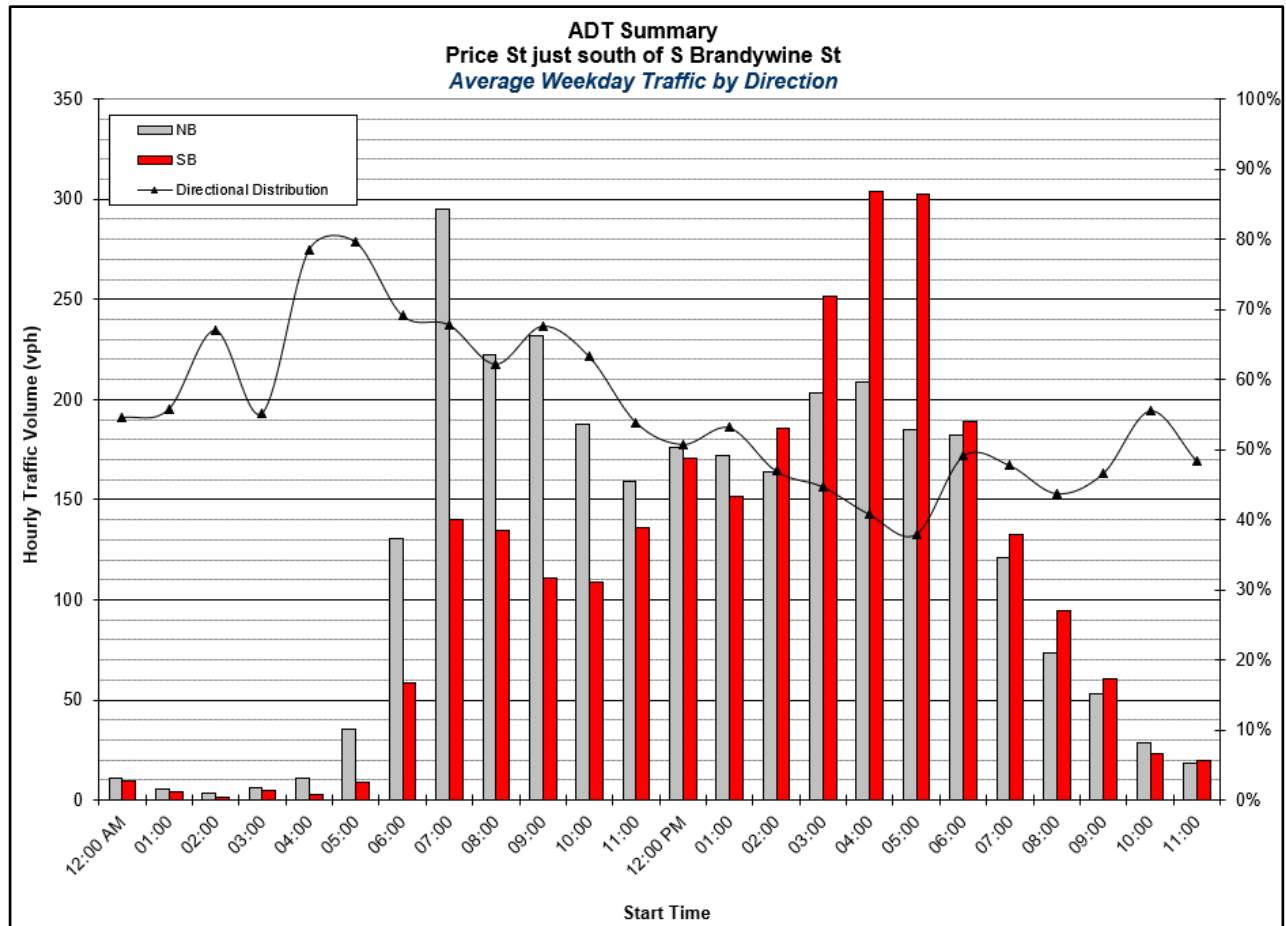


Exhibit 8 – Price Street – Average Weekday by Direction Hourly Volumes



In summary, the data reviewed does show evidence of vehicles consistently exceeding the 25 MPH speed limit and measures to reduce speeds could be beneficial to the corridor. However, additional data analysis would be needed to confirm if all-way stop control is warranted at key locations.

The following are recommendations that include low-cost upgrades that could be implemented in a timely fashion:

- Install data-enabled speed display radar signs that show the driver’s speed limit, and flash with a message of ‘slow-down’ when above the posted speed limit of 25 mph.
- Replace the currently marked crosswalks with a more visible colonial-style marking pattern (Piano-key pattern crosswalks).
- Install a portable center line mounted “State Law – Stop for Pedestrians” sign in the roadway at the marked crosswalk locations.
- Restripe key intersections to include marked no-parking zone or painted bump-out areas with raised reflective delineators.
- Police department enforcement can be implemented.

It is also noted that Price Street is a State maintained roadway. All recommendations will need to be reviewed and approved by PennDOT prior to implementation.