

MEMO

TO: Lynne Kirby, PE (MDOT)
FROM: Matthew Hill, PE, PTOE (WSP)
SUBJECT: I-94 Operational Study – Volume Data Screening
DATE: February 11, 2019

The Michigan Department of Transportation (MDOT) provided WSP with traffic volume data for segments of I-94 between Ann Arbor-Saline Rd and the US-23 interchange, collected on September 11th, 2018. To ascertain the validity of the volume dataset as being representative of a “typical” day operationally for the corridor, corresponding speed data was obtained through the Regional Integrated Transportation Information System (RITIS). The speed data was collected for all Tuesdays, Wednesdays, and Thursdays between September 1st, 2018 through November 30th, 2018, excluding holidays, along the segments identified in Figure 1. This dataset was considered the “**baseline**”, with the geographic extent selected to ensure the full extent of queuing and related congestion would be captured in the results.

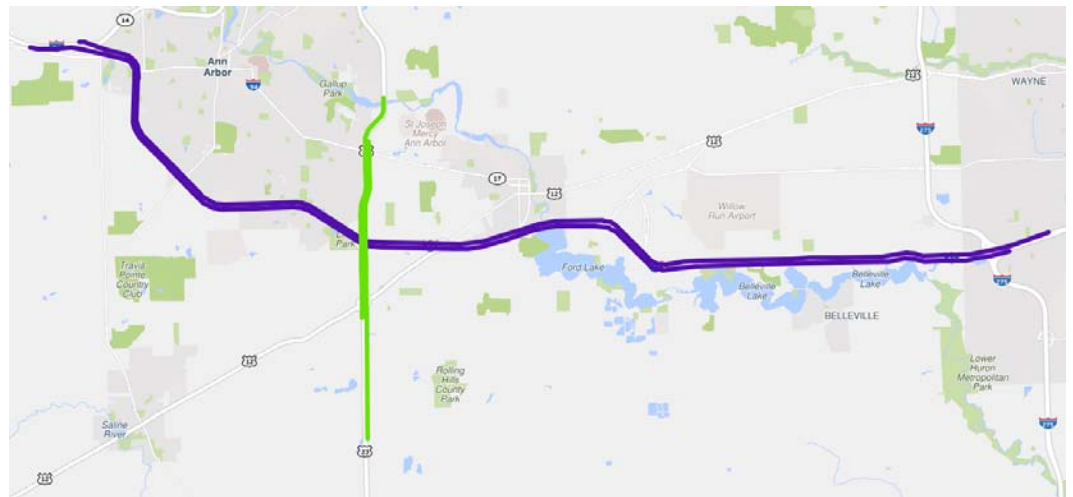


Figure 1 - Speed Data Collection Segments

Speed data collected through RITIS was organized into fifteen minute increments between 7:00 – 9:00AM and 4:00 – 6:00PM, which corresponded with peak periods of congestion along the corridor. The **baseline** was scanned by segment and fifteen-minute time periods to determine the minimum, median, and maximum speeds experienced over the three-month study period to provide a typical range of speeds along the corridors during the morning and afternoon periods.



The speed data for September 11th was extracted from the baseline dataset and plotted on the following graphs. This provided a comparison of speeds experienced along the corridor for the day the traffic volumes were collected against “typical” speeds experienced in the study area for each fifteen-minute period¹.

While there is variation by time period and segment along the corridor, travel speeds recorded on September 11th, 2018 generally appear to align within one standard deviation of the median travel speeds as recorded over the three-month period, suggesting operations were relatively typical.

Additional data screening can be conducted if MDOT would like to provide incident data that would have occurred September 2018 through November 2018 to further refine the “typical” weekday operations.

A handwritten signature in black ink, appearing to read 'Matthew Hill'.

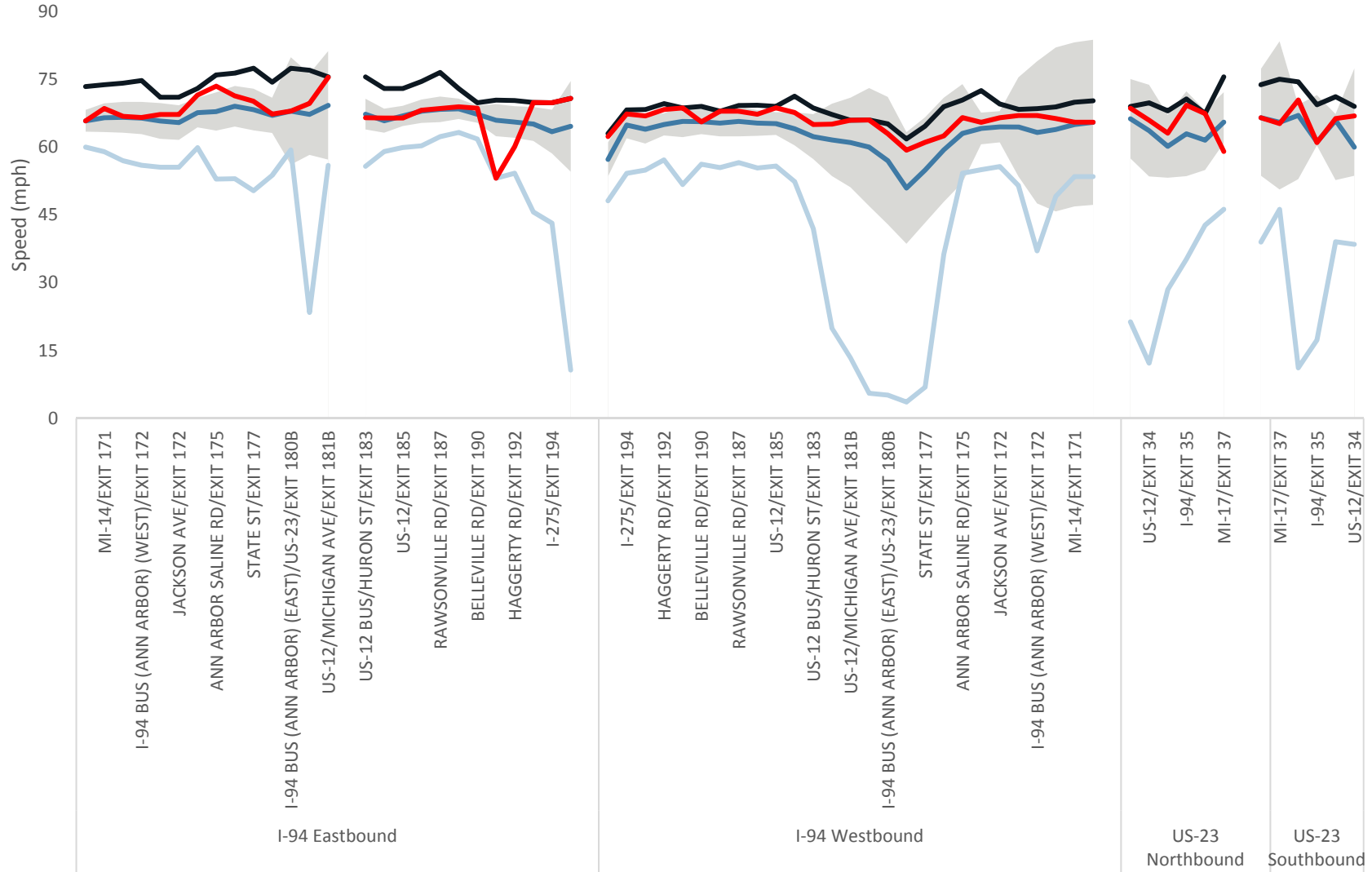
Matthew Hill, PE, PTOE
WSP Project Manager

¹ One segment lacked speed data for all time periods. This was omitted to improve legibility. Additionally, any instances showing 0mph speed measurements were as reposted by RITIS.



7:00 - 7:15AM

Speed (mph)

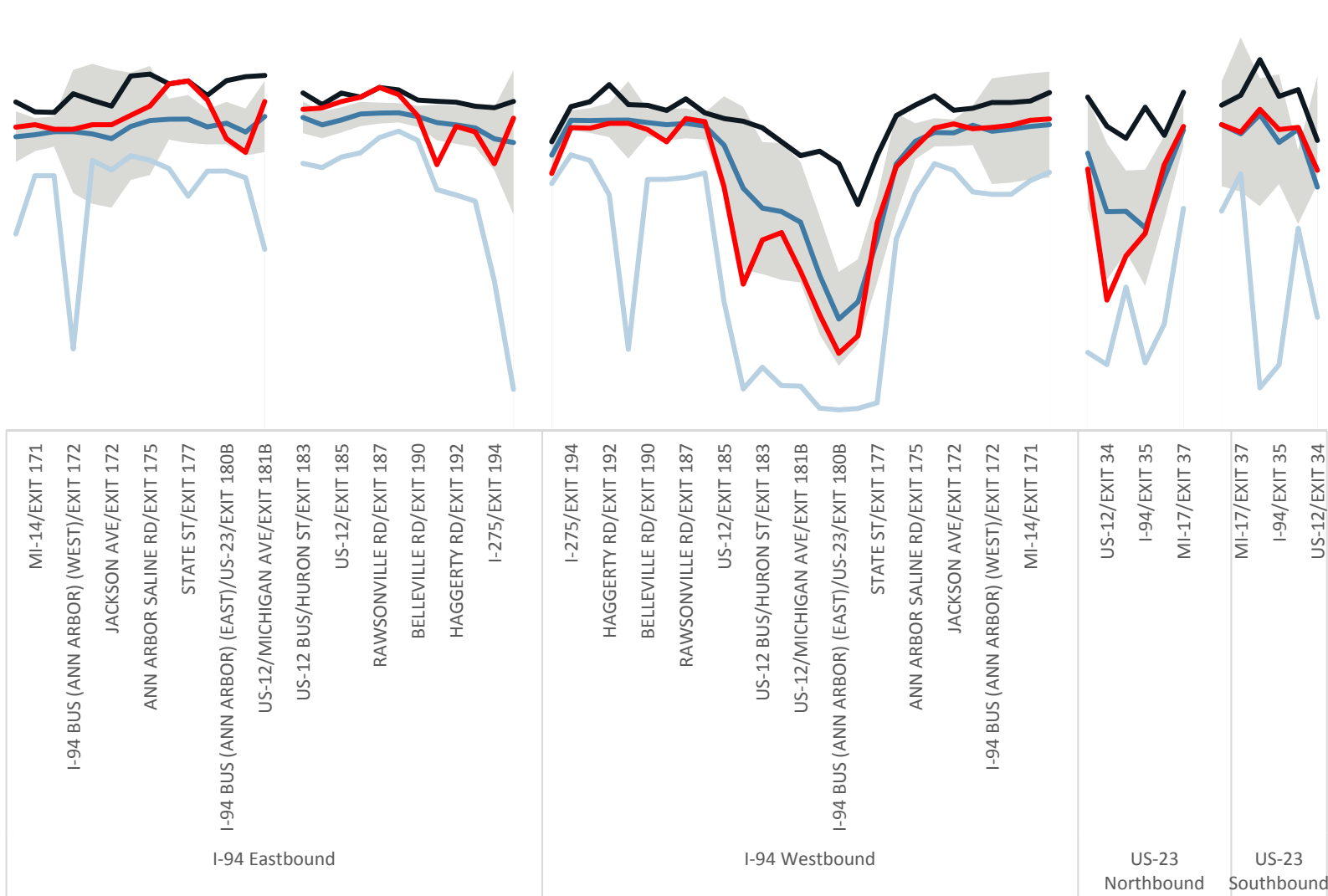


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed



7:15 - 7:30AM

Speed (mph)

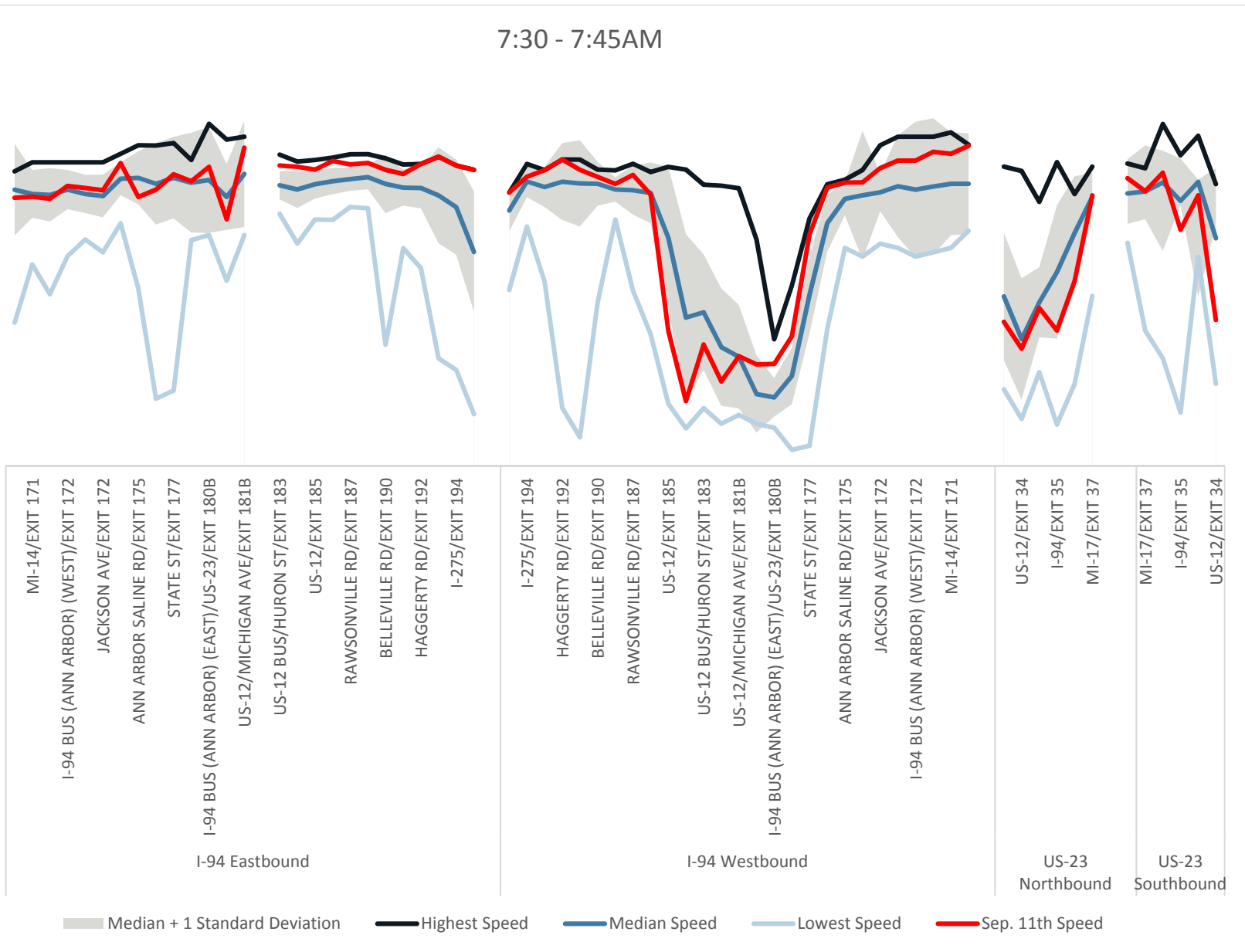


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed



7:30 - 7:45AM

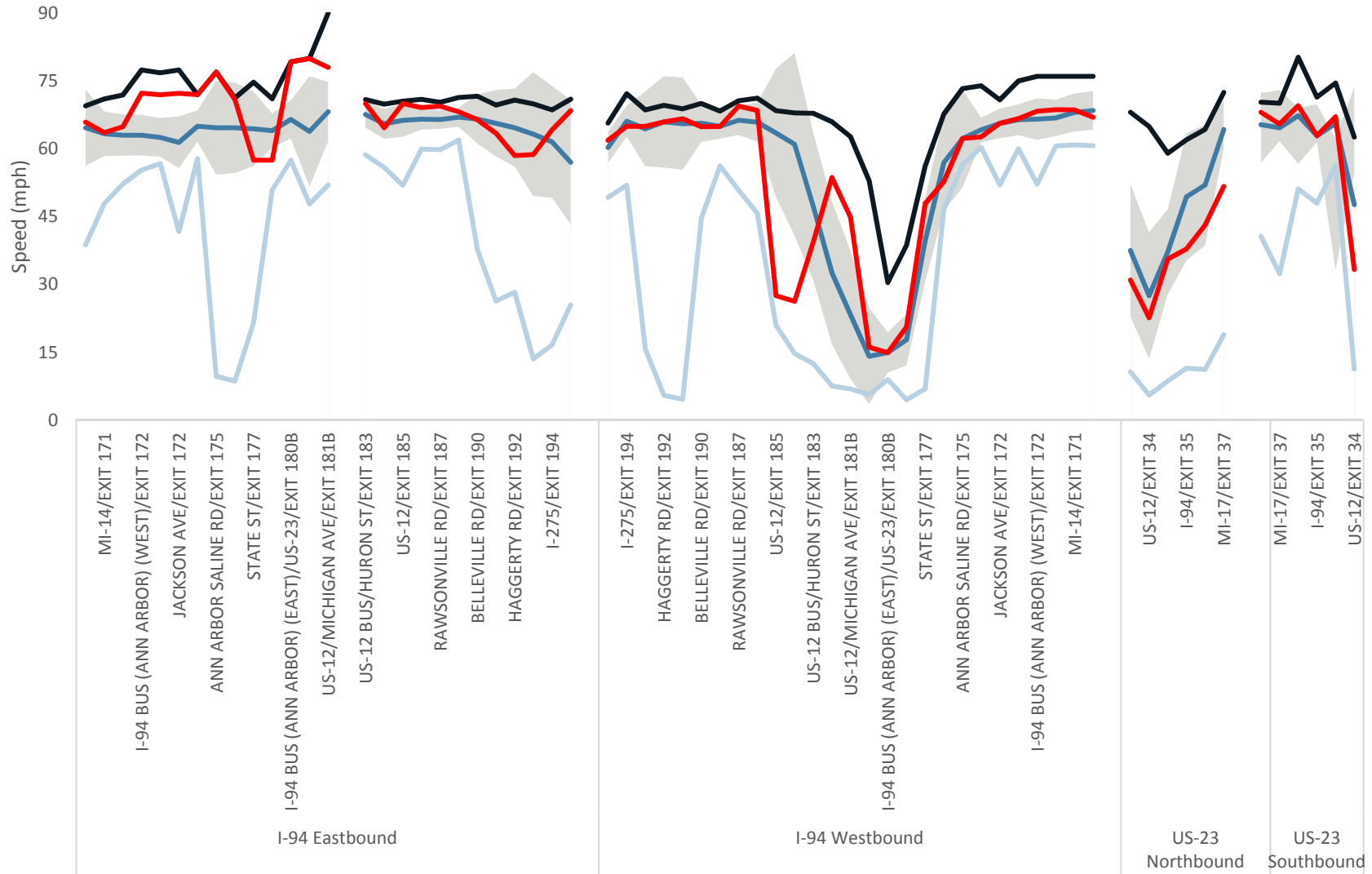
Speed (mph)



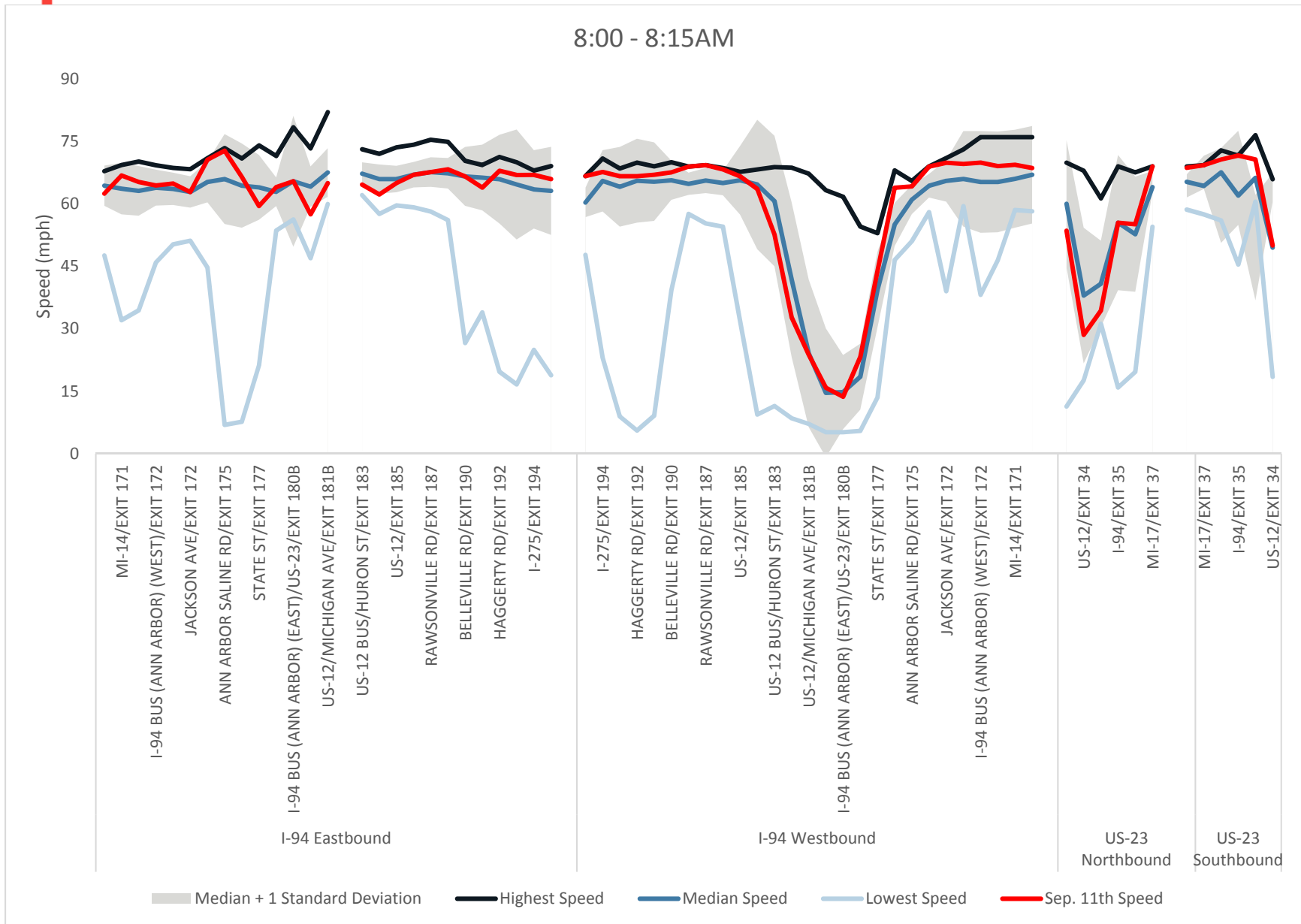


7:45 - 8:00AM

Speed (mph)



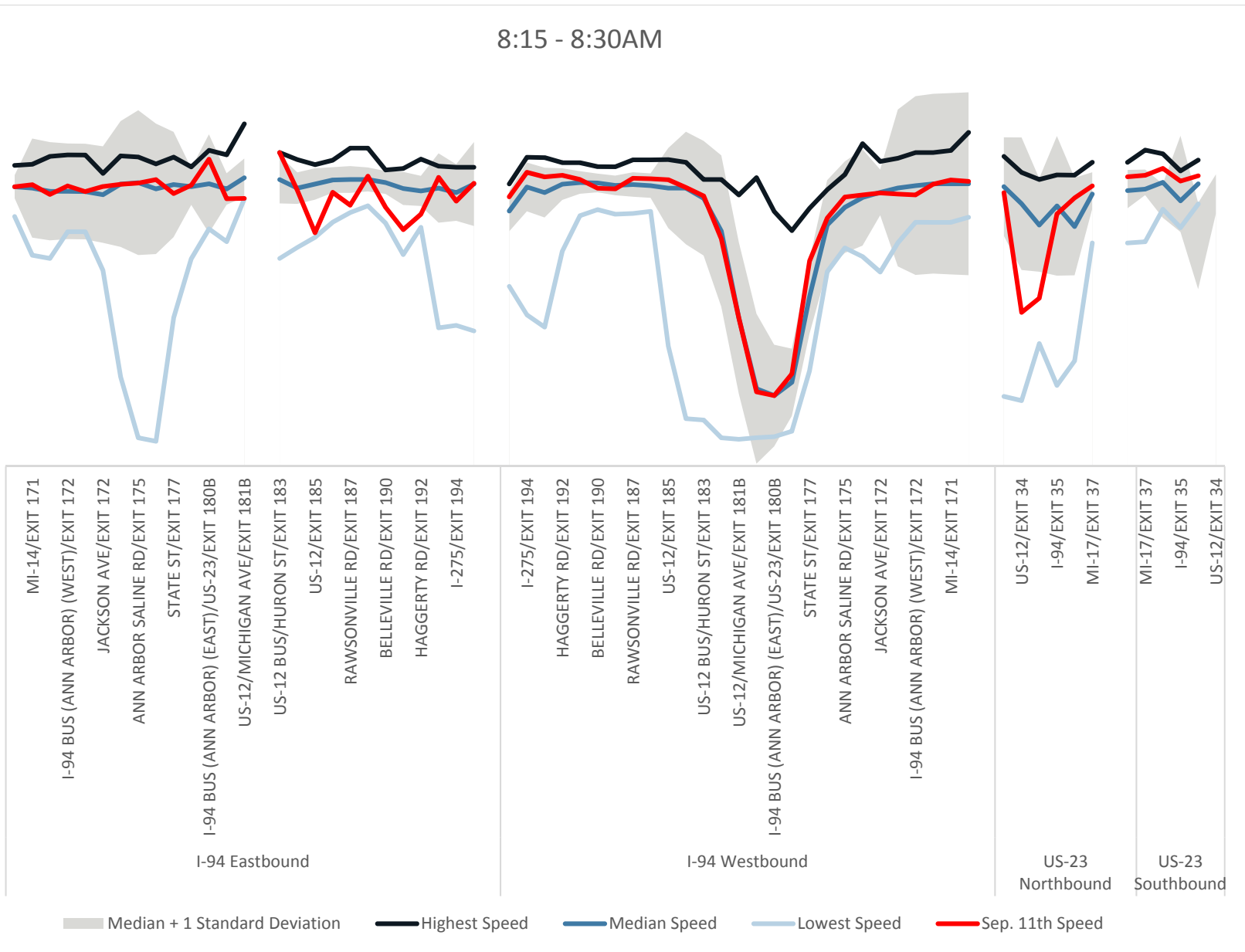
Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed





8:15 - 8:30AM

Speed (mph)

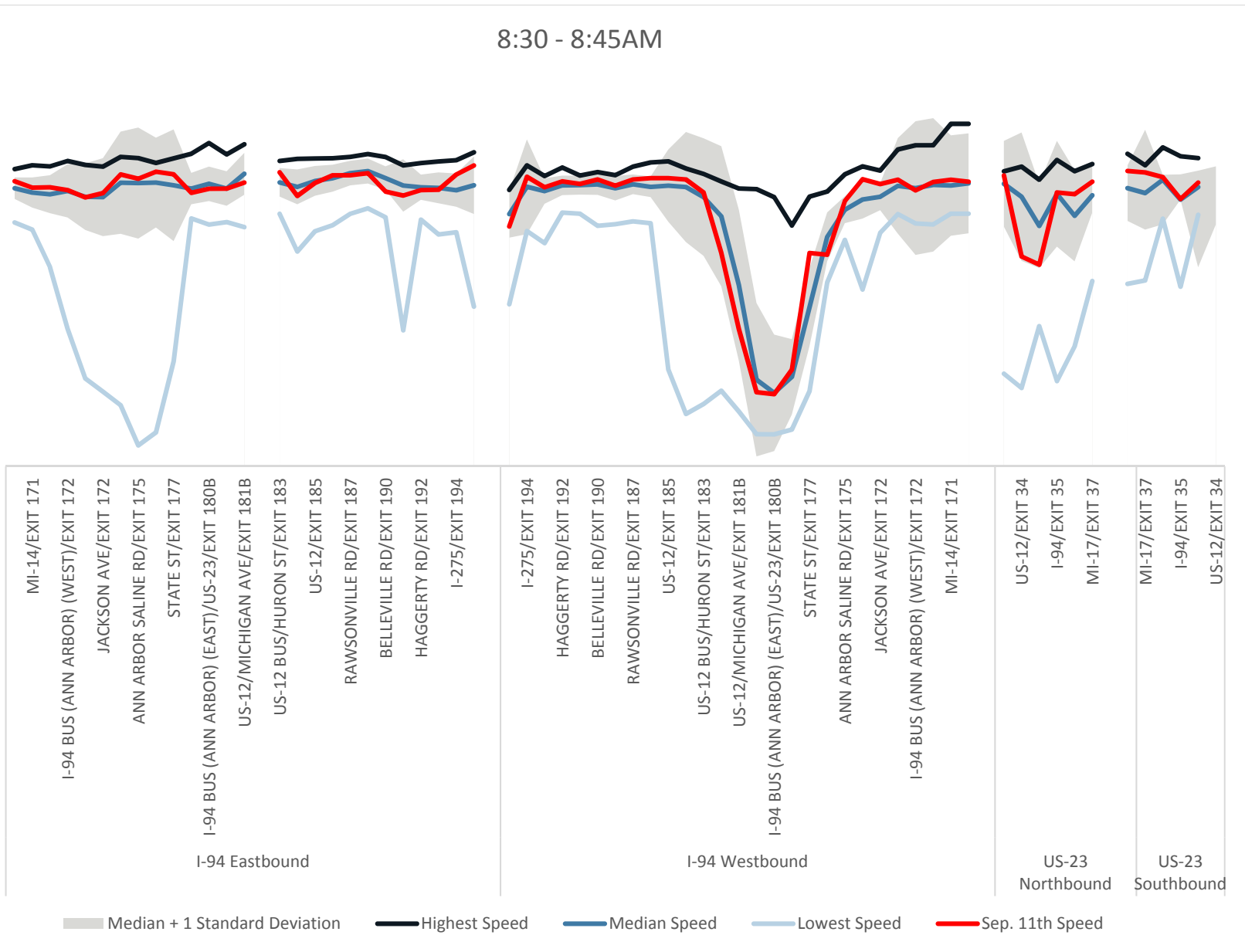


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed



8:30 - 8:45AM

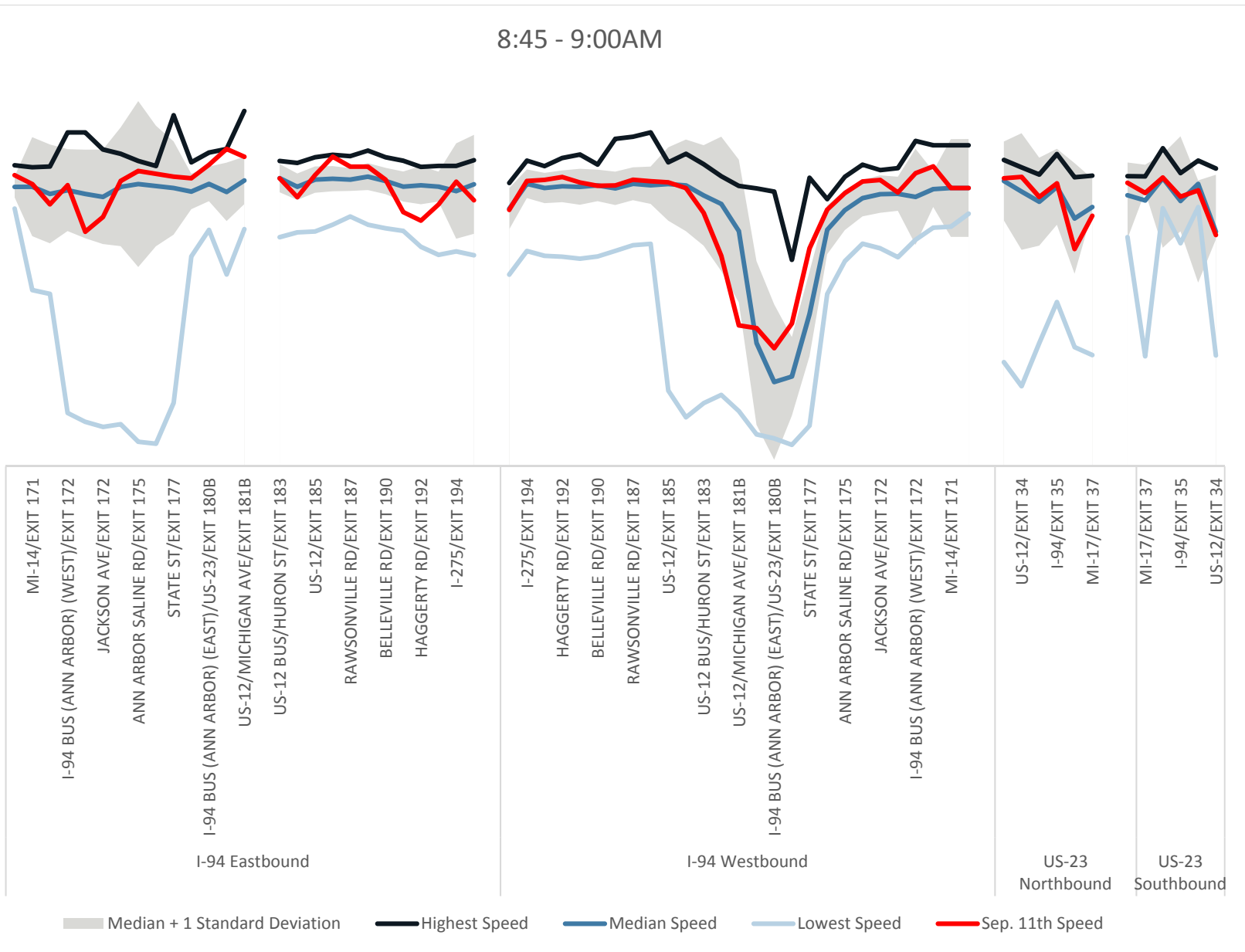
Speed (mph)





8:45 - 9:00AM

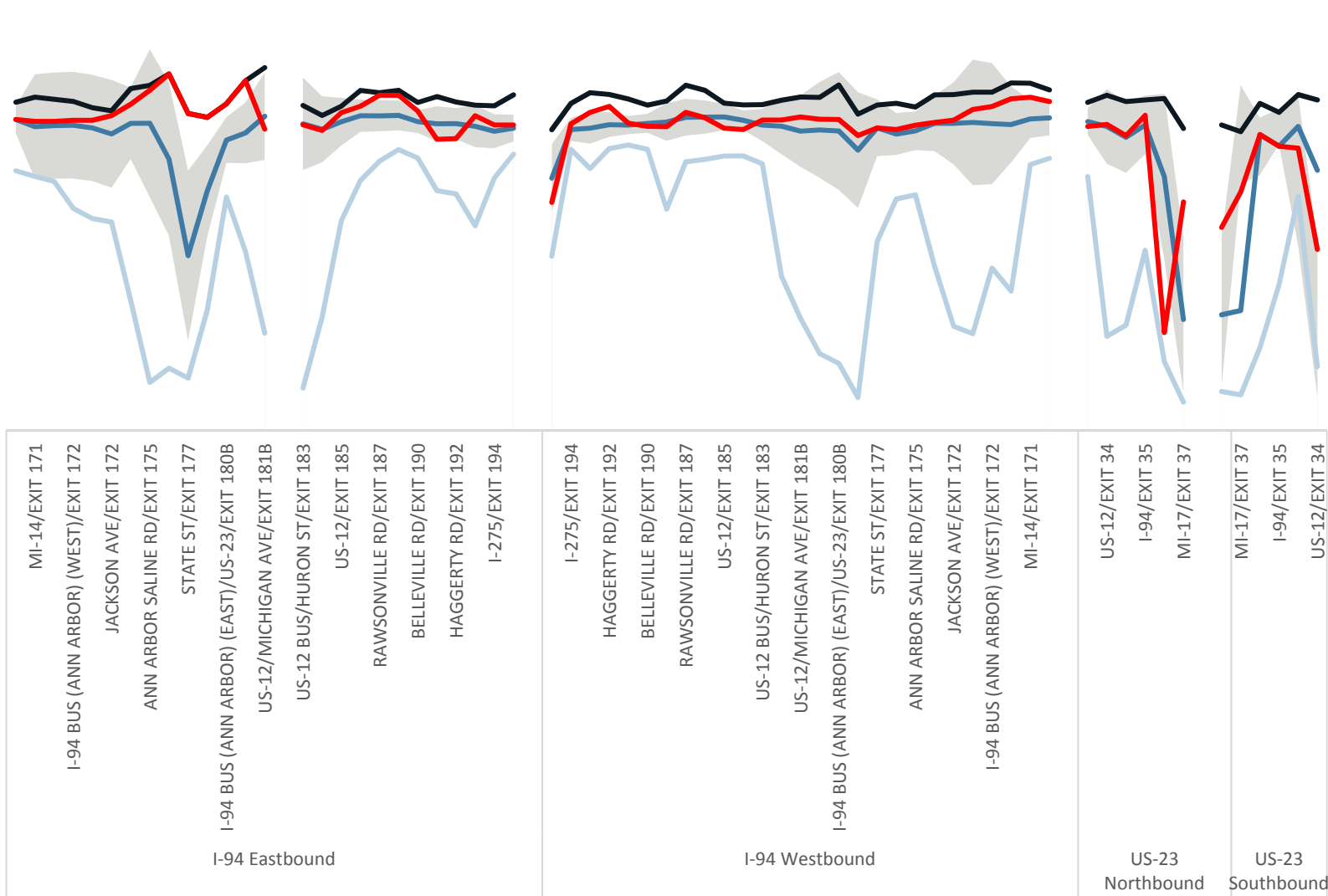
Speed (mph)





4:00 - 4:15PM

Speed (mph)

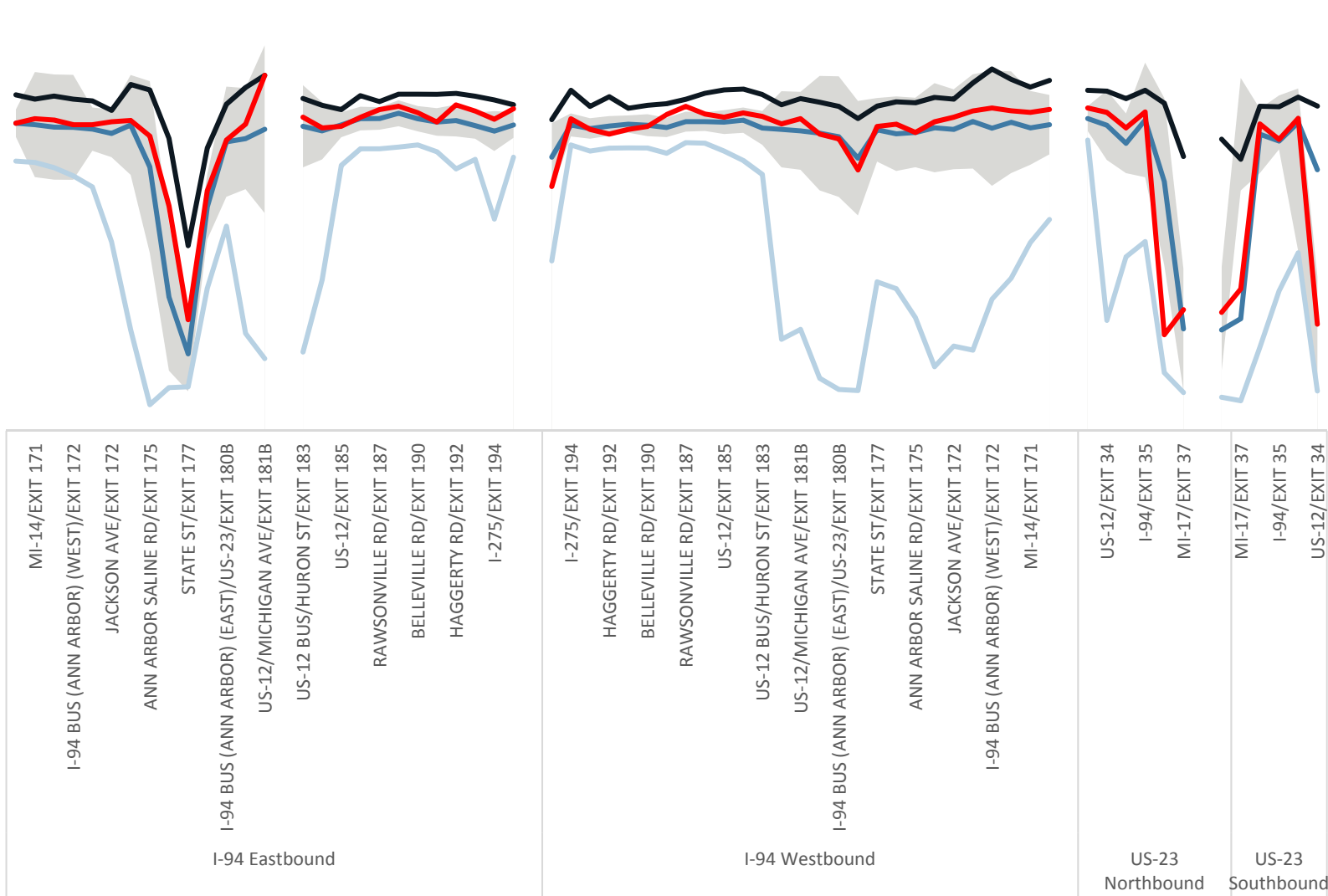


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed



4:15 - 4:30PM

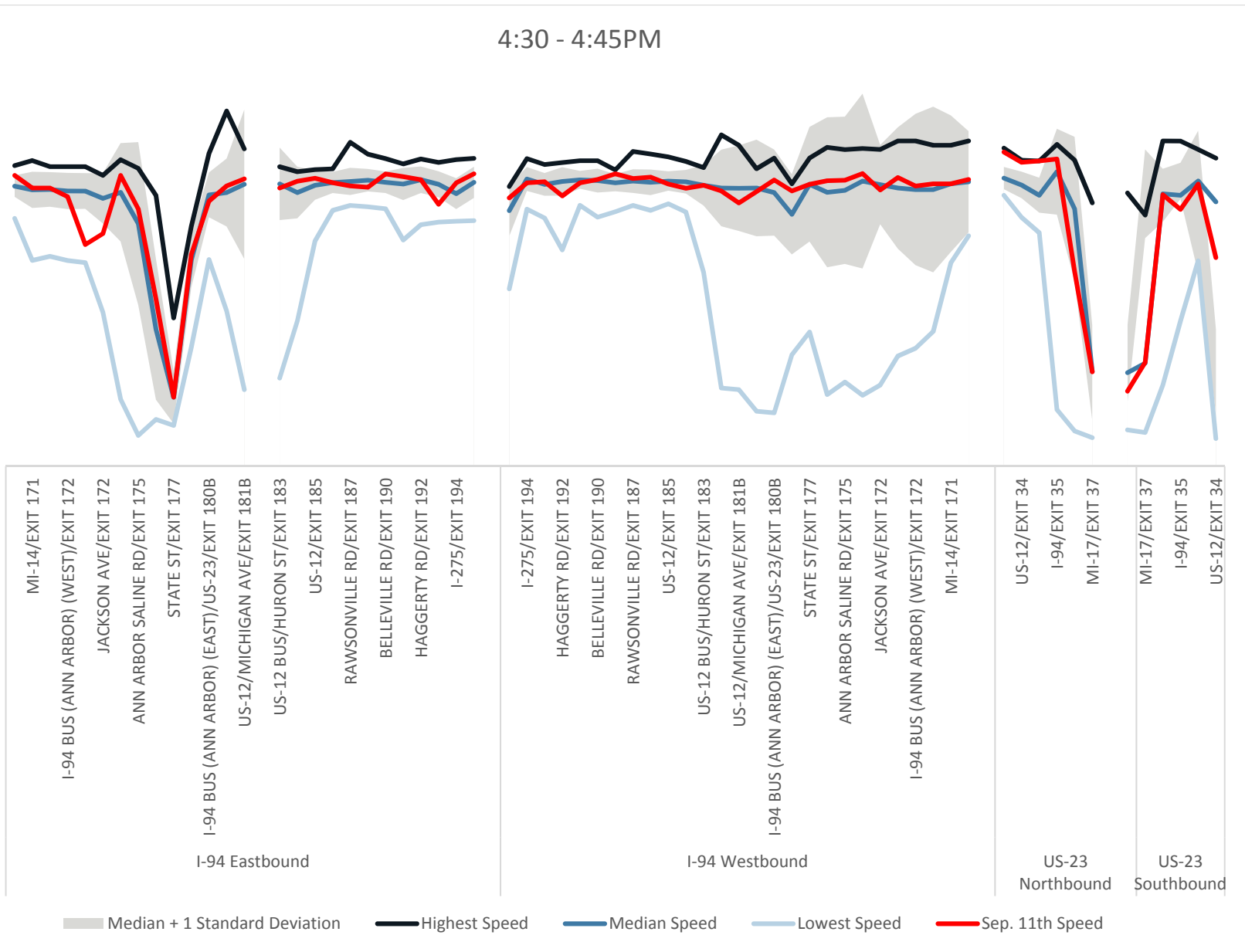
Speed (mph)



Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed

4:30 - 4:45PM

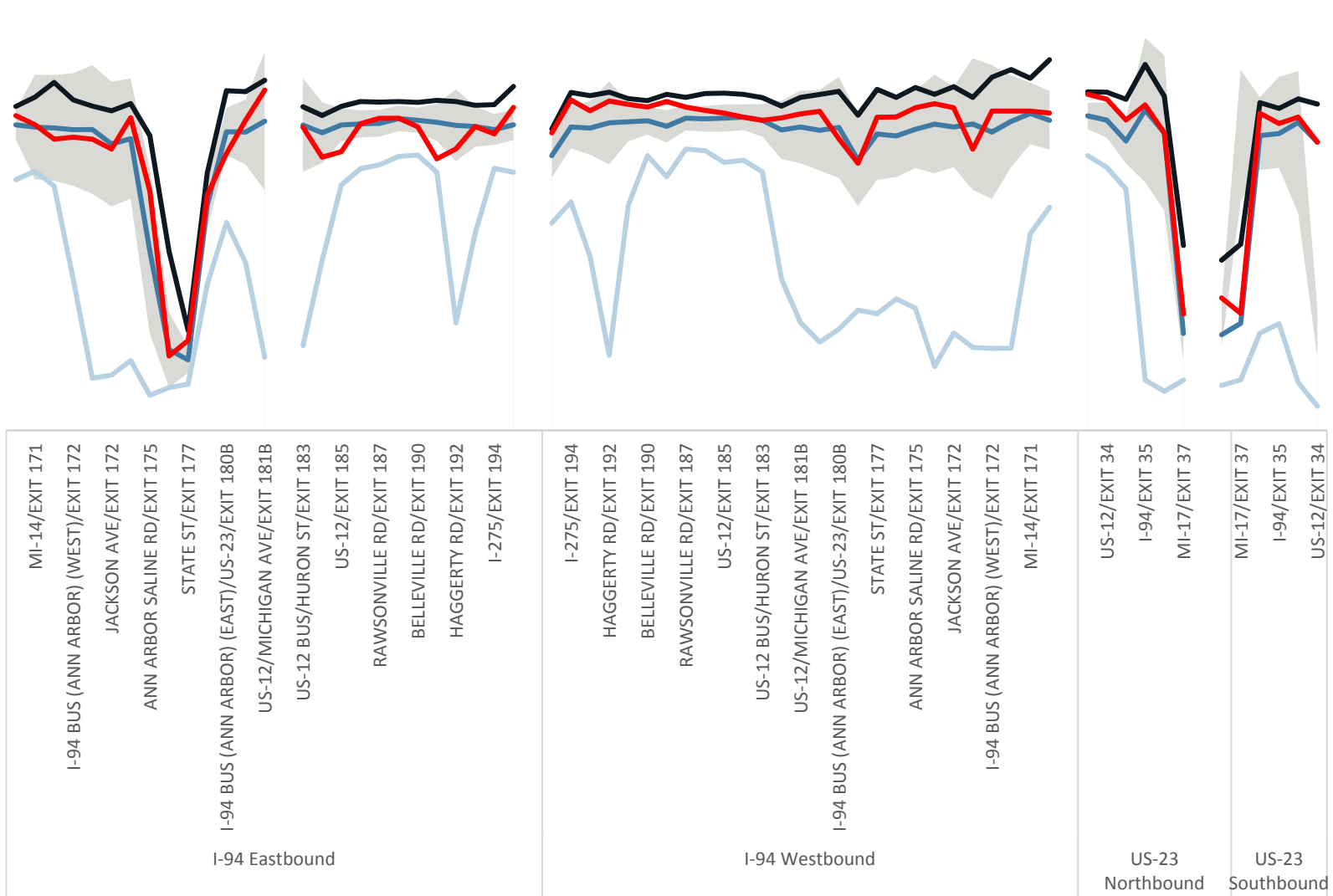
Speed (mph)





4:45 - 5:00PM

Speed (mph)

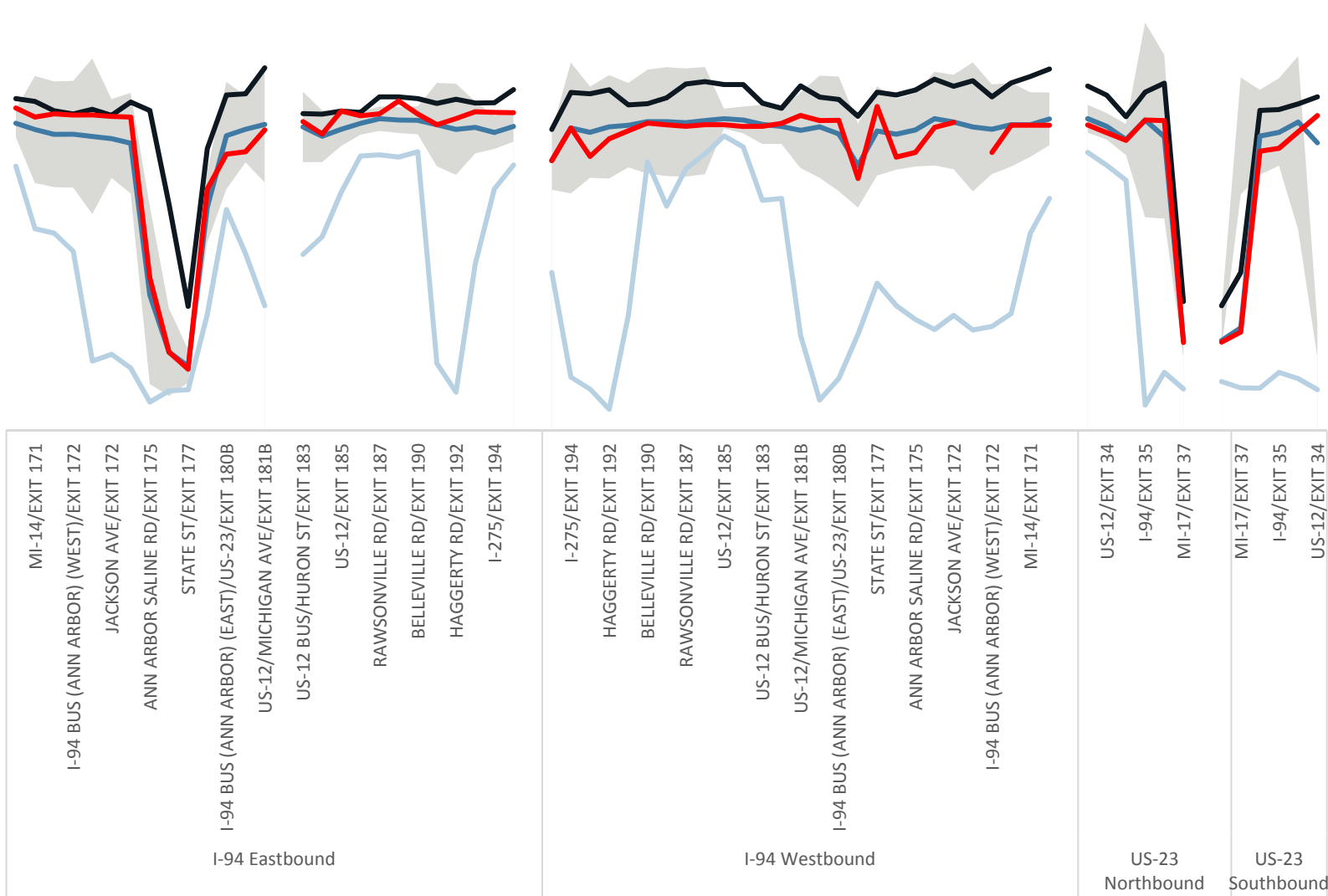


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed



5:00 - 5:15PM

Speed (mph)

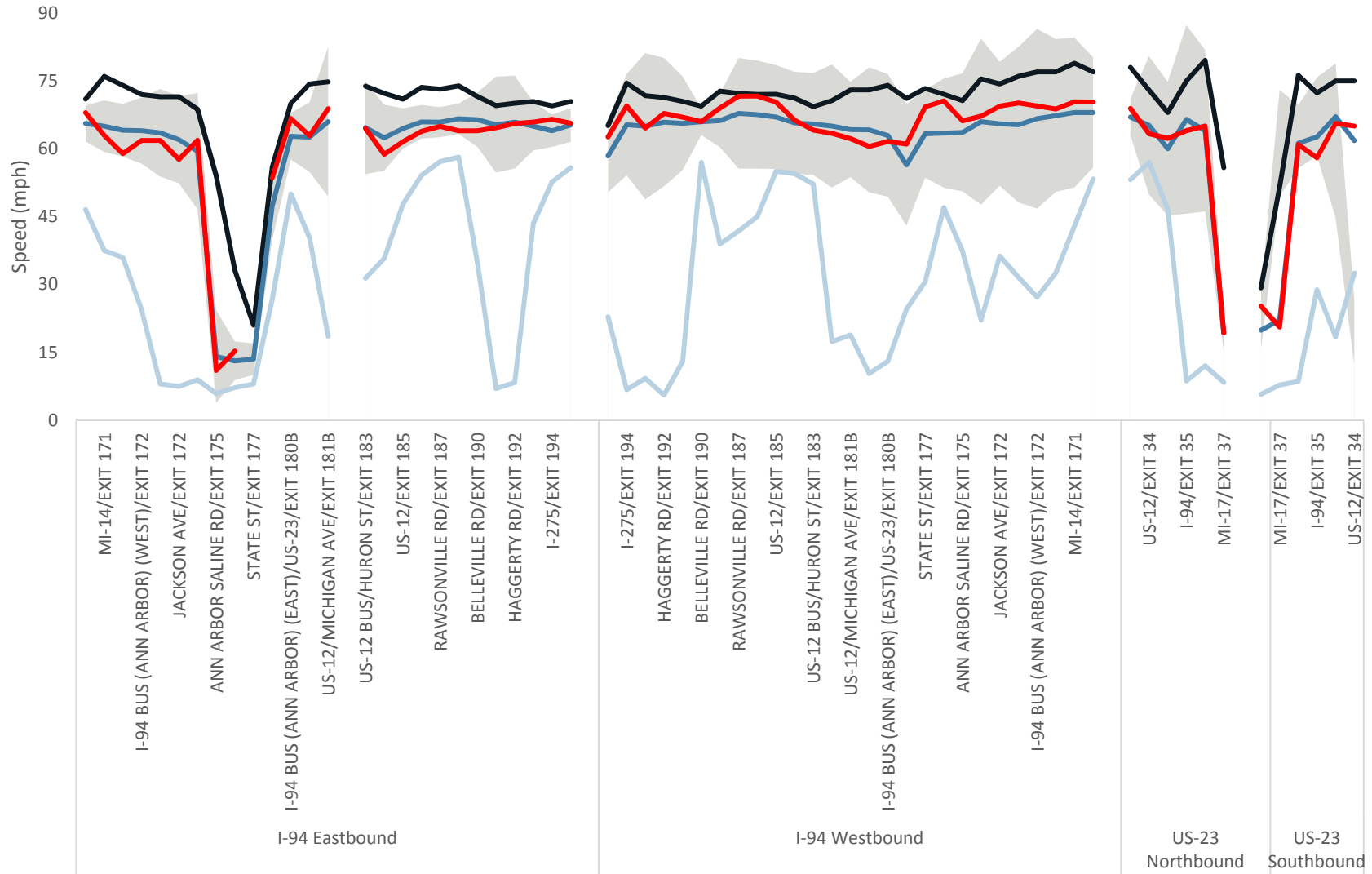


Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed

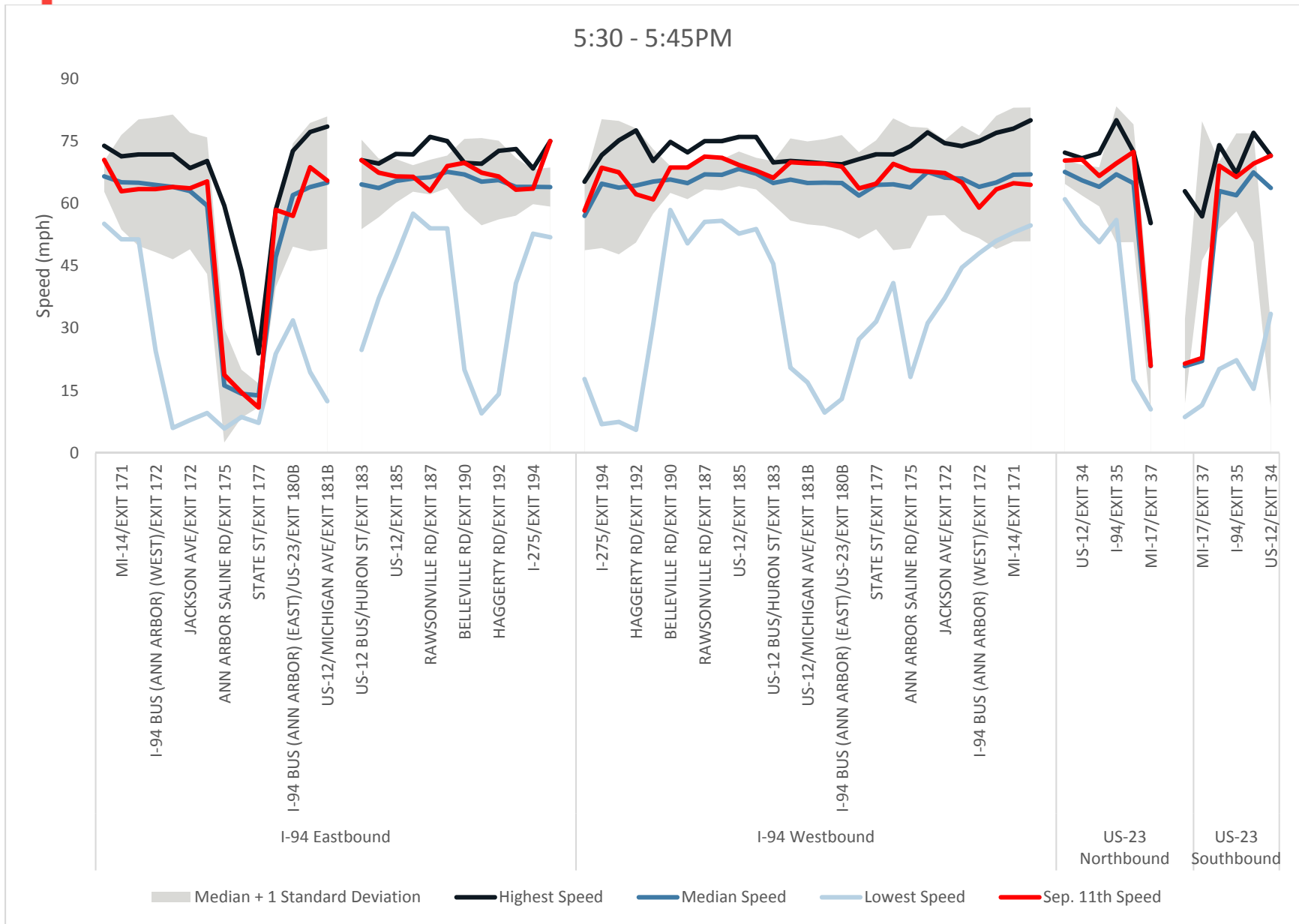


5:15 - 5:30PM

Speed (mph)



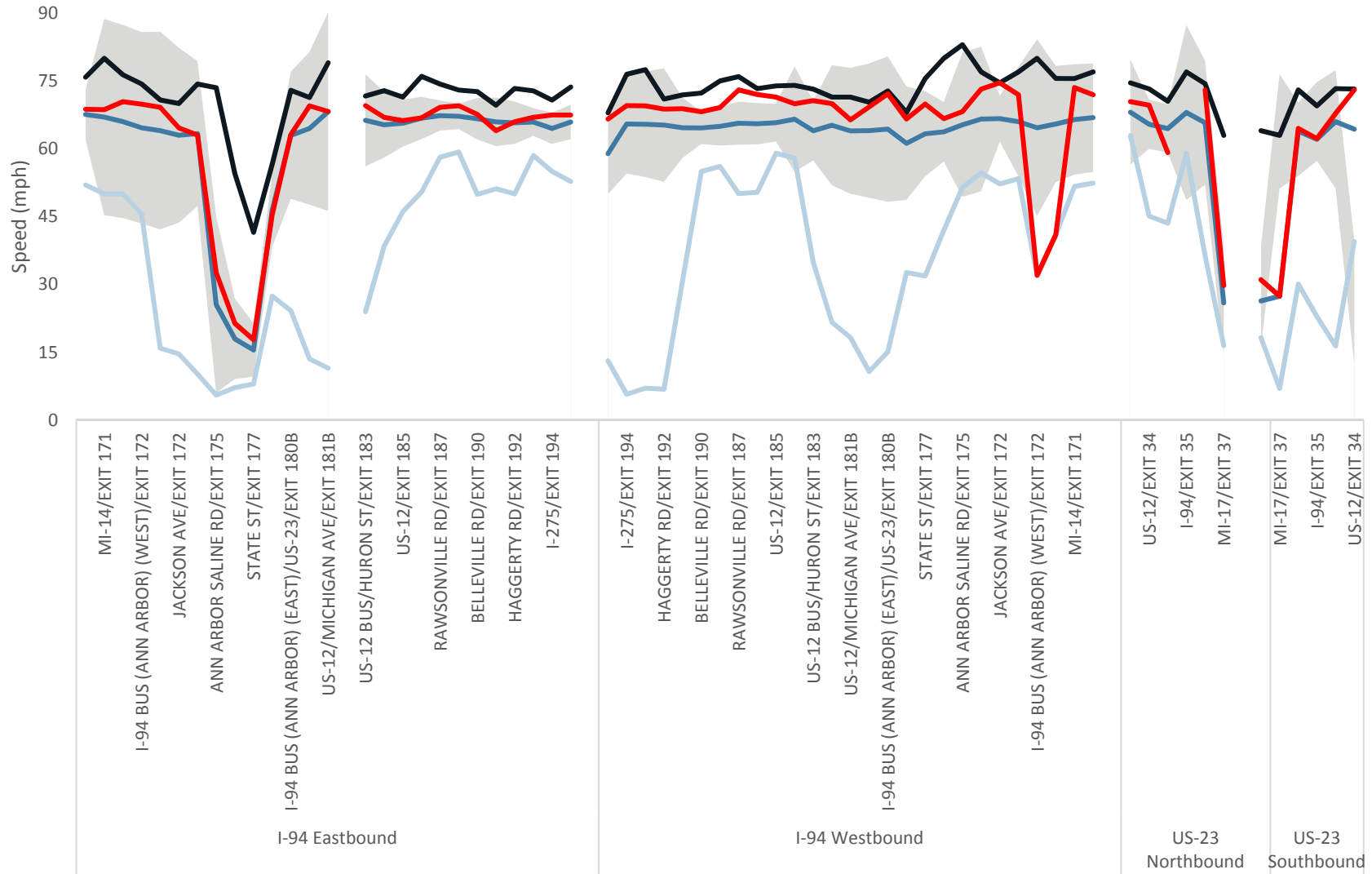
Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed





5:45 - 6:00PM

Speed (mph)



Median + 1 Standard Deviation Highest Speed Median Speed Lowest Speed Sep. 11th Speed