

Main Street – City of Roanoke

February 15, 2021

The Virginia Department of Transportation launched a statewide bike/ped count program in the fall of 2020 and provided two Eco-Vision MultiModal EcoCounters, some accessories, training, and data management to RVARC. The EcoCounters are infrared counters. In July 2019, Virginia Tech professor Dr. Steve Hankey partnered with RVARC to install four EcoCounters. These generate provide reference counts to calculate average annual daily traffic from temporary count sites.

Pedestrian and bicycle activity was assessed on Main Street near Wasena Village. Main Street, part of U.S. 221, connects Elm Avenue to Brandon Avenue and has an Average Annual Daily Traffic of 9600 vehicles. The bridge to the north crosses two major barriers, the railroad tracks and the Roanoke River. Pedestrian and bicycle generators are the Roanoke River Greenway, businesses in Wasena Village (on Main Street and near the greenway), and bus routes #61/#62 with stops on Main Street. Towers Shopping Center on Brandon Avenue may attract bicycle pedestrian activity on Main Street. There are two bicycle shops nearby: Roanoke Mountain Adventures in Wasena Village and American Flyers near Brandon Avenue.



Main Street near Wasena Village. Red stars indicate counter locations.

When Main Street was repaved, bike lanes and crosswalks were added and curb ramps were upgraded to ADA compliance. The renovation of historic buildings has stimulated economic growth in Wasena Village, such as the upscale restaurant Bloom. During the counting period, there was an active Pedestrian Safety Campaign underway, “Every Corner is a Crosswalk”.

RVARC staff installed two Eco-Vision counters with pneumatic tubes to count bicyclists in the bike lanes and the infrared sensors directed across the sidewalk to capture pedestrians. The 10th Street counters were selected as the reference counters for pedestrian counts because they are likely to have similar travel patterns to the Main Street locations. Memorial Avenue bike lane counters are the only available for bicycle counts. The pneumatic tubes were in place August 6 – September 15, 2020.

The counter on the east side was moved entirely at this point as it was needed elsewhere, but the counter on the west side continued to capture pedestrian data until October 15, 2020.

Day-of-year factors were determined for the 10th Street reference counters by dividing the day’s count by the average of 365 consecutive days of counts for that counter, then average the two counters’ individual day-of-year factors. The same process was used for the Memorial Avenue bike lanes. Each day’s counts on each of the temporary counters were divided by the ped or bike day-of-year factor for the corresponding date to create adjusted counts. The adjusted counts were



Counter locations on the east (top left) and west (top right) sides of Main Street, and the counter and tubes installed (bottom).

averaged to calculate the annual average daily pedestrian or bicycle traffic at each counter location.

Average Annual Daily Traffic

The average annual daily pedestrian traffic was higher on the west sidewalk than the east sidewalk and the average annual daily bicycle traffic was almost three times higher on the west side than the east (Table 1). While there was a preference for the west sidewalk, there was not a directional split in pedestrian travel (Figure 1). The higher bicycle traffic on the west side compared to the east did, however, did reflect a directional split favoring southbound travel as there were very few wrong-way bicyclists in either bike lane.

Table 1. Average Annual Daily Pedestrian Traffic (AADT)

Mode	Side	Average Raw Counts	AADT
Pedestrian	East	56	46
Pedestrian	West	76	74
Total Pedestrian			120
Bicycle	East	11	9
Bicycle	West	30	25
Total Bicycle			33

While neither pedestrian nor bicycle activity showed a dramatic response to the day of the week, pedestrian activity peaked on weekends and bicycle activity was higher on weekdays (Figure 2).

Both pedestrian and bicycle activity was high throughout the day with a mid-afternoon slump and an evening peak (Figure 3).

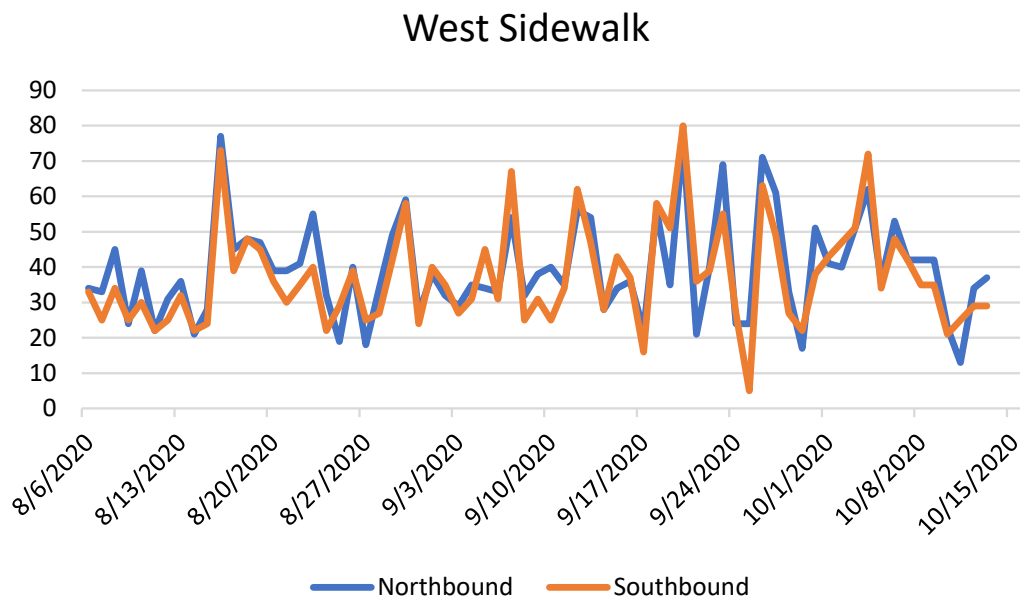
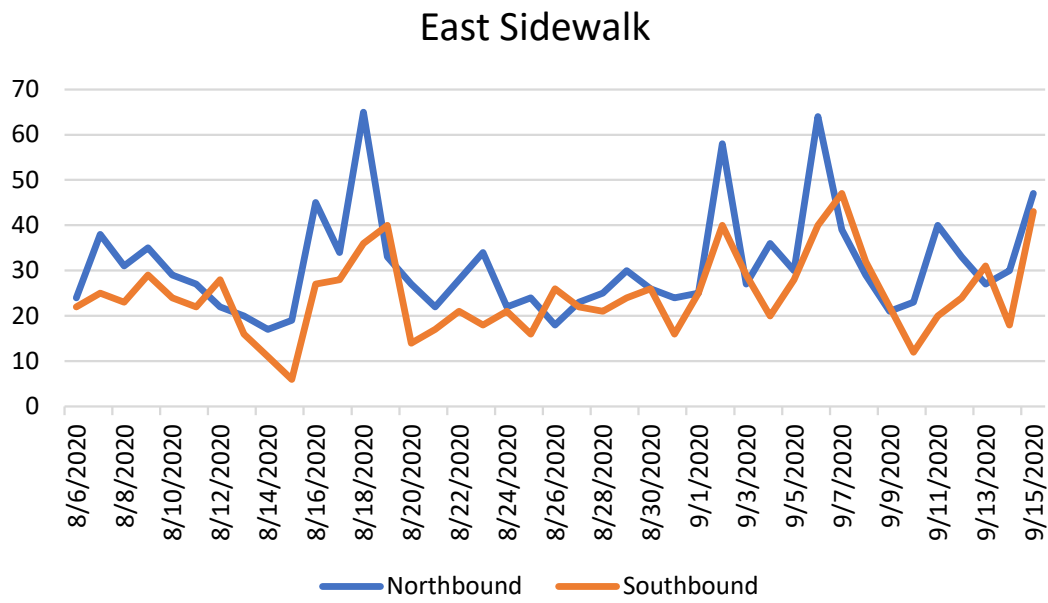
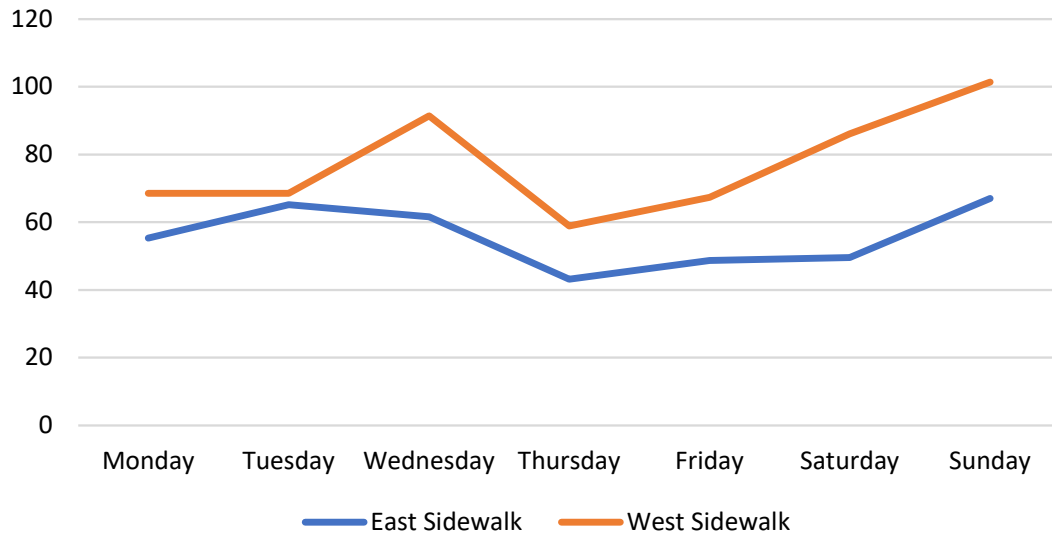


Figure 1. Directional split of pedestrian traffic

Day of Week Pedestrian Activity



Day of Week Bicycle Activity

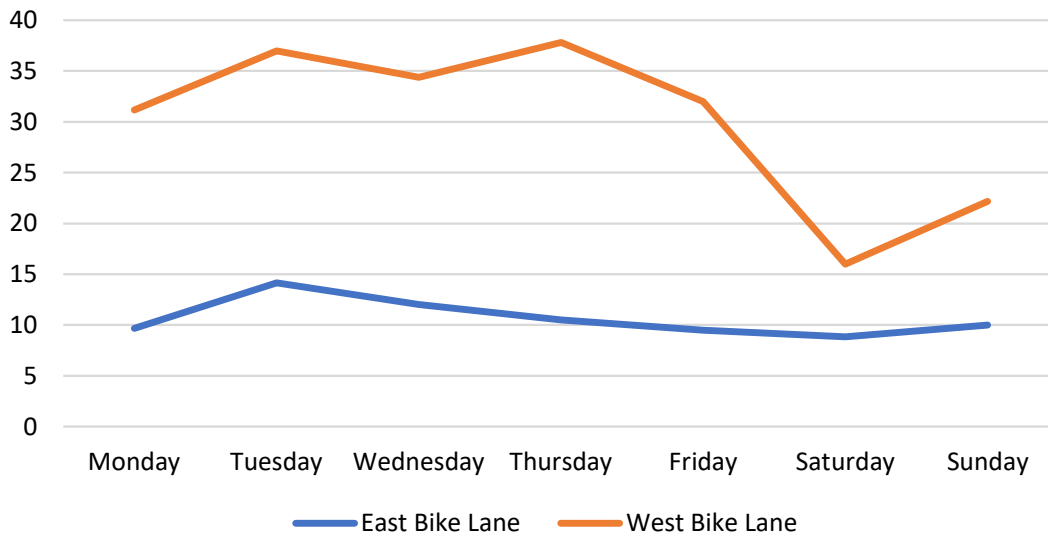
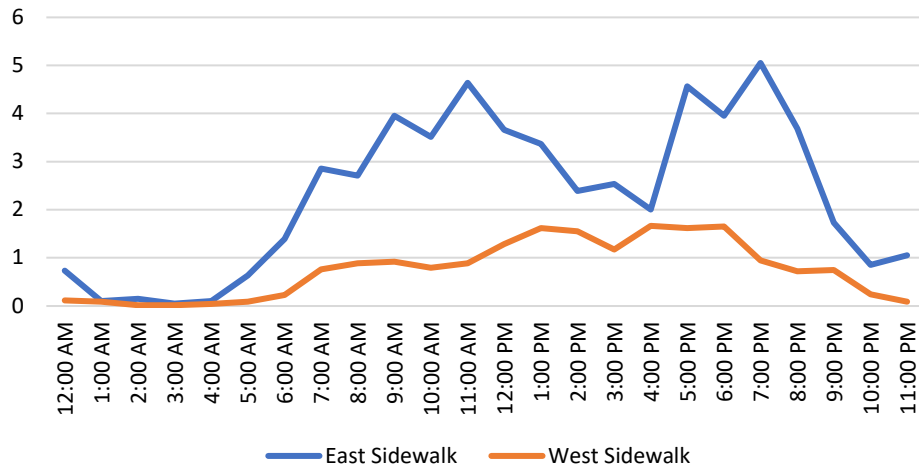


Figure 2. Day of Week

Time of Day Pedestrian Activity



Time of Day Bicycle Activity

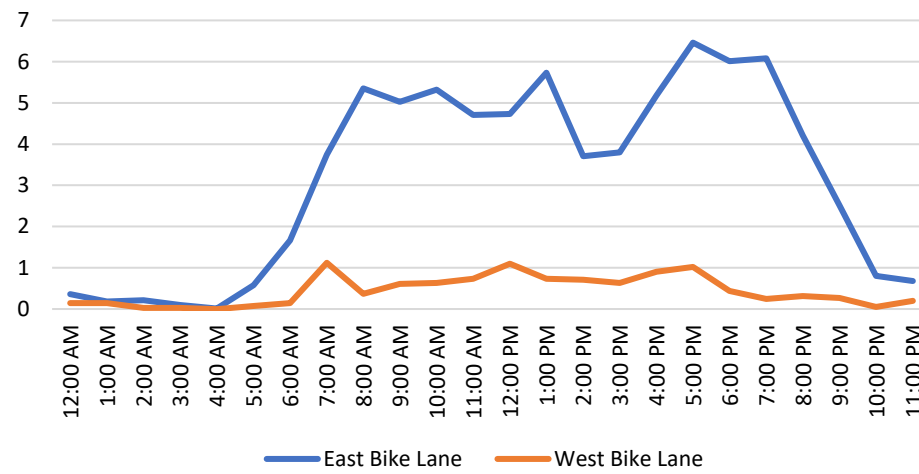


Figure 3. Time of Day