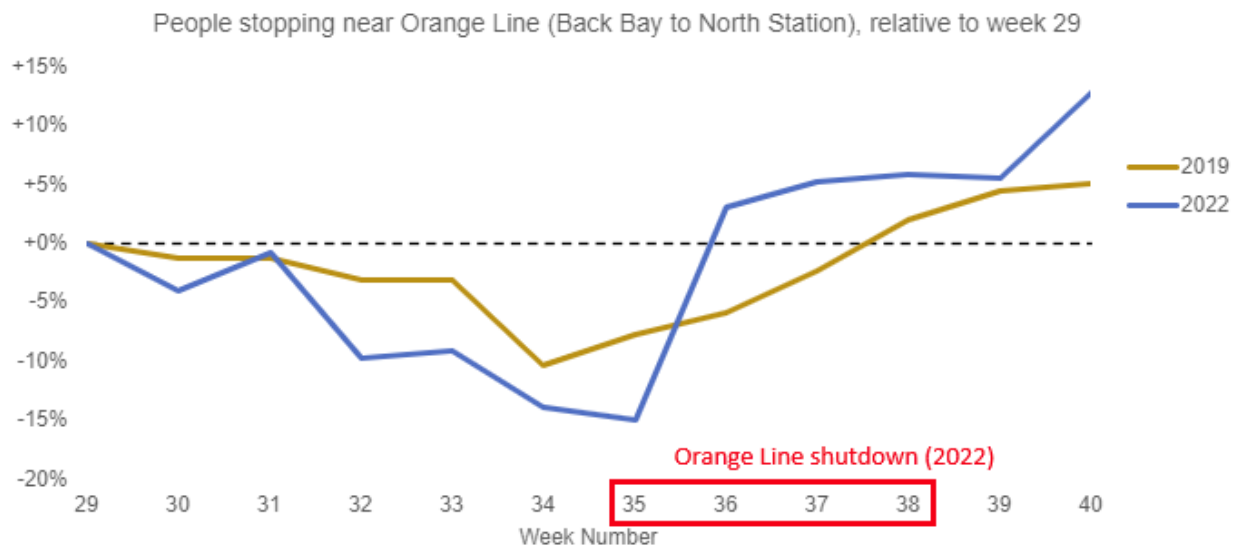


Orange Line Shutdown Foot Traffic Analysis

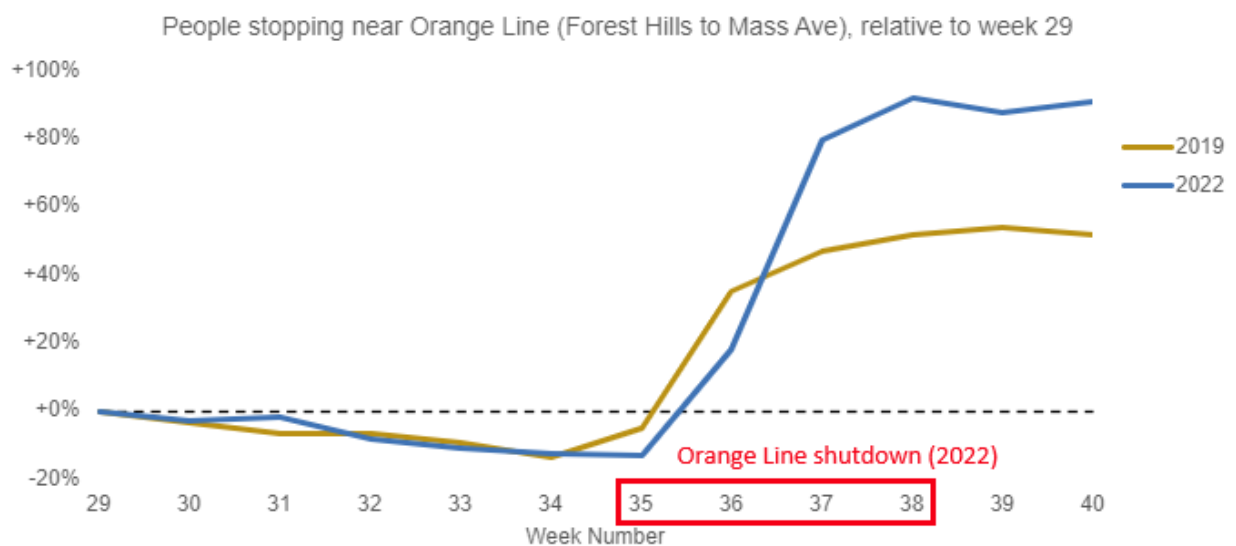
Boston Planning & Development Agency - Research Division

10/31/2022

The BPDA Research Division looked at the areas along the Orange Line during the shutdown (August 20-September 18) to analyze changes in foot traffic as measured by cell phone mobility data. We divided the Orange Line into two areas of interest: Forest Hill to Massachusetts Avenue (a mostly residential area), and Back Bay to North Station (a mostly commercial area). We only considered device stops that occurred within 0.25 miles of each corresponding section of the Orange Line. The charts below use week numbers to compare equivalent weeks between 2019 and 2022. Week 29 of 2022 started on July 9.



Source: Spectus Mobility Data. Spectus collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously, through a GDPR-compliant framework. BPDA Research Division Analysis.



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In the first full week of the shutdown (week 35, starting 8/20/2022), the numbers of people stopping near both parts of the Orange Line saw a slight decline (1-2%) from the previous week. During the equivalent week in 2019, the numbers of stoppers in both sections of the Orange Line showed a slight increase (3-5%) from the previous week.

However, starting in the second full week of the shutdown, the number of people stopping near the Orange Line increased dramatically, exceeding the levels of early July, perhaps due to the return of college students to the area. Additionally, along both sections of the Orange Line, the numbers of stoppers relative to week 29 levels have remained higher in 2022 than they were in 2019.

Additional Information on Analysis Methodology

To generate a proxy measurement of overall foot traffic, we accessed mobility data provided by Spectus, which collects, anonymizes, and aggregates location data from mobile devices whose owners have opted in to share their locations. In order to estimate how many people are stopping near the Orange Line while excluding people that are simply passing through from our analysis, we specifically pulled numbers of unique “stoppers” (devices that dwelled in a specific location for some time) from Spectus.

It is important to note that numbers of stoppers include many devices which stopped for reasons other than to shop at businesses, which limits how precisely we can estimate the business-specific impact of the shutdown using this data. It’s also worth noting that the number of devices on which Spectus collects location data represents only a fraction of the total population in the area, one which may not be representative of the overall population, demographically or otherwise. In spite of these limitations, we feel that data on the number of stoppers over time can offer useful insights into how potential business foot traffic near the Orange Line has been changing over time.

We summed up the unique number of devices that stopped in each area on a weekly basis for the 6 weeks leading up to the Orange Line shutdown, the 4 weeks of the shutdown itself, and for 2 weeks after the shutdown was lifted. Because the Orange Line shutdown commenced on a Friday night, we designated Saturday as the start of each week. We also pulled numbers of stoppers for the equivalent Saturday-to-Friday weeks in 2019, to serve as a point of comparison. In order to normalize the 2019 and 2022 data to each other, we charted them in terms of percent changes in numbers of stoppers relative to the first week for which we pulled data (week 29).