Team IC25030
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Abstract

This analysis examines WMATA Metro ridership trends, focusing on factors contributing to a significant decline in ridership and potential solutions to increase ridership. A bar chart of the top ten stations by total ridership revealed that most high-ridership stations are in close proximity to federal buildings and universities, predominantly used by federal employees and students.

By grouping line charts of federal-heavy stations and student-heavy stations, key insights into peak usage periods were identified. Federal-heavy station ridership was found to peak during PM Peak hours, followed by AM Peak hours. Student-ridership was found to peak during AM Peak hours, followed by PM Peak hours.

An analysis of the top five U.S. metro systems by percent change in annual ridership revealed that the introduction of Uber and the impact of COVID-19 significantly contributed to ridership declines across all systems. However, WMATA experienced a steeper decline than others. To further investigate the decline, DC crime data was mapped alongside WMATA Metro routes, revealing a higher concentration of crimes near federal-heavy and student-heavy stations. This finding suggests that safety concerns, especially within these high-ridership demographics, could be a significant deterrent to Metro usage.

This analysis suggests that as federal workers return to in-person work, addressing safety concerns is critical. DC crime data mapped alongside WMATA Metro routes revealed higher crime concentrations near federal-heavy and student-heavy stations. Increased security patrols and discounts during AM and PM Peak hours for federal workers and students could boost ridership and foster long-term relationships with these key demographics.