

PUBLIC TRANSIT - KING COUNTY

Fare Reinstatement Assessment

This assessment finds that King County residents, specifically low income riders, were less likely to take the bus after fare collection was reinstated on October 1, 2020.



INTRODUCTION

Research shows that ridership fees for public transportation can be a barrier to transit equity, and this can hinder access to economic opportunities and decrease mobility for certain populations.¹ Alternatively, some experts argue that a complete removal of transit fares is not financially sustainable, noting that fares help improve and sustain transit services.² King County's brief fare discontinuation in March of 2020, in response to the COVID-19 pandemic, provides an opportunity to gain insight into how fares impact transit ridership. The following assessment looks at the total change in daily bus ridership and compares the fare reinstatement's impact across groups within different median household income brackets.

The study finds that after the fare was reinstated there was a decrease in the average number of daily riders by 5.5 percent. Furthermore, ridership decreased across all socioeconomic groups except for middle income riders who saw an increase in their total ridership. However, a closer look at ridership trends over time by socioeconomic status shows that the daily ridership of middle and low-middle household income riders began to rebound about two weeks after the fare reinstatement. In comparison, low income ridership continued to decline. Although our findings suggest different fare sensitivity across demographic groups, this analysis was conducted under less than ideal circumstances which limits our ability to conclude effective policy recommendations. The following report will discuss the assessment's approach, limitations, and recommendations in response to its findings.

PREPARED BY

E. Irion, S. Mahoney, M. Nakamura, W. Chen
UCSD Public Policy Analysts

¹ Kashinsky, Lisa, and Tanya Snyder. "Mayors Are Wielding Free Transit to Draw People Back Downtown. It's Not That Easy." POLITICO, 15 June 2022, <https://www.politico.com/news/2022/06/15/inflation-free-public-transportation-00039644>.
Hughes, Susan A. "Should Public Transit Be Free? Experts Weigh in on Policy Options." Harvard Kennedy School, 30 June 2021, <https://www.hks.harvard.edu/faculty-research/policy-topics/cities-communities/should-public-transit-be-free-experts-weigh-hks>.

APPROACHES & RESULTS

During the COVID-19 pandemic, public transit—specifically bus ridership—in King County was severely impacted.³ In an effort to encourage social distancing and reduce the spread of COVID-19, King County Metro Transit decided to implement a contactless solution by suspending fare collection for riders for all services including buses between March 21, 2020, and October 1, 2020. Since ridership was already impacted by the pandemic, there were additional changes enacted to the bus schedule to match the decline in demand. Therefore, this analysis only compares bus ridership after these additional changes were implemented with the fare post-reinstatement period consisting of one month's worth of data.

Figure 1. Avg. Daily Ridership Pre and Post Fare Reinstatement

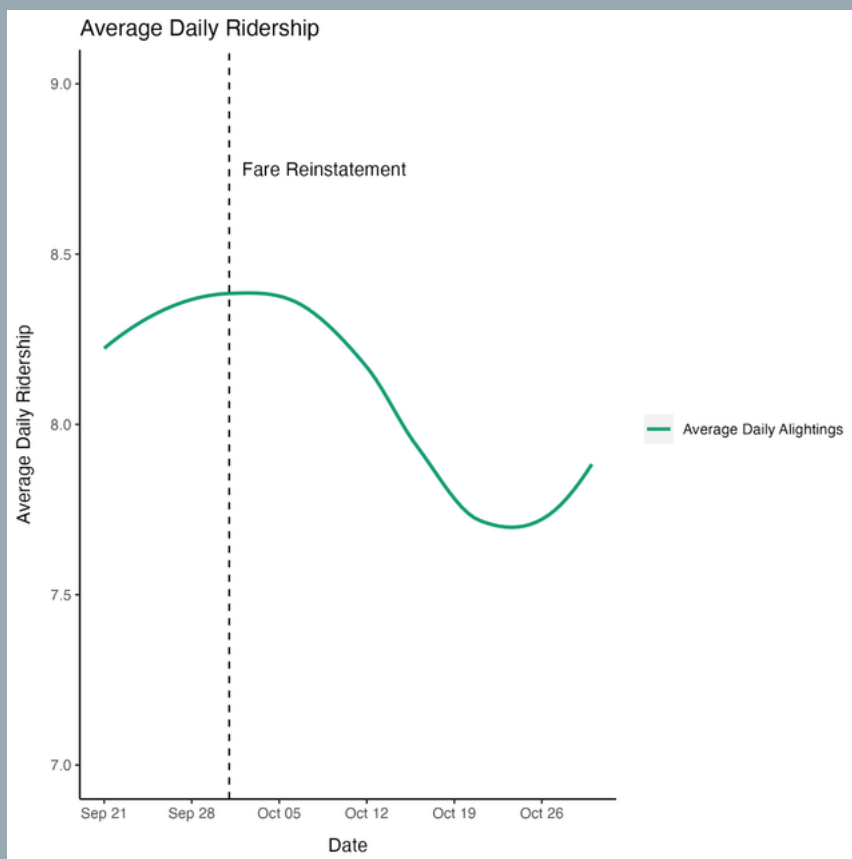


Figure 1 shows *weekday* ridership between Sept. 19, 2020 and Oct. 31, 2020 before and after the fare reinstatement on Oct. 1, 2020.

PART 1 | TIME FRAME

The discontinuation period used is September 19th - September 31st and the fare reinstatement period is October 1st - October 31st.⁴

Additional Notes

Since we are interested in transit access and its connection to a citizens' economic opportunities, this portion of the analysis assumes people using transit for work occurs on the weekdays. Therefore, daily ridership on the weekends was omitted, which also addressed multiple outliers, for instance, sporting events that occurred during this time period.⁵

PART 1 | RESULTS

Part one of the analysis compares total daily ridership⁶ between the two periods mentioned above. As illustrated in Figure 1, the findings show a slight decrease in overall average daily ridership by approximately 5.5% following the reinstatement of fares. The decreasing trend in average daily ridership after the fare was reinstated indicates an overall price sensitivity in King County. However, this could be misleading without further analysis. As mentioned previously ridership was already significantly down in response to the COVID-19 pandemic, therefore it is difficult to ascertain causation for this decrease.

³ "Ridership." Ridership Annual Measures - Accountability Center - King County Metro Transit - King County, 23 Sept. 2021, <https://kingcounty.gov/depts/transportation/metro/about/accountability-center/performance/ridership/annual.aspx>.

⁴ Refer to section 1 of the Technical Appendix, "Data Overview," for more details on the analysis time frame.

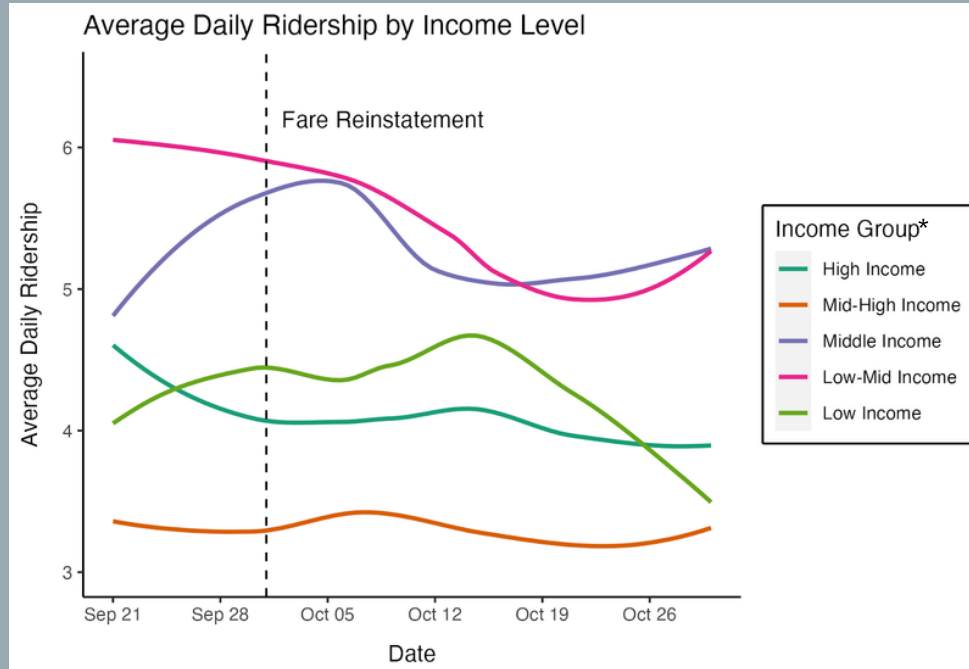
⁵ More details on outliers and the reasoning behind specific data adjustments can be found in section 2 of the Technical Appendix.

⁶ Daily ridership was defined using alightings (departures) during specific times during the day to prevent double counting; refer to section 2 in the Technical Appendix for more details.

PART 2

Part two of the analysis looks at the impact of the fare reinstatement on different socioeconomic groups. Based on the available data provided by the American Community Survey, five median household income brackets were determined in King County: Low Income (below \$90,179), Low-middle Income (\$90,179 - \$111,705), Middle Income (\$111,705 - \$125,313), Mid-High Income (\$125,313 - \$152,969), and High Income (above \$152,969). For reference, King County's 2020 median household income was 47% higher than the national average. For each income bracket outlined above, total ridership decreased post fare reinstatement except for riders with Middle income levels. However, this does not tell us how daily ridership changed over time. Figure two represents the trend over time allowing for a more detailed comparison of ridership behavior across income brackets.

Figure 2. Avg. daily alightings⁴ for weekdays, between Sept. 19, 2020 - Oct. 31, 2020; Pre and Post Fare Reinstatement



*Each income group represents 20% of the available census data.
 High Income: above \$152,696; Mid-High Income: \$125,313-\$152,969; Middle Income: \$111,705-\$125,313; Low-Mid Income: \$90,179-\$111,705; Low Income: below \$90,179.

PART 2 | RESULTS

The trend in daily ridership over time, as shown in Figure 2, indicates a possible delay in ridership response to the fare reinstatement. After a two week period where individuals are responding to the shock of the fare reinstatement it is likely that individuals decide to use alternative transit plans or continue using the metro despite the fare. Taking this into account, more stabilized trends can be seen beginning to rebound between October 12 and 19.

Two weeks after the fare reinstatement, low income riders have a noticeable decrease in daily ridership, whereas Low-Middle income and Middle income daily ridership begins to increase. Mid-High and High income riders show slight variability in ridership trends before and after the fare reinstatement. Outside of the low income group, all other groups experienced an initial decrease in ridership immediately following the fare reinstatement, but returned to increasing or normal trends soon thereafter. This difference could be explained by low income riders being more price sensitive to the fare reinstatement. In contrast, other income groups who saw an initial decline in ridership appear less price sensitive as seen by their return back to their bus usage after the two week period.

CONCLUSION

By studying ridership during this period of fare discontinuation and after the fare reinstatement, we are able to see that fare collection on metro transportation appears to slightly decrease metro ridership in King County. Parsing out ridership by demographic showed that low-income individuals are more sensitive to these price changes and may be more affected by metro fares than other income groups. Despite what our study shows, we cannot definitively conclude that bus fares have an impact on ridership given the limitations⁷ of the study. As mentioned before, overall metro ridership was significantly reduced due to the Covid-19 pandemic and it is possible these trends are a result of variables other than the fare reinstatement. More analysis must be done during non-pandemic conditions to conclude the true impacts of fare collection on ridership.

IMPLICATIONS & RECOMMENDATIONS

The implications of this study could be used to shape policies that increase public transportation use in King County, reduce environmental impacts of commuters, and increase the mobility of residents in the county leading to economic stimulation in the region. Our study implies that low-income riders in King County may be sensitive to metro fares, while other groups are not. However, King County's low income levels are high for the U.S., and riders within this income bracket cannot be assumed to have similar responses of low income individuals in other communities. Low income riders in King County might have access to other transportation or their jobs might have offered remote working options during this time. This does not explain the difference between low income and low-middle and middle income brackets, which one could assume has the same access to alternative transportation and remote working opportunities.

While this report begins to analyze the impacts of fares on metro ridership, due to the limitations⁷ of our data and research design, these findings should not be taken as conclusive evidence and we recommend that more intensive studies be conducted in order to find more robust results. Firstly, we recommend that individual ridership demographic data be collected to ensure proper analysis on socioeconomic disparities of fare collection. This may be time consuming and costly, but it will ensure accurate results. Second, we recommend performing the study during non-pandemic conditions to ensure there are less confounding factors that could be affecting ridership and more importantly, ridership levels are representative of King County's regular weekday trends.

⁷ Refer to the Technical Appendix for more details regarding the limitations of this analysis.