

TRANSIT DELAY'S EFFECT ON ACCESS TO OPPORTUNITY

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INTRODUCTION

This project surveys the cascading effect of transit delays on access to opportunities and how that impacts equitable outcomes for workers in Atlanta. This project utilizes the Atlanta Transit Equity Dashboard, which analyzes workers' access to jobs via MARTA within a 60 minutes trip. Given the number of daily delays on MARTA, this project maps delays and considers the ramifications of systems delays on workers. Transportation systems should seek to improve service areas with the most access to opportunity.

OBJECTIVE

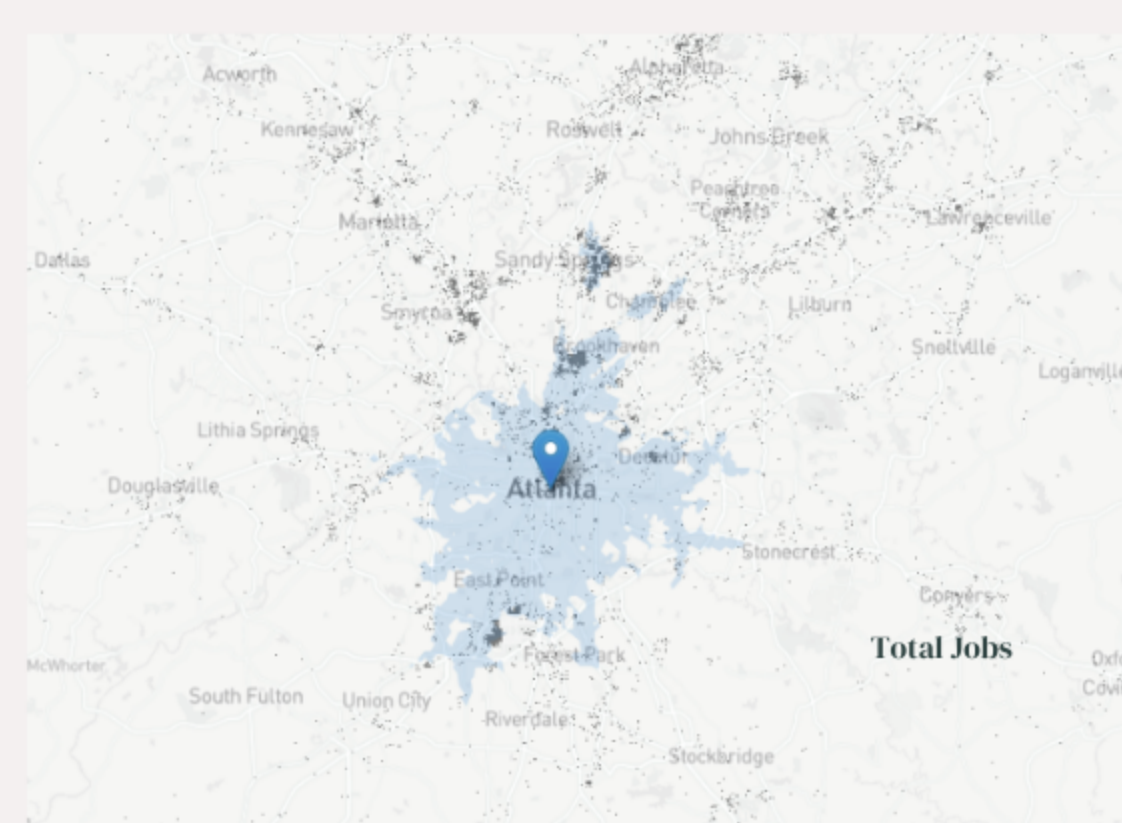
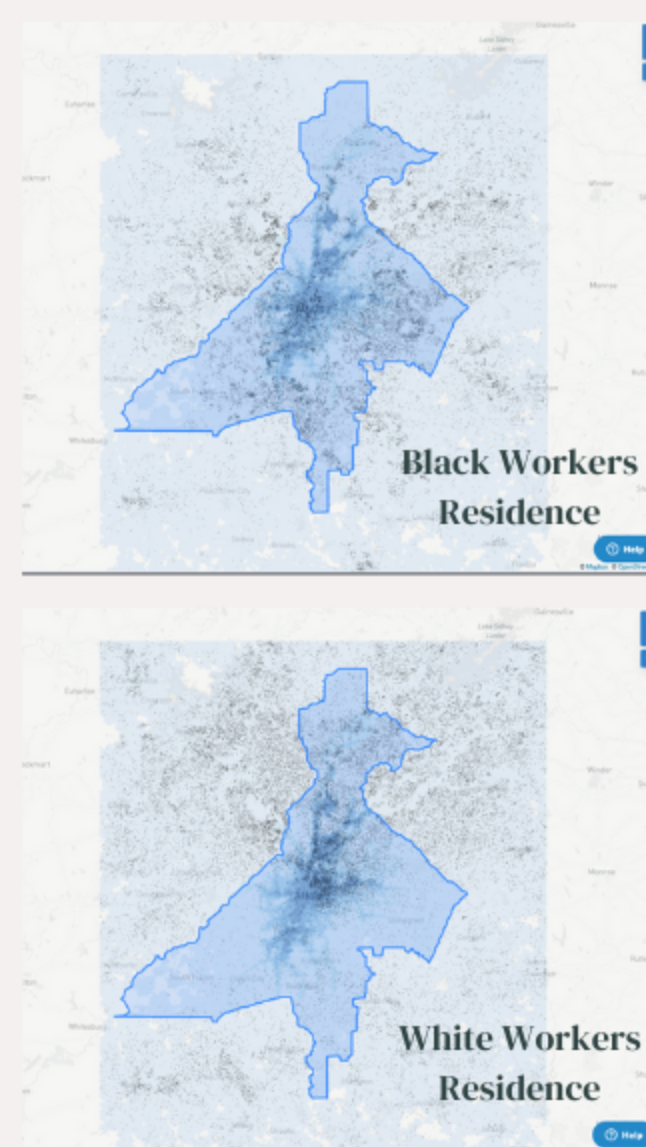
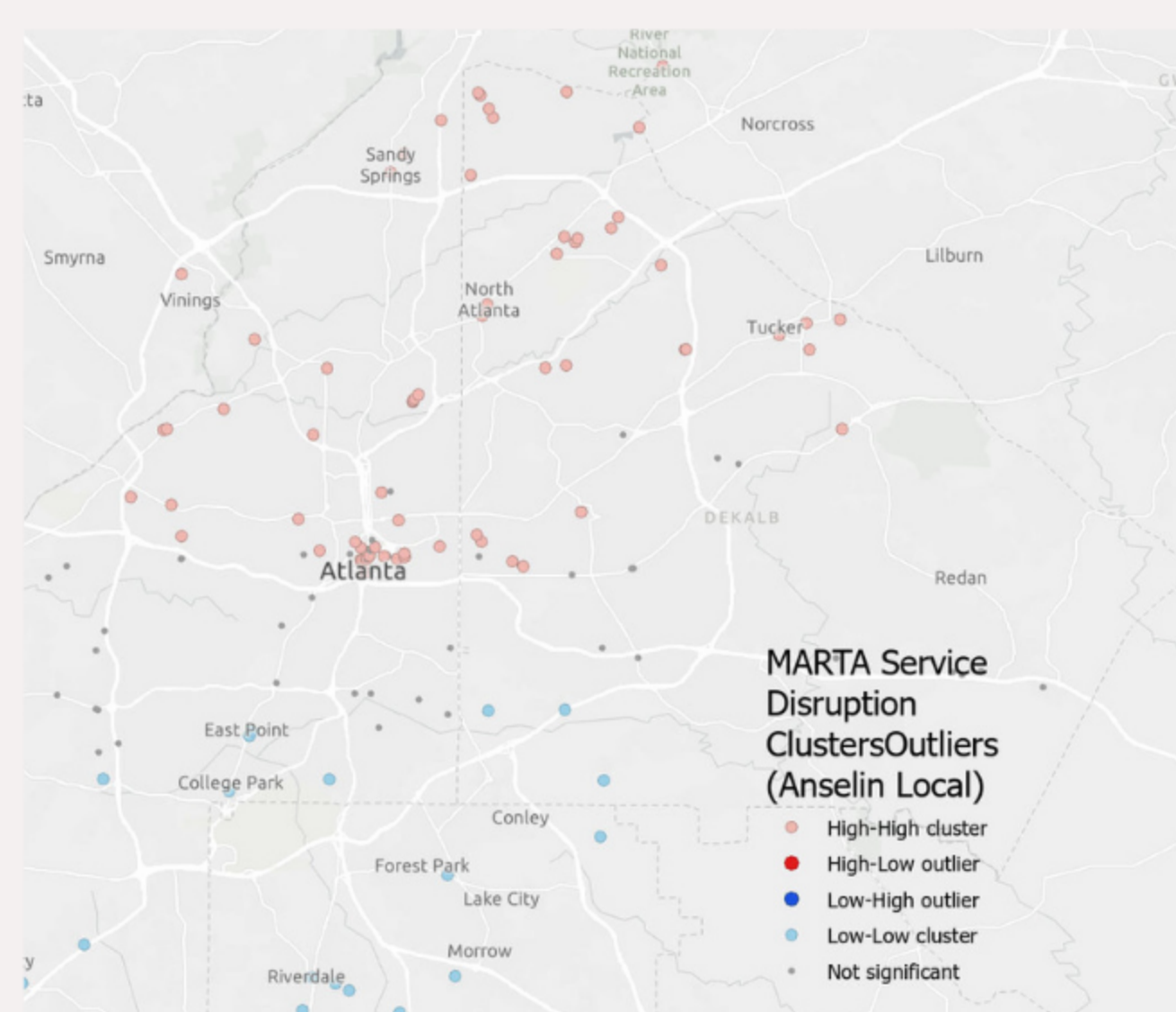
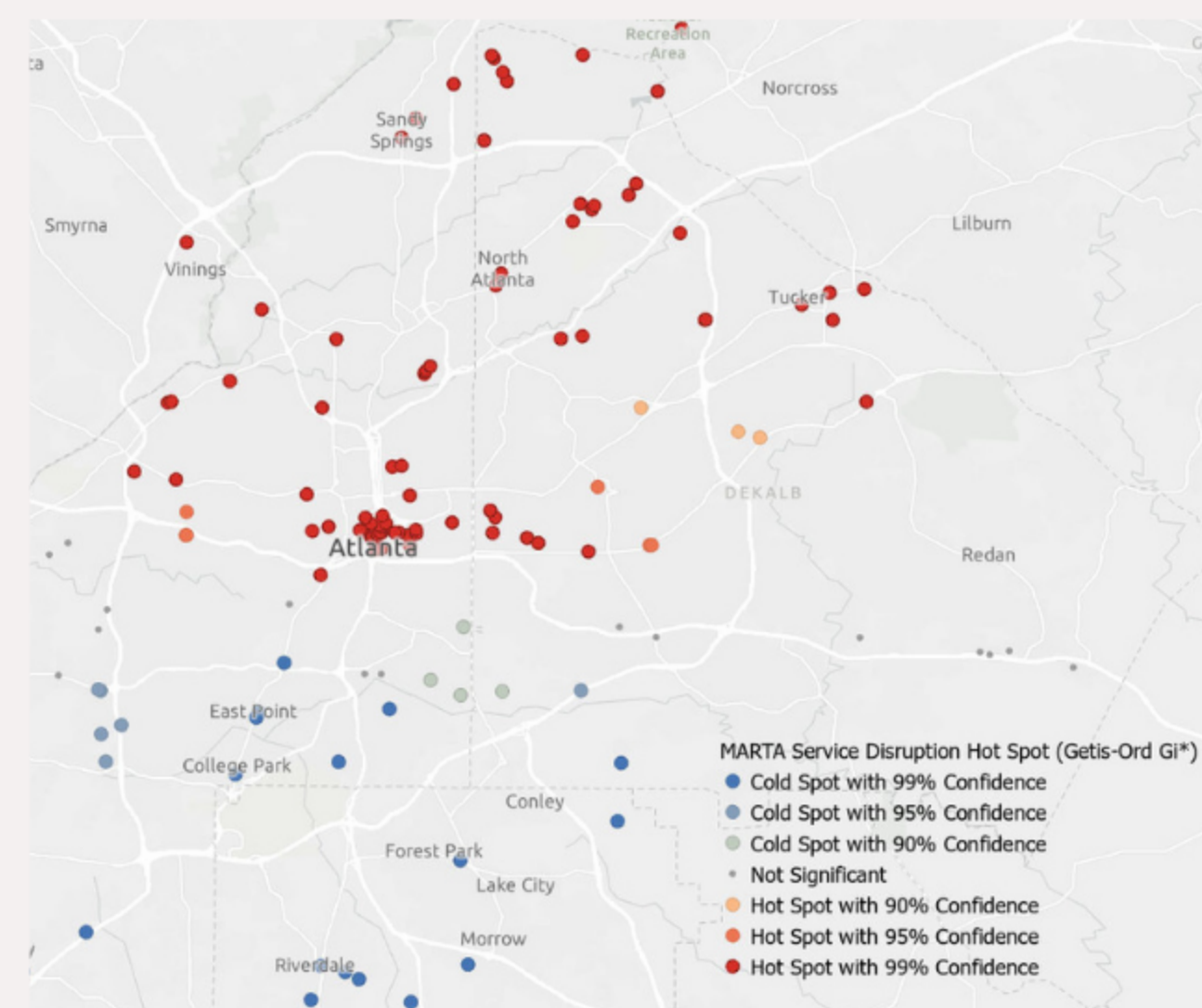
The purpose of this study is to begin exploring the cascading effect of transit delays on access to opportunities and how that impacts equitable outcomes for workers in Atlanta.

METHODOLOGY

This project used geospatial analysis to map MARTA delays in ArcGIS using MARTA service feed data from their Twitter account from January to April. The tweets were geocoded and loaded into ArcGIS, and the data is displayed utilizing the Cluster and Outlier Analysis (Anselin Local Moran's I) and Hot Spot Analysis (Getis-Ord Gi*). The Hot Spot Analysis is first used to identify hot and cold spots, and the Outlier Analysis is used to explore the spatial relationships further and identify any outliers.

RESULTS

This project found that MARTA transit delays tend to occur most north of I-20. Given historic racism, the highest levels of opportunity exist above I-20, and Black workers' residences are highest below I-20. The MARTA system seems to run most efficiently on the south side of I-20, and delays are experienced most when traveling north of I-20 to access opportunities.



CONCLUSION

1. If MARTA is to achieve equitable outcomes, they must consider race, income, and time spent traveling to job centers.
2. During MARTA's bus network redesign, which is reducing lines due to low ridership, they should consider improving the frequency of service in high areas of opportunity.

This project could utilize further study with delay data directly from MARTA and a public transit analysis using ArcGIS premium.

SOURCES

Esri, ArcGIS
Atlanta Transit Equity Dashboard - Margaret Mullins