

# Innovations in Multi-Modal, Schematic Transit Mapping

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INTRODUCTION

**ABSTRACT**  
 Cities like New York and Chicago have comprehensive rail networks that provide not only high frequency service, but also reach popular destinations and employment centers. Although many cities strive for similar transit infrastructure, acquiring the money and/or right-of-way to develop these transit systems takes time. As these systems are developed, cities are using alternative transportation modes such as light rail, streetcars, bus rapid transit (BRT), and local buses. Although historically rail and bus system maps have been separate, integration of these new modes requires integration of system maps. Experts in the field of transit mapping have been calling for frequent transit maps, which highlight routes that provide frequent service or reach important destinations, regardless of mode. This project examines reactions of transit riders and non-riders to these new multi-modal, schematic maps. Using Metropolitan Atlanta Regional Transit Authority (MARTA) in Atlanta as a case study, the research team created multiple maps to gauge reactions through surveys. Each map adds BRT and local bus routes that meet specific frequency and/or location criteria to the existing rail map. Through surveys targeting individuals with different transit ridership habits, this project explores the potential to affect ridership on these alternative modes and enhance system understanding beyond the rail map. The results demonstrate the need to simplify system maps, the public desire for frequency mapping, and the potential to increase ridership on alternative modes. The final product will guide transit agencies in determining criteria to create maps that are easy to understand and incorporate multiple transportation modes.

**PROJECT GOALS**

1. Examine reactions to multi-modal, schematic maps and what riders are looking for in system maps.
2. Explore whether adding bus routes to a schematic rail map has the potential to increase bus ridership.
3. Explore how adding bus routes to a schematic rail map affects understanding of an overall transit system.

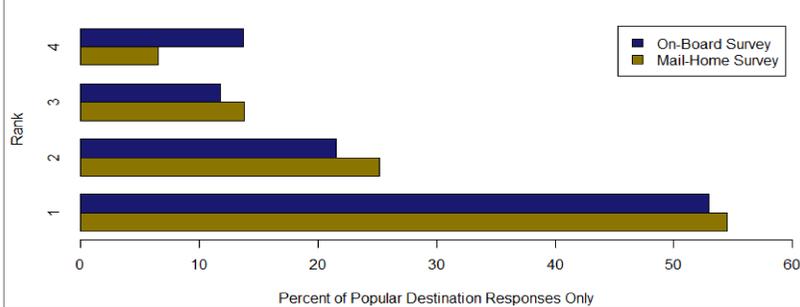
**KEY RESEARCH QUESTIONS ASKED IN THE SURVEY**

- Is it more important for maps to include bus and train routes that reach popular destinations or that come more often?
- If one of these maps replaced the current MARTA overall map, would you rider the bus more?
- If one of these maps replaced the current MARTA overall map, would it help your understanding of the overall MARTA system?

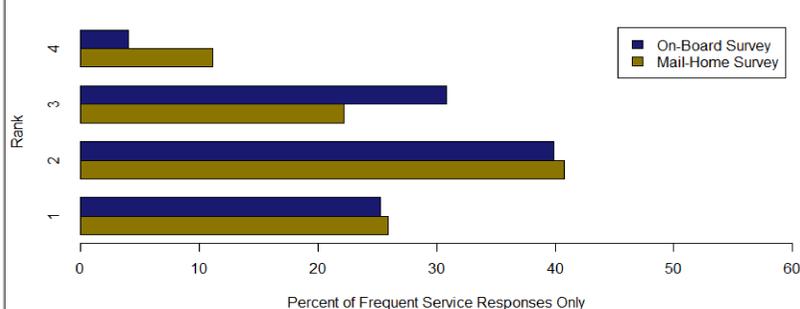
**POPULAR DESTINATIONS vs FREQUENT SERVICE**

We asked participants which attribute was more important for bus routes to have to be shown on a multi-modal map. While the majority stated *frequent service* was more important, the majority also stated that the *popular destinations map* was the most useful, see Figures below.

**How Participants Ranked Popular Destinations Map**



**How Participants Ranked Frequent Service Map**



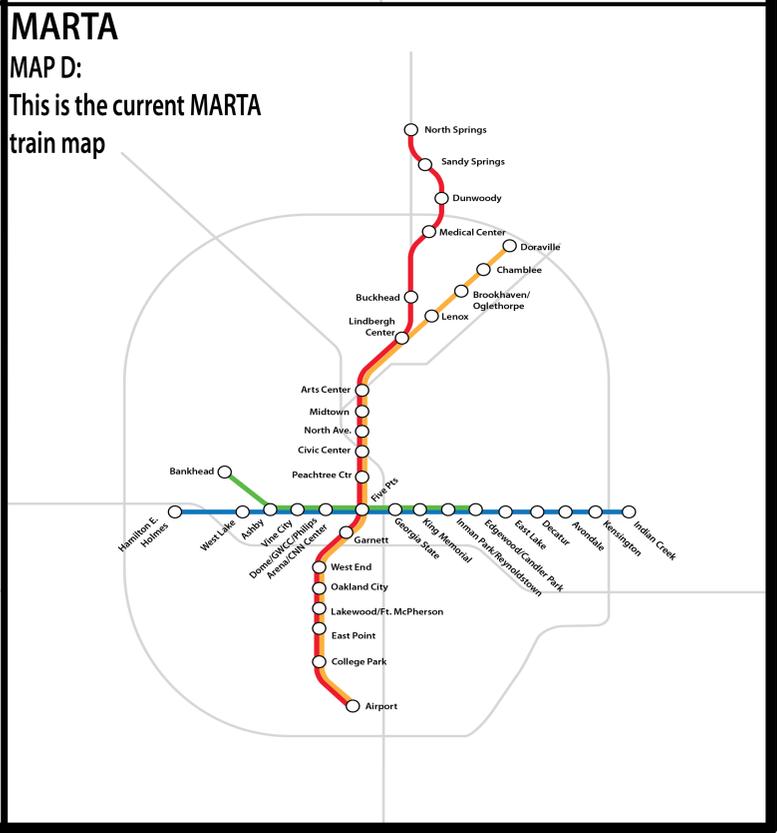
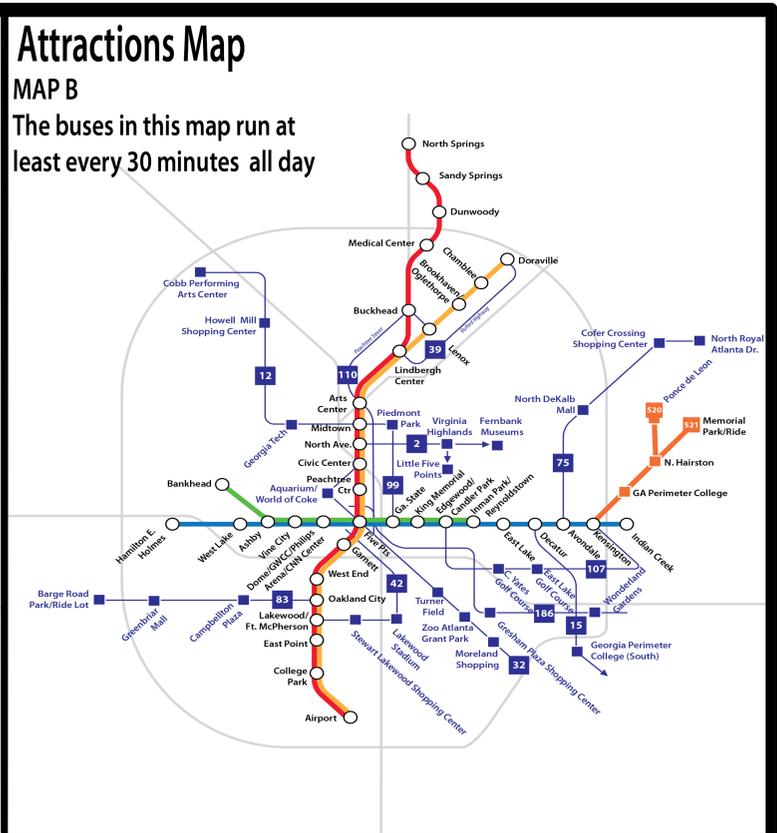
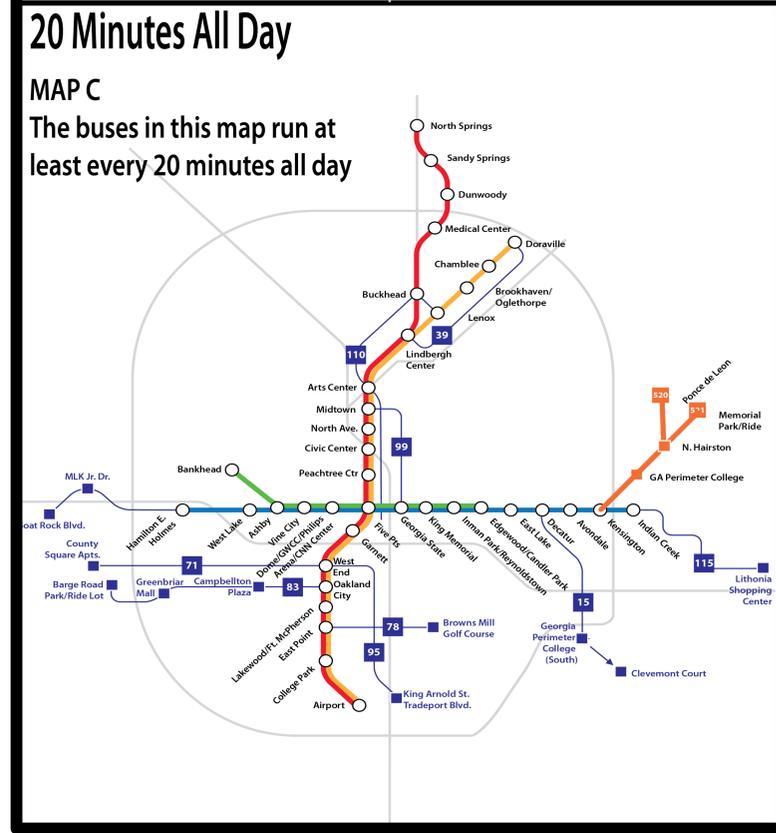
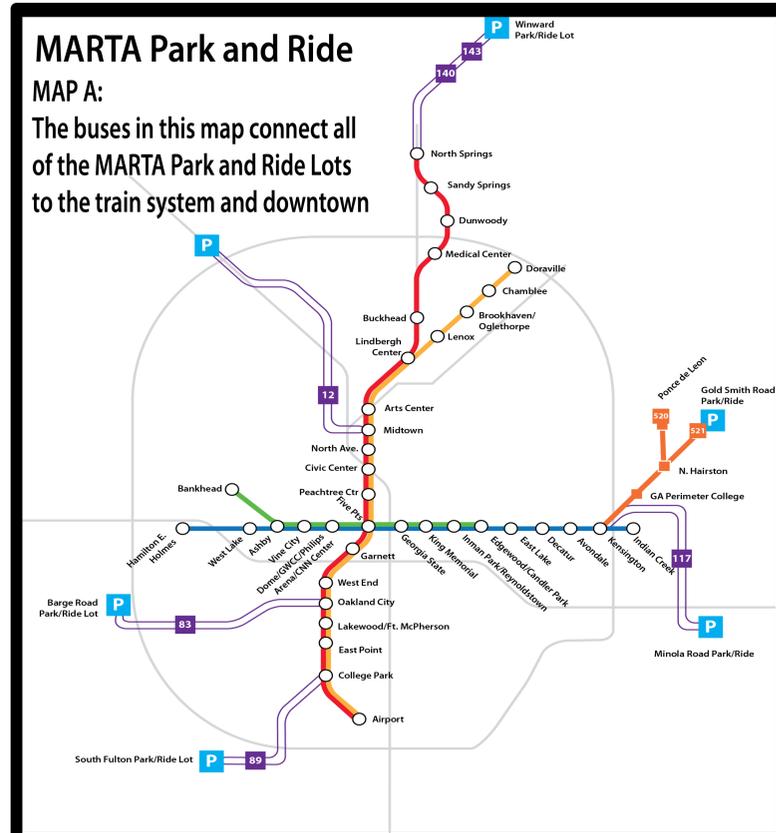
As important as frequent service is to transit riders and potential riders, the popular destination was more useful to them. This indicates that there is a disconnect between where the frequent service goes and where people want to get.

INTERESTING ANALYSIS

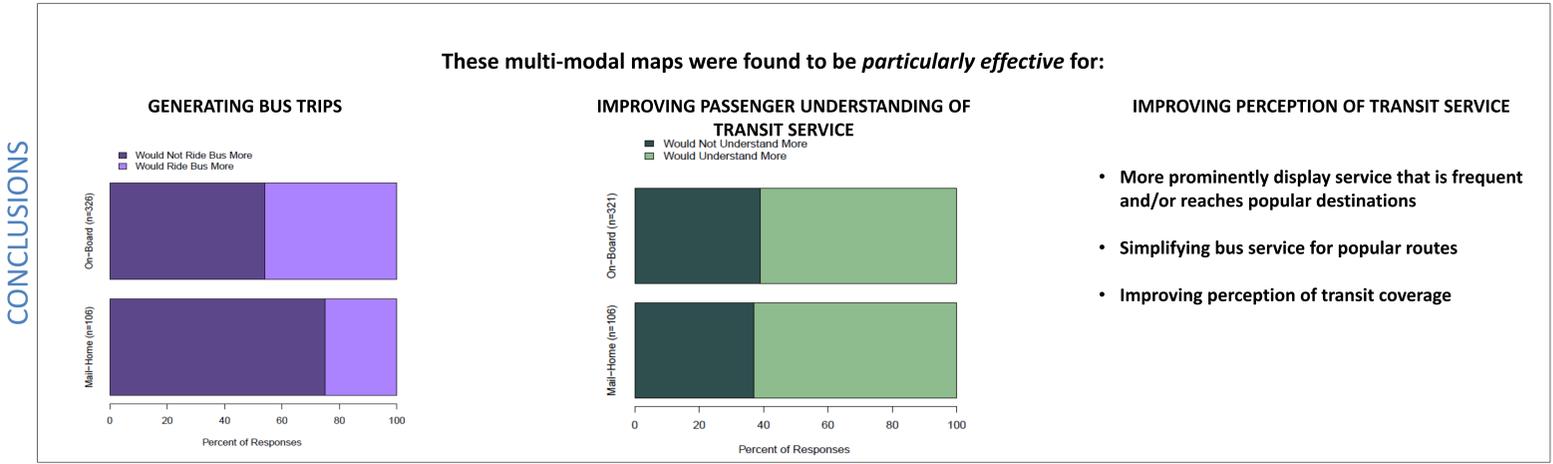
**IMPORTANT DESIGN ASPECTS OF MULTI-MODAL MAPS:**

- Frequency** Providing the headway helps riders by providing an expected wait time.
  - Peak: 10 min
  - Off-peak: 30 min
- Destinations** Showing destinations orients riders and informs them of possible destinations near stops and stations.
- Multiple Maps** For all riders and trip purposes: commuters, tourists, occasional riders.
- Street Names** For routes that are primarily along one street, this helps to orient riders.
- Service** For routes where service varies along segments, this must be indicated.
- Service Standards** Adding routes to a multi-modal map can help the perception of coverage and the agency, but service standards must be especially enforced.
- Modes** Even though these multi-modal maps show service provided regardless of modes, the mode should still be indicated so that passengers are not confused.

INTERESTING ANALYSIS



Maps used in both surveys conducted for this project, Margaret Carragher



CONCLUSIONS