

The values of dedicated right of way

Jason Cao and Tao Tao

cao@umn.edu



HUMPHREY SCHOOL
OF PUBLIC AFFAIRS
UNIVERSITY OF MINNESOTA

Transit operating environments

- Mixed traffic
 - Share roadways with other traffic
 - Subject to the same delays as other traffic
 - 98+% of directional route miles in North America
- Semi-exclusive ROW
 - Partially dedicated for transit use
 - Certain times of a day
 - Right turning traffic, pedestrians and bicyclists
 - HOV/HOT lanes used by buses



Transit operating environments

- Exclusive ROW
 - Dedicated for transit use
 - At-grade crossing
 - Subjective to delays from traffic control
 - Marq2 & LRT
- Grade separation
 - Dedicated for transit use
 - No at-grade crossing
- Dedicated ROW
 - Exclusive ROW
 - Grade separation



Benefits of dedicated ROW

- Speed and travel time savings
 - Reduce running time loss due to traffic blockage
- Reliability
 - Not subject to traffic volume and congestion
- Capacity
 - Vehicle capacity and people capacity
- Economic development
 - Permanency
 - Transit advantages can be capitalized into land values.



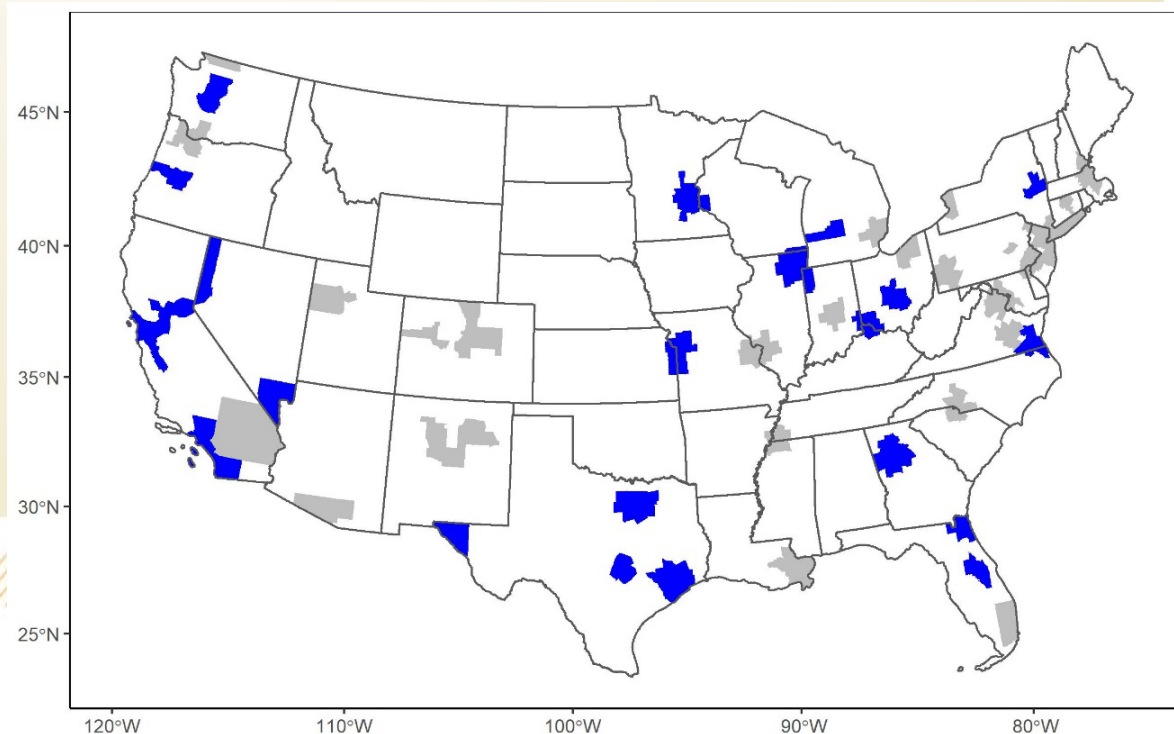
Costs of dedicated ROW

- High construction costs
- Take road spaces
 - For other traffic
 - Loss of on street parking
 - Loss of vegetation
- Low volume
 - Visible
 - Push back



Ridership impacts

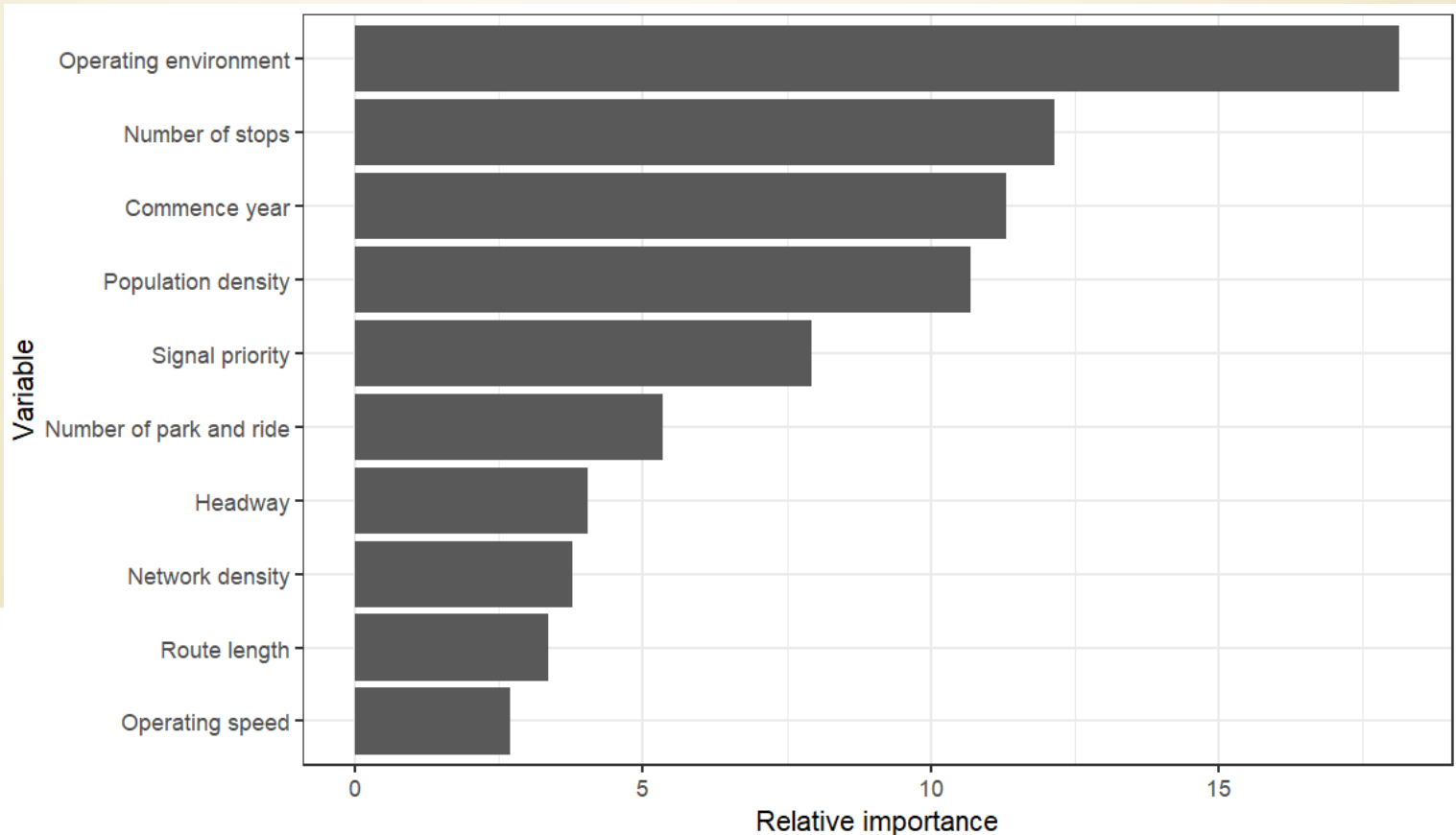
- 78 transit routes served by 31 transit agencies
 - 20 LRT or streetcar
 - 58 BRT or bus transit sharing some features with BRT



Locations of the transit routes

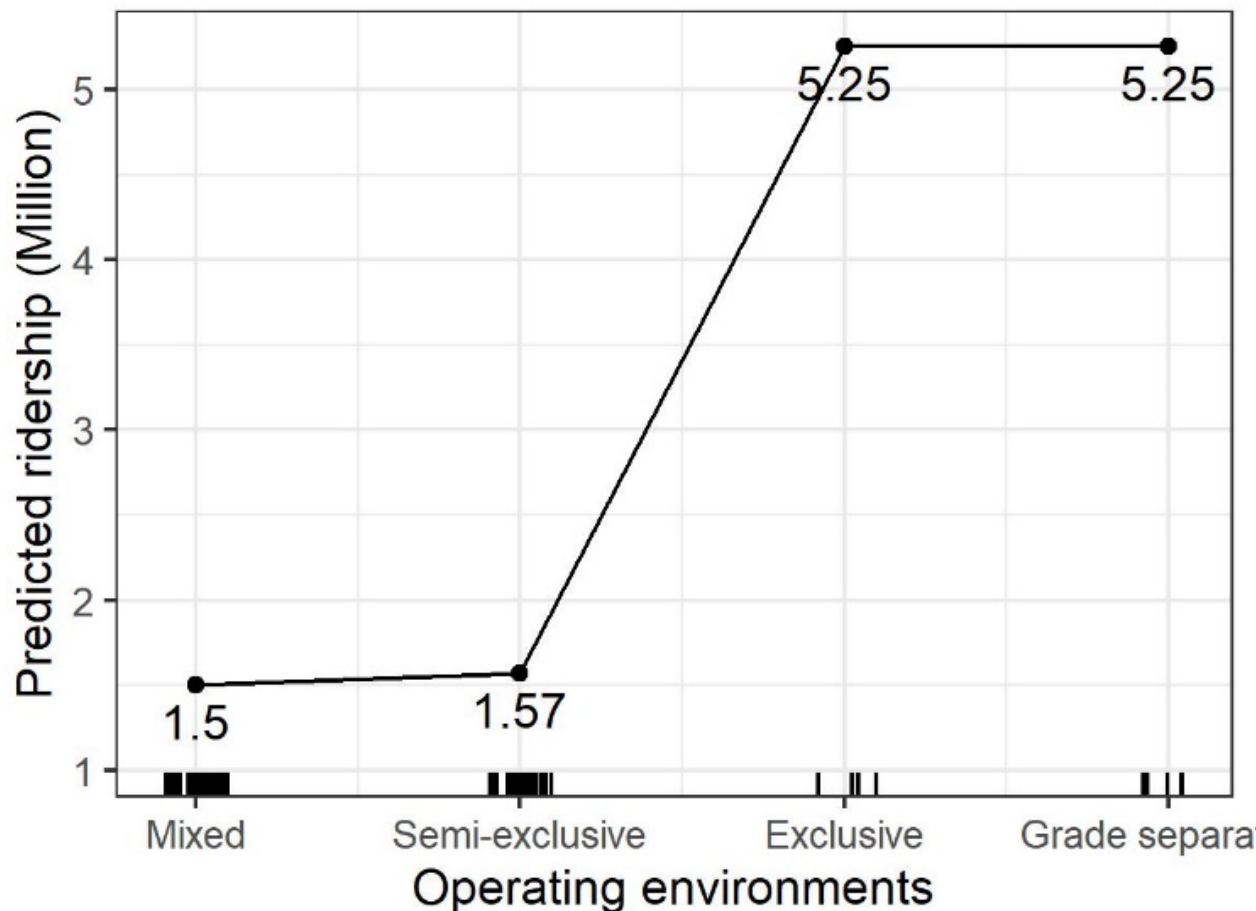
Model results

- The operating environment is the most important predictor of transit ridership.



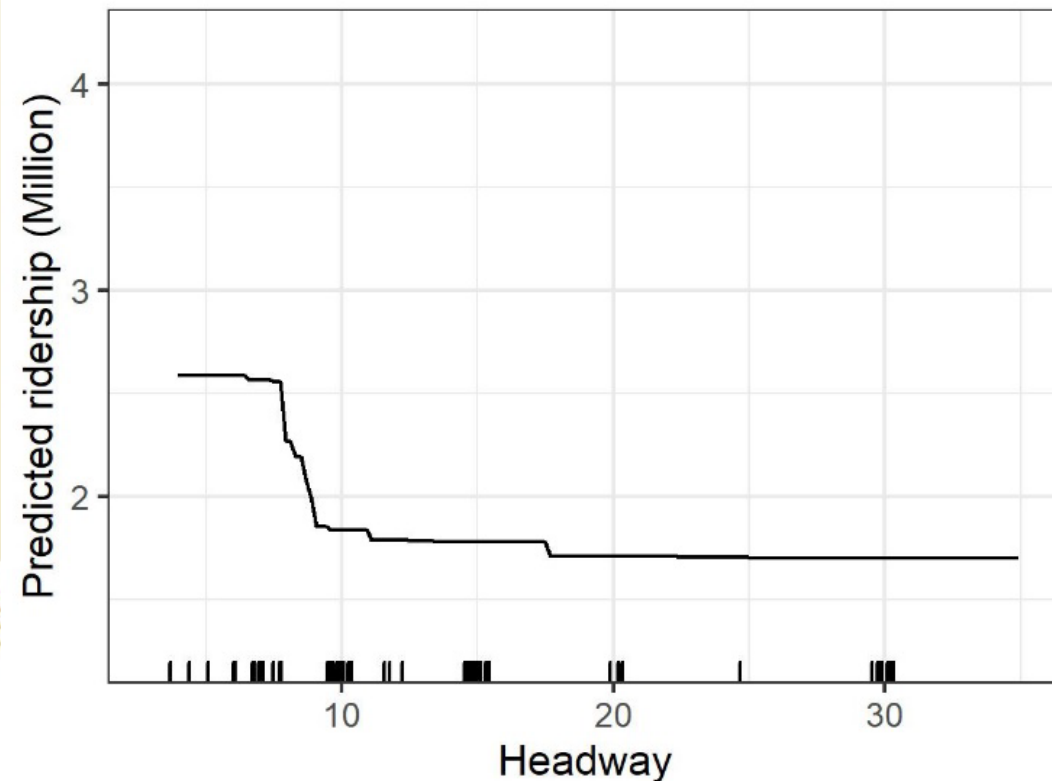
Operating environment

- 3.78 million passengers

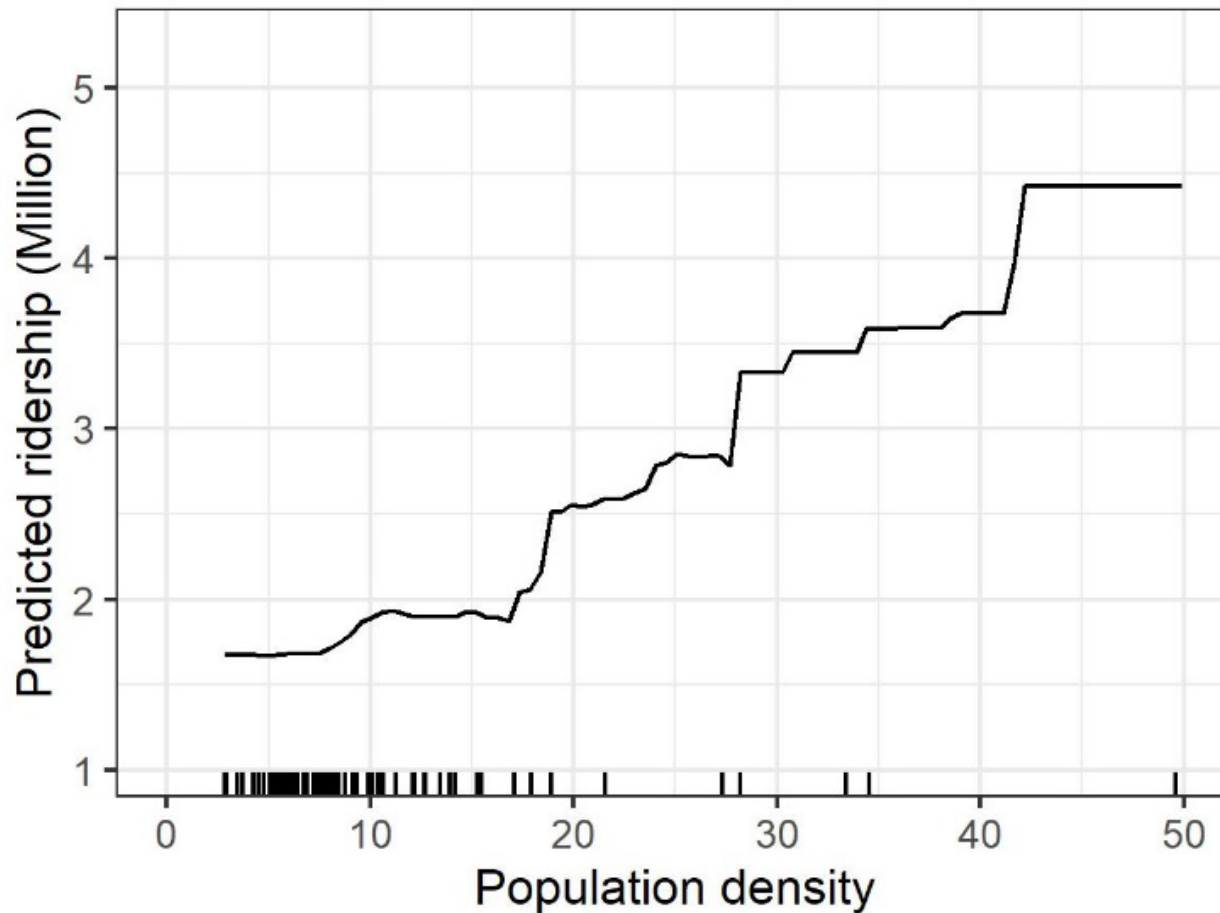


Headway

- 64,000 passengers from 15 to 8 minutes
- Little impact from 15 to 10 minutes



Population density



Key results

- Upgrading to an operating environment with a higher level of ROW could substantially improve transit ridership.
- Enhancing the frequency of transit service could boost ridership.
- Locating transit routes in the areas with adequate population density and well-connected road network could improve their performance.

