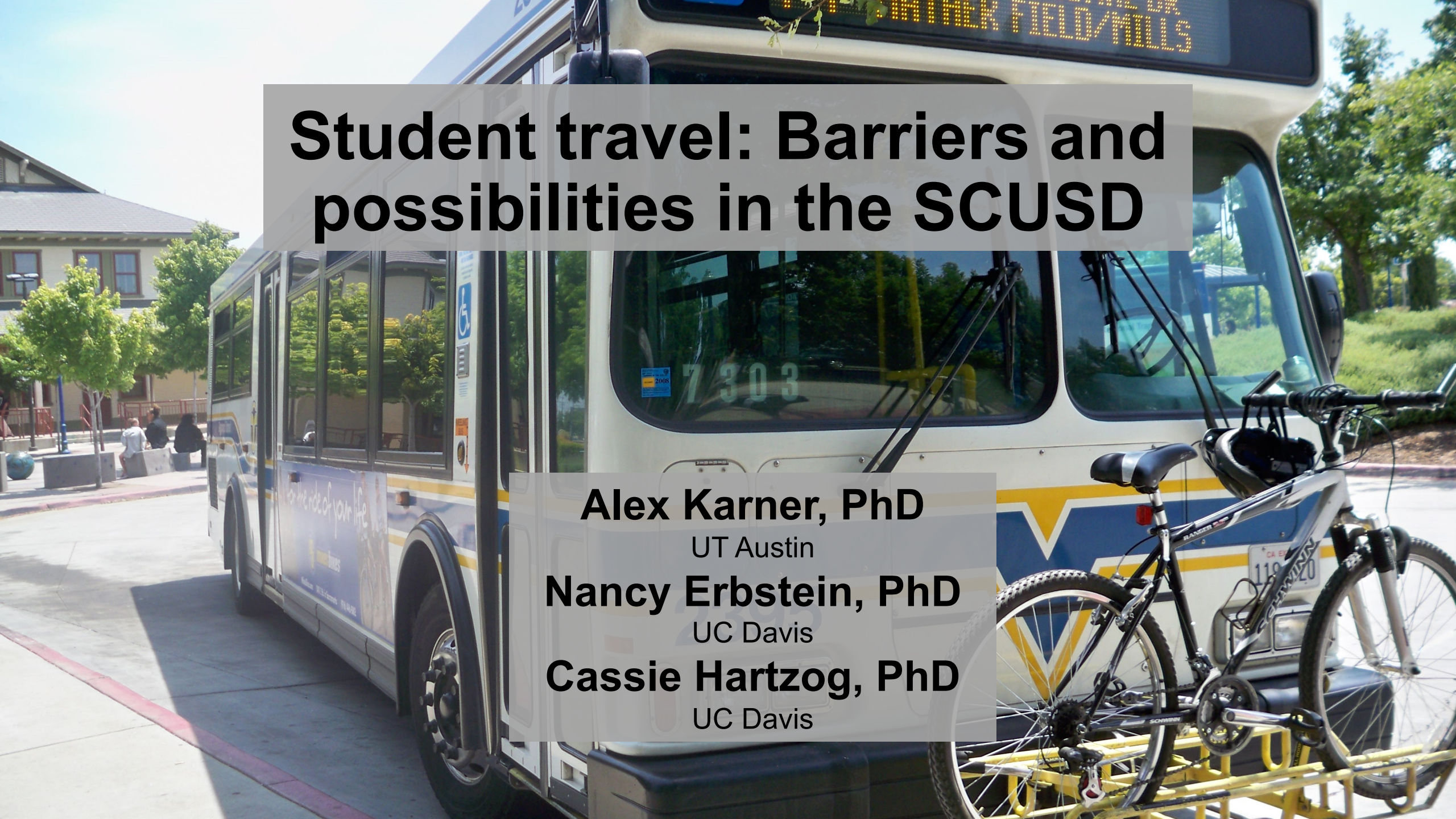


Student travel: Barriers and possibilities in the SCUSD

Alex Karner, PhD
UT Austin
Nancy Erbstein, PhD
UC Davis
Cassie Hartzog, PhD
UC Davis

Motivation

Student travel and chronic absence

- In interviews with 191 chronically absent students, Dr. Erbstein identified transportation as one of the top three barriers to attendance, affecting about 1/3 respondents
- If students cannot reliably get to/from school, interventions based there will not be effective:
  - Curricular reforms
  - Social and emotional learning supports
  - Physical and mental health programs
  - After school programs

https://regionalchange.ucdavis.edu/news/chronic-absence-sacramento-city-unified-school-district

Motivation

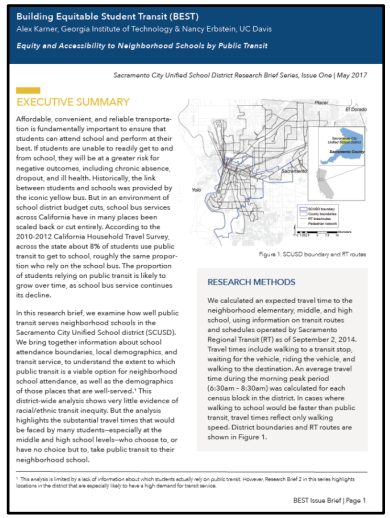
Student travel to school

- Long-term decline in walking and biking to school
- California school districts cutting yellow bus service
- Hope that public transit will meet student needs
- Little systematic evaluation of how transit performs or whether students consider it to be viable

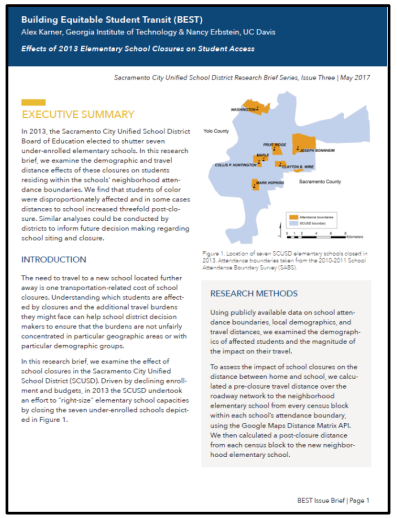
Building equitable student transit (BEST)

Phase I

- Three research briefs summarizing results on:
  - Travel times to school by public transit in Sacramento
  - Effects of school closures in SCUSD
- Missing the link between student choices and outcomes


Building Equitable Student Transit (BEST)
Alex Karner, Georgia Institute of Technology & Nancy Erbstein, UC Davis
Equity and Accessibility to Neighborhood Schools by Public Transit
Sacramento City Unified School District Research Brief Series, Issue One | May 2017
EXECUTIVE SUMMARY
Affordable, convenient, and reliable transportation is fundamentally important to ensure that students can attend school and perform at their best. If students are unable to readily get to and from school, they will be at a greater risk for negative outcomes, including chronic absence, dropout, and ill health. Historically, the link between students and schools was provided by the iconic yellow bus. But in an environment of school district budget cuts, school bus services across California have in many places been scaled back or cut entirely. According to the 2010-2012 California Household Travel Survey, across the state about 8% of students use public transit to get to school, roughly the same proportion who rely on the school bus. The proportion of students relying on public transit is likely to grow over time, as school bus service continues its decline.
In this research brief, we examine how well public transit serves neighborhood schools in the Sacramento City Unified School district (SCUSD). We bring together information about school attendance boundaries, local demographics, and transit service, to understand the extent to which public transit is a viable option for neighborhood school attendance, as well as the demographics of those places that are well-served.[1] This district-wide analysis shows very little evidence of racial/ethnic transit inequity. But the analysis highlights the substantial travel times that would be faced by many students—especially at the middle and high school levels—who choose to, or have no choice but to, take public transit to their neighborhood school.
Figure 1. SCUSD boundary and RT routes
RESEARCH METHODS
We calculated an expected travel time to the neighborhood elementary, middle, and high school, using information on transit routes and schedules operated by Sacramento Regional Transit (RT) as of September 2, 2014. Travel times include walking to a transit stop, waiting for the vehicle, riding the vehicle, and walking to the destination. An average travel time during the morning peak period (6:30am – 8:30am) was calculated for each census block in the district. In cases where walking to school would be faster than public transit, travel times reflect only walking speed. District boundaries and RT routes are shown in Figure 1.
[1] This analysis is limited by a lack of information about which students actually rely on public transit. However, Research Brief 2 in this series highlights locations in the district that are especially likely to have a high demand for transit service.
BEST Issue Brief | Page 1

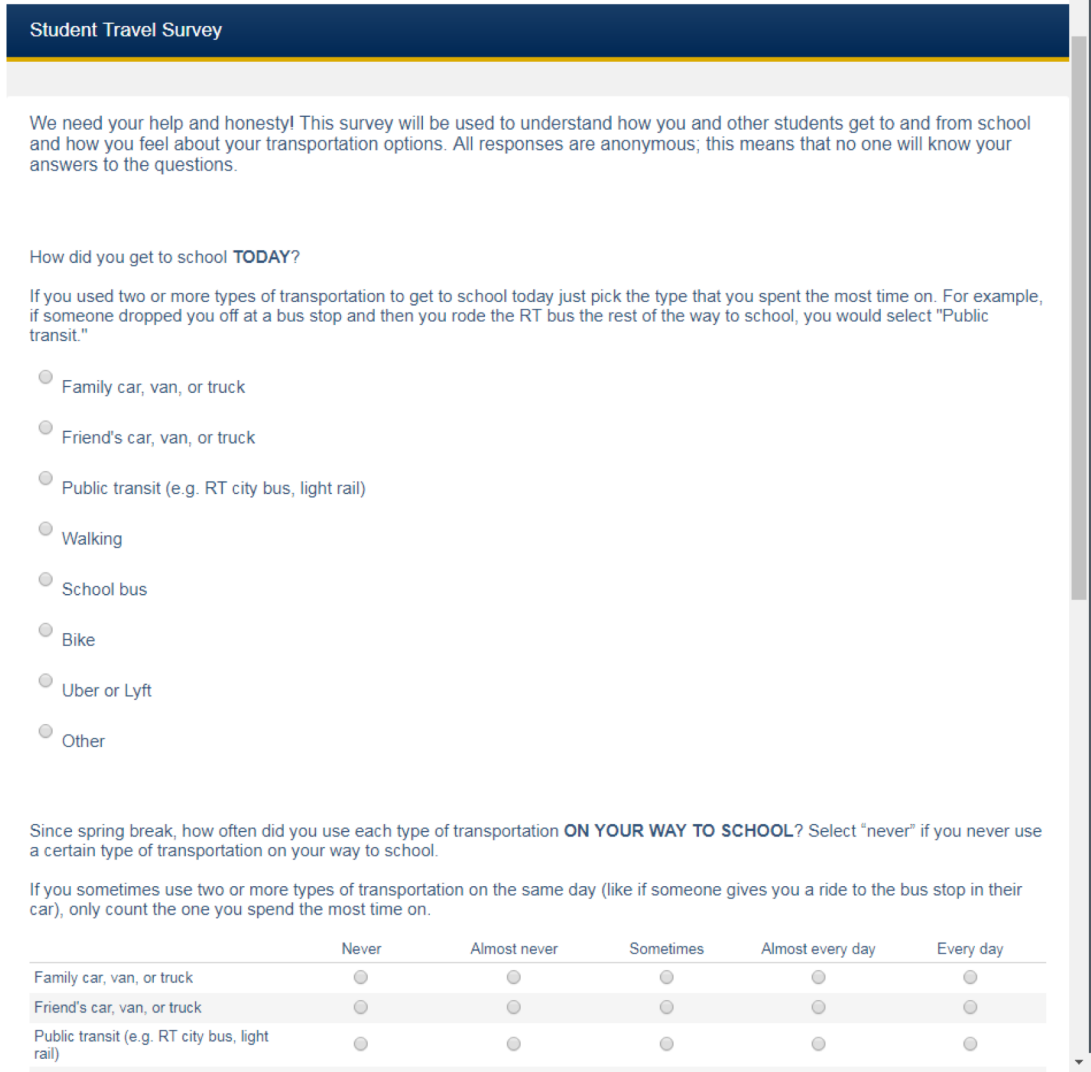

Building Equitable Student Transit (BEST)
Alex Karner, Georgia Institute of Technology & Nancy Erbstein, UC Davis
Neighborhood-level Analysis of Transit Needs
Sacramento City Unified School District Research Brief Series, Issue Two | May 2017
EXECUTIVE SUMMARY
Understanding where public transit service is needed most can help transit planners design and implement systems that function well to connect travelers to opportunities. In this research brief, we use a number of different data sources to identify locations in the Sacramento City Unified School District (SCUSD) that have a high need for transit service improvements, based on neighborhood demographics, school choices, and existing transit service. We highlight results for the Oak Park neighborhood. The findings demonstrate an association between transportation conditions and student performance outcomes, suggesting that long travel times may contribute to reduced academic performance and increased absenteeism.
INTRODUCTION
Affordable, convenient, and reliable transportation is fundamentally important for ensuring that students can attend school and perform at their best. If students are unable to get to school, they will be at a greater risk for a number of negative outcomes including chronic absence, dropout, and ill health. Historically, the link between students and schools was provided by the iconic yellow bus. But in an environment of school district budget cuts, school bus services across California are being scaled back or cut entirely. According to the 2010-2012 California Household Travel Survey, across the state, about 8% of students use public transit to get to school, roughly the same proportion who rely on the school bus. The proportion of students relying on public transit is likely to grow over time, as school bus service continues its decline.
In this research brief, we highlight the unique challenges faced by **Sacramento City Unified School District (SCUSD)** students and families that are likely to depend on public transit service. Substantial differences exist between those who rely on public transit to meet daily needs and those who do not. According to the most recent ridership survey, 62% of Sacramento Regional Transit (RT) users either have no vehicle available or no driver's license; individuals residing in carless households comprise only 5% of Sacramento County's population.* About half of RT's users who only ride the bus earn less than $35,000/year, whereas 65% of users who only use light rail earn more than $35,000/year. Because average districtwide travel time analyses (such as those provided in Research Brief 1) can mask difficult transportation conditions faced by particular neighborhoods or schools, here we focus on a neighborhood that has faced a changing set of challenges over time, Oak Park. In addition to this neighborhood focus, we also present a method for identifying locations with particularly high demand for public transit and that face relatively long travel times to school.
* 2010-2014 American Community Survey five-year estimates, US Census Bureau.
BEST Issue Brief | Page 1


Building Equitable Student Transit (BEST)
Alex Karner, Georgia Institute of Technology & Nancy Erbstein, UC Davis
Effects of 2013 Elementary School Closures on Student Access
Sacramento City Unified School District Research Brief Series, Issue Three | May 2017
EXECUTIVE SUMMARY
In 2013, the Sacramento City Unified School District Board of Education elected to shutter seven under-enrolled elementary schools. In this research brief, we examine the demographic and travel distance effects of these closures on students residing within the schools' neighborhood attendance boundaries. We find that students of color were disproportionately affected and in some cases distances to school increased threefold post-closure. Similar analyses could be conducted by districts to inform future decision making regarding school siting and closure.
INTRODUCTION
The need to travel to a new school located further away is one transportation-related cost of school closures. Understanding which students are affected by closures and the additional travel burdens they might face can help school district decision makers to ensure that the burdens are not unfairly concentrated in particular geographic areas or with particular demographic groups.
In this research brief, we examine the effect of school closures in the Sacramento City Unified School District (SCUSD). Driven by declining enrollment and budgets, in 2013 the SCUSD undertook an effort to "right-size" elementary school capacities by closing the seven under-enrolled schools depicted in Figure 1.
Figure 1. Location of seven SCUSD elementary schools closed in 2013. Attendance boundaries taken from the 2010-2011 School Attendance Boundary Survey (SABS).
RESEARCH METHODS
Using publicly available data on school attendance boundaries, local demographics, and travel distances, we examined the demographics of affected students and the magnitude of the impact on their travel.
To assess the impact of school closures on the distance between home and school, we calculated a pre-closure travel distance over the roadway network to the neighborhood elementary school from every census block within each school's attendance boundary, using the Google Maps Distance Matrix API. We then calculated a post-closure distance from each census block to the new neighborhood elementary school.
BEST Issue Brief | Page 1

https://regionalchange.ucdavis.edu/news/building-equitable-student-transit-best

Student travel survey

Survey of students at Will C. Wood, Hiram Johnson, and Health Professions High



Student Travel Survey

We need your help and honesty! This survey will be used to understand how you and other students get to and from school and how you feel about your transportation options. All responses are anonymous; this means that no one will know your answers to the questions.

How did you get to school **TODAY**?

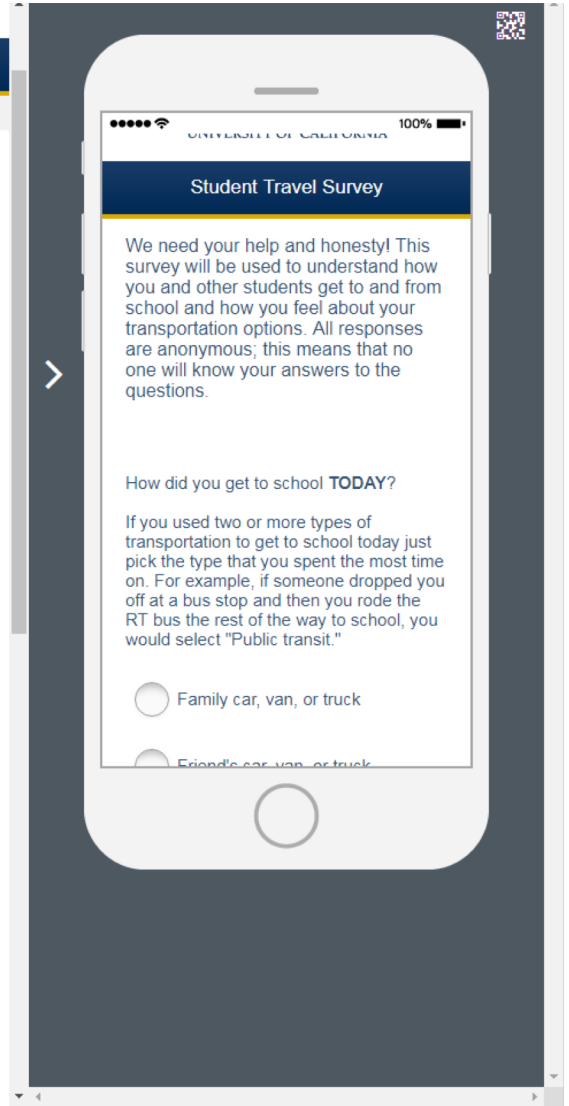
If you used two or more types of transportation to get to school today just pick the type that you spent the most time on. For example, if someone dropped you off at a bus stop and then you rode the RT bus the rest of the way to school, you would select "Public transit."

- Family car, van, or truck
- Friend's car, van, or truck
- Public transit (e.g. RT city bus, light rail)
- Walking
- School bus
- Bike
- Uber or Lyft
- Other

Since spring break, how often did you use each type of transportation **ON YOUR WAY TO SCHOOL**? Select "never" if you never use a certain type of transportation on your way to school.

If you sometimes use two or more types of transportation on the same day (like if someone gives you a ride to the bus stop in their car), only count the one you spend the most time on.

	Never	Almost never	Sometimes	Almost every day	Every day
Family car, van, or truck					
Friend's car, van, or truck					
Public transit (e.g. RT city bus, light rail)					



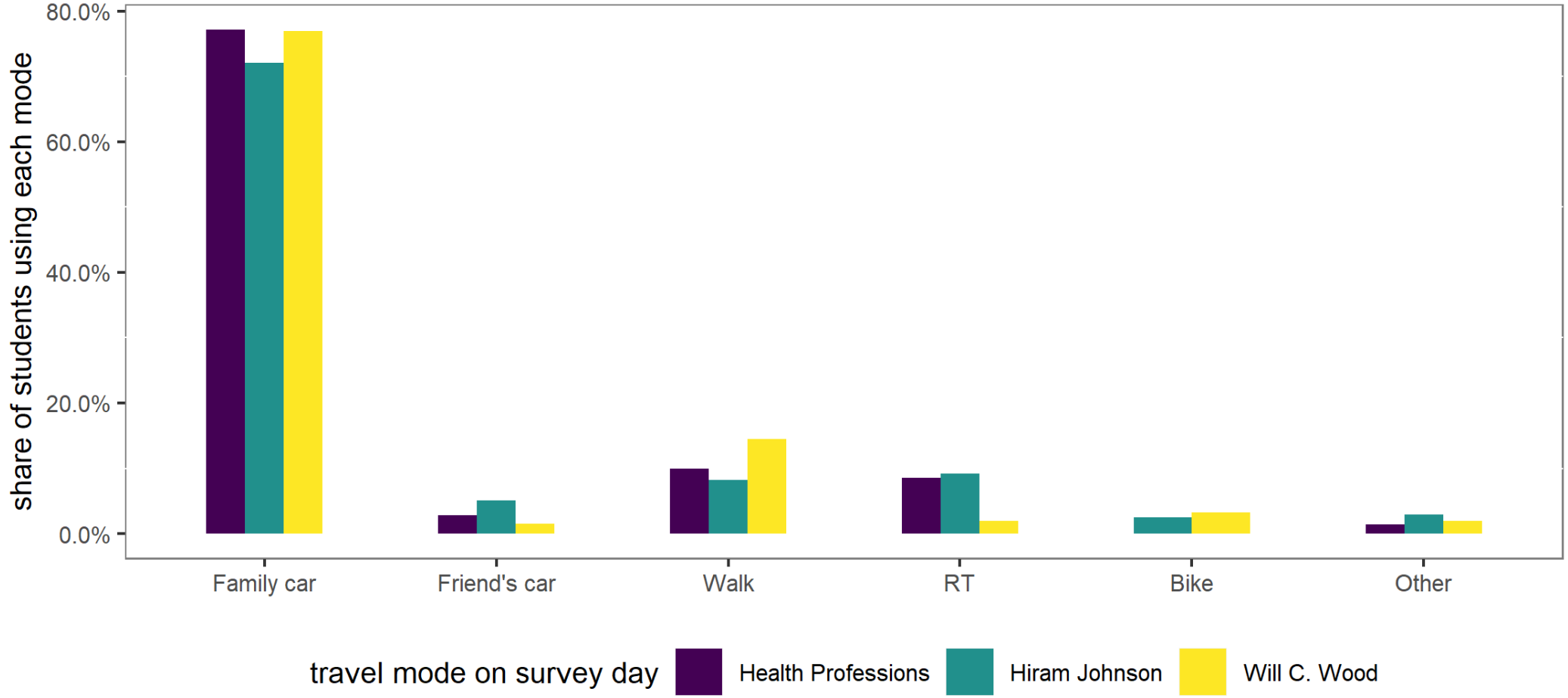
- WCW students took survey on April 17
- HJ students took survey between April 17 and May 10
- 85 HPHS students took survey June 6-15
- 1,295 responses (92% completed)

Research questions

- How do students get to school and how long does it take?
  - How does this differ by distance from school, grade level, and socioeconomic status?
- To what extent is transportation a barrier to attendance and participation?
- What are student attitudes towards different modes of transportation?
- How does transportation affect attendance, grades?

How do students get to school?

Most students travel by car; middle school students most likely to walk to school RT ridership higher in high school



Residential location and travel time

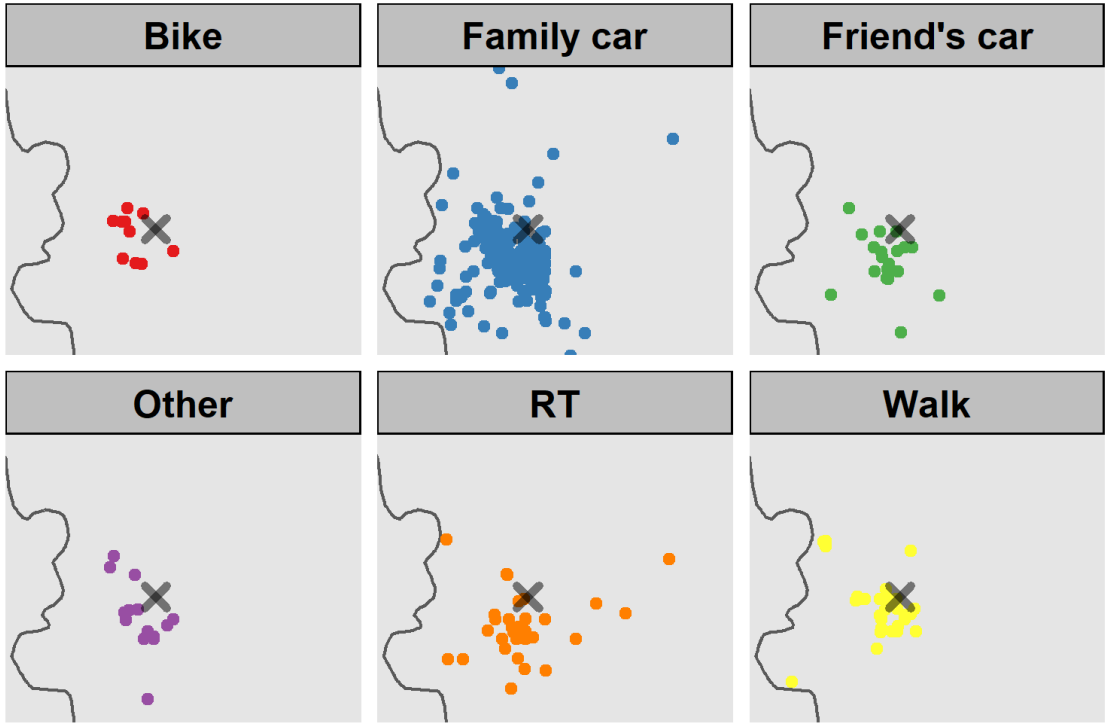
- Based on student-reported nearest intersection
  - Challenges with missing and incomplete data (e.g. only one street named)

- 1,295 returned surveys (complete and incomplete)
- 965 (~75%) contain usable intersection data

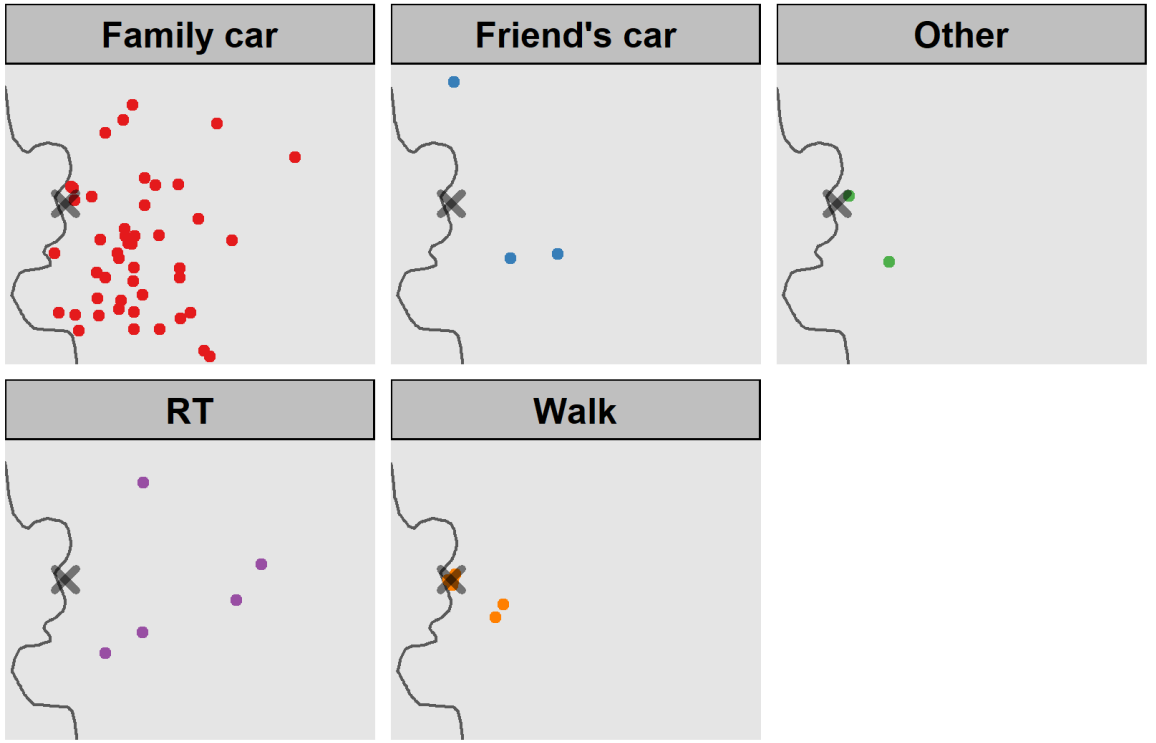
- Residential location matched with school location to calculate travel times by public transit, driving, walking, and biking

Travel mode is related to distance to school

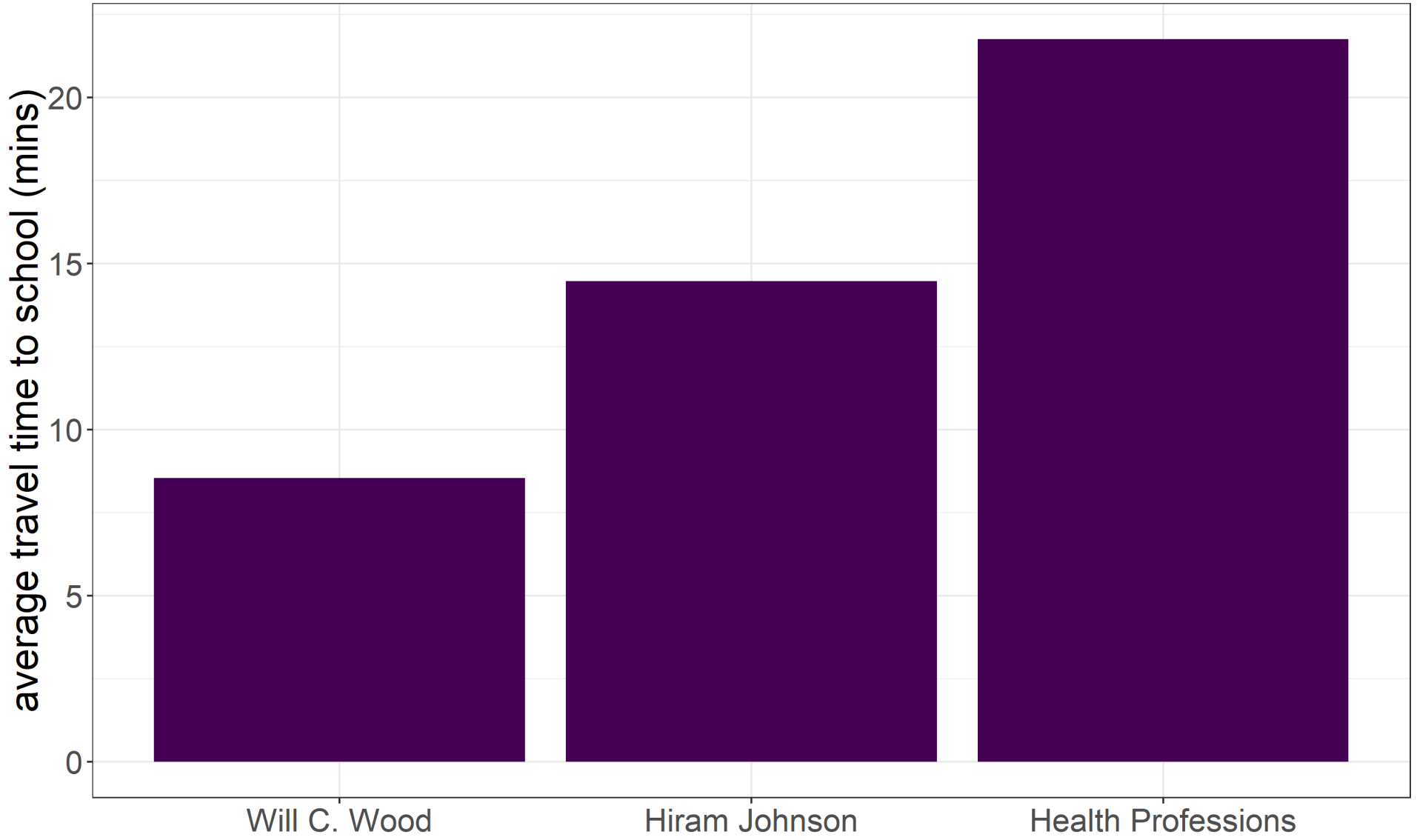
Hiram Johnson mode choice



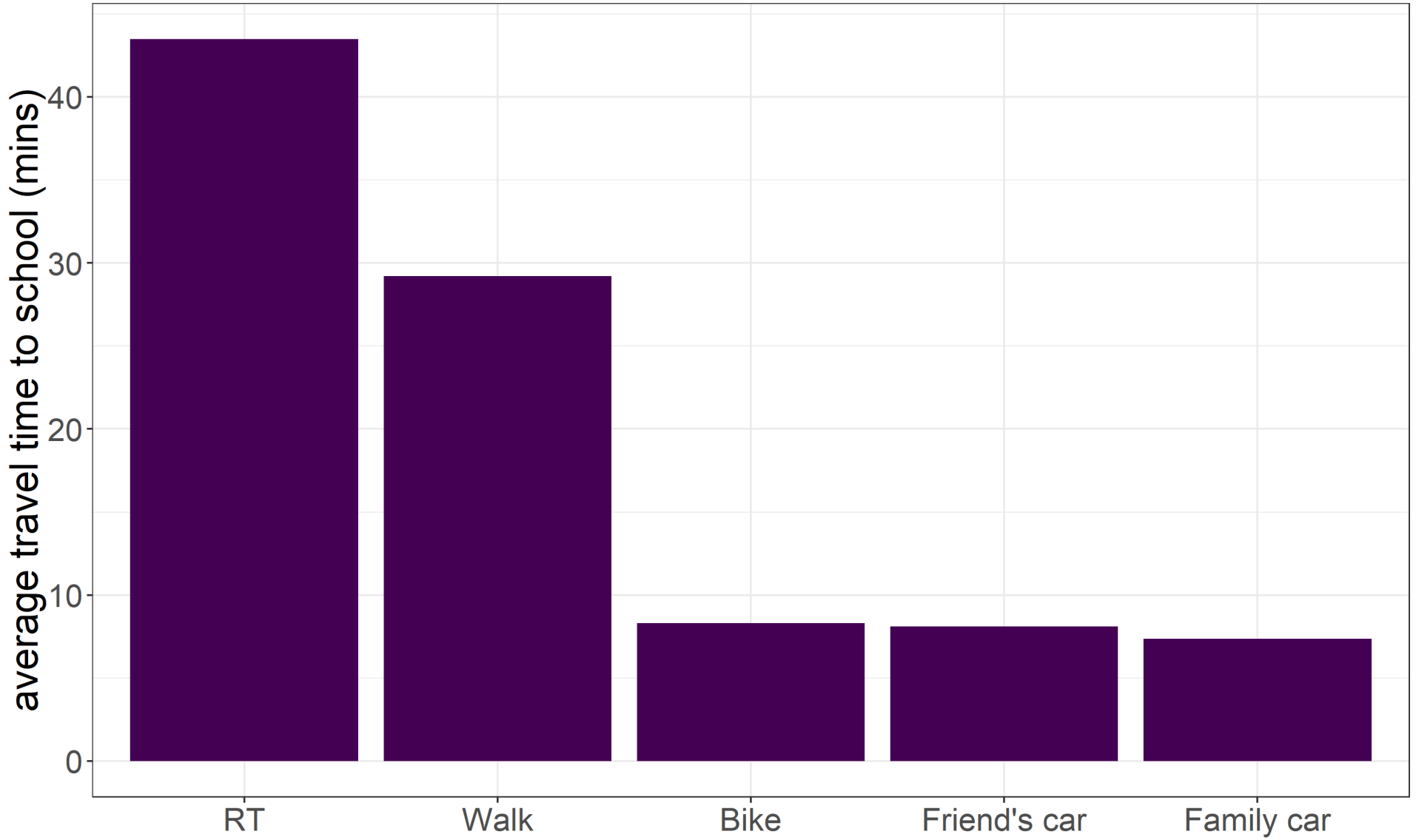
Health Professions mode choice



Middle school students have the shortest travel times



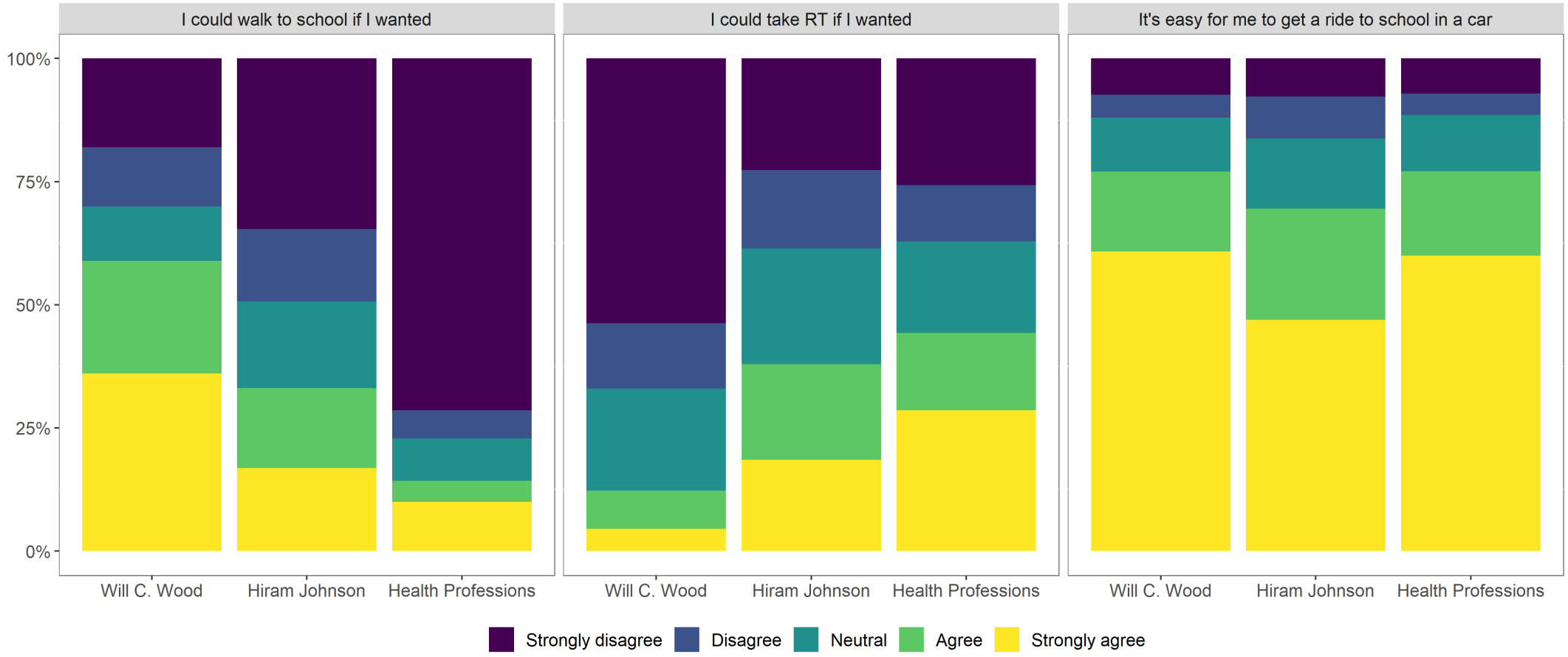
RT users have longest travel times across schools



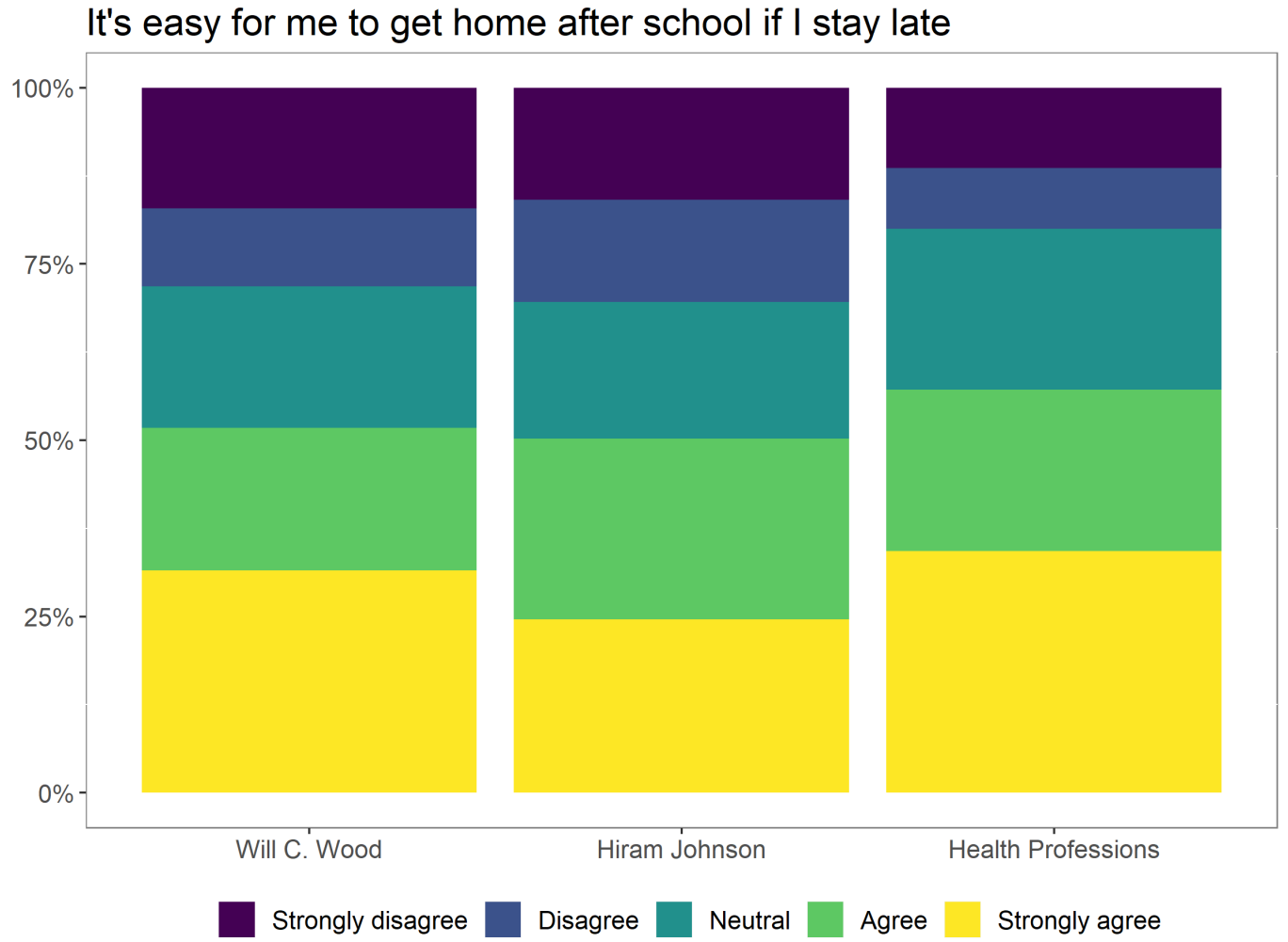
Travel-related barriers

Almost 1 in 4 respondents reported missing at least one day of school in the last month due to transportation-related issues.

Barriers common across modes

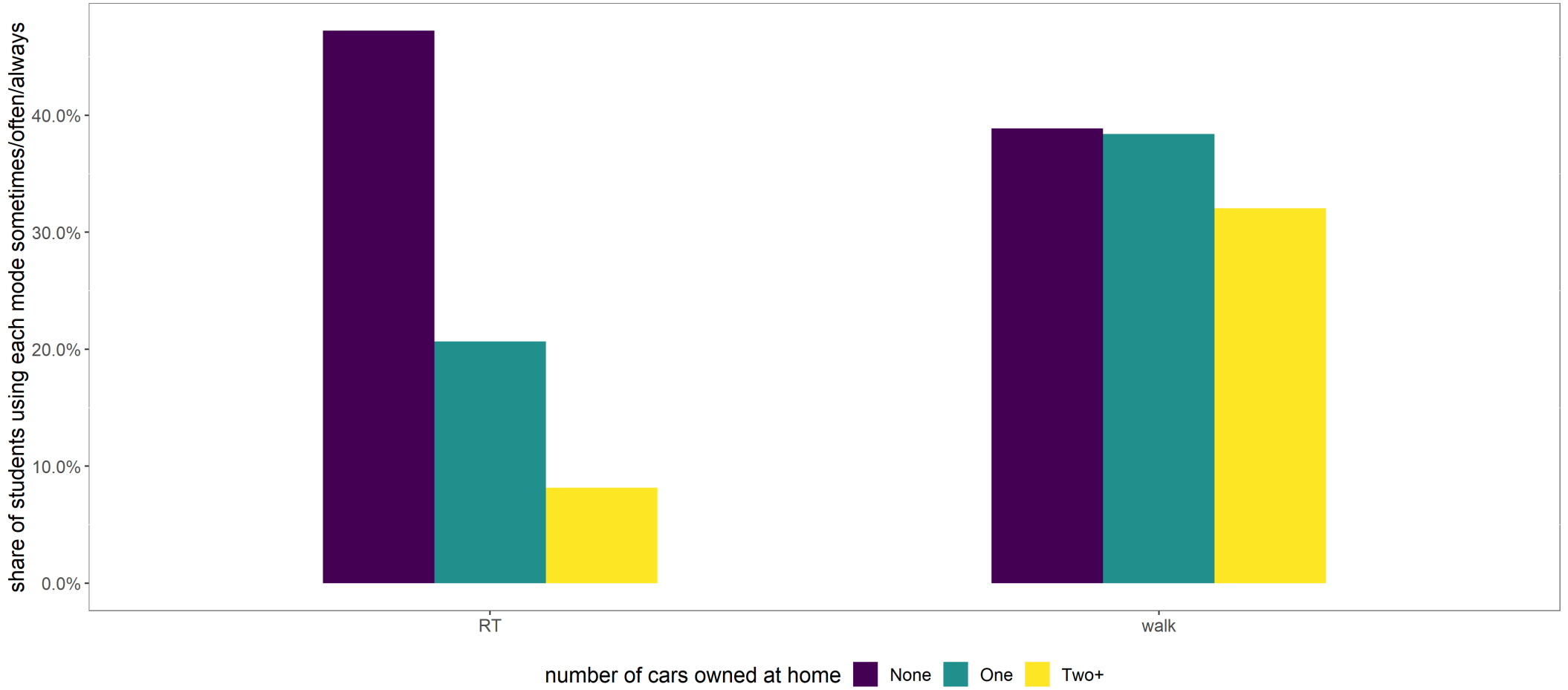


Transportation affects after school activities

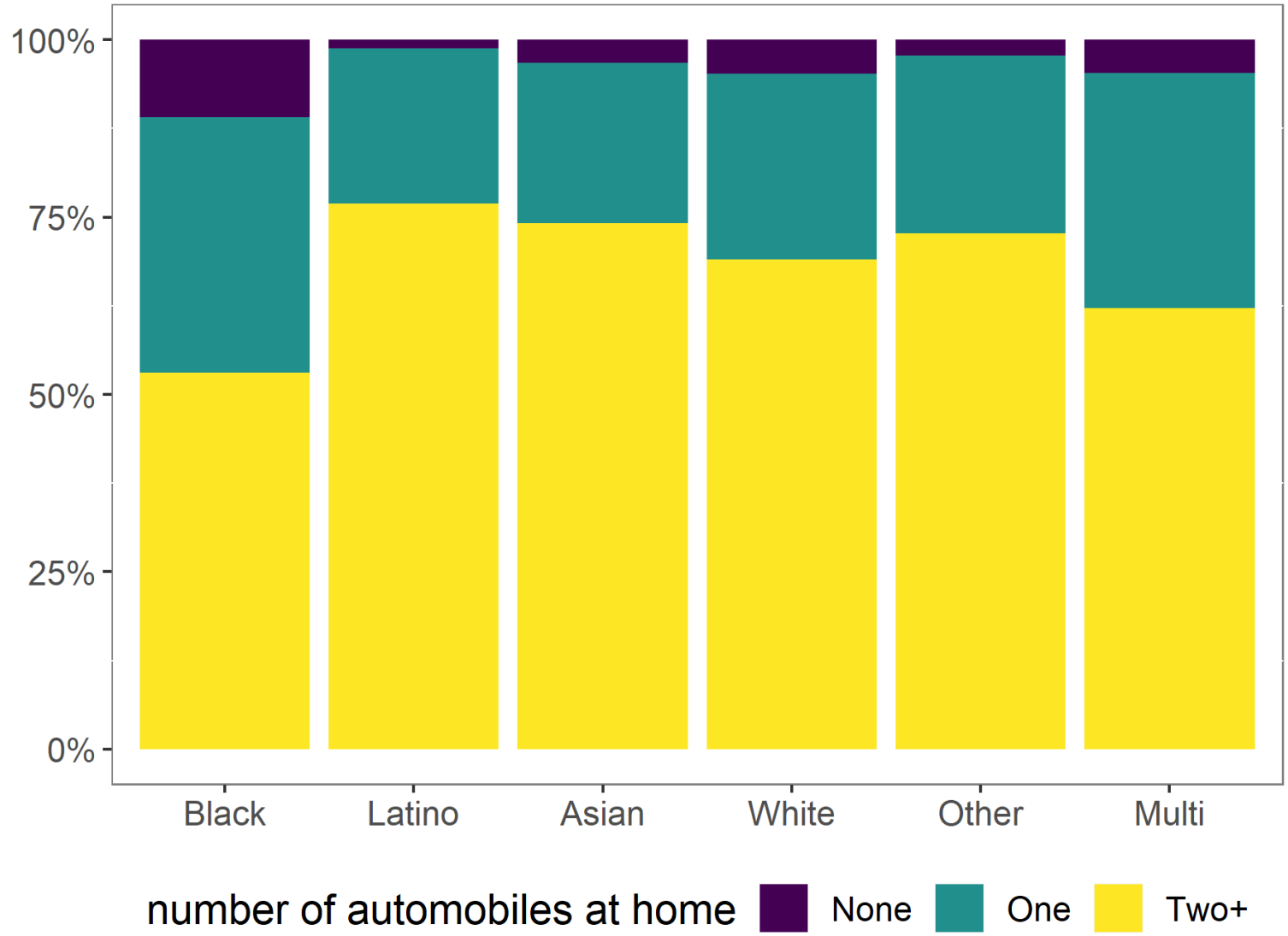


Demographic differences, attitudes, and performance

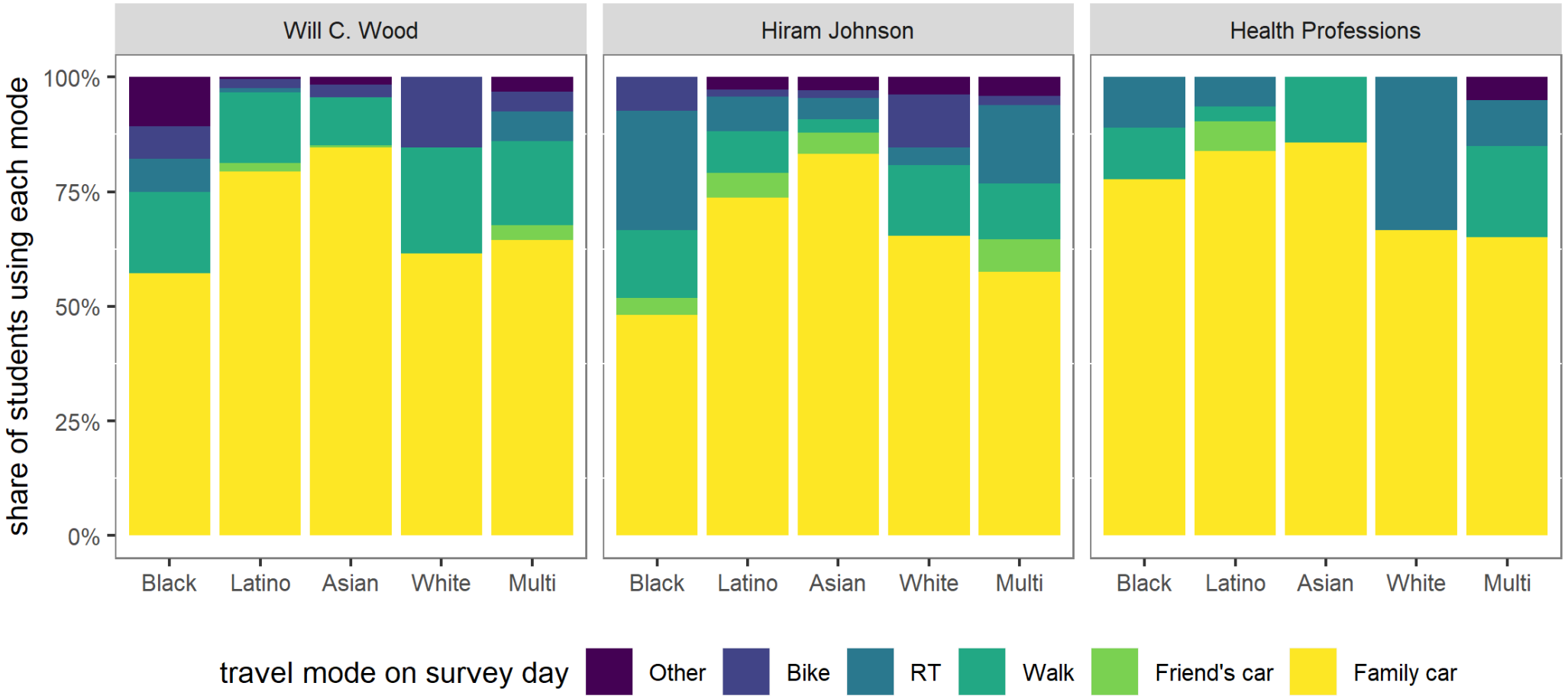
Students take RT or walk to school more frequently if they have less car access



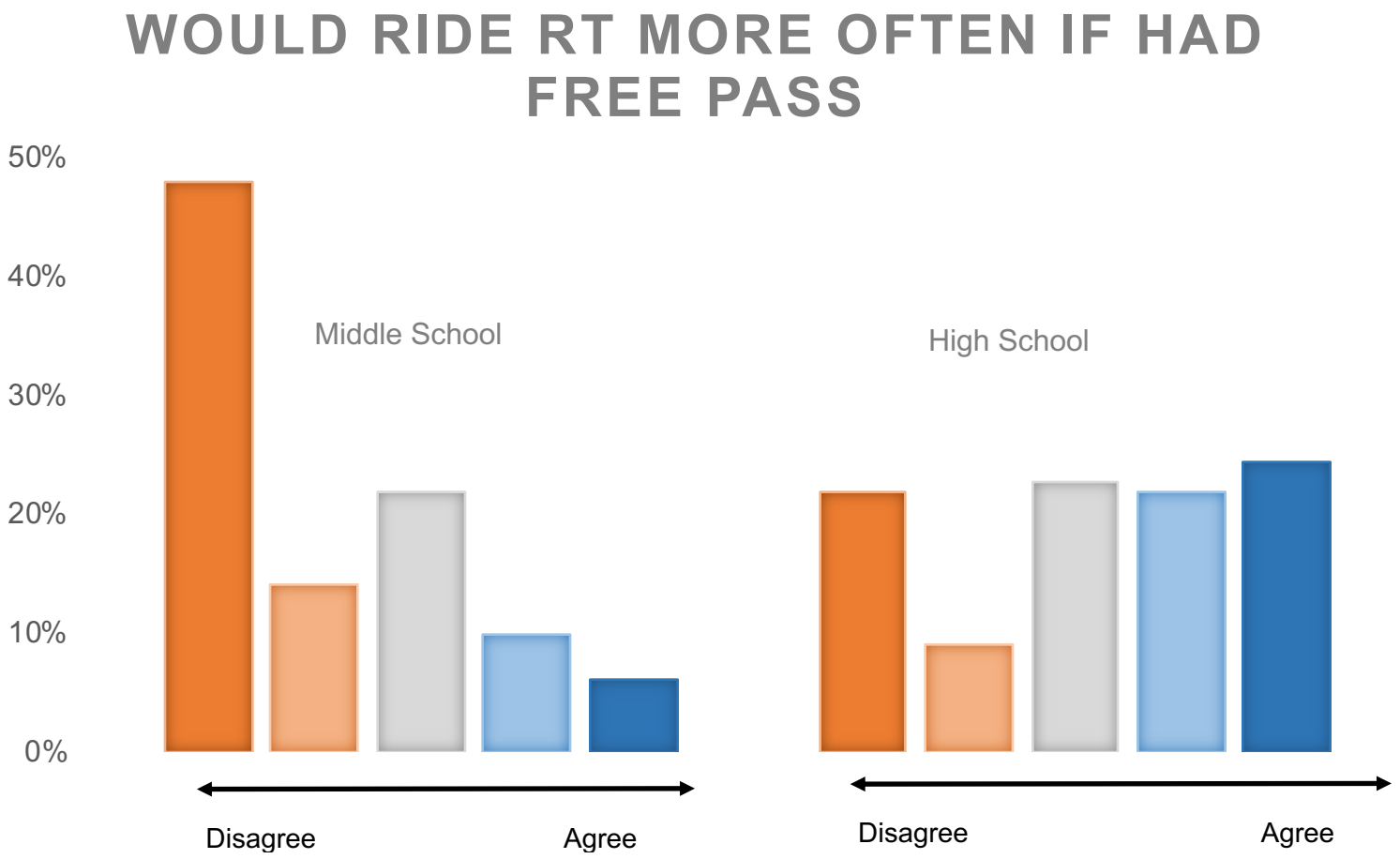
Black students have fewer family cars



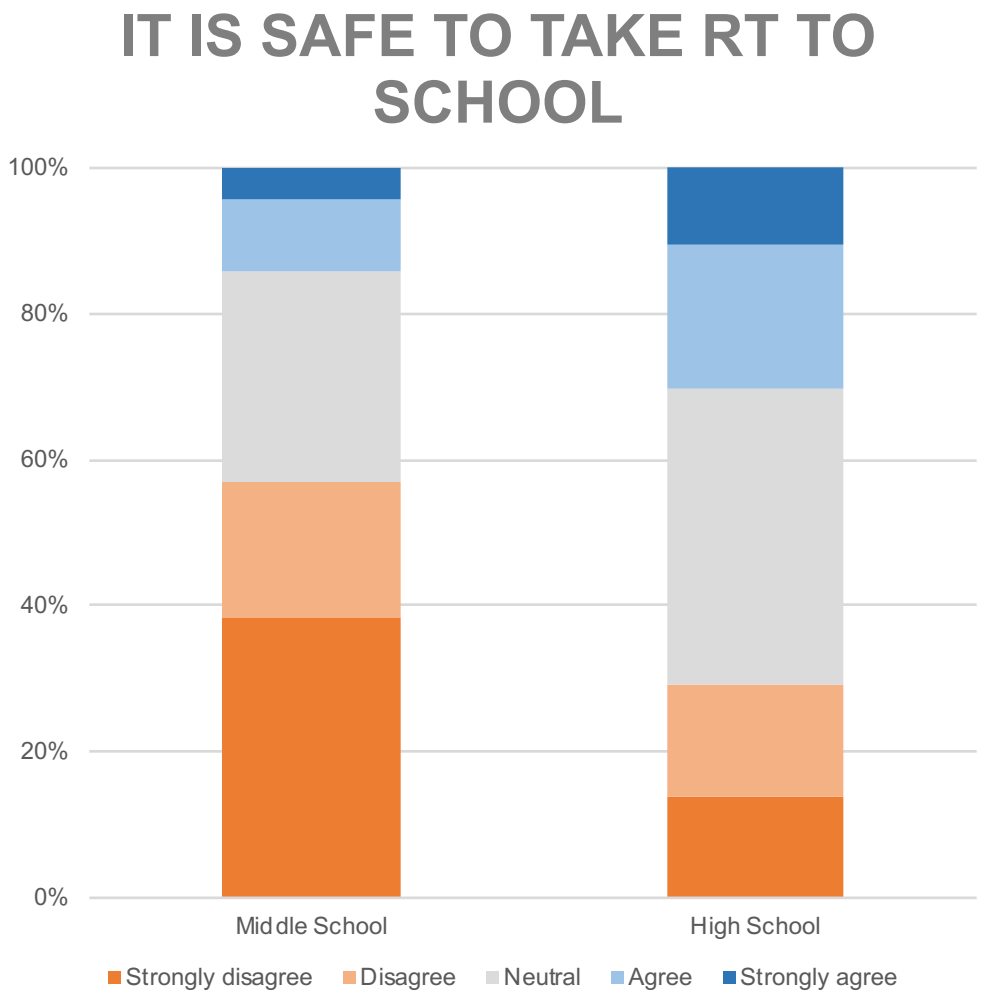
Most students get to school by car; use of other modes differs by race

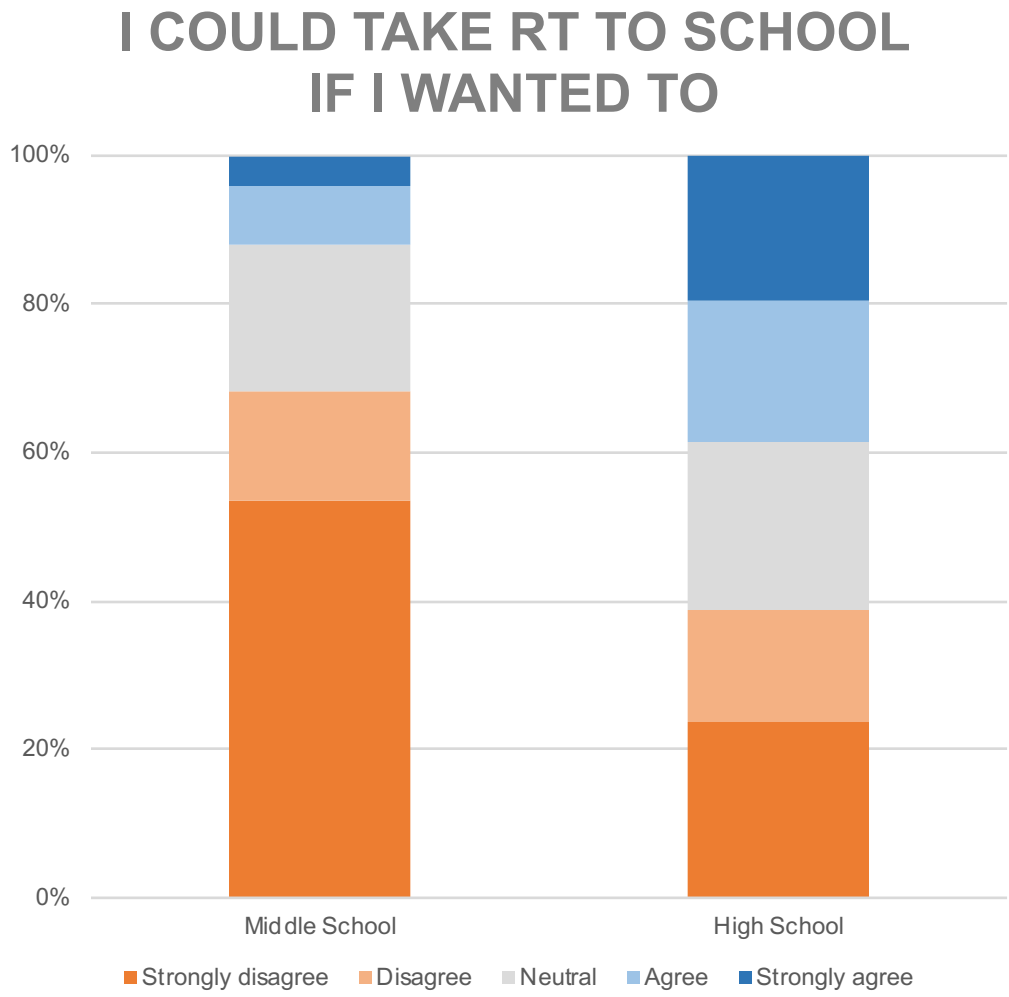


Free passes more likely to increase RT ridership in HS



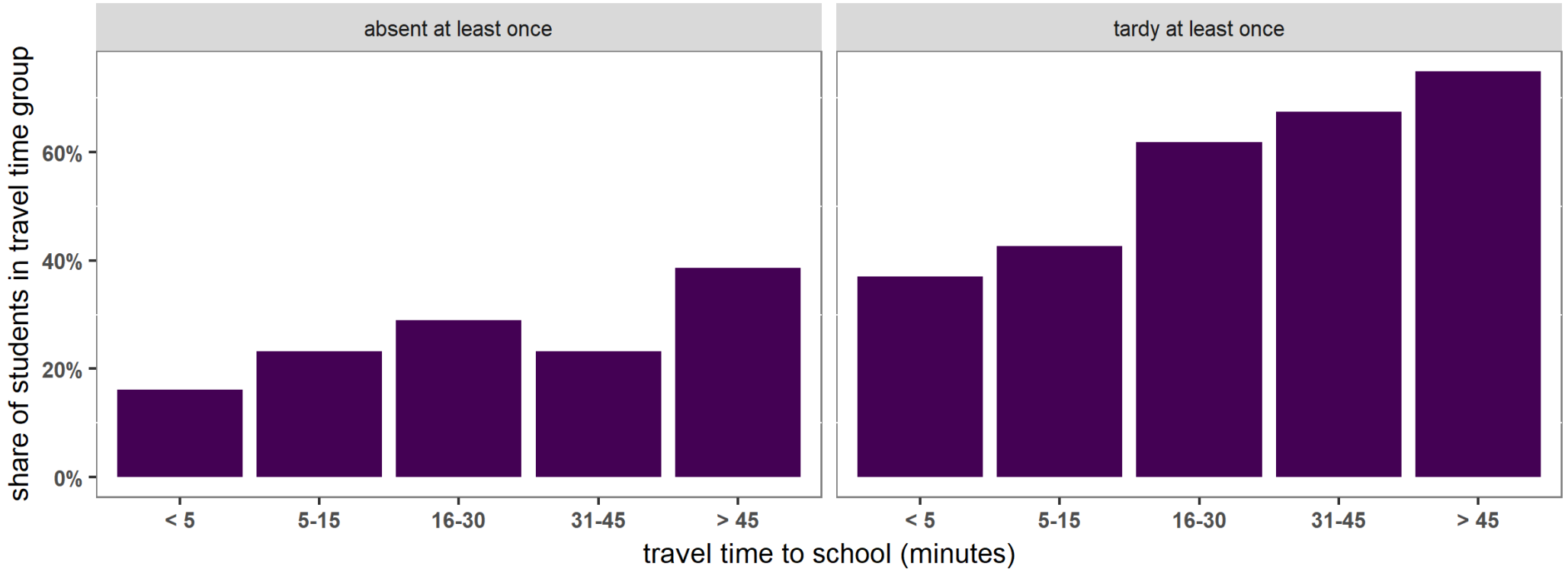
Middle school students less likely to think RT is a safe, viable option





Effects on student performance

Longer travel time associated with absences and tardies



Implications for transit planning

- Middle school, high school, and magnet school students differ in how they get to school and in travel time
  - Most students travel by car most of the time
  - HS students most likely to take public transit
- Cost, attitudes, and proximity likely barriers to public transit use

- Understanding potential markets—schools and demographics—can be helpful from a transit planning perspective

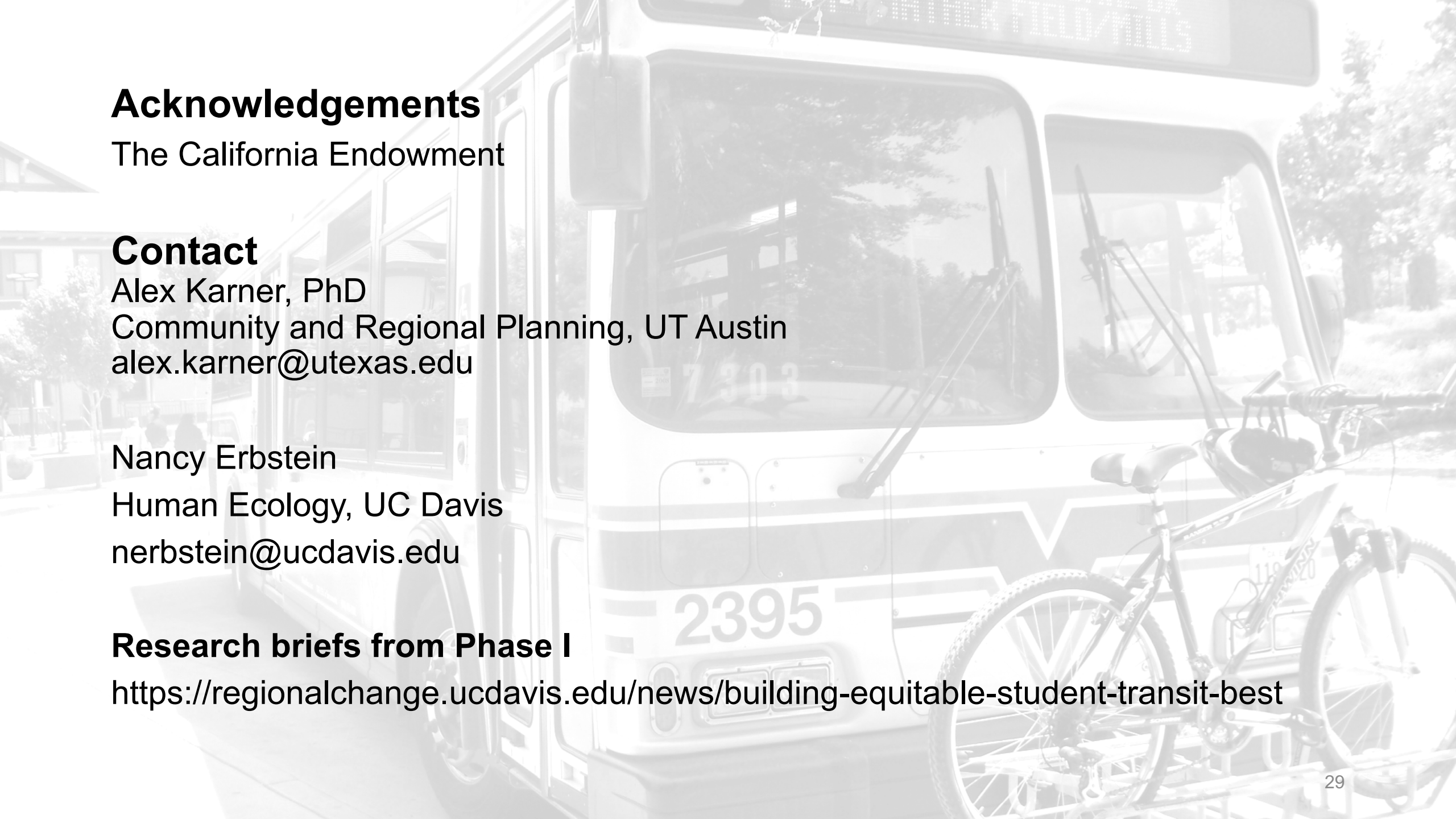
Implications for student performance

- Transportation issues affect a large share of students
- Longer travel times are associated with tardies and absences
- Students taking public transit face the longest travel times and substantial travel uncertainty depending on trip complexity
- Student transportation warrants more academic and practical attention
  - Our study was limited in various ways (school sites, address information)

Next steps

- Current dataset
  - Detailed statistical modeling of mode choice to determine independent effect of automobile ownership, socioeconomic status, gender, and attitudes on travel behavior

- Future data collection
  - Transportation's role in school choice
  - Mode choice and transportation issues in multi-child households



Acknowledgements

The California Endowment

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Research briefs from Phase I

https://regionalchange.ucdavis.edu/news/building-equitable-student-transit-best