RESEARCH SUMMARY





Impact of Start Time on Students Walking and Biking to School

To increase the number of students who walk or bike to school, policymakers first need to understand the primary factors that prevent students, parents and caregivers from choosing these travel modes. A look at the factors that influence this decision provided information to address barriers to walking and biking for children and families in Minnesota communities.

What Was the Need?

Numerous positive effects result when students walk or bike to school, including physical and mental health benefits, improved academic performance and new opportunities to build friendships. Communities and neighborhoods may see reduced traffic congestion, crashes and greenhouse gas emissions.

Early school start times may influence whether students choose walking or biking to school as a primary travel mode. Some schoolchildren, parents and caregivers may be concerned about safety if students are traveling before sunrise, and they may choose alternative forms of transportation such as single-occupancy vehicles, which increase congestion and traffic safety, and school bus service. But schools across the state are facing shrinking school transportation budgets and struggle to hire and retain yellow school bus drivers.

This project sought to determine if early school start times was a significant factor in students and caregivers choosing commuting options other than walking or biking when yellow school busing is not available. While considerable literature is available about the impact of school start times on student performance, the effect of early start times on students choosing to walk or bike to school has not been studied directly. Surveying parents and caregivers and observing the travel behavior of students attending schools with different start times offered insight into the primary factors that determine school-based travel decisions. "Study results reinforced the need for MnDOT and local transportation agencies to improve infrastructure around schools that will increase safety for students walking and biking to school."

-KELLY CORBIN, COORDINATOR, MnDOT SAFE ROUTES TO SCHOOL

What Did We Do?

To begin, a review of the literature examined the effects of school start times on students walking or biking to school. Next, a school administration survey was distributed to various elementary schools to gather information about travel decisions.

Principals at elementary schools in the Minneapolis/St. Paul area distributed a stated preference survey to families attending schools with both early and late start times (from 7:30 a.m. to 9:30 a.m.). The survey asked parents and caregivers to identify the commuting preferences of their children and to rank factors (including start time) that impact whether their children walked or biked to school.

A revealed preference survey, which observed actual student travel behavior, leveraged information from a mobile-sourced data provider to analyze aggregate travel behavior data based on smartphone tracking. This data provided information about driving trips, which indirectly indicated if a student traveled by other means such as walking or biking.

Data was collected in September 2022, February 2023 and April 2023. September data served as the baseline, February data (with a late sunrise) compared schools with different start times, and April data (with an earlier sunrise) compared a school to itself. Two cold months were used to remove the impact of weather on commuting choice. Variables in linear regression analyses included the month, attendance, demographics, start time, income and percent of special education students.

What Was the Result?

The literature review showed that no prior research has specifically focused on this topic, but previous studies suggest early start times may be a factor in school travel decisions. The revealed preference survey and analyses indicated that early start times were not a significant variable. For example, there were more driving trips in September than February, indicating more walking or biking in February even though sunrise is later in February.

In the stated preference survey, responses that identified student mode of travel by week showed that students who had an early start time were more likely to walk or bike. Distance was the top factor for whether a student walked or biked to school followed by student age, comfortable options for walking or biking (such as sidewalks or bike trails), and crossing a high-traffic or busy road. Traveling to school before sunrise or after sunset ranked sixth out of 11 choices.

Overall, the results of both surveys combined with parents' and

caregivers' opinions indicate that early school start times do not significantly discourage students from walking or biking to school. The results reinforced the need for transportation agencies to address barriers for pedestrians and bicyclists around schools, especially designated walk zones where yellow school bus services are not offered. The primary concerns of parents and caregivers suggest the continued need to improve the built environment around schools to encourage walking, biking or rolling to school.

What's Next?

Other factors influence student travel decisions, including insufficient sidewalks and bike lanes and difficult road crossings. MnDOT will continue to support investments in transportation planning and infrastructure improvements to make walking or biking to school safer, easier and more comfortable regardless of school start time.

About This Project

REPORT 2025-21

"School Times Impact on Students Walking or Biking to School: Safe Routes to School." Find it at <u>mdl.mndot.gov</u>.

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