An Assessment of Transportation at Texas State University

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## 1. Abstract

The physical and social characteristics of university campuses provide a unique position for reducing transportation-related greenhouse gas emissions. (Zhou et al. 2018) Travel behavior is influenced by both physical infrastructure and social factors, including personal perspectives, satisfaction, and attitudes, which determine commuters’ mode choices (De Angelis et al., 2021) To efficiently reduce emissions from transportation, universities must capitalize on this crucial transition period when students show an increased likelihood of adopting sustainable travel behaviors. (De Angelis et al. 2021)

San Marcos, Texas, has a population of over 71,000 (Census 2023) and is often recognized as a notable college town. (“Best 390 Colleges 2025,” n.d.) With a population of over 40,000, TXST students account for more than half of the local population. Breaking a 125-year record in the Fall of 2024, the TXST student population is increasing. San Marcos’ dense urban landscape and TXST’s compact campus, create a distinct opportunity for employing and assessing novel transportation interventions.

This project will provide a summary analysis of Texas State University student’s travel behavior using parking survey data from the fall semester of 2024. The results of this analysis will provide insight leveraging campus characteristics and existing multimodal systems to reduce transportation emissions. The contributions of this research will aid in future transportation planning and policy, particularly the implementation of the Texas State University 2025 Campus Master Plan.

## 2. Introduction & Background

### College Towns

Universities campuses in college towns provide unique opportunities to reduce transportation-related greenhouse gas emissions. College towns have a small population and are more compact with a higher population of students, 30-50%(p.2). A high student population of students in a realatively small town size create opportunity to leverage **physical and social** characteristics of campus to reduce adverse impacts from increasing transportation demand by promoting active and alternative travel.(p.15)

#### physical

Location and connectivity significantly impact transportation infastructure and travel behavior. (De Angeliset al., 2021) The high density at Texas State suggests. Increased potential for “transport infrastructure and services” supporting multimodal travel. Higher density creates more complex transportation patterns and increases the importance of efficient multimodal transportation options. This project aims to highlight the travel behavior of TXST students and explore opportunities for multi-modal transportation improvements.

Texas State University student population in the fall of 2024 accounted for over half the local population. San Marcos, Texas, home to Texas State University (TXST), has a population exceeding 71,000 (Census 2023). As a college town, TXST itself hosts over 40,000 students, making it a significant contributor to local transportation patterns (“Best 390 Colleges 2025,” n.d.). TXST main campus is compact, with 259 building on 457 acre.(University Master Plan,###)

#### TDM

Universities and college towns can benefit from utilizing a Travel Demand Management strategy. Universities, such as ULCA, that have historically employed a Travel Demand Management strategies provide good examples. (Zhou et al., 2018)

### 3. Objectives

Analyze transportation and travel behavior of Texas State University students using parking survey data from the Fall 2024 semester, 2012-27 University Master Plan, 2025 University Master Plan. Identify **WHAT**? and areas for improvement in campus transportation. Provide actionable recommendations to assess and reduce transportation-related adverse transportation impacts, such as greenhouse gas emissions and increasing transportation demands.

### 4. Methodology

Data Collection: Utilize parking survey data from Fall 2024 and other available university transportation data.

Analysis: Perform statistical summary analysis of travel behavior based on survey responses. Identify key insights related to transportation patterns. Examine the potential impact of changes on travel behavior in reducing greenhouse gas emissions.

Summary and Recommendations: Draft a summary analysis of the findings. Propose actionable steps for TXST to promote **sustainable** transportation.

### 5. Expected Outcomes

A comprehensive analysis of TXST student travel behavior. Insights into the current state of campus transportation assessment process and travel behavior. This analysis will provide recommendations for TXST aimed at leveraging campus chacteristics in reducing greenhouse gas emissions through improved transportation strategies.

### 6.Significance and Impact - This

Project will provide actionable insights into transportation behavior at TXST, contributing to the university’s sustainability initiatives. By identifying travel behavior and proposing solutions, the project will help reduce the environmental impact of transportation on campus. This analysis will guide future assessments of university transportation systems and travel behavior.