

Beyond the Commute

Designing Student Transportation Surveys That Drive Change — A case study from California State University, Northridge

SUSTAINABILITY · TDM · CLIMATE ACTION

Why Transportation Data Matters

Transportation is consistently one of the **largest sources of greenhouse gas (GHG) emissions** for many, but data is lacking

The Gap

Most institutions lack high-quality commute data to support GHG inventories or TDM planning.

The Opportunity

Well-designed surveys unlock actionable insight for sustainability, EVs, and climate action.

The CSUN Case Study

California State University, Northridge's Student Transportation Survey serves as a real-world model for science-based survey design — from data collection to institutional impact.

Higher Education

Scalable for any campus context

State Agencies

Applicable to government fleets and facilities

Local Government

Supports regional TDM and transit planning

Principles of High-Quality Survey Design

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CSUN

Thank you for your time! Your feedback matters: answers to these questions help us understand our environmental impact, and they also tell us how to improve what transportation options CSUN offers to our students, faculty, and staff. We appreciate your time in sharing your experiences

* Which type of CSUN affiliation are you? *

- ☐ Full Time Undergraduate Student (13 or more units)
- ☐ Part Time Undergraduate Student (Less than 13 units)
- ☐ Full Time Graduate Student (9 or more units)
- ☐ Part Time Graduate Student (Less than 9 units)
- ☐ Full Time Faculty/Lecturer
- ☐ Part Time Faculty/Lecturer
- ☐ Full Time Staff/Administrator
- ☐ Part Time Staff/Administrator

1 Define objectives first

Align every question to a specific planning or emissions-inventory need.

2 Use precise, unambiguous language

Reduces respondent confusion and post-collection data cleaning.

3 Pilot test before launch

Catch logic errors, skip patterns, and device-compatibility issues early.

The Good, the Bad, the Ugly:

The Good: Clear, concise questions lead to clear, concise answers

The Bad: Data cleaning for days because you didn't think about the questions

The Ugly: Throwing out responses due to poor survey design

Email and phone number of person attending. *

aspencotylozano015@gmail.com 760 498966:

Good, Bad, or Ugly?

Good, Bad, or Ugly

	W	X	Y
	At what time does your commute typically begin?	How many miles do you travel one-way to get from your home to work?	How long does it typically take you to get to work?
	Between 8am and 10am	4	15 minutes
	Between 8am and 10am	1.5	20 minutes
	Before 8am	10	30 minutes
	Between 10am and 12pm	1	5 min
	Between 10am and 12pm	30	45 minutes to 1 hour and 20minutes
	Between 8am and 10am	2	30 min
	Before 8am	1 mile	15 minutes
	Between 8am and 10am	5	30

Minimizing Data Cleaning: Design It Right the First Time

Use Validated Response Options

Pre-defined dropdowns and radio buttons eliminate free-text errors and inconsistent mode labeling.

Build in Skip Logic

Conditional branching ensures respondents only see relevant questions, reducing null entries and confusion.

Enforce Reasonable Ranges

Validate numeric inputs (e.g., commute distance) at point-of-entry to catch implausible values before submission.

Anonymize Thoughtfully

Design privacy protections upfront so data linkage and cleaning don't compromise respondent confidentiality later.

Boosting Response Rates



Incentivize Participation

Raffles, transit passes, and campus perks meaningfully increase completion rates.



Strategic Timing

Launch mid-semester to avoid finals and orientation periods when response fatigue is highest.



Multi-Channel Outreach

Email, SMS, in-class announcements, and social media maximize reach across student demographics.



Accessible Design

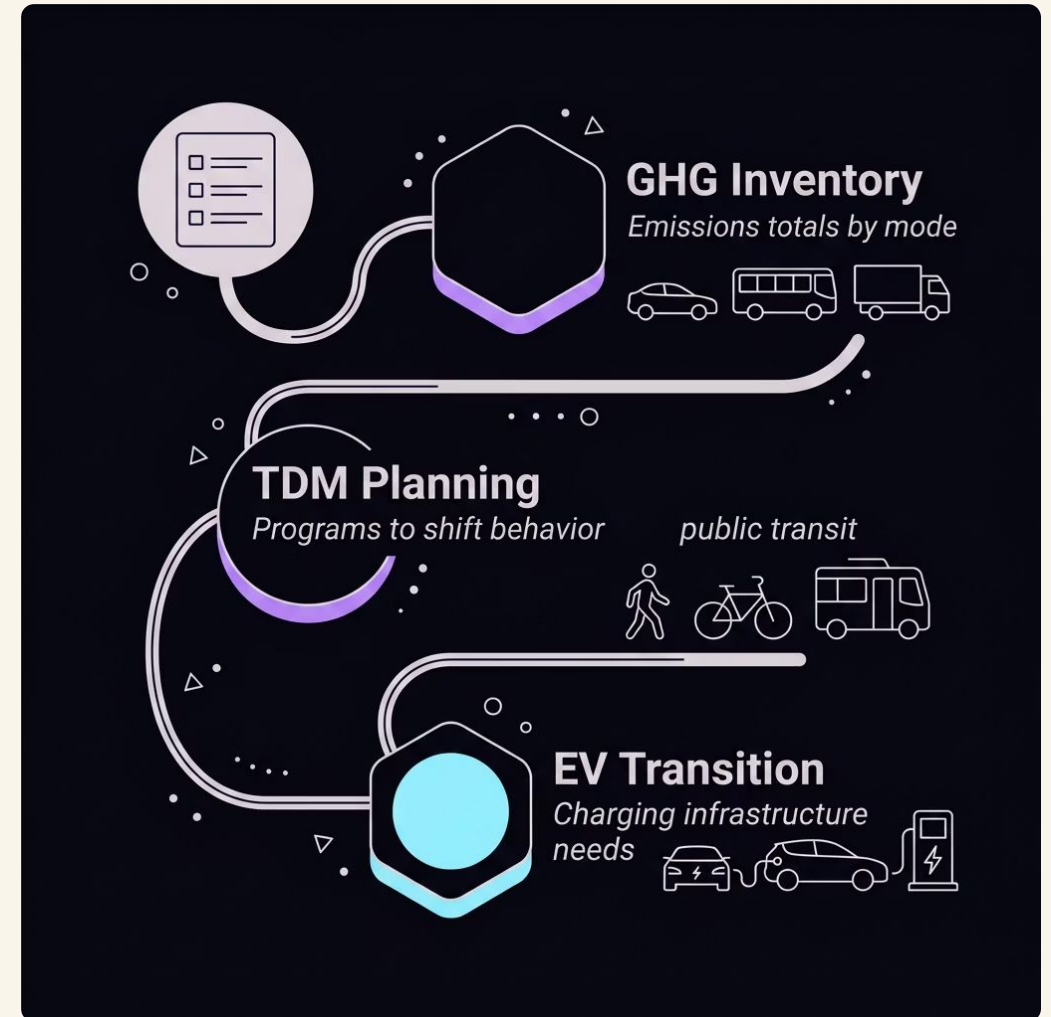
Mobile-first, multilingual options ensure no student population is systematically excluded.

From Survey Data to GHG Inventories

Transportation survey results feed directly into **Scope 3 GHG emissions calculations** — the category most institutions struggle to quantify accurately.

- Mode split data (drive-alone vs. carpool vs. transit) enables emissions factor application
- Vehicle type and fuel source data refines per-mile emissions estimates
- Trip distance and frequency convert to annual VMT for inventory reporting

❏ Accurate student commute data is often the missing link in a complete institutional carbon inventory.



Supporting the EV Transition

Survey data reveals more than commuting habits — it uncovers **EV readiness and charging demand** that informs capital infrastructure decisions.

Ownership Patterns

Identify what share of students currently own or plan to purchase EVs.

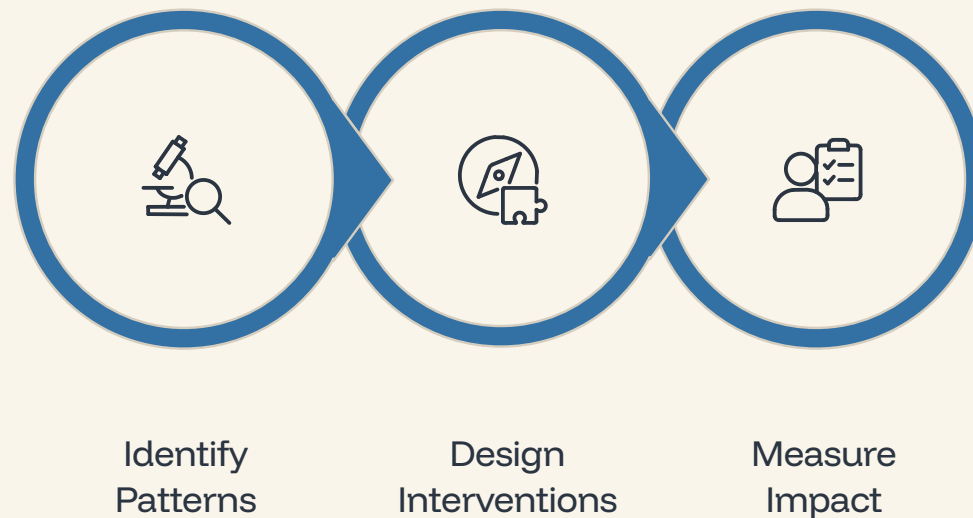
Identify Charging Needs

Map where and when students would use on-campus charging to size infrastructure correctly.

Pinpoint Barriers

Preventing EV adoption among commuter populations.

TDM Planning: Turning Data into Programs



Closing the loop with repeat surveys allows institutions to demonstrate measurable progress toward sustainability commitments.

Programs Survey Data Can Inform

→ Transit Subsidy Programs

Target routes and pass types based on actual student origin data.

→ Carpool & Rideshare Matching

Use commute corridor data to build viable carpool clusters.

→ Active Transportation Infrastructure

Prioritize bike lanes and pedestrian paths along highest-volume corridors.

Make It Actionable

See the full picture

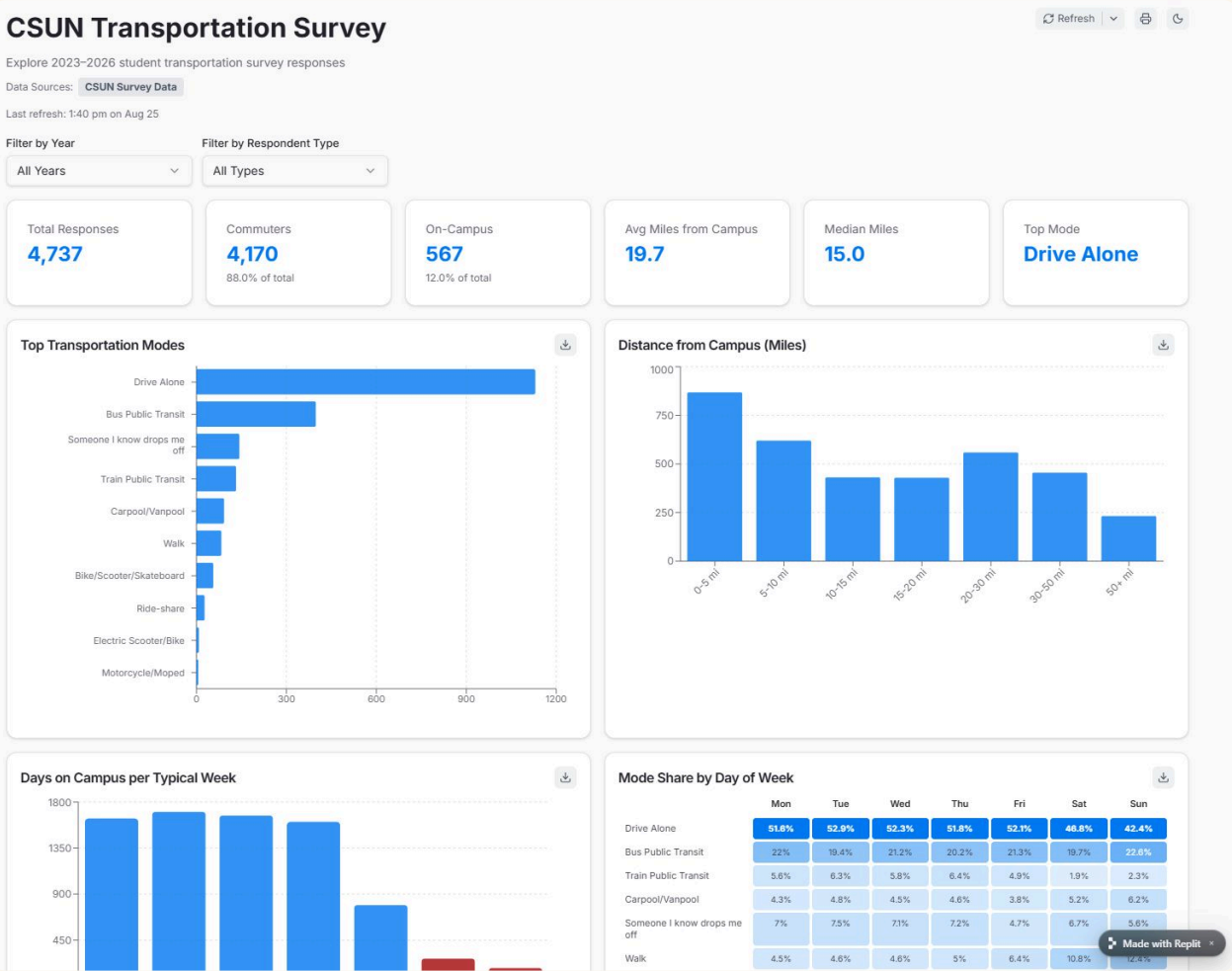
Bring transportation patterns into one
interactive view.

Pinpoint Opportunities

Identify where targeted change can have the
greatest impact.

Turn Insights Into Decisions

Give leaders the evidence needed to prioritize
resources and drive improvements.



Take It Back to Your Campus

Leave today with practical tools to [strengthen transportation planning, sustainability initiatives, and data-driven climate action](#) at your institution.



Audit Your Current Survey

Assess question clarity, skip logic, and alignment to your GHG inventory needs.



Engage Stakeholders Early

Involve sustainability, parking, and transit offices in survey design to ensure cross-functional buy-in.



Plan for the Output

Know how results will feed into GHG reports, TDM programs, or EV infrastructure proposals before you launch.