Lines of Departure: Understanding NTNU's Commuting Landscape

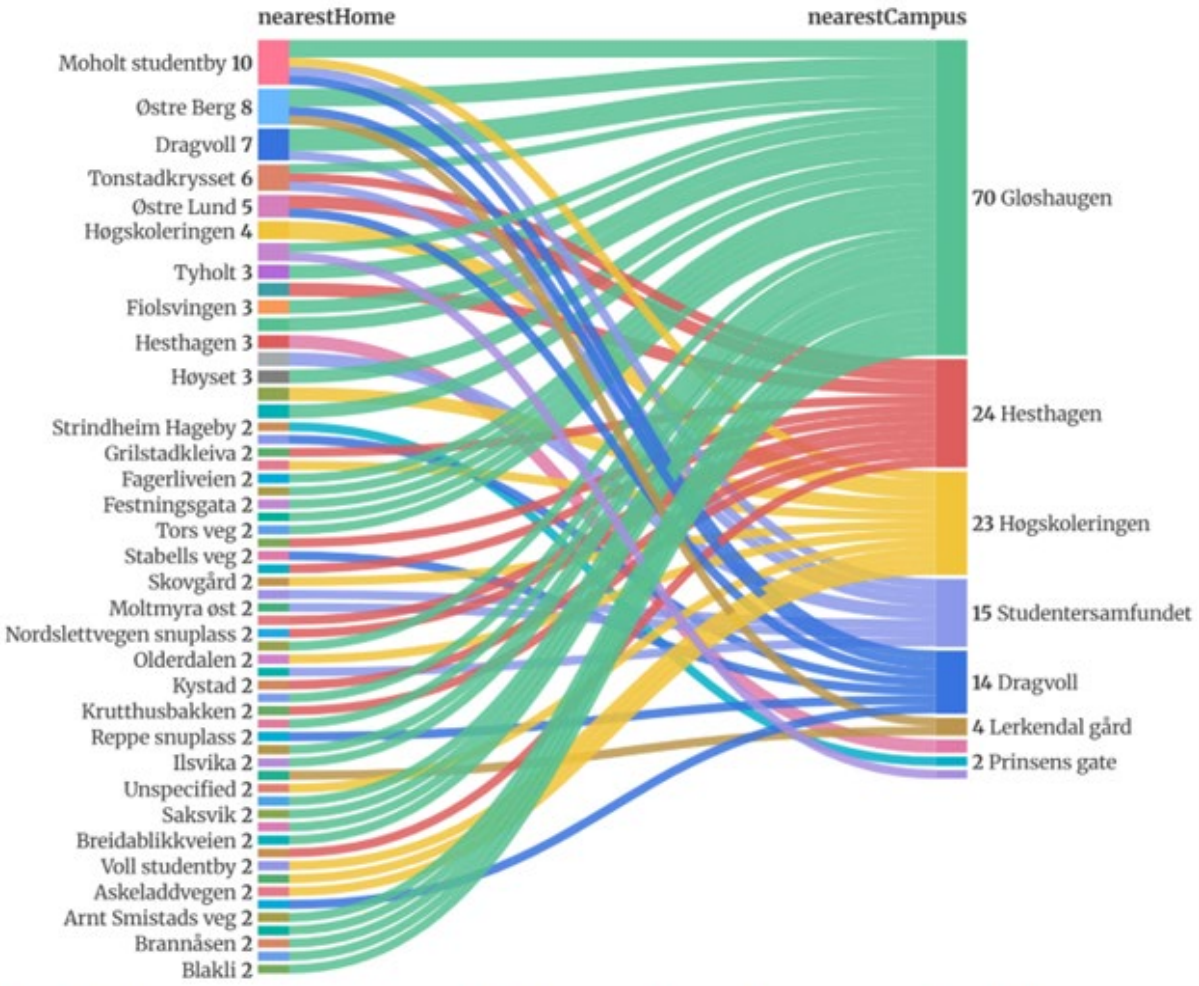

Figure: Sankey diagram showing directed flows between home and campus stops for NTNU commuters. *Note: Line thickness corresponds to the number of respondents travelling between each pair.*

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INTRODUCTION

As NTNU consolidates its campuses across Trondheim into a central hub at Gløshaugen, an additional 8,000 students and 1,300 employees will be based at the central campus by 2030. This consolidation will inevitably increase pressure on mobility infrastructure in and around Gløshaugen, as thousands adjust their daily mobility routines. This raises the question: how do people currently commute, and how might that change?

METHOD

To answer this question, we surveyed over 570 NTNU students and employees about their mobility and commuting patterns, including the nearest bus stops to their home and campus locations. The analysis of directed flows between these stop pairs offers insight into commuting routes, spatial distributions and temporal trends.

RESULT

The result is a visual map of movement: a Sankey diagram offering a clear view of the most common commuting corridors. The figure covers 27.6% of all survey responses and includes only home–campus pairs used by more than one respondent. Each line represents a group of commuters, with thicker lines indicating higher volumes. The top 10 campus stops shown in the figure account for 85.8% of all responses.

The picture that emerges is one of complexity and diversity – far from a one-size-fits-all commute. While some respondents travel short distances, others commute over 30 kilometres each way. The most frequently used campus stops include Gløshaugen, Hesthagen, and Høgskoleringen, while home stops are scattered across Trondheim and beyond, reaching as far as Fannrem, Dullumfeltet, and Leksvik in neighbouring municipalities.

This spatial variation matters. It reveals not only the geographic spread of NTNU's community but also uneven access to public transit, cycling infrastructure, and flexible commuting options. While some respondents live near direct bus lines, others face long commutes with multiple transfers, adding time and complexity to their journeys. For many, switching from car to public transit can double or even triple travel time, particularly those commuting from outer municipalities or juggling caregiving responsibilities.

Other effects of the campus consolidation, such as reduced parking availability, will hit hardest those unable to switch modes due to health, family logistics, or poor transit connectivity. The result is longer commutes, less flexibility, and in some cases, earlier departures, later arrivals, or a shift to remote work. However, local infrastructure still matters. Even short-distance commuters need safe cycling routes, indoor bike storage, and reliable winter maintenance to make sustainable mobility viable year-round.

These findings could be enriched by large-scale mobility data and travel time analytics, revealing deeper spatiotemporal trends in how people circulate around Gløshaugen: where congestion builds, which stops become bottlenecks, and how broader movement patterns intersect with campus access.

CONCLUSION

These flows represent the daily mobility realities and individual spatiotemporal constraints of commuters, providing a foundation for smarter planning. Understanding how, when and why people move can help improve bus routes, prioritise infrastructure upgrades, and shape mobility policies that reflect actual constraints.

Each line in the figure traces not just a trip, but a decision shaped by access, time, and trade-offs. Together, they point toward a more connected, responsive, and sustainable NTNU.

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