

PROJECT TITLE

Feasibility of employee shuttles for equitable mobility and improved housing options for low- and middle-income employees: A Case for Stony Brook University Campus

ABSTRACT

The objective of this project is to assess the feasibility of an employee shuttle for Stony Brook University (SBU) campus employees to reduce car dependency and to expand employee access to more affordable housing choices. The ultimate aim of the project is to develop a demand responsive employee shuttle pilot through an online mobility platform for work-home commute, complemented by on-demand service for non-commute trips (e.g., grocery) and carpool matching.

The social dimension of the project relates to the so-called residential–commuting–employment nexus and its social equity implications. Research has shown that low-income individuals are spatially transitory and make residential choices based on mobility options rather than work location. This leads to high-income workers to have more mobility options and achieve better job and housing balance. Employee shuttles are used in many parts of the world to serve mainly low- and middle-income populations with low car ownership and limited mobility. Employee shuttles generally require concentration either in the origin (e.g., commuters living in close proximity) or the destination (e.g., plazas or campuses that serve multiple businesses or single business of large employee count) of the commute. Universities are such high-density job centers that are not free from such inequalities because the activity concentration at the campuses lead to higher housing prices (both for rent and sale) in proximity. The lack of transportation alternatives locks the employees (and students alike) in dependency on personal vehicle and adds significant financial burden of car ownership. The technical dimension of the project includes the optimal routing and pricing of the services that balance user adoption, financial sustainability and social equity impacts.

The project team has partnered with the employee unions and the Office of Postdoctoral Affairs (OPA) that collectively support thousands of campus employees from various titles and paygrades. The community partners have active working groups to address challenges of mobility and housing affordability that are faced by campus employees, including maintenance, custodial, and administrative staff, graduate and postdoctoral researchers. On the technical side, the project team partnered with Flexigo, a technology and solutions provider for new and innovative mobility concepts like car sharing and ride pooling, in addition to managing large scale employee shuttle services.

The project tasks will include surveys, focus groups and behavioral lab experiments to extract the commuting and housing choice behavior of Stony Brook University (SBU) campus employees. The project team will reach out to the campus employees to understand their interest in an employee shuttle system, along with their willingness to pay for such a service. The cost of shuttle operations will be analyzed with the input from the industry partner transportation technology company Flexigo that will provide access to their platform for demand assessment and corresponding necessary fleet size and optimal routing for the envisioned pilot project. The analysis of demand along with comparison of costs and willingness to pay for the campus employees will yield the financial sustainability and feasibility of the envisioned pilot project.

In terms of its anticipated impacts, the project (and envisioned subsequent pilot) studies the interaction of mobility options and housing choices, which are fundamental topics for urban planning and policy. Mobile technologies disrupted the transportation industry and led to the on-demand mobility and mobility as a service (MaaS) era. MaaS generally defies the car ownership and dependency by utilizing shared rides and incorporating alternative options such as micromobility. This project moves in the same direction, but rather than emphasizing the convenience aspects of the service, the project focuses on the transportation equity, particularly providing viable work commute options for low- and mid-income workers.