

Introduction

- Shared Mobility services have the potential to improve access to public transportation by providing shared-used modes on an as-needed basis
- However, the standing operational characteristics of this service deprive disadvantaged groups (e.g., low-income population, disabled population, and seniors) of its benefits
- The study area, Camden City, is an underserved community where people face logistical barriers to use shared mobility programs. Specially to complete the first/last mile trip
- First/last mile trip is known as the distance to and from transit stops

Objectives

- Identify the major factors that influence the feasibility of shared mobility programs
- Utilize a multi-criteria analysis method to investigate the feasibility of car-sharing, ride-sharing, and bike-sharing programs in Camden City

Methodology

Data Collection: Determination of the Influencing Factors

The major factors affect the implementation of car-sharing, ride-sharing, and bike-sharing programs were defined by reviewing former studies discussed shared mobility programs

Data Collection: Study Area

Open data sources were used to collect demographic, income, population density, and other information pertaining to Camden City. Collected data was geospatially represented

Feasibility Analysis

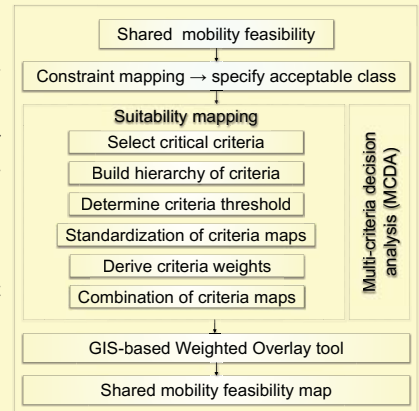


Figure 1. Flowchart of the feasibility analysis methodology

Results

Car-sharing

Table 1. Factors affect the feasibility of car-sharing

Less feasible	Factor	Most feasible	Category
Low	Population Density	High	High
	Age		> 25 & < 40 years age
	Household Income Level		> 30K/year
	Household Type		Live alone
	Vehicle Ownership		Zero vehicle ownership
	Level of Education		Bachelor's or higher
	Transit Station		Yes

Low Density level High

Subsidized Ride-sharing

Table 2. Factors affect the feasibility of subsidized ride-sharing

Less feasible	Factor	Most feasible	Category
Low	Population Density	High	High
	Age		< 40 years age
	Household Income Level		< 30K/year
	Vehicle Ownership		Zero vehicle ownership
	Level of Education		No high school
	Transit Station		Yes

Low Density level High

Bike-sharing

Table 3. Factors affect the feasibility of bike-sharing

Less feasible	Factor	Most feasible	Category
Low	Population Density	High	High
	Age		< 35 years age
	Household Income Level		> 40K/year
	Vehicle Ownership		Zero vehicle ownership
	Level of Education		Associate degree or higher
	Transit Station		Yes
	Bike Infrastructure		Yes
	Race		White

Low Density level High

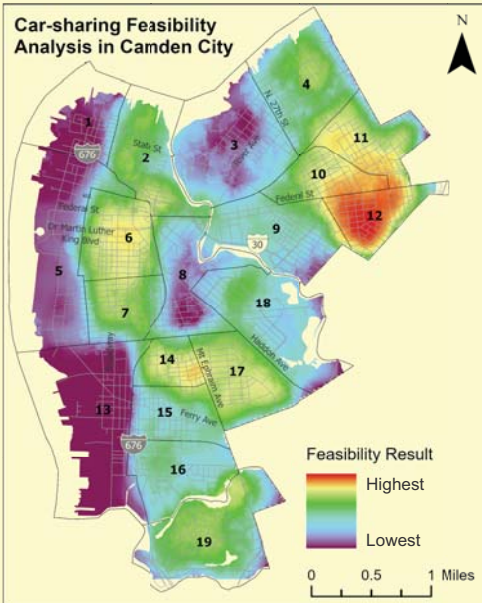


Figure 2. Car-sharing feasibility analysis in Camden City

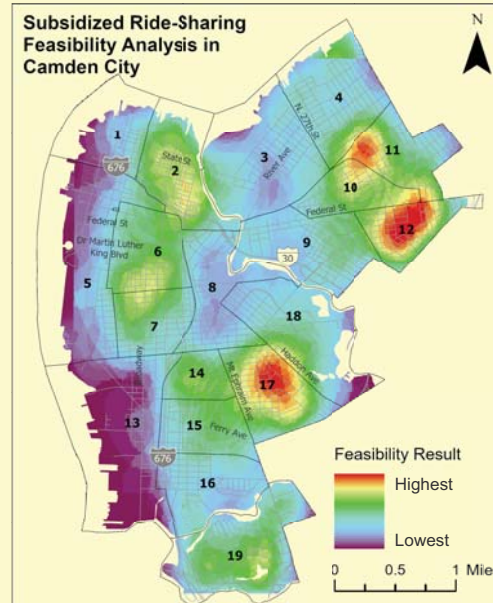


Figure 3. Subsidized ride-sharing feasibility analysis in Camden City

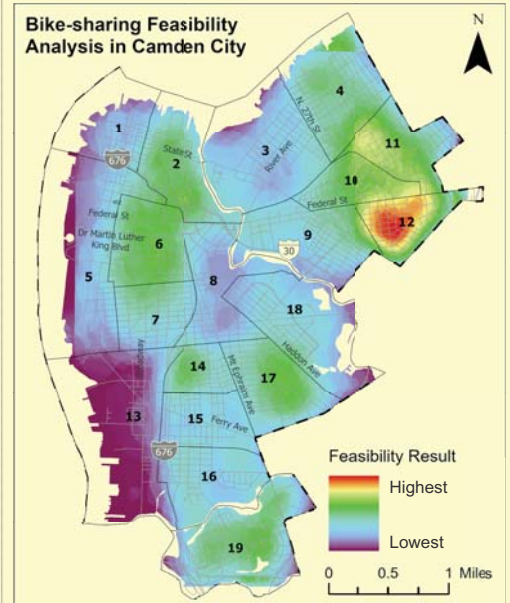


Figure 4. Bike-sharing feasibility analysis in Camden City

Key Findings

- The factors of populations density, level of income, age, vehicle ownership, and level of education are major factors that affect the feasibility of shared mobility programs (car-sharing, ride-sharing, and bike-sharing). However, the threshold/category of each of the factors differs between the programs
- Bike-sharing programs were found to be the least feasible in Camden City compared with car-sharing and subsidized ride-sharing
- Shared mobility programs highly rely on technology, which make them not feasible for specific people such as underserved groups
- Overall, shared mobility programs need adjustments in their common operational models and logistics to be accessible and feasible in underserved communities, such as offering unbanked payment methods and phone call booking options

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