

# VERIFICATION OF THE EFFECTS OF PARKING LOT CONVERSION AND PARKING LOT INTEGRATION IN THE KAWAGOE ICHIBANGAI SHOPPING STREET

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**Keywords:** Parking diversions, integrated parking, fringe parking, congestion reduction

## 1. INTRODUCTION

In the Koedo Kawagoe Ichibangai shopping street in Saitama Prefecture, the warehouse-style streets still remain and are crowded with many tourists, especially on holidays. However, several off-street parking lots are located in the vicinity of the shopping arcade. This causes problems with the fragmentation of the streetscape, the influx of cars into the shopping area and the confusion with pedestrians near the entrances and exits of the parking lots.

## 2. Purpose of the survey

This study uses the SUMO simulation software to reproduce passing traffic and traffic using parking lots in the area around Koedo-Kawagoe. It also develops a proposal for the optimal parking layout to reduce parking congestion and improve the attractiveness of the streetscape, as well as an improved signal display to reduce traffic congestion. The objective is to verify the effectiveness of these improvements.

## 3. Survey overview.

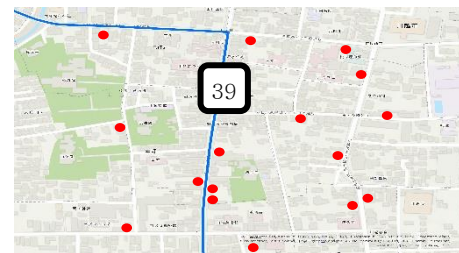
In order to determine the actual use of off-street parking spaces, a two-hour survey was conducted on Saturday and Sunday by visiting the site to determine the number of vehicles entering and exiting the parking spaces and the duration of parking. The survey data is shown in Table 1 below. In addition, traffic volume data for the Ichiban-gai area is required to create a simulation, and the simulation is created using automobile and pedestrian traffic volume data provided by the Kawagoe City Office. The simulation introduces traffic volume data from 16:00 to 17:00 shown in Figure 1.

Table 1. Number of parking spaces in and out

	Saturday		Sunday	
	entering the depot	leaving the depot	entering the depot	leaving the depot
A parking	18	1	17	3
B parking	12	11	20	20
C parking	9	8	5	5
D parking	15	5	10	9



Figure 1: Vehicle and pedestrian traffic survey data



Off-street parking arrangement

## 4. Parking lot redevelopment scenario

The following three scenarios were developed with reference to the Ministry of Land, Infrastructure and Transport's urban development documents.

- Scenario 1 : Designate County Road 39 as a restricted area for parking lot entrances and exits to control inflows from County Road 39.
- Scenario 2 : Designate the area around First Avenue as an off-street parking regulation zone (for pedestrians only) and form a parking lot outside the zone.
- Scenario 3 : Convert County Road 39 in Scenario 1 into a transit mall, allowing only local buses to pass through.

## 5. Simulation results

A parking time model and arrival interval model were estimated using the survey data, and simulations were produced before and after the car park was built. Scenario 1 is expected to have a significant impact on local residents due to vehicles entering the narrowest surrounding residential roads. Scenario 2 has a greater impact on traffic congestion on the surrounding roads, but is expected to solve the lack of demand for parking spaces, ensure continuity in the streetscape and improve the attractiveness of the town.

## REFERENCES

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