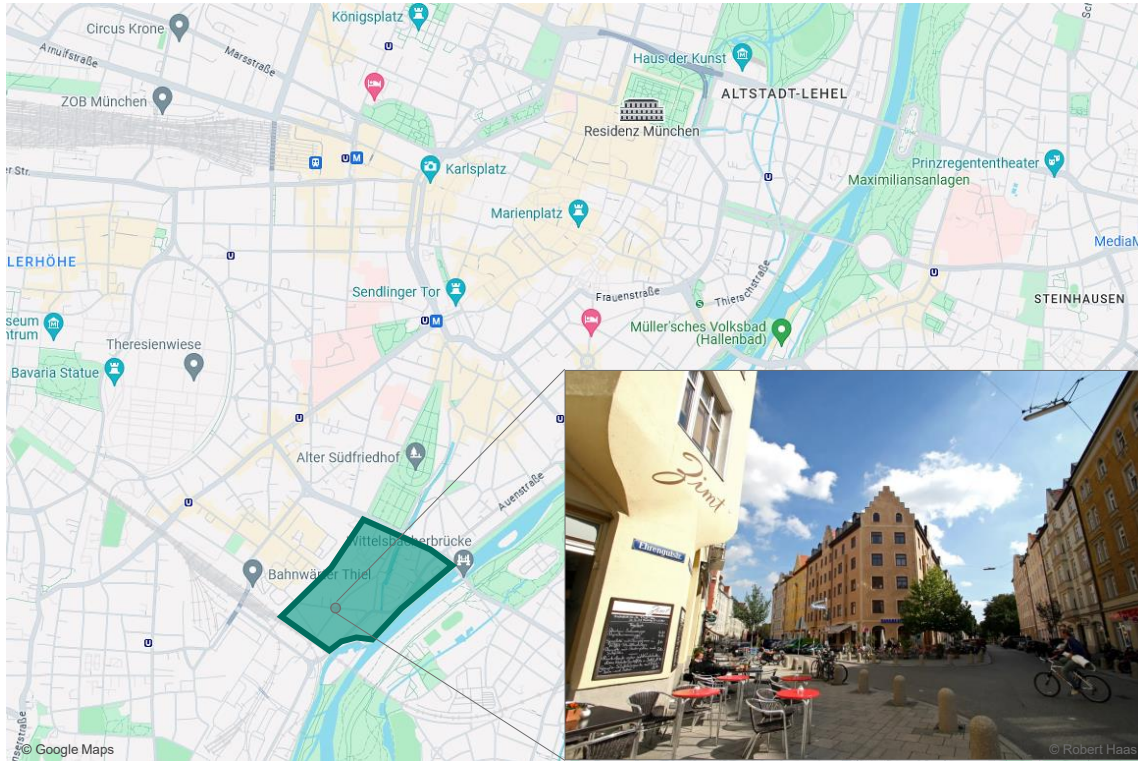


Identifying Equitable Solutions for the Parking Problem in Munich's Dreimühlenviertel with an Integrated Travel Behavior and Parking Study

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Munich Dreimühlenviertel – A Dense City Quarter



- Wilhelminian Quarter:
 - 4- to 5-storey residential buildings
 - Many restaurants & bars
- 6,300 residents in 0.4 km²
- 1,700 parking permits
- No parking lots/garages
- Big share of public space used for on-street parking (1,200 parking spaces)

The Project 'Existing Neighborhood of the Future'

- Initiated and managed by the Alliance 'Mobile Zukunft München' (Strategic alliance for mobility & logistics in Munich)



- Project goals:

- **Conversion of (some) public on-street parking spaces** to improve the quality of stay, adjust to climate change and create space for more sustainable forms of transportation
- Consideration of the interests and wishes of all residents

- Our assignment:

- Identify the mobility needs of residents
- Evaluate different measures to ensure that no residents are worse off with fewer on-street parking spaces



Measures to Reduce Demand for On-Street Parking

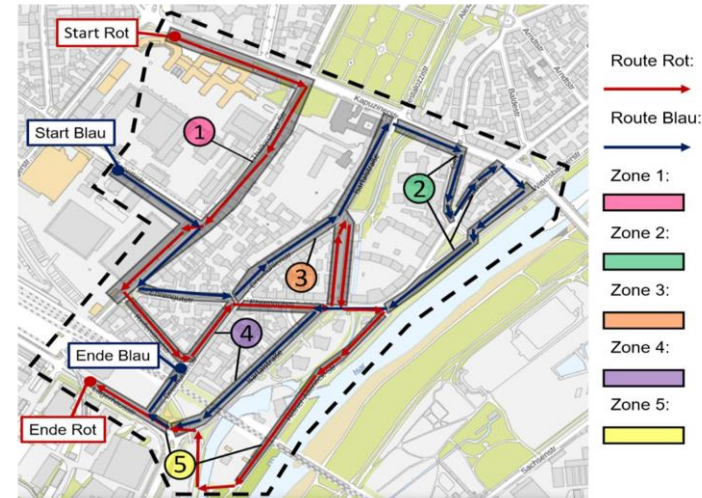
- **Reduction in car ownership** of residents:
 - Understanding the mobility needs of car owners
 - Offer better transportation options so that car owners become less car-dependent
- Provision of **off-street parking**:
 - Requirements of car owners for a parking garage
- Revised **parking management**:
 - Ban on long-term parking
 - Ban on parking of motorhomes & camper vans
 - Restrictions for vehicles without a parking permit
 - Price increase for parking permit



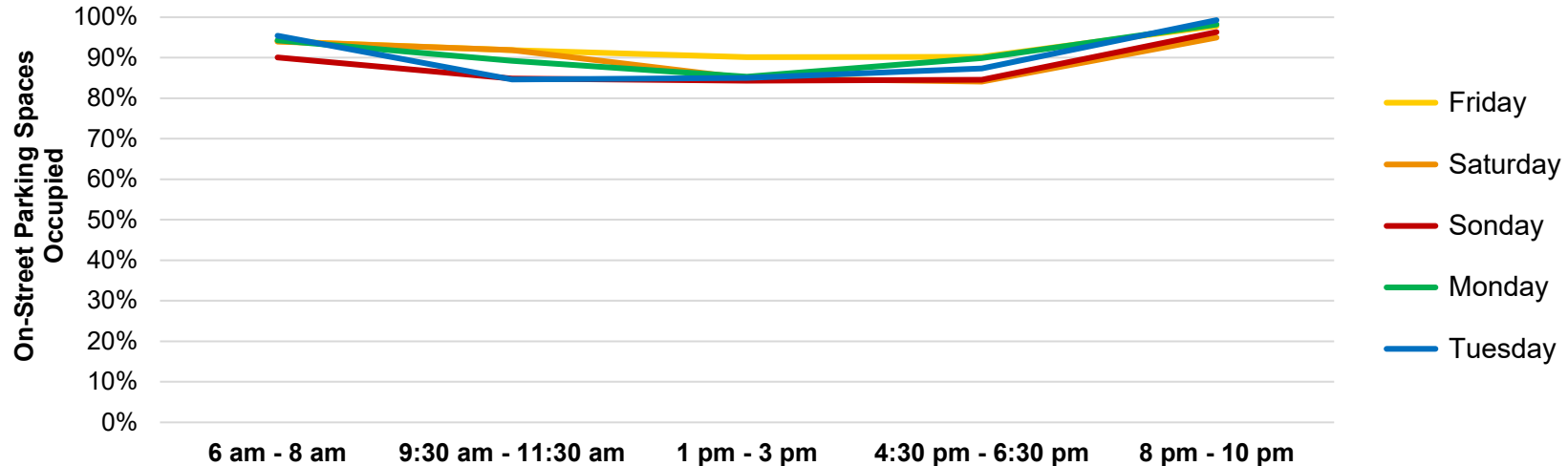
Methodology of the Parking Study



- 600 of the 1200 on-street parking spaces were examined
- Total of 26 data collection runs:
 - One on July 11, 2023
 - Five per day from July 21, 2023 to July 25, 2023
- Students with iPads by foot (2 hours per run)
- Data collected for each parking space:
 - Occupancy
 - Vehicle type
 - Parking permit
 - Parts of license plate



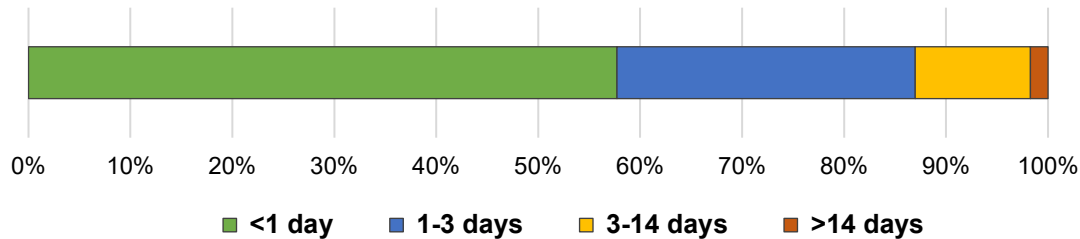
There are already More Cars than Parking Spaces



- Minimum occupancy rate: 84%
- Average occupancy rate: 91%
- Including illegally parked cars occupancy rate **>100%** every night

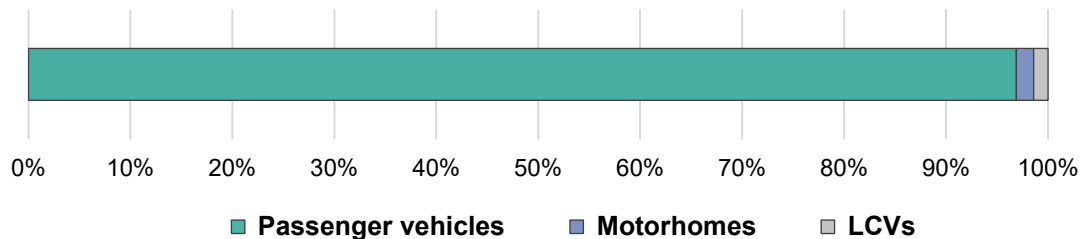
Long-Term Parkers and Motorhomes take up 5-7% of Parking Spaces

■ Parking duration:



Only few vehicles were parked for over 2 weeks, but these took up **5%** of parking spaces

■ Vehicle types (average data collection run):

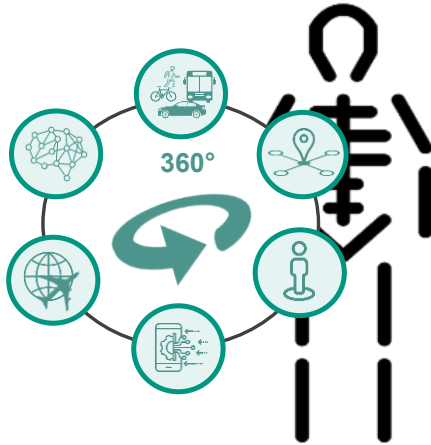


On average motorhomes took up **2%** of parking spaces

Methodology of the Travel Behavior Study



The Travel Skeleton Survey



Get more info:



Survey approach:

- Ask for travel behavior in a pseudo-longitudinal way (behavior in a 'typical week')
- Use reduced response burden to ask for other aspects



Usual everyday mobility patterns:

Activities, frequencies, means of transportation used, ...



Usual long-distance travel:



Day trips and overnight trips



Psychographic characteristics:

Attitudes, norms, motives (e.g., regarding car use)

The Travel Skeleton Survey in Dreimühlenviertel

- Online survey (August 2023 – November 2023) 
 - Recruitment:
Posters, Workshops, Instagram, Neighborhood's website
 - Sample:
 - 161 respondents (~3% of all residents)
 - Too few young and old people
 - Too many people with high education
-  **Not** completely representative

What are Requirements for a Parking Garage?

- On average car owners report having to **search for** a free on-street parking space for **18 minutes** in the **evening/at night**
- Car owners would be willing to **walk for up to 6 minutes** from their home to a parking garage **on average**
- **15%** of car owners would only be interested in renting a parking space in a parking garage, if it had an **electric charging point**

High Potential for a Reduction in Car Ownership

- **66%** of households **own** a car
 - **Walking** and **cycling** are the most frequently used means of transportation, even among most car owners
 - **Only 44%** of respondents **use their car at least once a week**
 - Many use their car mainly for **day trips** and **overnight trips**
 - **63%** of car owners have **thought about getting rid of (one of) their car(s)**
- ➡ **High potential** for a reduction in car ownership
- ➡ What needs to happen for this potential to be realized?

Methodology of the Resident Workshop



- Identification of car owners who seemed the most car-independent based on travel behavior study
- Invitation to workshop
- In-depth discussion about their mobility needs and **how the transportation options in the neighborhood would need to change/improve for them to get rid of their car**

Main takeaways from the resident workshop

- All participants occasionally need a car (mainly for day and overnight trips)
- All have a customer account for **carsharing**, but only one uses it regularly
- 3 of the 5 non-users would consider getting rid of their car **if carsharing was more attractive**
- **Reasons for non-use of carsharing:**
 - Carsharing stations too far away
 - Free-floating carsharing vehicles rarely available and search for parking space upon return
 - Various providers → Several different customer accounts and apps needed

Conclusion

- Mixed method approach enables evaluation of many possible measures to reduce demand for on-street parking
- Residents are happy that their needs were enquired and that they can influence the evolution of their neighborhood
- Presentation of study results in the Dreimühlenviertel was met with great interest by residents and city administration and led to fruitful discussion

Thank you for your attention!



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