TransportPlanning Society

Rural vs Urban Universities: The Role of Car Sharing in Reducing Single-Driver Dependency in Higher Education

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Introduction

Background

Cars dominate UK transport due to their convenience and extensive infrastructure, making them central to modern life. With 41.4 million vehicles on the road in 2023 (SMMT, 2024), private car use is deeply ingrained in societal habits. Policies such as the fuel duty freeze have further reinforced this dependency, contributing to increased traffic and reduced public transport use (Begg et al., 2018). Despite the 2022 fuel price surge, which made car ownership feel more affordable, it continues to present a challenge for promoting sustainable transport (Harari et al., 2022).

Car-sharing offers a viable solution to this car-centric culture. Peer-to-peer (P2P) sharing and car clubs present alternatives to private vehicle ownership (CoMoUK, 2022). However, adoption rates differ significantly between urban and rural areas. Urban regions benefit from high population density, public transport infrastructure, and short travel distances, while rural areas face challenges such as limited transport options and higher car dependence (DfT, 2022). These disparities underscore the need for tailored car-sharing strategies.

Universities, both urban and rural, present a unique opportunity to promote car-sharing, particularly given that students often face financial constraints, making shared mobility an attractive option. With 2,937,155 students in the UK in 2022/23 (HESA, 2024), universities are hubs of significant travel demand. The primary age group of university students, as identified by Universities UK (2019), is between 18 and 24 years. The National Travel Survey by the DfT (2024) shows that students aged 18-21 make fewer car trips, which further suggests that they could be a key demographic for car-sharing initiatives. Nevertheless, more research is needed to understand how to adapt students' travel habits and perceptions to design effective interventions for integrating car-sharing into their routines and daily lives (Zheng et al., 2009).

Aims and Objectives

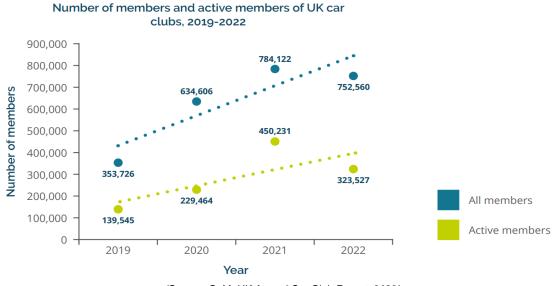
As such, this study aims to explore car-sharing practices at both an urban and rural university, providing insights to developing better targeted initiatives for sustainable travel in higher education (HE) settings. The objectives that this research will follow:

- **Objective 1:** Assess the role of car-sharing in reducing car dependence and its potential as a sustainable transport solution in an urban and rural university setting.
- **Objective 2:** Explore differences between urban and rural universities, focusing on public transport availability, parking infrastructure and current car sharing marketing and initiatives.
- **Objective 3:** Investigate strategies for incorporating car-sharing schemes, including marketing and promotional campaigns, into university travel plans.
- **Objective 4:** Evaluate the impact of car-sharing initiatives on car dependence, identifying barriers such as infrastructure or behavioural challenges.

Literature Review

Overview of Car Sharing in the UK

Car-sharing in the UK has seen significant growth, with over 750,000 members in 2022 (CoMoUK). This trend is particularly strong in urban areas, where satisfaction rates exceed 90%. Each shared vehicle replaces 20 private cars annually, reducing congestion and emissions (CoMoUK, 2022). As shown in **Figure 2.1**, car club participation increased between 2019 and 2022, particularly in urban settings, highlighting the growing demand for shared vehicles.





(Source: CoMoUK Annual Car Club Report, 2022)

This rise in car-sharing is also linked to changing patterns in car ownership, especially among younger people. Fewer than 40% of 17- to 20-year-olds hold a driving licence (DfT, 2024), suggesting a shift away from traditional car ownership in favour of more flexible and affordable transport options like car-sharing. **Figure 2.2** illustrates the decline in full driving license ownership among younger people below the age of 21.

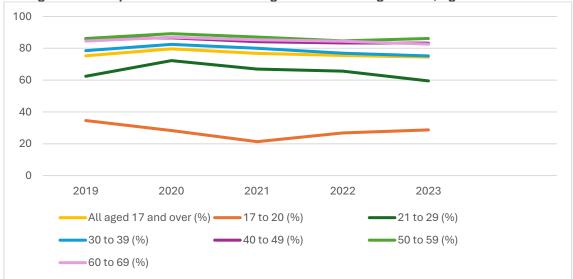


Figure 2.2: Proportion of Adults holding a full car driving license, aged 17 and over

(Source: DfT, NTS0201a Driving licence holding and vehicle availability, 2024)

A 2023 DfT survey further supports this, finding that low-income, carless young people often rely on public transport or occasionally share rides with family or colleagues (DfT, 2023). These findings therefore underscore car-sharing as a viable solution to meet the transport needs of this demographic.

As car-sharing grows, it has evolved into two primary models: commercial car clubs and peer-to-peer (P2P) platforms. Car clubs, such as Enterprise Car Club, provide customers with unattended access to cars for short-term rental, typically by the hour.

These clubs operate under two business models, known as round-trip car clubs, where the vehicle is returned to its home station, and flexible car clubs, which allow one-way trips. Vehicles may be owned by individuals and rented out via a P2P platform. Hiyacar is a good example for this form of P2P.

P2P car-sharing platforms, such as Liftshare, enable individuals to connect with others for carpooling or to rent out their own cars. Both models offer a flexible, cost-effective alternative to private car ownership in both urban and rural settings.

To support car clubs the main common parking models are described below:

- Back to Bay: Vehicles are returned to a designated bay.
- Back to Area: Vehicles are returned to a flexible area.
- **One-way/Flex:** Pick up and drop off cars at different locations.

P2P platforms often use more flexible parking systems, where the vehicle owner determines the pickup location, and cars are dropped off at designated public spots (Getaround, 2024).

Car Sharing in a Rural vs. Urban Setting

While car-sharing models have flourished in the UK, adoption is shaped by local conditions. Urban areas, with higher population density and better infrastructure, see greater car-sharing adoption, especially for P2P services. Younger, city-dwelling individuals are more likely to use car-sharing, while rural areas face challenges due to geographic isolation, lower population density, and a strong reliance on private vehicles. Tailored policies are needed to boost adoption in less urbanised regions (Prieto et al., 2017).

In rural areas, younger individuals show interest in shared mobility, but barriers like reluctance toward app usage and dependence on personal vehicles limit adoption. Addressing these challenges through educational campaigns and improving accessibility could help increase adoption (Enoch et al., 2020; Schilder et al., 2024).

Travel Behaviour Change

Social norms, including descriptive norms (perceptions of others' behaviours) and injunctive norms (perceptions of what others believe one should do), play a crucial role in fostering sustainable travel behaviour. These norms help bridge the gap between intention and behaviour, encouraging low-carbon travel choices (Javaid et al., 2020). Resistance to car-sharing often stems from individual convenience, cultural associations between car ownership and status, and emotional attachment to private cars (Bardhi & Eckhardt, 2012).

Cooper et al. (2003) argue that universities are ideal locations for implementing travel behaviour change programmes, as they can regulate parking, restrict car ownership, and promote sustainable travel through policies and infrastructure. Education and institutional support are key to overcoming the cultural barriers to adoption (Shergold & Parkhurst, 2012).

Several UK universities, including the University of Exeter and the University of Reading, have successfully integrated car-sharing schemes into their travel plans. These include providing incentives

such as free parking, priority spaces, and emergency travel home schemes. These initiatives not only reduce car dependence but also promote a culture of sustainable travel (Cooper et al., 2003).

Communication Strategy and Promotion of Car Sharing in Higher Education

Integrating car-sharing into University Travel Plans is a key strategy to reduce congestion, lower emissions, and ease parking pressures. Effective communication is essential for success. Nelson et al. (2023) highlights that a well-developed Travel Plan can influence commuter behaviour, particularly at large universities, by addressing practical needs and behavioural barriers.

The University of Edinburgh's Integrated Transport Plan 2023–2030 underscores the importance of understanding commuting patterns. Staff rely more on private vehicles, while students prefer walking or public transport. Recognising these differences allows universities to tailor communication and infrastructure to each group's needs, making car-sharing schemes more accessible and effective.

Marketing communication is crucial for driving car-sharing adoption. Logical appeals (logos), such as cost savings, and credibility-based messaging (ethos) are often prioritised. However, emotional appeals (pathos), like storytelling or cause-related messaging, can foster stronger connections but are often underutilised (Mai and Day, 2023). Balancing these strategies can address behavioural barriers and boost student engagement.

The University of Exeter's 2021–2030 Travel Plan exemplifies combining practical measures with communication. Initiatives like preferential parking for car-sharers and accessible online information about car-sharing have successfully increased participation in Liftshare. These measures show how effective communication, paired with incentives, can promote car-sharing adoption.

Examples from Edinburgh and Exeter highlight the importance of integrating infrastructure, tailored messaging, and a balance of ethos, logos, and pathos. By adopting these strategies, universities can overcome barriers and foster sustainable transport behaviours.

Methodology

Research Design

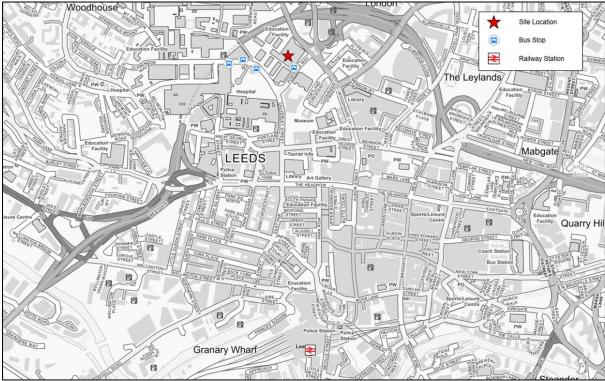
This research employs a comparative case study approach, focusing on Leeds Beckett University (LBU) as an urban case study and Edge Hill University (EHU) as a rural counterpart. LBU benefits from a dense urban transport network, while EHU faces challenges related to limited transport accessibility. This contrast allows for a comparative analysis of how car-sharing schemes can be adapted to different settings, highlighting the influence of geographic and infrastructural factors on adoption.

Case Studies

LBU

With over 25,000 students, LBU's City Campus is centrally located with good access to public transport. The university includes close access to Enterprise Car Club spaces but lacks a formal Liftshare community. The LBU Transport Strategy 2024 proposes exploring car-sharing options like Faxi for staff commutes. The campus location and nearby public transport options are shown in **Figure 3.1**.

Figure 3.1: LBU City Campus Site Location

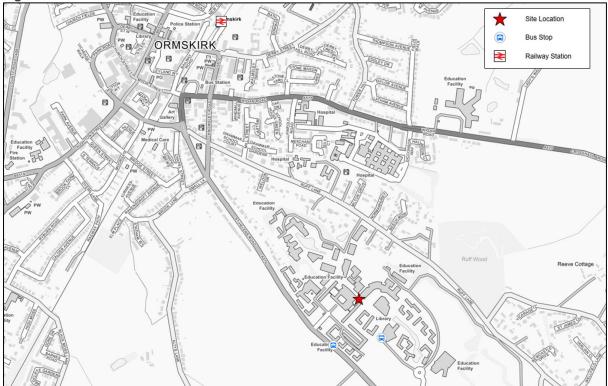


(Source: SLR Consulting - Crown copyright [and database rights] (2024) 0100031673 OS OpenData).

EHU

EHU, with a smaller student population of over 16,000, is located in Ormskirk, Lancashire. The university actively promotes car-sharing through their webpage and include the ability for students to reserve a car share parking space and a buddy-matching system. Public transport is limited, with a bus service every 20 minutes and hourly trains from Ormskirk Railway Station. The campus location and nearby public transport options are shown in **Figure 3.2**.

Figure 3.2: EHU Ormskirk Site Location



(Source: SLR Consulting - Crown copyright [and database rights] (2024) 0100031673 OS OpenData).

Data Collection

The study relies primarily on secondary data from University Travel plan reports. The analysis focused on themes such as travel modal split, car-sharing adoption, transport accessibility, parking availability, and communication strategies. The data includes:

EHU:

- Edge Hill Travel Plan 2017–2021
- Edge Hill University Travel Plan Strategy 2023–2028
- Edge Hill University Staff & Student Travel Survey Report (2023), with a 10.1% response rate (1,198 students), offering insights into travel behaviours and attitudes toward car sharing.

LBU:

- Leeds Beckett University Transport Strategy 2016–2021
- Leeds Beckett University 2024 Transport Strategy Report, with the latest surveys achieving a 4% response rate (823 students).

These reports provided valuable insights into transport behaviour, modal splits, and car-sharing adoption rates. Data collection from these sources enabled the identification of key trends and barriers related to car-sharing adoption at each university.

Communication and Promotion Strategies

This study also investigates how car-sharing initiatives and sustainable transport programs are communicated to students through various channels, including university websites and promotional materials. The analysis is guided by the 4 E's framework (Enable, Encourage, Engage, Exemplify), a widely recognised model for behaviour changes in environmental policy (DEFRA, 2011). This framework evaluates how both universities:

- Enable car-sharing by providing accessible information and tools.
- Encourage participation through incentives or targeted messaging.
- Engage students via their website or promotional events.
- **Exemplify** best practices using successful Travel Plans for car-sharing.

Data Analysis

The analysis combines both quantitative and qualitative data:

- **Quantitative Data:** Surveys from both universities were analysed to assess parking usage, transport preferences, and car-sharing adoption.
- **Qualitative Data:** Thematic analysis of university travel plans, student surveys, and promotional materials helped identify barriers to car-sharing and assess communication strategies.

This triangulation approach offers a comprehensive view of car-sharing adoption across urban and rural settings, providing insights into the effectiveness of current initiatives and areas for improvement.

Limitations

The main limitations that have been acknowledged are the following:

- **Sample Size:** Both EHU (10.1% response rate) and LBU (4% response rate) had relatively low survey response rates, limiting the generalisability of the findings.
- **Data Variability:** Secondary data sources varied in scope and detail, making direct comparisons between universities challenging.
- **Geographical Focus:** The study is limited to two universities, potentially missing broader trends in car-sharing adoption across the UK.
- **No Primary Data:** Due to time constraints, primary data collection was not feasible, so the study is based on secondary data, which may limit the depth of analysis.

Results

Student Travel Patterns and Modal Choice

Combined University Modal Split

Table 4.1 highlights the modal split for EHU and LBU, from their most recent travel surveys.

Table 4.1: Modal Split Comparison

	Rural Case Study	Urban Case Study
Mode of Travel	EHU – Main Ormskirk Campus 2022 surveys	LBU - City Campus 2024 surveys
Walking	7%	44%
Public Transport (Bus and Rail)	16%	38%
Car (as a single occupant)	58%	6%
Car (sharing with others)	13%	4%
Bicycle	2%	1%
Motorcycle	1%	0%
Taxi	0%	2%
Micromobility	0%	0%

(Source: LBU Transport Strategy 2016-2021) * Table does not account for rounding errors*

The modal split for Edge Hill University (EHU) and Leeds Beckett University (LBU) reveals significant differences in travel behaviour. EHU students show a higher reliance on private cars (58% as single occupants), while LBU students favour walking (44%) and public transport (38%). Car-sharing rates are low at both institutions, with EHU at 13% and LBU at 4%. This suggests barriers to car-sharing that go beyond transport availability, such as awareness and infrastructure.

Home Location and Mode of Travel

The rate of owning a car at LBU has steadily remained the same in a two-year period from 2015-2018 at 10%, with it further reducing in 2024 to 6% Sharing a car at LBU has both decreased over a period of two years from 3-2% (*LBU Transport Strategy, 2016-2021*).

Taken from the LBU Transport Survey Report in 2024, **Figure 4.1**, shows the main mode of travel with regard to distance of campus.

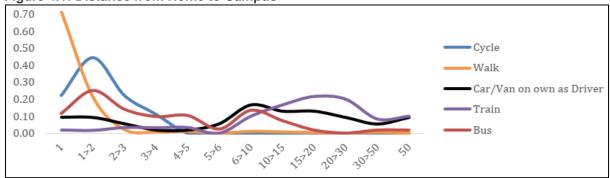


Figure 4.1: Distance from Home to Campus

⁽Source: LBU Transport Survey Report, 2024)

As shown in **Figure 4.1**, LBU's low car ownership (6%) reflects its urban advantages, with many students living within 1–2 miles of campus. Students driving typically reside 6–10 miles away, highlighting the potential for targeting longer-distance commuters with car-sharing schemes.

EHU's main student home location against their main mode of travel to campus is presented in **Table 4.2.**

	Bus and Train	Car (alone)	Car share (as driver)	Car share (as passenger)	Cycling	Walk	Other
Parental home	38.8%	49.7%	6.6%	3.6%	0.6%	0.3%	0.6%
In own home	22.7%	59.1%	8.7%	3.0%	2.3%	2.7%	1.5%
Private rented	38.8%	13.8%	3.1%	1.9%	1.2%	40.8%	0.3%

 Table 4.2: Students Location of Home

(Source: EHU Staff & Student Travel Survey Report, 2023)

As seen in **Table 4.2**, travel choices at EHU vary based on student housing. Those residing at their parental homes have a higher reliance on cars whereas private rented homes do choose to walk and car sharing rates are low. This pattern suggests that students in private accommodation are more likely to use sustainable transport modes, while those living at home or in owned accommodation are more car dependent.

Each student's location with their mode choice preference is shown in Figure 4.2.

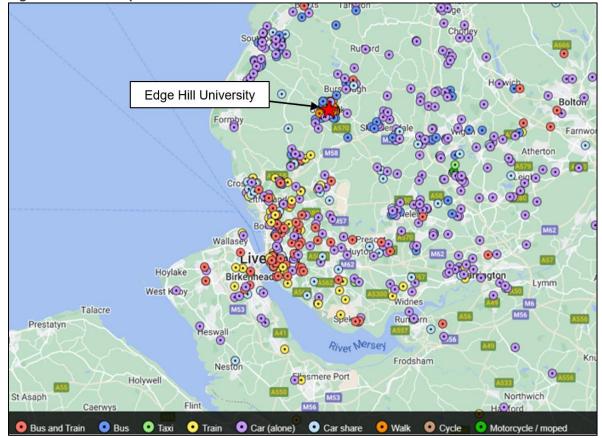


Figure 4.2: Modal Split Locations

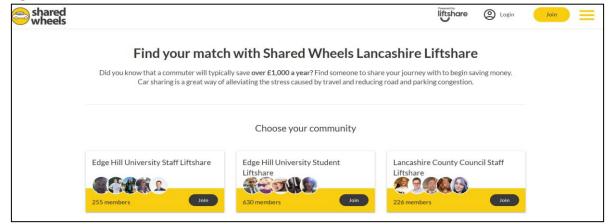
(Source: Staff & Student Travel Survey Report, p52, February 2023)

Figure 4.2 shows that students live between 5km and over 50km from campus, suggesting that the car-sharing strategy should focus on longer trips. The EHU Travel Plan (2023) highlights that lone drivers mainly drive due to limited alternatives, parking permits, and journey length. 21% of respondents would consider car-sharing over bus or train use. Localised car clubs or sharing communities could improve participation for students living within 5km of towns or cities.

Car Sharing and Parking Infrastructure

Overview of Available Services

There are no Enterprise car clubs located near EHU within Ormskirk, but there are clubs available in areas where longer distance students commute from, such as Liverpool and Manchester. EHU is part of a community on Liftshare, which as of 2024 shows 630 members at the University. A screenshot of the Liftshare Community is provided in **Figure 4.3**.



(Source: liftshare.com)

In addition to Liftshare, as shown in **Figure 4.4**, EHU offers an inhouse car sharing buddy matching system where individuals can email the sustainability team and request to participate, students can request to match with same sex companions.

Figure 4.4: Car Sharing Buddy Matching System

Staff and student car share groups	^
Getting started	
Already have someone to car share with?	
Perfect! You will not need to sign up to our in-house car share network and you can book your guaranteed parking space on our <u>online booking system</u> . Further information can be found in the 'Reserved parking for car sharers' section below.	
Looking for people to car share with?	
 Sign up by ticking to participate in the in-house car share network when applying for an EHU parking permit. Or alternatively, email <u>sustainability@edgehill.ac.uk</u> to request to participate. Please opt in by 30 September 2024 to be included in the first round of emails to introduce car share matches 	
2. Afterwards, you will receive an email from our Corporate Sustainability Team introducing you to your car share matches	
3. From this introduction, you can chat with your matches and make arrangements to start your car share journey	
 Reserve a parking space. If at least 2 people arriving in a car together both hold valid Car Parking Permits you can reserve a parking space 	

A map showing the nearest car club option is presented in Figure 4.5.

Figure 4.5: Existing EHU Car Club Schemes



(Source: https://www.como.org.uk/shared-cars/existing-schemes-and-operators)

As shown in **Figure 4.5**, there is no car clubs located within Ormskirk, Enterprise and Cowheels car clubs are available in Manchester and Liverpool, where students who drive and reside in those areas can access.

At LBU there is no community Liftshare scheme, though Liftshare does operate in Leeds. The City Campus is located within a close walking distance to a number of Enterprise car club locations as shown in **Figure 4.6**.

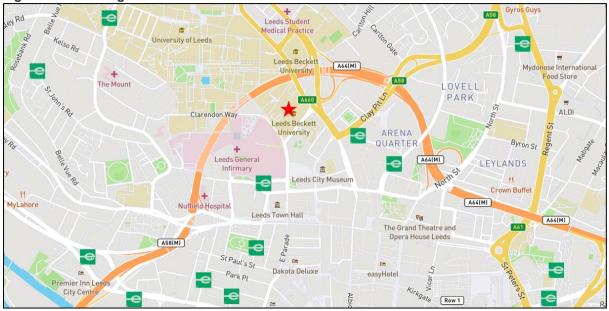


Figure 4.6: Existing LHU Car Club Schemes

(Source: https://www.como.org.uk/shared-cars/existing-schemes-and-operators)

As shown in **Figure 4.6**, the City Campus includes plenty of Car Club Locations, with the nearest located on Merrion Way which is approximately 350m from the Campus. This equates to a 6-minute walk. The hourly rate for the Club is from £6.53 per hour and a daily rate from £54.19 (Enterprise Car Club, 2023).

To help illustrate the level of dependence on private vehicles at each university campus, **Table 4.3** reveals the available parking infrastructure.

Table 4.3: Available Parking Infrastructure

Parking LBU		EHU
Campus Parking SpacesLimited, mainly for Blue Badge and permit holders. Nearby public car parks (e.g., Rose Bowl, Woodhouse Lane).		2,400 free spaces for students and staff. Permit system required.
sharing/Clubspace on Merrion Way.can apply for a car-sha		No specified number, but students can apply for a car-sharing permit and book spaces up to 2 weeks in advance.
Student Parking ProvisionLimited, as no on-site parking. Public pay and display car parks nearby.		Students must apply for a parking permit.
Parking Issues No significant issues.		No significant issues.
Alternative Options	Leeds Railway Station (1km, 12 min walk), bus stops on Portland Way and Woodhouse Lane, Leeds City Bus Station (1.5km, 19 min walk).	Bus stop on Creative Edge (EL1 every 20 min), Ormskirk Railway Station (1.6km, 15 min walk).

LBU's limited on-campus parking and strong public transport options encourage sustainable travel, while EHU, with 2,400 free parking spaces and fewer transport options, leads to higher private car reliance. Both universities lack significant car-sharing infrastructure, but EHU's rural setting and large parking number should warrant more focus on car-sharing initiatives as they have the space to implement this.

Table 4.4 shows that LBU students primarily use on-campus pay-and-display parking (30%) or onstreet parking (26%). The "other" category, which includes students dropped off, accounted for 16%.

Location	Number of students	Percentage of Students (%)
University car park pay and display	76	30
On-street	66	26
Pay and display car park	66	26
University car park - using permit	7	3
Other	40	16
Total	255	100

(Source: LBU Transport Survey Report, 2024)

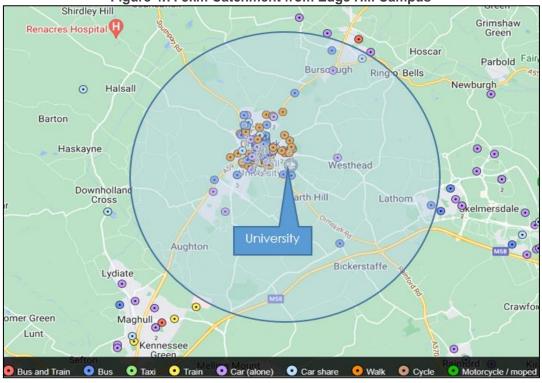
Table 4.5 shows that 83.8% of students at EHU rely on campus parking, reflecting the university's heavy dependence on private vehicles. Other sustainable transport options, like walking or cycling, are minimal. This high reliance on parking is further highlighted in the 2023 EHU Staff and Student Travel Survey, which revealed that only 5% of students who drive live within a 5km catchment area of the campus as shown in **Figure 4.7**. This further suggests that the limited transport alternatives and

the availability of convenient campus parking are significant factors contributing to the high car dependence at EHU.

Table 4.5:	EHU 202	2 Student	Parking	Results

Parking Looption	All Respondents		
Parking Location	No.	%	
University Campus	342	83.8%	
On-street (free)	35	8.6%	
On-street (paid)	13	3.2%	
Free/ Paid Car Park and make use of the Edgelink Bus	11	2.7%	
Free/ Paid Car Park and then walk / cycle to campus	3	0.7%	
Other (e.g. blanks)	103	1.0%	
Total	507	100%	

(Source: Staff & Student Travel Survey Report, 2023)





(Source: EHU Staff & Student Travel Survey Report, p55, 2023)

Promotions and Communications

An effective communication strategy is crucial for promoting car-sharing initiatives and engaging students to sustainably travel. To evaluate how car sharing is presented, the websites and Travel Plans of LBU and EHU were analysed.

LBU

LBU's website lacks prominent car-sharing information as shown in **Figure 4.8**. Car-sharing details are buried and can only be accessed via a search for "car-sharing at LBU," leading users to the general transport page. LBU's webpages showing the only mention of car sharing is shown in **Figures 4.9** and **4.10**.

Figure 4.8: LBU Car Sharing Website Visibility

How to find us

Leeds is a fantastic city for everyone. It's small enough to get around easily on foot (**or on your bike**) but also well connected by public transport for when you want to get away.

Our City Campus is very central and spread over several buildings around Woodhouse Lane. We are just a few minutes walk from the main shopping centres, the First Direct Arena and heading out of town, Hyde Park.



Parking

Free parking will be available for Undergraduate Open Day visitors only at our neighbouring institution, the University of Leeds [800 car parking spaces on a first-come first-served basis]. Our staff and student ambassadors will be there to meet you and help you find your way to our campus (a 5-minute walk away). Postcode: LS2 3AE [for sat nav, use "Vernon Road, Leeds"].

There are a number of paid council run and private car parks available in the city centre.

There is also the option to park at our Headingley Campus and get the free university shuttle bus down to City Campus. If doing this, please ensure you allow plenty of time. We advise at least 45 minutes to get from A to B.

There are a number of city centre pay and display car parks located near to our campus buildings. These can get busy during events and we would advise that you use Leeds Travel Info to check available car parking spaces on the day and that you leave plenty of time to find a parking space and walk to the campus.

Postcodes for the closest city centre car parks are as follows:

- Woodhouse Lane Multi-storey: LS2 3AX
- Merrion Centre: LS2 8BT
- St. Johns Centre (NCP): LS2 8LQ
- The Light: LS1 8TL

Please also note that park-and-ride facilities are available at Elland Road and Stourton. They are easily accessible from the motorway and will allow you to avoid driving into the city centre altogether. Please see here for more information.

Arriving by car

Leeds has good motorway links from the M1, M62 and M621 making it easy for your to reach our city.

Arriving on public transport

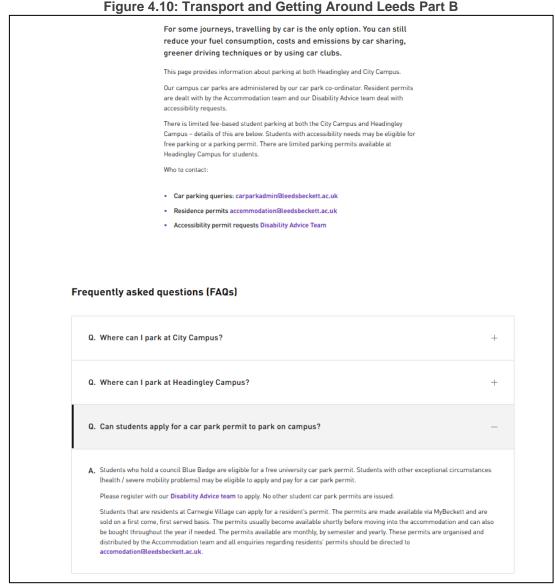
The City Campus is just a 15-minute walk from the Leeds train station. For our Undergraduate Open Days and Applicant Days we provide free shuttle buses from the station to both campuses.

(Source: https://www.leedsbeckett.ac.uk/)

Figure 4.9. Transport and C	Setting Around Leeds Fart A
Getting to Leeds	
Byair	You don't need a car to access our campuses or get around Leeds, and parking on campus is extremely limited for students, unless you are a Blue Badge holder.
By car	Sometimes, driving is the only option, but you can still reduce your costs and fuel consumption. Find out more about car sharing, greener driving, car clubs and car parking on campus below.
By train	FIND OUT MORE

Figure 4.9: Transport and Getting Around Leeds Part A

(Source: https://www.leedsbeckett.ac.uk/)



(Source: https://www.leedsbeckett.ac.uk/)

The only promotional post seen within the website is from a blog post, written in 2020, which briefly promotes car sharing, but it is not discussed in significant detail, as shown in **Figure 4.11.** This confirms that LBU's marketing strategy lacks emphasis and promotional material on car sharing.

Figure 4.11: LBU How to Find Us Blog Post

(Bushie	EDS BECKETT UNIVERSITY	
۲	TRAVELLING Between City and	between campuses will typically cost anywhere between 65-£10 dependent on the time of day and traffic. Keep in mind that surcharges are put in place during rush hour or on days where there may be events on in the city, making your ride more expensive than usual.
	HEADINGLEY CAMPUS Writen By Log H Published on 15 Jul 2020	This is also great for getting to uni quickly if you live away from campus. I've worken up late after a night out and caught myself in a rushed panic of getting myself ready and to a lecture more than once – calling an Uber has been a lifeserver in this situation. There tends to be plenty of Ubers that wait for passengers nearby both accommodation and housing, so it normally only takes a few minutes from ordering to them being at your door.
		CAR
		If you're lucky to have your own car with you at uni, both campuses have large car parks available to students, but they are costly and become expensive if you wish to park in them for extended periods of time or on a regular basis.
SQUAD BLOGS		I sometimes share a ride with my friends if we only need to go to City campus for a short amount of time or if we have a lot of things to carry. I study journalism and we often have camera and sound equipment to carry round, so quickly driving into cangue no be a savior. Carpooling with your friends is a great way to share the costs of parking and keep those emissions down too.

(Source: https://www.leedsbeckett.ac.uk/)

LBU's 2024 Travel Plan briefly mentions car-sharing but focuses more on staff, with limited efforts to promote or engage students in the initiative. This emphasis on staff car-sharing aligns with a consistent pattern seen in both the 2024 Travel Plan and the 2016-2021 Travel Strategy Report.

There is a suggestion of revisiting the Faxi car-sharing service in the latest report which was initially attempted five years ago but hindered by the Covid-19 pandemic. With many students now living over 6 miles from campus and fewer transport alternatives, there is a clear need for such a service as shown in **Figure 4.12**.

Figure 4:12: Transport Strategy Review

Car sharing should be explored again

5 years ago, the Sustainability team attempted to launch the Faxi car sharing service, however the Covid-19 pandemic undermined this process and the need for such a scheme while travel to campus was limited.

Today with those living over 6 miles from campus having fewer alternatives to car use, a car sharing scheme should again be explored.

(Source: LBU's Transport Survey Report, 2024)

EHU

In contrast, EHU has an active car-sharing page that is easily accessible from the main site, offering detailed information, the option to book a car-share space and a buddy-matching system for students. Their approach fosters trust by displaying the status of car-sharing services, whilst also still continuing to market car sharing through recent blog posts, promoting it as another sustainable transport option in conjunction with other travel modes. EHU's car-sharing information from their website is shown in Figures **4.13**, **4.14**, **4.15**, and **4.16**.

Figuro	1.12.	Car	Sharing	Information
гіуше	4.13.	udi	Sharing	mornation

Where can I find out more about sustainable travel alternatives?	On this page:	≡
Car sharing		
Car sharing is when two or more people share their journey and travel together.		
It allows people to benefit from the convenience of the car whilst saving money by reducing mileage and petrol costs, alleviating parking problems, congestion and pollution.		
More information can be found on our Code of Conduct for the In-House Car Share Scheme.		
Staff and student car share groups	\checkmark	
Reserved parking for car sharers	$\overline{}$	
Car sharing Frequently Asked Questions (FAQs)		
Do I need a car to car share?	\checkmark	
Do I have to car share everyday?	\checkmark	
How safe is car sharing?	\sim	
What if I car share and have to leave campus suddenly?	\sim	
What about sharing costs?	\checkmark	
What are the insurance implications of car sharing?	\checkmark	
Is it possible to find a travelling companion of the same sex?	\checkmark	
I already know someone who I can carshare with, do I have to join the in-house car share group?	\checkmark	
I am not eligible for a car parking permit can I still car share?	\checkmark	
What are the benefits of car sharing?	\checkmark	

(Source: https://www.edgehill.ac.uk)

Figure 4:14: Reserved Parking for Car Sharers Tab

Reserved parking for car sharers ^ How do I qualify for a reserved parking space? • At least two people arriving in a car together must both hold valid car parking permits to reserve a parking space. You must reserve your space in advance using the <u>online booking system.</u> · You must display two valid parking permits on the windscreen on arrival - one for each car sharer in the vehicle. • There must be at least two people in the vehicle on arrival. How do I reserve a parking space? • Reserve your space on Reserve a parking space for car sharers- Edge Hill University (you will need to have two car parking permit numbers or usernames to book). Arrive on campus before 10am (students via main entrance / staff via visitors entrance). Provide the car parking attendant with your booking confirmation number and they will direct you to your reserved space. What else do I need to know? • The space will be held for you until 10am after which time it will be released for general use. · You must have the same two car parking permits on display that you used to reserve the space. Spaces can be reserved up to 4pm for parking the following day and up to two weeks in advance. Abuse or misuse of this facility may result in individual permit holders being excluded from using it.

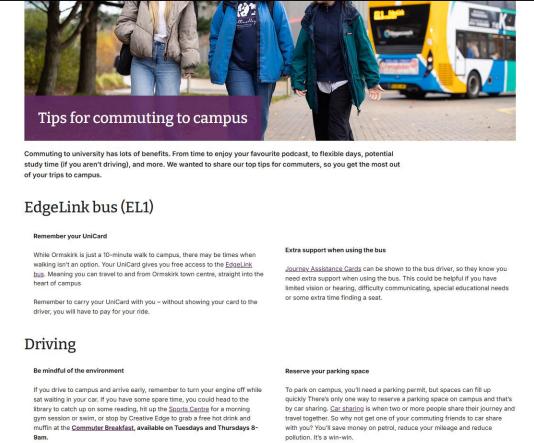
(Source: https://www.edgehill.ac.uk)

Figure 4.15: Parking Space for Car Sharers Status

				_			
Edge Hill University	Study with us	Research	About	Q	_		
Home > Service Gateways > Reserve a parking space for car sharers							
🖨 Reserve a parking space for car sharers							
Car sharing – the only way to guarantee a parking space.		Reserve p	oarking space	→			
How it works:	Service Status						
 At least two members of your car share team must have valid Car Parking Permits to b Book a space up to two weeks in advance via the booking form. 	e eligible for the space.						
Arrive on campus before 10am via the Main Entrance (students) or Visitors Entrance (Students)	itaff).	Running Normally					
 Display the two valid Car Parking Permits in the windscreen on arrival. Provide your name to the Traffic Management Attendant who will direct you to your sp 	ace.						
Abuse or misuse of this facility may result in individual permit holders being excluded from	using it.						
If you would like to find out more about car sharing, please read our FAQs on our <u>Travel wet</u> travel@edgehill.ac.uk	page or contact						
Related							
<u>Car parking permit</u>							
<u>Visiting.parking</u>							

(Source: https://www.edgehill.ac.uk)





(Source: https://www.edgehill.ac.uk, October 2024)

As for EHU's latest Travel Plan in February 2023, there is a wider range of promotion around car sharing with the following initiatives that the university plans to meet. This has been found to be consistent within all three analysed Travel Plans. The latest initiatives are shown in **Figure 4.17**.

Figure 4:17: EHU Car Sharing initiatives	Figure	4:17:	EHU	Car	Sharing	initiatives
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Area	Initiative	Target Audience	Priority / Impact
Car Sharing	Continue to provide a car share matching scheme. Consider whether Liftshare offers best value / benefit.	Staff & Students	Ongoing
	Continue to offer guaranteed parking for car sharers.	Staff & Students	Ongoing
	Continue to offer a GRH.	Staff Only	Ongoing
	Targeted promotion of the above amongst permit holders.	Staff & Students	High

(Source: EHU, Staff & Student Travel Survey Report, 2023)

The latest survey also included reviewing measures to encourage car sharing in which 48% of lone drivers would consider car sharing in which approximately half would do it based on an updated matching process and a guaranteed parking space is offered. More than half would still not car share, indicating barriers to adoption and the need for targeted strategies.

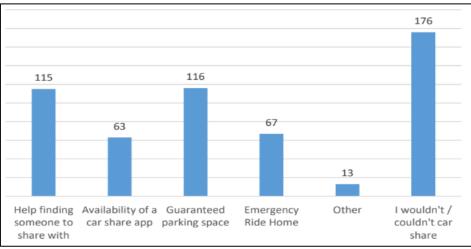


Figure 4.18: Measures to Encourage Car Sharing amongst Car Drivers

(Source: Edge Hill Travel Survey Results February 2023)

Public Transport

The 60-minute public transport isochrones for LBU and EHU campuses during traditional AM (08:00-09:00) and PM (17:00-18:00) peak hours are shown in **Figures 4.19, 4.20, 4.21**, and **4.22**, respectively, using TRACC Time Travel software.

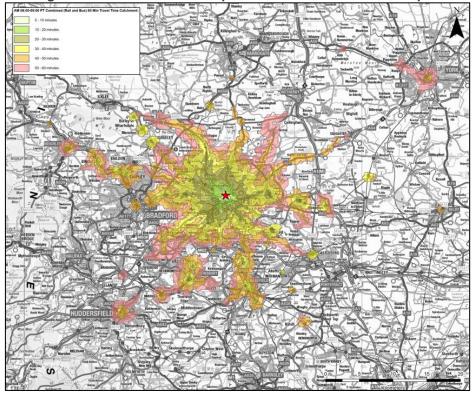
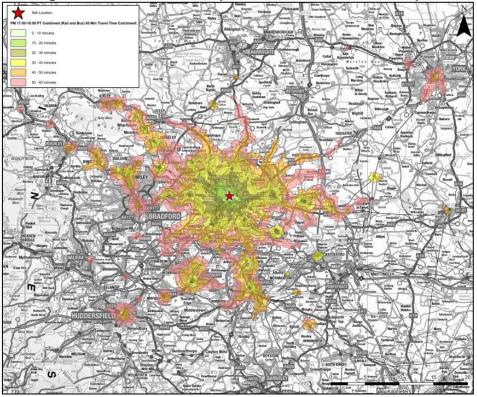
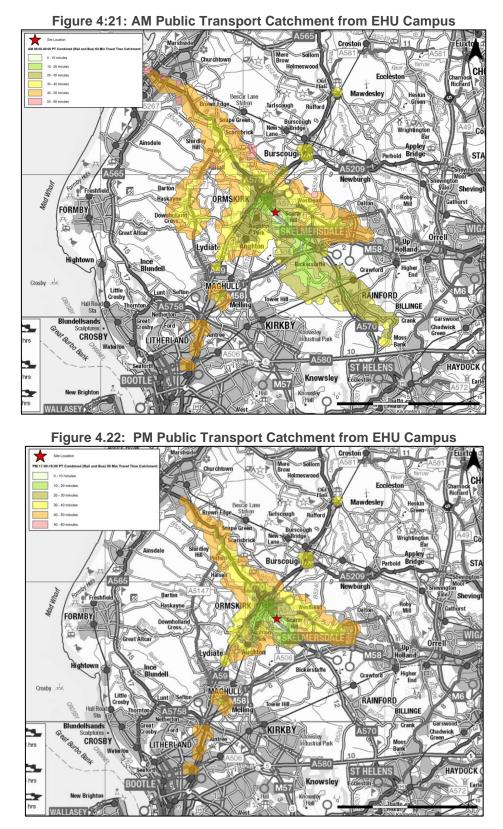




Figure 4:20: PM Public Transport Catchment from LBU Campus





LBU's excellent bus and rail connectivity provides students with flexible travel options, reducing car dependence and promoting sustainable behaviour. In contrast, EHU's limited accessibility, with only local destinations like Southport and Skelmersdale reachable within 60 minutes, highlights the challenges of rural settings. Reduced transport options at EHU increase car reliance, presenting an opportunity for car-sharing schemes to offer a sustainable alternative.

Discussion

This study highlights the differences in car-sharing adoption between EHU (rural) and LBU (urban), aligning with broader patterns in transport behaviour literature. At EHU, car dependence is high due to limited public transport and long commutes, typical in rural areas (Enoch et al., 2020; Ulity, 2023). Car-sharing can help reduce reliance on private vehicles, as Prieto et al. (2017) notes. However, EHU could upgrade its car-sharing parking infrastructure, lacks a formal matching app, and needs better communication, reflecting barriers like technological gaps and poor promotion found in the literature (Aguilera-García et al., 2022; Schor, 2014). Mai and Day (2023) suggest that incorporating logos (logical appeals), ethos (credibility), and pathos (emotional connections) into communication strategies can effectively overcome these barriers and enhance adoption rates. Both universities could improve participation by adopting such targeted marketing approaches.

LBU, in contrast, benefits from stronger public transport, resulting in lower car dependence. However, the focus is predominantly on staff, limiting the effectiveness of car-sharing schemes among students. While the percentage of students who drive is small, it remains important to target them, especially those living further away. This imbalance suggests that LBU should align its transport initiatives to address the needs of both staff and students.

The University of Edinburgh's Integrated Transport Plan (2023–2030) highlights the importance of catering to differing commuting patterns. Staff rely more on cars, while students prefer walking and public transport. Expanding student-specific car-sharing schemes and tailored messaging could increase participation and multimodal use, as suggested by Cooper et al. (2003). Incorporating emotional appeals, such as storytelling, could further enhance student engagement via social media (Mai and Day, 2023).

Both universities face barriers despite initiatives in place. EHU requires clearer guidelines on permit parking, stronger university-led support, and technological investment, while LBU could improve student-specific incentives like Liftshare and adopt persuasive messaging on their website emphasising the economic and environmental benefits of car-sharing. Communication strategies combining logos, ethos, and pathos could help address these challenges.

As Nelson et al. (2023) argue, a well-developed Travel Plan can significantly influence large numbers of commuters, providing universities with a unique platform to promote sustainable behaviours. Following the examples of the University of Exeter, which balances practical measures with communication, both EHU and LBU could enhance car-sharing adoption. Clear communication, infrastructure, and targeted promotion are essential for overcoming barriers and maximising participation.

Conclusion and Recommendations

Recommendations

For All Universities:

- Adopt Incentive and Restriction Strategies: Combine "carrot" measures (e.g., expanding carsharing) with "stick" measures (e.g. limiting free parking). This approach, as seen at the University of Exeter, drives greater participation.
- Enhance Promotion: Implement targeted campaigns to raise awareness and improve carsharing convenience. Universities with strong strategies, like Exeter, Edinburgh, and Reading, have seen significant increases in usage.
- Host Car Club Vehicles: Consider hosting car club vehicles on campus, similar to successful models at the University of Exeter, offering flexible transport options.

LBU Recommendations (Urban Case Study):

- Integrate Car-Sharing into the University's Sustainability Strategy: Include car-sharing schemes in the university's broader travel and sustainability plans, with dedicated resources for promotion.
- **Improve Marketing of Car Sharing:** Launch an awareness campaign highlighting the benefits of car-sharing through the main website, social media, student newsletters, and digital platforms.
- Adopt Rural Initiatives: Implement a LBU car-sharing buddy system or partner with Liftshare, inspired by EHU, to help students connect.
- **Partner with Car Clubs:** Integrate car clubs into campus travel plans, offering hybrid transport options for students.

EHU Recommendations (Rural Case Study):

- Expand Shared Parking Infrastructure: Advertise marked spaces for car sharers.
- Further Collaborate with Existing Partnerships: Expand on marketing options with Liftshare to offer awards, discounts or priority access for car sharers.
- **Restrict Campus Entry:** Limit single-occupant vehicle access entry and permits unless part of car-sharing scheme.
- Enhance Multi-Modal Connectivity: Improve links between car-sharing, public transport, and cycling, with subsidised bus passes or shuttle services for off-campus students.

Conclusion

This study explores the potential of car-sharing to reduce private car dependence at urban and rural universities, addressing the unique needs of students in each context. While LBU benefits from a well-connected urban transport network, it faces barriers like low awareness of car-sharing schemes. In contrast, EHU's rural setting experiences higher car dependence due to limited transport options and students' distance from campus, highlighting the need for tailored solutions. Successful implementation at LBU requires initiatives like website marketing and buddy systems, while EHU would benefit from improved communication strategies and an updated buddy-matching app.

For car-sharing adoption to succeed, it is crucial to address behavioural barriers, improve convenience, and offer incentives. Findings suggest that both universities should implement infrastructure such as marked shared parking spaces, involve a local university car club scheme, and enhance communication efforts, alongside rewards for users. Successful models, like the University of Exeter, demonstrate the benefits of integrating car clubs, limiting solo-driver parking, and introducing hybrid options, such as campus-hosted car club vehicles.

The recommendations target key areas for improvement at both LBU and EHU. LBU should limit solodriver parking and offer hybrid car-sharing options to reduce car dependence. EHU would benefit from expanding shared parking infrastructure and partnering with services like Liftshare to provide offcampus students with better access to sustainable transport. These measures address local challenges while promoting broader car-sharing adoption.

The study's limitations, including the lack of primary data, suggest that future research should explore student attitudes and barriers to car-sharing through surveys. Surveys could provide insights into adoption factors and help tailor strategies to student populations. Additionally, examining staff commuting patterns alongside students and regional transport strategies, such as LBU's 2026 Sustainability Strategy or EHU's 2021–2025 plan, could reveal larger policy gaps and greater opportunities for car-sharing improvement.

In conclusion, this research has provided actionable recommendations to help universities develop effective, context-sensitive car-sharing schemes as part of sustainable transport solutions.

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