



Policy brief
Paratransit Decarbonisation:
Why It Matters and How to Achieve It

Donors



Implementing partners



Knowledge and Network partners



In collaboration with



For more information:

MobiliseYourCity Partnership Secretariat, Brussels

<https://mobiliseyourcity.net/>

email: contact@mobiliseyourcity.net

Title: Policy Brief – Paratransit Decarbonisation: Why It Matters and How to Achieve It

Authors: Angel Manuel Almendros Salerno, MobiliseYourCity Secretariat

Contributors: Angelin Zegha, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); Nicolás Cruz González, Milnael Gomez, Solène Baffi, Alexandra Heitplatz, MobiliseYourCity Secretariat

Layout: Giuliana Ambrosino, MobiliseYourCity Secretariat

Reviewers: Lucile Boudet, CODATU

Photo Credits: Carlos Felipe Pardo, Despacio

Copyright:

This publication is subject to copyright of the MobiliseYourCity Partnership and its partners, authors and contributors. Partial or total reproduction of this document is authorised for non-profit purposes, provided the source is acknowledged.

Disclaimer:

The content presented in this document represents the opinion of the authors and is not necessarily representative of the position of the individual partners of the MobiliseYourCity Partnership.

Table of Contents

MobiliseYourCity Positions	2
1. Why Paratransit Decarbonisation.....	3
2. The EASI Framework.....	4
3. Paratransit Decarbonisation Measures.....	5
4. Measuring Progress	8
5. Conclusion	9

MobiliseYourCity Positions on Paratransit Decarbonisation

Urban mobility cannot be decarbonised without decarbonising paratransit.

Decarbonising paratransit is more than just electrification.

The EASI framework allows the identification of measures that serve decarbonisation beyond electrification.

A just transition is climate-compatible: working on paratransit decarbonisation works both on climate and just mobility.

1. Why Paratransit Decarbonisation

Paratransit systems form the backbone of urban mobility in many cities of the Global South. These informal and semi-formal transport services, such as minibuses, tuk-tuks, jeepneys, and shared taxis, play a crucial role in connecting millions of people to jobs, education, and essential services. However, their environmental impact poses significant challenges for climate objectives.

The role of paratransit in urban mobility

- High dependence: Paratransit provides flexible, affordable transport to populations underserved by formal transit systems, especially in low- and middle-income cities.
- Adaptability: These systems operate in environments with limited infrastructure and rapidly changing demand, making them indispensable in both urban and peri-urban areas.

The environmental challenge

- Significant emissions: Due to the large number of vehicles which often rely on older, inefficient technologies, paratransit contributes significantly to greenhouse gas (GHG) emissions and local air pollution. Reliable and complete data on the GHG impact of the paratransit sector does not exist. Still, the scale of available supply and existing demand for this service suggests great potential to reduce emissions globally.
- Operational inefficiency: Paratransit systems often operate under fragmented and uncoordinated conditions, leading to empty miles, overcapacity, and high fuel consumption.

The potential of decarbonisation

Transitioning paratransit to low-carbon, efficient operations offers an unparalleled opportunity to address climate change while improving urban mobility:

- Environmental benefits: Decarbonisation can significantly reduce CO₂ emissions, air pollution, and reliance on fossil fuels. Moreover, it can contribute to meeting NDCs and the Paris Agreement.
- Social equity: By improving vehicle efficiency and service quality, cities can enhance mobility for vulnerable populations who rely on paratransit and improve labour conditions for workers in the paratransit sector.
- Economic gains: Operators can achieve lower fuel costs and increased revenues by implementing route optimisation and enhancing operational frameworks. Cities benefit from reduced congestion and pollution, leading to a positive impact on public health and the environment.

MobiliseYourCity Partnership

As paratransit services are central in many cities, MobiliseYourCity developed a [Paratransit Toolkit](#) with the aim of achieving a better understanding of this sector, proposing a methodology for diagnosis tailored to paratransit as well as concrete actions for cities across the world to reform and professionalise the sector.

Decarbonisation is a critical priority in reforming the paratransit sector, which is a significant contributor to urban transport emissions, even though precise data is often lacking. Rather than focusing solely on vehicle technology as the primary solution, MobiliseYourCity advocates for a more holistic approach. This includes better integrating paratransit into urban mobility systems, guided by the comprehensive EASI (Enable, Avoid, Shift, Improve) Framework.

2. The EASI Framework

To tackle the complex challenge of decarbonising paratransit, MobiliseYourCity promotes the EASI (Enable, Avoid, Shift, Improve) Framework,¹ which offers a systematic way to identify and prioritise interventions addressing both environmental and operational inefficiencies of paratransit systems.

Understanding the EASI Framework

1. Enable: Creating the necessary institutional and policy conditions for decarbonisation allows cities to formalise paratransit systems, addressing their fragmented nature and laying the groundwork for operational and technical improvements.
2. Avoid: Reducing unnecessary travel and optimising transport efficiency.
3. Shift: Encouraging a transition to more sustainable modes of transport.
4. Improve: Enhancing the efficiency and sustainability of vehicles and operations.

Applying the EASI Framework for paratransit decarbonisation

The EASI Framework offers cities a structured pathway to decarbonise paratransit by addressing the sector's unique challenges in a phased and adaptable manner. Each pillar provides a foundation for meaningful change while allowing cities to tailor actions to their specific contexts. Prior to any action on paratransit services, a careful and detailed diagnosis of the sector should be conducted, as suggested in Tools 1 and 2 of [MobiliseYourCity's Paratransit toolkit](#). Once a clear understanding of the sector has been reached and the main questions regarding the urban mobility sector have been raised, definite actions can be considered according to the objectives and priorities of the city.

For instance, a city relying heavily on paratransit might begin with measures that Enable the formalisation of operations and establish governance frameworks, ensuring the sector is recognised

¹ The EASI Framework builds on the A-S-I Framework. For more information on this, see for example [this great resource](#) from Tumi.

and integrated into urban planning. With these institutional structures, a city can move to Avoid strategies, such as rationalising routes to reduce inefficiencies and optimise fuel use.

Once a foundation is established, cities can progress to Shift initiatives by better-aligning paratransit services with existing sustainable transport networks. This could include integrating paratransit with public transit systems to improve first- and last-mile connectivity and seamless journeys using different transport modes, thus making paratransit more attractive to users. Finally, cities can implement Improve measures, upgrading vehicle technologies and operational practices to ensure long-term reductions in emissions.

While the EASI Framework is often applied in stages, cities are not bound to a strictly sequential process. In many cases, actions across different pillars can and should be pursued simultaneously.

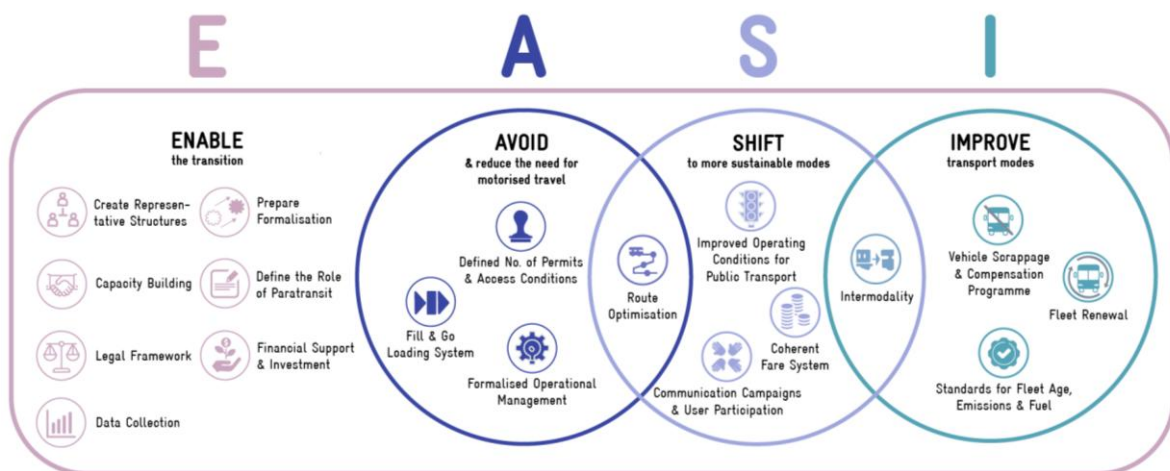
For example:

- A city with partial regulation of paratransit might combine Enable efforts to expand oversight with Improve initiatives to introduce cleaner vehicles.
- Conversely, cities with limited resources may begin with low-cost measures, like route optimisation under Avoid, while planning for larger, long-term investments in Improve.

The flexibility of the EASI Framework allows cities to prioritise actions based on their unique needs, readiness, and resource availability. By leveraging this adaptability, cities can build effective, scalable pathways to decarbonise paratransit and advance their broader sustainability goals.

3. Paratransit Decarbonisation Measures

The EASI Framework for Paratransit Decarbonisation



*This infographic does not provide a comprehensive overview of all measures related to Paratransit Decarbonisation.

In the following section, we present some examples of paratransit decarbonisation measures as part of more extensive paratransit reforms. For a comprehensive list of measures and their explanations, check out the [MobiliseYourCity Paratransit Reform Toolkit](#).

1. Enable the Transition

Laying the groundwork for decarbonisation requires strengthening institutions, formalising operations, and fostering collaboration across stakeholders:

- Create representative structures: Establish associations or unions for paratransit operators to provide a platform for engagement and negotiation with city authorities.
- Prepare formalisation: Develop and implement strategies to register paratransit vehicles and operators, enabling better oversight and integration into transport planning.
- Collect data: Establish systems to gather and analyse data on paratransit operations (e.g. Number of operators) to inform decarbonisation strategies using evidence-based planning.
- Define the role of paratransit: Clarify how paratransit fits within the broader urban transport system, ensuring it complements public transport modes.
- Legal framework: Clearly define the institutional framework and responsibilities. Establish regulatory policies for emissions, safety, and service quality to guide paratransit operations.
- Capacity building: Train stakeholders (e.g. government agencies, operators, and drivers) to manage and implement decarbonisation measures effectively.
- Financial support and investment: Provide funding mechanisms, such as grants or loans, to incentivise the adoption of cleaner technologies and operational improvements.

2. Avoid and reduce the need for motorised travel

Reducing unnecessary trips and optimising transport efficiency has a direct link to emissions reductions.

- Formalised operational management: Create centralised management systems to streamline operations, reduce redundancies, and improve service reliability (e.g. central dispatch, vehicle pooling, and rationalised fleet sizing). This can be facilitated by introducing digital tools.
- Defined number of permits and access conditions: Control the number of vehicles operating in specific areas or routes, reducing congestion and unnecessary mileage.
- Fill & go loading system: Introduce structured boarding and alighting systems to minimise idling and waiting times. Possibility to introduce (online) advanced booking.
- Route optimisation (*also Shift*): Rationalise routes to reduce overlaps, optimise vehicle utilisation, and minimise travel distances (e.g. scheduled departures, fixed routes).

3. Shift to More Sustainable Modes

Shifting trips to low-emission modes and better integrating paratransit with public transport can further reduce environmental impacts.

- Route optimisation (*also Avoid*): Encourage a modal shift from private vehicles to paratransit through improved reliability and efficiency.

- Improved operating conditions for public transport: Redesign traffic systems to prioritise public and shared modes, such as dedicated lanes for paratransit or car parking fees.
- Coherent fare system: Introduce integrated ticketing systems across paratransit and formal public transport modes to simplify travel and increase accessibility.
- Communication campaigns and user participation: Run public awareness campaigns to promote paratransit improvements and engage users in shaping services.
- Intermodality (*also Improve*): Integrate paratransit into the broader transport system by introducing fare integration, creating physical hubs for seamless transfers, and coordinating schedules with other modes to support multimodal journeys.

4. Improve Transport Modes

Upgrading vehicle technology and enforcing operational standards directly reduces emissions and enhances service quality.

- Intermodality (*also Shift*): Facilitate multimodal travel by providing traveller information, maps, mobile applications, and signage to enhance the user experience and streamline connections between modes.
- Vehicles scrappage and compensation programme: Phase out old, high-emission vehicles by offering incentives or financial compensation for scrapping them.
- Fleet renewal: Introduce low- or zero-emission vehicles, such as electric minibuses or tuk-tuks, to replace ageing fleets.
- Standards for fleet age, emissions and fuel: Enforce regulations that set limits on vehicle age, emissions levels, and acceptable fuel types.

4. Measuring Progress

Effectively decarbonising paratransit requires not only implementing measures but also continuously monitoring progress to ensure interventions are on track and delivering results. This process begins with understanding the current situation and establishing a baseline, followed by tracking improvements as measures are implemented.

Diagnosing and establishing a baseline

A comprehensive diagnosis of the paratransit sector is essential to identify challenges, set realistic goals, and establish a starting point for decarbonisation efforts. MobiliseYourCity provides two tools to support this critical step:

- The [Paratransit Diagnosis Toolkit](#) helps cities assess the current state of their paratransit systems and identify which points are in greater need of improvement.
- The [MobiliseYourCity Emissions Calculator](#) enables cities to estimate baseline emissions and model the potential impact of various measures. This ensures that decision-makers have a clear understanding of the sector's environmental footprint and the pathways to reduce it.

Monitoring Progress and Staying on Track

Once measures are implemented, cities need systems to evaluate their impact and ensure that progress aligns with their decarbonisation goals. Tracking indicators such as operational efficiency, fleet modernisation, and modal shifts provides insight into whether the sector is moving towards decarbonisation.

Cities can use a variety of indicators to measure progress. Some of them are listed under Annex 1 of MobiliseYourCity [NUMP Guidelines](#). Establishing mobility observatories can further institutionalise progress monitoring and reporting. These observatories provide a structured platform for collecting, analysing, and sharing data, enabling cities to maintain transparency and adapt strategies as needed.

5. Conclusion

Paratransit systems are a vital component of urban mobility in many cities, especially in the Global South, but they also contribute significantly to transport-related emissions. Decarbonising this sector is not only an environmental imperative but also an opportunity to improve transport equity, operational efficiency, and service quality. The measures outlined in this brief, framed within the EASI Framework, provide cities with actionable steps to transition towards a more sustainable paratransit system.

By adopting Enable measures, cities can establish the policy and institutional foundations for change. Through Avoid strategies, they can reduce inefficiencies and unnecessary emissions, while Shift initiatives integrate paratransit into broader sustainable transport networks. Finally, Improve actions like fleet renewal and vehicle electrification offer direct emissions reductions and long-term sustainability. Tangible actions and measures related to the EASI framework can be found in the MobiliseYourCity [Paratransit Toolkit](#), specifically in [Tool 3](#).

However, the path to decarbonisation requires robust data collection and progress tracking. Tools such as the MobiliseYourCity [Emission Calculator](#) and the [Paratransit Diagnosis Toolkit](#) enable cities to diagnose their situation and quantify their efforts, ensuring alignment with global climate goals and allowing for evidence-based adjustments. While challenges remain, the flexibility of the EASI Framework ensures that cities, regardless of their starting point, can take meaningful steps toward decarbonising paratransit.

Investing in paratransit decarbonisation is more than a climate action; it is an investment in a more inclusive transport system and, therefore, a step toward building inclusive, equitable, and resilient cities. MobiliseYourCity remains committed to supporting cities in their journey to transform paratransit into a cornerstone of sustainable urban mobility. Together, we can create transport systems that serve both people and the planet.