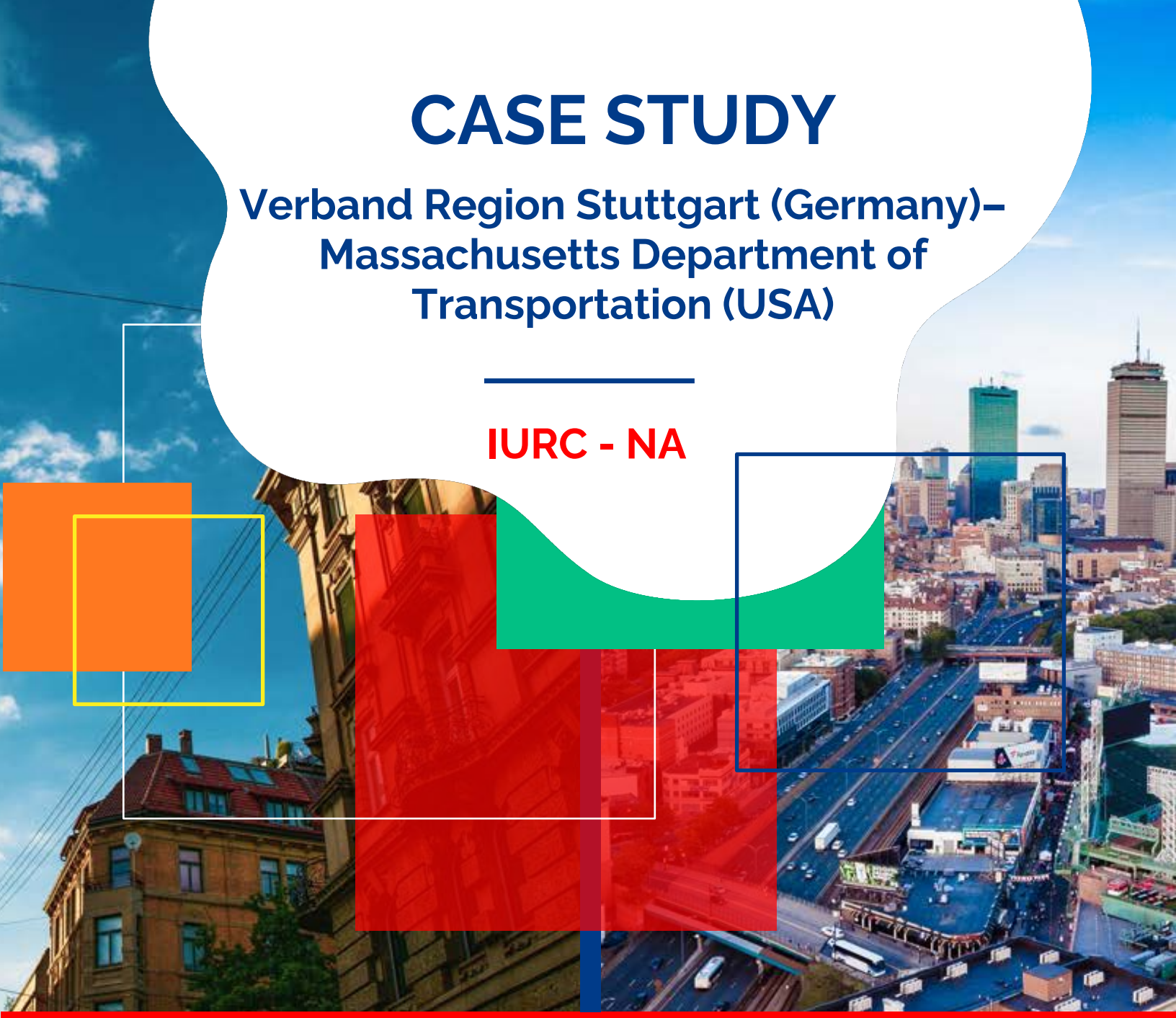

CASE STUDY

Verband Region Stuttgart (Germany)– Massachusetts Department of Transportation (USA)

IURC - NA

SEPTEMBER 22, 2025

Thematic Network(s): Sustainable Urban Mobility and Transport (SUMT)
Topic keywords: ***Sustainable Mobility, Bike Ridership, Mass Transit, Integration of Public Transport and Bicycle Use, Regional Mobility, Leisure Mobility***

www.iurc.eu

INTERNATIONAL URBAN AND REGIONAL COOPERATION

VERBAND REGION STUTTGART[1] – MASSACHUSETTS DEPARTMENT OF TRANSPORTATION[2]

IURC – CASE STUDY

By reimagining regional bus services to accommodate bicycles, the Stuttgart Region and the Massachusetts Department of Transportation (MassDOT) are transforming leisure mobility into a driver of sustainable transportation. Through transatlantic cooperation, both are paving the way for more accessible, low-carbon, and inclusive access to nature.

EXECUTIVE SUMMARY

Since 2022, Verband Region Stuttgart (VRS), Germany, and the Massachusetts Department of Transportation, USA, have cooperated under the International Urban and Regional Cooperation (IURC) North America programme, focusing on strategies to improve sustainable urban mobility, including integrating bicycles into public transport systems. With shared goals of decarbonising mobility, improving access to natural areas, and promoting equity beyond city centres, both regions explored practical solutions that expand multimodal travel for leisure and tourism purposes. The exchange centred on Stuttgart's pioneering "Fahrrad2Go[3]" model—buses equipped with systems for transporting bicycles—and how it could be adapted to the Massachusetts context, particularly in support of the Unlocking the Blue Hills pilot project. The cooperation has yielded immediate insights and concrete proposals for enhancing bicycle capacity on regional transit and sets the stage for future experimentation and knowledge transfer. It also demonstrates how user-focused design, participatory planning, and shared data frameworks can shape inclusive and sustainable transport policies across continents.

[1] https://www.region-stuttgart.org/de/
[2] https://www.mass.gov/orgs/massachusetts-department-of-transportation
[3] https://www.ovr-bus.de/de/ueber-uns/fahrzeuge/fahrrad2go-deutschlandweit-einmaliges-innovatives-klimaschutzprojekt-startet-im-busverkehr-des-rems-murr-kreises

CHALLENGES AND SOLUTIONS

Reducing reliance on private motorised vehicles, limiting emissions, and ensuring equitable access to transport services are challenges that go beyond city centres, reaching provincial and regional levels. The travel demand driven by leisure and tourism activities is of particular interest, demonstrating that transporting bicycles on mass transit provides an effective solution by greatly expanding the range of sustainable mobility options during weekends and supporting tourism-related travel.

However, the limited space on public transport vehicles, especially buses, can make it hard to accommodate both passengers and bicycles. This issue exists on both sides of the Atlantic. In Boston, the Massachusetts Department of Transportation (MassDOT), which oversees statewide planning and infrastructure, is exploring ways to better incorporate active mobility into regional and rural bus services, mainly to increase access to open spaces and improve mobility equity in underserved communities.

In the Stuttgart Region, VRS, the regional transportation planning authority that oversees S-Bahn rail services and specific bus routes in areas not served by rail, has implemented practical and effective solutions to facilitate the transportation of bicycles on public transport (trains, trams, rack railroads, and buses). VRS is also the majority shareholder in the *Verkehrs- und Tarifverbund Stuttgart* (VVS), the Stuttgart Transport and Tariff Association[4].

The *Fahrrad2Go* programme, launched in 2013 by transport operators under the supervision of VVS, introduced bicycle transport solutions on selected suburban lines. The modifications involved both interior and exterior changes to the buses. Inside, three seats were removed to create a multifunctional area that can hold up to five bicycles. Externally, a vertical bike rack, designed by students from Hochschule Esslingen, was mounted at the rear, with capacity for an additional five bicycles. Bicycle loading is managed by a staff member, which slightly increases dwell times. The overall investment is approximately €25,000–30,000 ($29,200- 35,000 USD) per bus, around €6,000 ($7,000 USD) for the interior reconfiguration, and €25,000–30,000 ($29,200- 35,000 USD) for the rear rack.

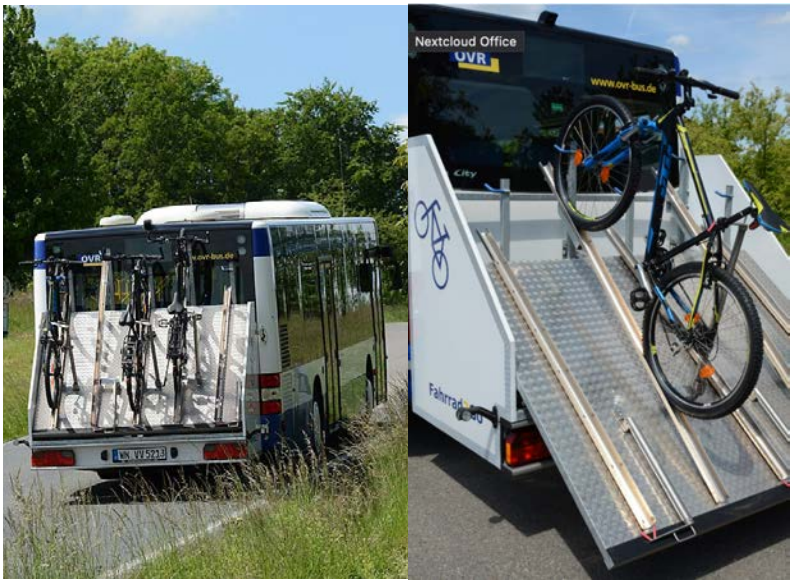

Figure 1. Improved bicycle transport through project Fahrrad2Go. Special bracket for the rear of standard buses. Image courtesy of VVS.

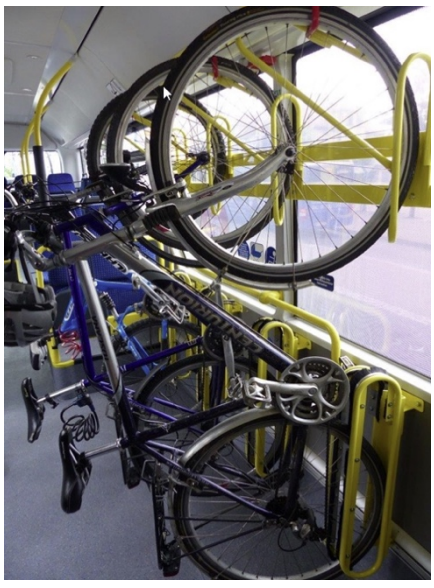

Figure 2. Improved bicycle transport through the project Fahrrad2Go. Brackets inside buses. Image courtesy of VVS.

[4] http://vvs.de/

Special services for leisure activities, such as dedicated weekend routes designed for recreational and tourist travelers, have also been introduced. Buses are fitted with bicycle trailers attached to the rear, capable of carrying up to 15 bikes. Some services operate seasonally from spring to fall on selected routes, while others run year-round. The trailers, costing about €25,000 to €30,000 ($29,000 to $35,000 USD), are compatible with various bus types, and bicycles are loaded directly by the cyclists themselves.

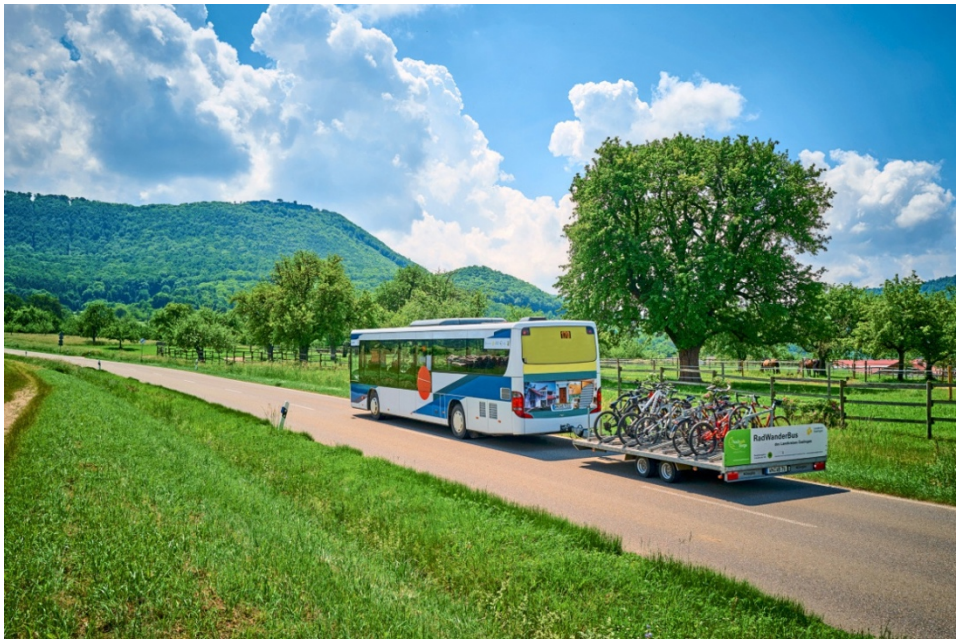

Figure 2. Special bus services for leisure activities. Image courtesy of VVS.

Thanks to the Unified Fare System initiative by the State of Baden-Württemberg, bicycle transport fares have been standardised across the region, regardless of the operator. Bicycles can be brought on buses free of charge on weekends and after 18:30 hrs. Additionally, the Deutschlandticket, introduced in 2023, provides nationwide access to local public transportation in Germany for €58 ($68 USD) per month. It excludes long-distance trains but covers all regional services, including the buses featured in this case study.

These German experiences are informing MassDOT's ongoing work towards innovative, cost-efficient solutions that could bridge the gap between public transit and active travel in less densely populated areas.

RESULTS AND IMPACT

As the main state-level transportation agency, the Massachusetts Department of Transportation (MassDOT) manages road safety, enforces vehicle standards, designs infrastructure, and coordinates public transit across the Commonwealth, working with the Massachusetts Bay Transportation Authority (MBTA) and 15 Regional Transit Authorities (RTAs). Within MassDOT, *The Lab* has taken a leading role in exploring international best practices—showing strong interest in the Stuttgart Region's innovative approach to bicycle transport on buses. These German solutions could serve as models for new strategies to improve weekend and leisure access to natural areas across Massachusetts via public transit. One example of this potential is the pilot project Unlocking the Blue Hills, led by the Boston Region Metropolitan Planning Organization (MPO) in partnership with the MBTA and MassDOT. This pilot seeks to enhance public transit access to the Blue Hills Reservation, a 30 km² natural area featuring over 160 km of trails, lakes, picnic spots, and sports facilities, located less than 16 km from downtown Boston.

In 2021, the project was developed in response to strong community advocacy and a participatory planning process. Stakeholders identified a major obstacle: although two MBTA bus routes serve peripheral parts of the park, they are distant from its main attractions. Travel times can take up to 75 minutes by bus—compared to only 25–40 minutes by car from much farther locations. In spring 2024, the MBTA changed services to better connect Mattapan, a historically underserved neighborhood in Boston, with more central park entrances. The pilot is designed to be replicated for other recreational destinations across the Commonwealth.

If extended into summer 2026, Unlocking the Blue Hills could serve as a platform **to test the integration of bicycles on mass transit**, drawing direct inspiration from the Stuttgart Region's Fahrrad2Go programme and recreational bus services. Currently, MBTA buses offer front-mounted bike racks that can carry just two bicycles, which may not meet the growing demand. The lessons from VRS bicycle and public transport offerings could also be used by the 15 Regional Transit Authorities.

Learning from **VRS**, which operates weekend bus services with rear-mounted racks and detachable trailers capable of carrying up to 15 bicycles, **MassDOT** and its partners are exploring options to retrofit MBTA vehicles. A prospective pilot on **Route 716** to the Blue Hills would focus on external solutions, avoiding complex interior modifications. Options under review include:

- Rear-mounted bike racks with capacity for five bicycles.
- Towable trailers that can accommodate 10–15 bicycles.

This feasibility study—conducted in collaboration with the Department of Conservation and Recreation (DCR) and the MBTA—will evaluate equipment costs, technical compatibility, and regulatory requirements. It also aims to determine a feasible implementation timeline based on stakeholder involvement and funding availability.

MassDOT and VRS have been cooperating on topics related to sustainable urban mobility and transport since January 2024. The exchange of experiences and lessons has occurred through technical calls, study visits in both regions, and in-person meetings. This case has laid the foundation for a rich exchange of technical expertise and governance practices. Beyond technical solutions, the structured community engagement around *Unlocking the Blue Hills* provides a model that could inform public outreach strategies in the Stuttgart Region, especially as it develops a regional recreation concept involving broad-based citizen participation. Conversely, Massachusetts can benefit from

the performance monitoring and tariff integration frameworks already in place in Stuttgart. The collaboration also creates space for structured evaluation of pilot results, allowing both sides to iterate based on real-world data.

The pilot's success and scalability depend on the creation of a **robust monitoring and evaluation framework**. This would include:

- Passenger numbers on modified bus routes.
- Number of bicycles transported; occupancy rates of racks/trailers.
- User travel origins and socio-demographic data.
- Feedback from user satisfaction surveys.
- Visitor increases at key facilities or trailheads.
- Economic indicators (e.g., sales in local businesses along routes).
- Modal shift and estimated CO_2 savings.
- Comparison of travel times before and after pilot improvements.
- Manual counts or sensor data at trail access points.
- Online engagement metrics (e.g., website visits, map/app usage).

Both VRS and MassDOT use household-based demand models to monitor mobility patterns. These can help capture trip purposes, distances, and user behaviour, and support broader efforts to manage leisure-related travel sustainably.

KEY FIGURES

15 bicycles
planned expansion capacity of MBTA bike racks (currently two bicycles).

€25,000–30,000
($29,000 to $35,000 USD) investment per bus for bicycle transport solutions in Stuttgart

LESSONS LEARNED

Integrating bicycles enhances modal connectivity: Facilitating bicycle transport on buses expands the functional reach of public transport networks, particularly for leisure and tourism-related travel in peripheral areas.

Fare clarity and communication are key enablers: A harmonised, transparent fare system, combined with targeted public communication, significantly improves user uptake and operational coherence across operators.

Robust monitoring supports evidence-based decision-making: Continuous evaluation through demand modelling, user feedback, and performance indicators is essential to refine service delivery and assess replicability in other contexts.

Adaptable and scalable vehicle solutions are critical: Infrastructure modifications—such as external racks or trailers—must be cost-efficient, context-sensitive, and minimally disruptive to other transit users.

Participatory processes strengthen service design: Engaging communities in planning, as demonstrated in Boston, ensures services address real user needs, improve equity, and foster behavioural change.

THE INTERNATIONAL URBAN AND REGIONAL COOPERATION PROGRAMME IN NORTH AMERICA

The International Urban and Regional Cooperation program in North America (IURC NA), funded by the European Union, partners European cities with Canadian and USA cities to facilitate knowledge exchange through online tools, face-to-face interactions, study visits, participation in thematic and networking events, and capacity-building initiatives. Its activities support the achievement of policy objectives as well as major international agreements on urban development and climate change, such as the EU Urban Agenda, the UN Sustainable Development Goals, and the Paris Agreement. The program is part of a long-term strategy by the European Union to foster sustainable urban development in cooperation with the public and private sectors, researchers, innovators, community groups, and citizens. IURC NA is financed under the EU Foreign Policy Instruments and benefits from the strategic support of the Directorate-General for Regional and Urban Policy of the European Commission.

Author: IURC North America
For more information, please contact us at info-na@iurc.eu

Acknowledgments: Thanks to **Thomas Kiwitt**, Executive Director for Planning in Verband Region Stuttgart, **Nadine Müller**, Officer for Transport and Spatial Planning in the Planning Department of Verband Region Stuttgart, and **Jaclyn Youngblood** and **Kris Carter** from The Lab @ MassDOT for always identifying valuable lessons, adapting them to their context, and sharing their experiences.

Links to related outputs:

VVS Freizeitbussen
MBTA
The Lab @ MassDOT
Unlocking the Blue Hills

IURC
INTERNATIONAL URBAN AND REGIONAL COOPERATION

Funded by the European Union

This document was produced with the financial support of the European Union. Its contents are the sole responsibility of ICF S.A. and do not necessarily reflect the views of the European Union.