



# SMART Curb Collaborative

## Zero Emissions Delivery & Urban Freight Logistics Study Tour

### SUMMARY REPORT



**A STUDY TOUR TO LEARN, OBSERVE, AND EXCHANGE IDEAS ON ZERO EMISSION DELIVERY, DIGITAL CURBS, AND THE GROWING ROLE OF CITIES**

In October 2024, a group of USDOT SMART grant-funded member cities of the [SMART Curb Collaborative](#), including the Cities of Minneapolis, Portland, San José, and Miami-Dade County, trekked to western Europe to learn from leading cities in zero emission logistics and urban mobility. Organized by the Open Mobility Foundation (OMF) and facilitated by Cityfi, the purpose of the SMART Curb Collaborative Zero Emission Delivery & Urban Freight Logistics European Study Tour was to:

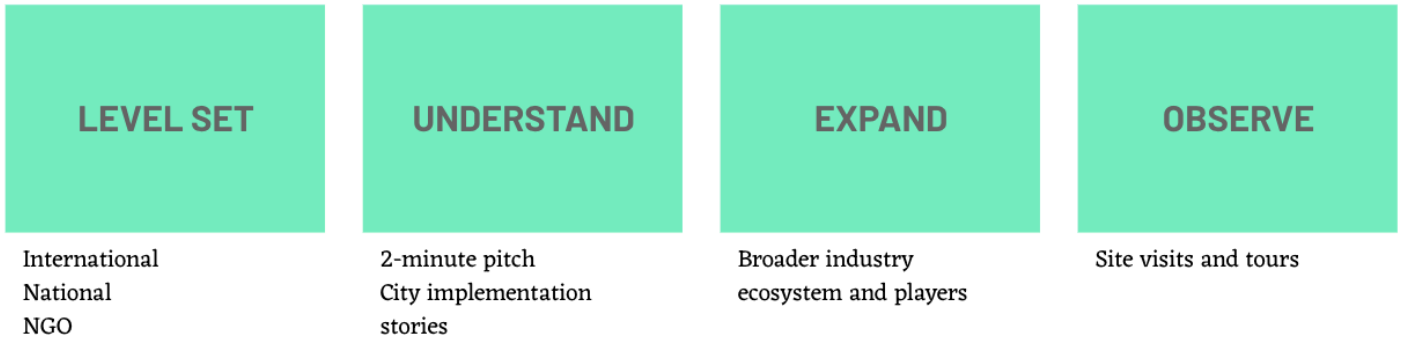
- Deepen participants' understanding of sustainable mobility and urban freight policy environments, operations, and underlying data infrastructure in the European context and in select European cities;
- Gain policy and implementation insights, best-practices and lessons learned that may be considered in U.S. cities; and
- Build a long-term collaboration and knowledge exchange between American and European cities in support of smart and lasting policies and business models for zero emission delivery.

# Trip Formula

The study tour examined policy constructs, projects and demonstrations, initiatives, and collaborations with the private sector in Paris and cities throughout Belgium and the Netherlands. The tour included participation from a dynamic group of European leaders in the zero emission delivery (ZED) space, including:

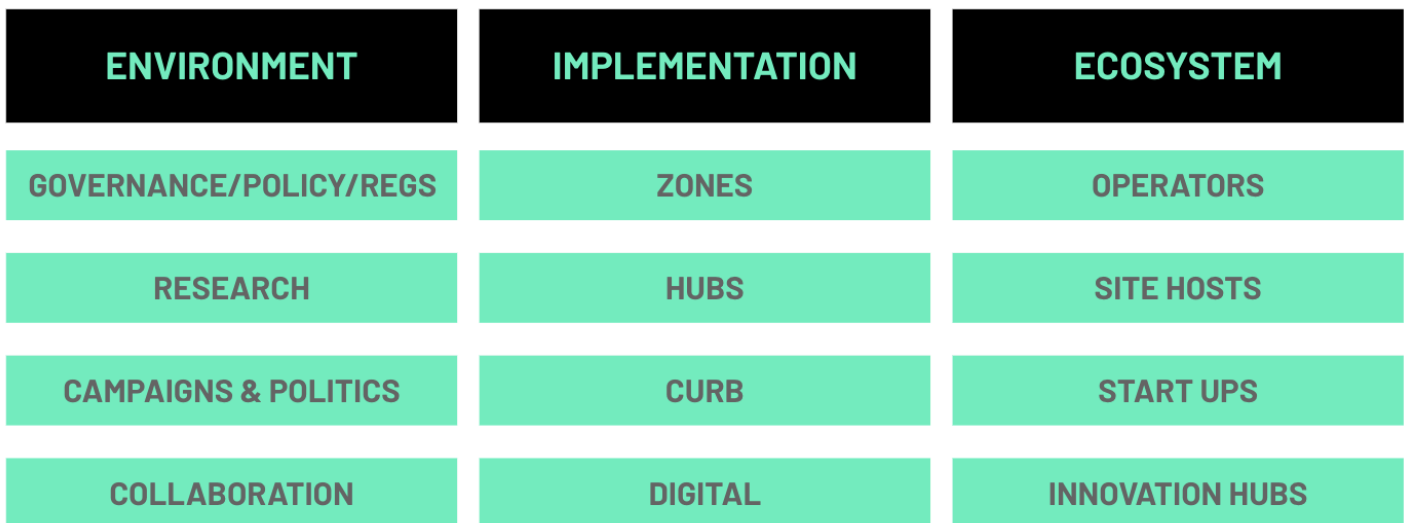
- **Cities/Regions:** Paris (France), Antwerp and Brussels (Belgium), and Amsterdam, Eindhoven, Nijmegen, and Utrecht (Netherlands)
- **European Entities:** European Commission, [POLIS Network](#), [ETP-ALICE](#), [EIT Urban Mobility](#), and [EIT InnoEnergy](#)
- **Ministries of Transport:** [French Ministry of Transport \(DGITM\)](#) and the [Dutch Ministry of Infrastructure and Water \(NTM\)](#)
- **International NGOs and Research Institutions:** [International Transport Forum-OECD](#), [Clean Cities Campaign](#), [RESPIRE](#), [TNO](#), [TU Eindhoven](#), and [Brainport Eindhoven](#)
- **Large Companies:** Ikea, JCDecaux, and [APCOA Urban Hubs](#)
- **Start Ups:** [CityQ](#), [Sorama](#), [Urban Radar](#), [Coding the Curbs](#), and [Zoev City](#)
- **Delivery Companies:** Amazon, DHL, La Poste, [SOGARIS](#), [City Hub](#), and [Tour de Ville](#)

The study tour had a basic “formula”: convene experts, observe implementation in action, and discuss how to get it done. The OMF brought together leading cities, organizations, and players in the delivery industry ecosystem, curating a number of presentations, roundtable discussions, and site observations and tours.



The trip formula included four ingredients, ranging between convening activities and site observations.

The study tour participants level set on the **role of national and European Commission policy** and heard **city implementation stories** related to mobility hubs & urban logistics hubs, urban consolidation centers, last-mile delivery vehicles and logistics, electrification and fleet transition, zero- and ultra-low emission zones, digital infrastructure (including curb digitalization, digital twins, data specifications, and technology experimentation), and more. The broader corporate, startup, and investment ecosystem were intentionally convened to discuss **opportunities for public-private partnership, experimentation, and the investment outlook for ZED and associated innovations.**



The study tour focused on three primary themes: 1) the environment that frames city-led ZED transition efforts, 2) digital and physical implementation efforts, and 3) the role of the broader private sector ecosystem.

The study tour also included **ten site visits and walking tours**, allowing the participants to touch and feel emerging delivery form factors, logistics hubs, ZED operations, and the different phases of policy implementation. Site observations included:



- Amazon Cycle Logistics Hub in Paris
- JCDecaux/CityQ Operations and Test Ride at Gare du Nord in Paris
- Paris Cycle Network Walking Tour (and Implications for Zero Emission Microdelivery Vehicles)
- SOGARIS Tour of the Grenier Saint Lazare Neighborhood Delivery Hub and La Chappelle Logistics Hotel
- Industry Talk with DHL: The Future of Zero Emissions Delivery
- Brussels-Ixelles Zero Emission Zone Walking Tour
- Urban Logistics, Canal Delivery, and Curb Management Walking Tour in Utrecht's City Center
- Eindhoven City Tour of Urban Development, Mobility Hubs, and the Tour de Ville "City Hub "
- Amsterdam Marineterrein Innovation Zone Tour

# Key Learnings

The study tour left an indelible mark on the SMART Curb Collaborative and our European counterparts. The group departed from Schiphol Airport with a wealth of knowledge and a deep desire to expand our work in this space. These are just a few of their impressions:

## **Mandate to ensure strong leadership.**

Europe's shift toward ZED is intentional and bound by strong policy mandates. European Commission direction on Sustainable Urban Logistics Plans (SULPs) helps cities and companies effectively plan for zero emission transition in the logistics space. This also offers predictability for private enterprise, ensuring consistent rules to allow the private sector to adapt and innovate.

## **Leverage what you have.**

Cities possess one of the most influential levers for ZED: space. Particularly, public street space and real estate. This study tour confirms that one of the biggest revolutions in logistics appears to be in adaptive reuse of real estate, development of microdelivery hubs, and co-location of delivery hubs and community resources. The adaptive reuse of city-owned spaces, from parking structures to curbs, has the potential to change the economics and operating assumptions of ZED. Likewise, cities have an opportunity to ensure vibrant, people-friendly places are also delivery-friendly places served by zero emission vehicles.

## **Build data exchanges now.**

Data is central to zero emission transitions in the urban delivery space. Yet, even in Europe, logistics supply and demand data and data related to public space assets and their use are rarely exchanged between government and private enterprise. Data is central to understanding and operating the curb (and public space more broadly). The American and European cities acknowledged the need for a common data language to digitize the diversity of delivery spaces and digitally manage and enforce zero emission access policies. In partnership with the OMF, cities and industry should continue to implement and collaboratively expand use cases for the [Curb Data Specification](#) (CDS).

## **Don't be a soloist. Build an orchestra.**

What better place than Europe to use an arts and culture analogy for the different approaches to building a ZED ecosystem. The trap of cities (and even industry) leading the ZED transition on their own must end. We need cities and companies to form alliances so that local, state, and national policy frameworks for ZED are well-informed and embraced. This also means that cities need to nurture and connect the municipal, start-up, and operations/workforce ecosystems to build homegrown, innovative partnership models in urban delivery and freight logistics.

## **Ensure the viability of e-cargo bike and microdelivery.**

Small, low speed vehicles are much more adaptive, safer, and cleaner than larger fossil fuel trucks. Microdelivery vehicles are ideal modalities for dense, urban areas like downtowns, commercial districts, and dense residential neighborhoods. They also require smaller investment and less driver training. Yet adoption and widescale transition is far from critical mass. Cities play a central role in initiating the required

structural shifts toward micro-distribution and street reallocation to create connected cycle networks and loading areas. Curb digitization and data exchange is critical to shepherd these shifts.

### **Leverage the power of messaging.**

Paradigm shifts are rarely easy, and this is no different with ZED. Bold change requires messaging that resonates politically and individually. The most successful European cities changed the narrative to center on outcomes related to wellbeing. Many cities elected to focus their message beyond decarbonization, and instead led with quality of life, air pollution, community health, and noise narratives that are proven to change hearts and minds. Ultimately, the measure of a successful message is whether people can use “vibrant cities” and “urban freight” in the same breath.

### **Lean into campaigns and coalition building.**

Cities need to build public support to make room for ambitious action. Likewise, cities have a responsibility to mobilize corporate voices to leverage expertise, innovative government and business solutions, and generate buy-in. Collaboration and broad coalition building is at the heart of pragmatic and realizable implementation. Paris and Nijmegen are leading models on how to build the case for zone-based policy using highly-visible air pollution reduction campaigns.

### **Aim for minimum viable policy. Then iterate.**

Whether it's a zero emission zone, a cyclelogistics hub, or a smart curb zone, cities that start small, then scale up are more likely to see positive community reaction. Paris and Utrecht phased in multiple layers of access management, from curbs to zones, to responsibly introduce vehicle restrictions.



# What Should We Do Now?

Zero emission delivery is at a fragile tipping point, especially in the face of a presidential administration change in the United States in 2025. A call to action is needed, not only for cities, but also for the federal government, state agencies, and industry players to level the regulatory playing field in favor of ZED and build the financial tools to ensure its long-term sustainability. Here are our priorities:

## **Key Priority 1: Test and expand use cases for the CDS.**

The Curb Data Specification is essential open source data infrastructure to manage, operate, and monitor zero emission delivery operations at the curb, at logistics hubs, and within a zero (or low) emission zone. Now is the time to leverage CDS to expand into broader zone-based public space management. Portland's SMART project is utilizing CDS to manage its regulated zero emission delivery zone, but this is just the start. CDS is an existing open source tool that can be augmented to address a growing number of ZED, zone, curb management, and broader public space management use cases. This is the new frontier and the OMF is ready to convene cities and the broader ZED ecosystem to co-design and implement data specifications that undergird the ZED transition.

## **Key Priority 2: Continue transatlantic knowledge exchange.**

The American and European study tour participants showed a strong interest in long-term collaboration and knowledge exchange. Regardless of the region, cities experience similar, if not the same challenges related to ZED transition. Whether regionally or internationally, cities working together can provide policy and

implementation momentum, ensure lessons are distributed, and establish the building blocks for a consistent playing field for the private sector.

### **Key Priority 3: Expand funding and policy innovation.**

The two most influential drivers for ZED expansion in Europe is the growth in funding for research, piloting, and implementation, as well as strong policy direction to infuse sustainability into urban logistics. The American ecosystem, frankly, lacks leadership by design. ZED leadership takes vision and guts. What if we removed the financial and political risk from the equation? The OMF, cities, and the private sector can demonstrate a strong value proposition (e.g., return on investment, delivery efficiency, and innovation) and clever narrative that helps build the political and public will to transform public space.



A view from the SOGARIS neighborhood delivery hub at Grenier Saint Lazare in Paris. The hub is a former subterranean parking structure with innovative community amenities and curb management features integrated into the hub's design and operation.



**CONTINUE TO LEARN ABOUT THE SMART CURB COLLABORATIVE'S PROGRESS BY VISITING [WWW.OPENMOBILITYFOUNDATION.ORG/SMART-CURB-COLLABORATIVE/](http://WWW.OPENMOBILITYFOUNDATION.ORG/SMART-CURB-COLLABORATIVE/)**

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