Chaire LOGISTICS CITY

Université Gustave Eiffel

I-NUF 2025 Conference
Los Angeles, CA, USA

E-commerce last-mile delivery within the ‘fifteen-minute city’ concept

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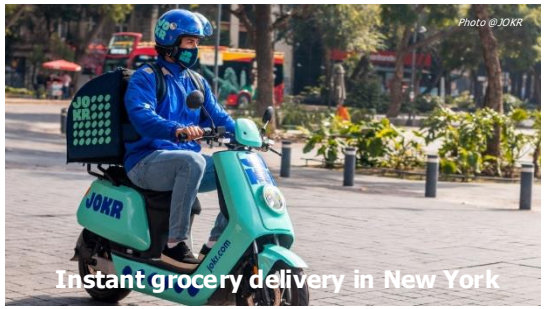
European research project FRESH/DUT (Driving Urban Transition)

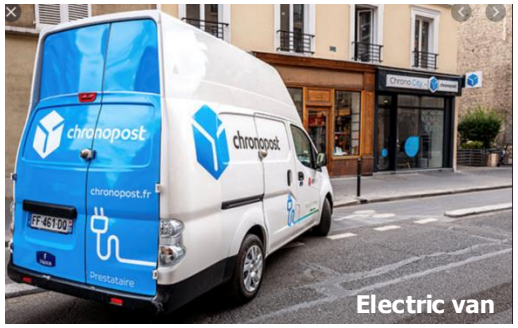
- TU Dortmund, Gustave Eiffel University, Norwegian University of Science and Technology (NTNU), and ETH Zurich led by Dr. Eva Heinen, ETH Zurich
- The project looks at shopping and logistics in 'fifteen-minute cities'
- Objectives are:
  - To assess/compare/model personal shopping travel demand, e-commerce and last mile logistics in Zurich, Paris, Trondheim, and Dortmund
  - To investigate the contribution of innovative transport and delivery solutions
  - To develop sustainable urban logistics concepts in relation to shopping and online shopping in a 15-minute city, with a focus on reducing motorized transport
- This paper questions the implication of last mile logistics for online shopping in a 15-minute city

Last mile logistics undergoes rapid changes due to e-commerce, omnichannel retail, gig economy and tech development

Omnichannel retail



Gig economy and "instant" delivery



Tech advancements

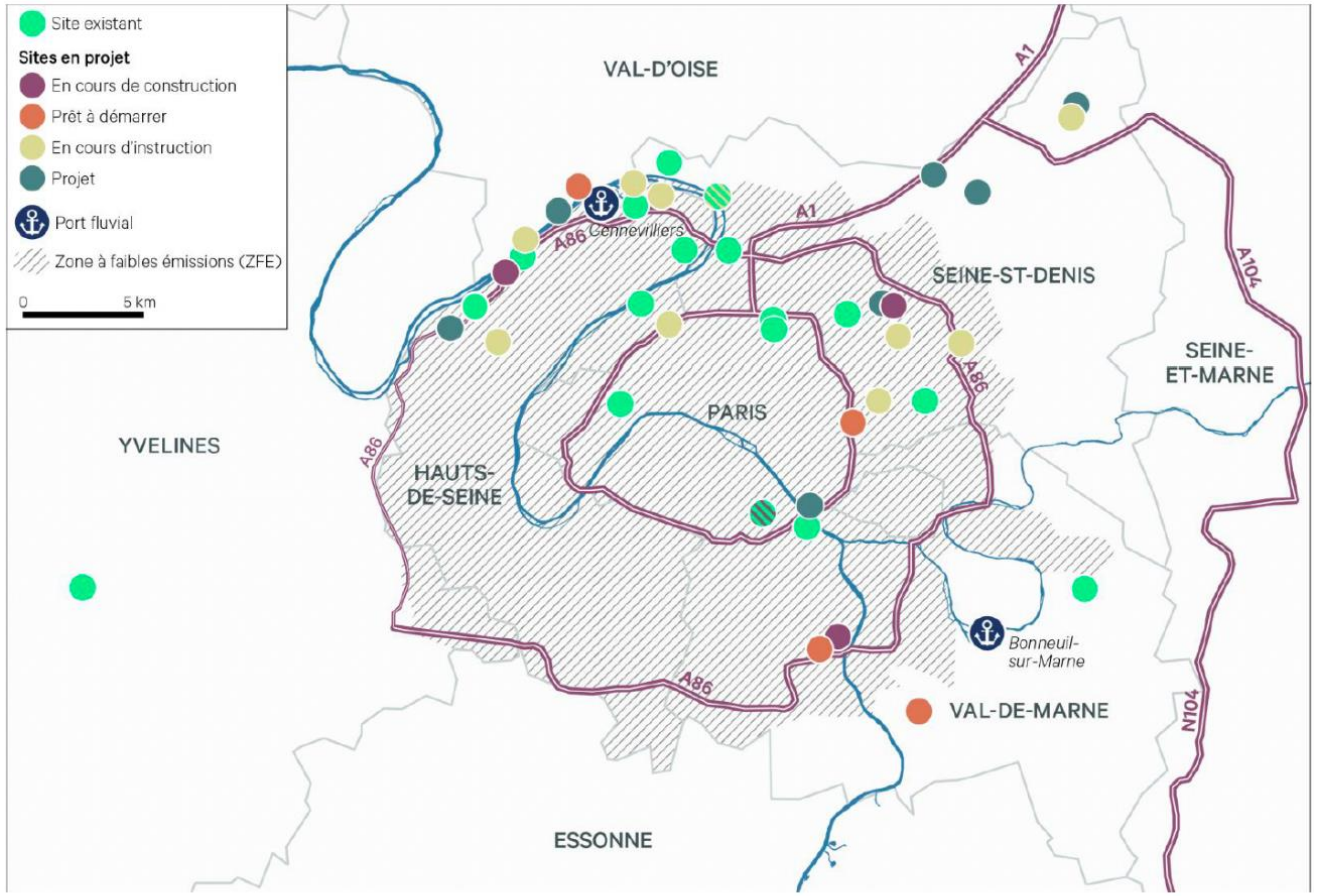
Other pictures: Laetitia D

E-commerce and ‘proximity logistics’

- Trend of logistics facility development in urban, dense and mixed-use areas (Buldeo Rai et al., 2022)
- Emergence of proximity logistics due to:
  - E-commerce and growing demand for fast delivery
  - Rise of omnichannel models
  - Last mile delivery by electric or non-motorized vehicles
- Online sales of products in France (€):
  - Before 2020: +15% per year
  - 2020 : +32%
  - 2021 : +7%
  - 2022 : -7%
  - 2023 : -2%
  - 2024 : +6%

Increase in number of fulfillment centers, delivery stations and fast delivery hubs in urban areas

45 vertical warehouses in Paris and inner suburbs of Paris (CBRE, 2023)



Source : CBRE Research, T3 2023

Existing

Site

Under construction

Construction ready to start

Building permit in progress

Project

Ports

Reference: CBRE, DEC 2023

‘The fifteen minute city:’ an ‘ideal’ urban model based on proximity

Essential services such as schools, healthcare, shops, work spaces and leisure are accessible within a 15-minute walk or bike ride from home (Moreno, 2024)

dutpartnership.eu

Benefits

Neighborhood Self-Sufficiency

Reduces need for long-distance shopping trips

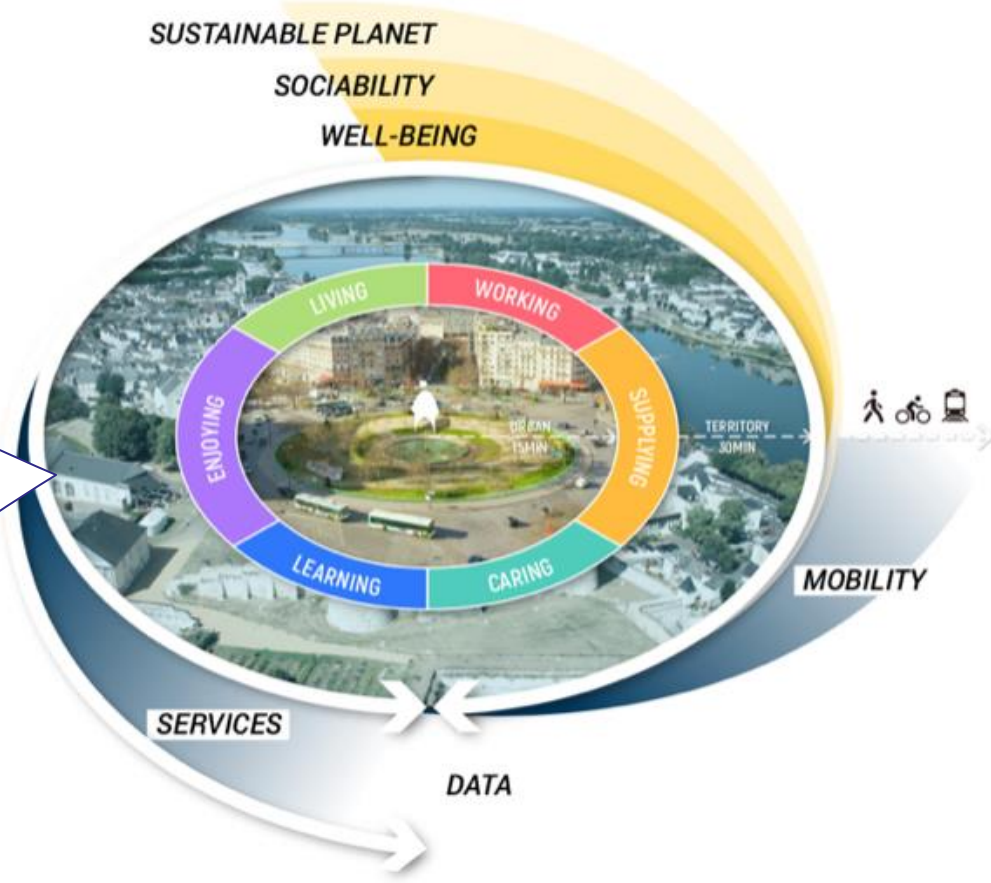
Sustainable Transport

Encourages walking and cycling to reduce emissions

Local Business Support

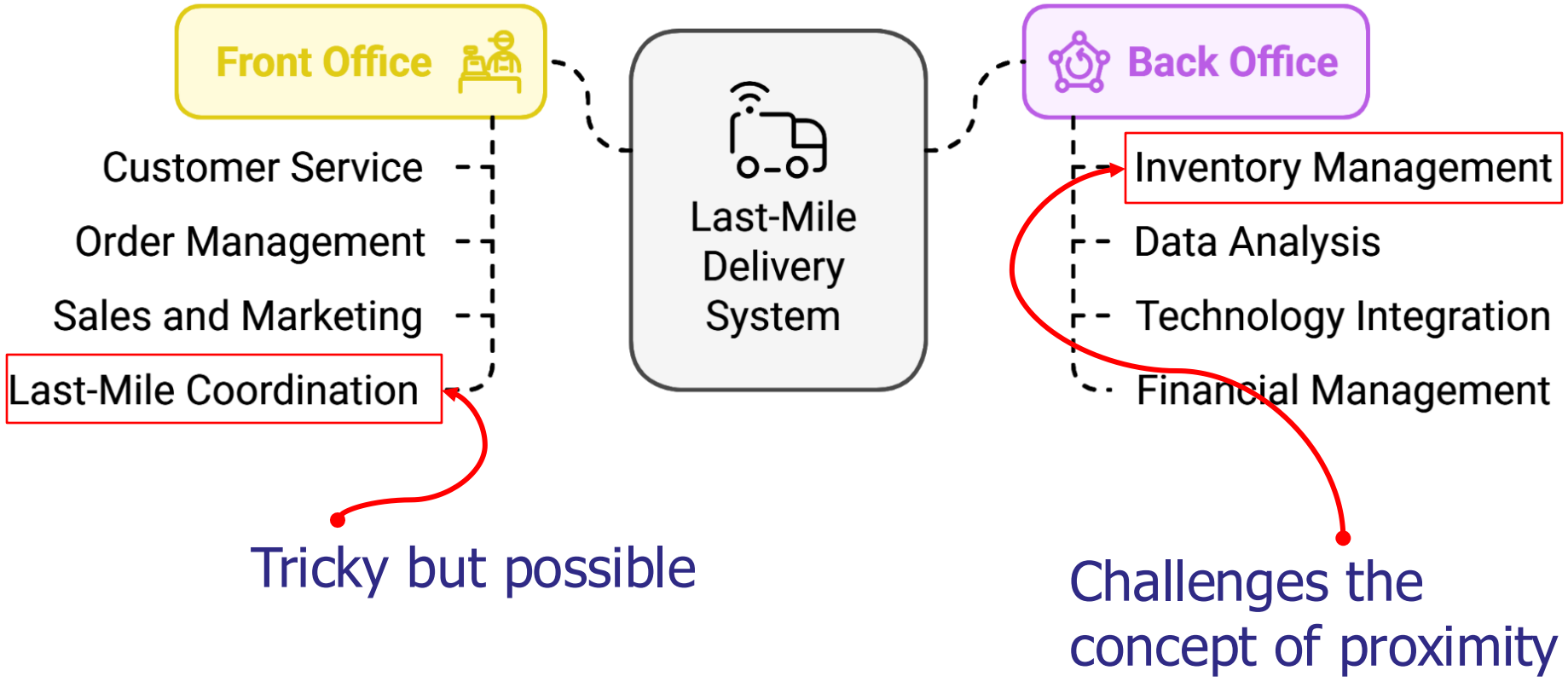
Integrates e-commerce to strengthen small retailers

How does e-commerce last mile delivery fit into the fifteen minute city model?



The 15-Minute City Model (Moreno., p.105)

Urban Logistics Last-Mile Delivery System

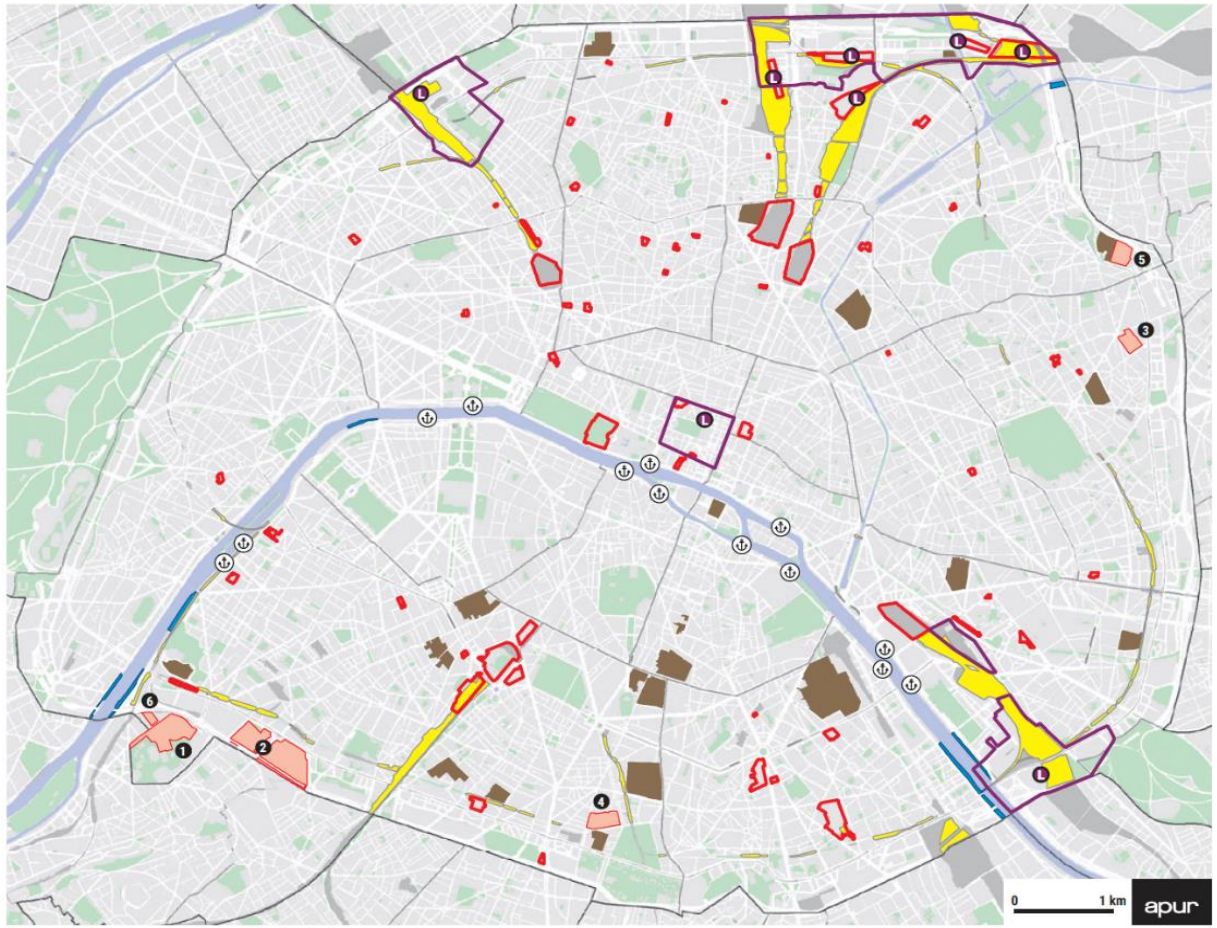


Two potential directions

1. Policies successful at promoting local hubs and decarbonized transport
    - Zoning regulations
    - Mixed-use development
    - Street design and infrastructure provision
2. Diverging views: urban planning versus logistics industry

Zoning regulations

- space allocation for e-commerce hubs and fulfillment centers in city plans



Location perimeters for logistics facilities in Paris 2016 zoning plan

- Large urban service zones

  - berges
  - rail
  - hôpitaux
  - others

- 61 logistics location perimeters

Hub under the Paris ring road, Paris

Site de logistique P4 Porte de Pantin de Sogaris - Architecte Syvil

Prologis project CONNECT Paris – 5 level logistics space (67,000 sqm)

In Paris 17ème district

- Versatile, flexible and adaptable spaces
- Each level with truck court for HGVs and indoor space for LGVs and cargo bikes
- Underground parking level (330 spaces, 20% with EV charging stations)
- **Building permit obtained, development started**

Mixed formats/Multi-use development

- Integrate logistics hubs with residential, retail, and commercial spaces

M. Schorung

Gopuff in New York City

A warehouse AND a café AND a click&collect

- More than 10 stores of this type in NYC in September 2024
- 161 stores in California, Washington and Arizona

Gopuff runs **modified dark store format** that includes **an ordering kiosk for in-store shoppers**. Each dark store carries more than 4,000 national and global products along with “hyper-local” selections. (*grocerydive.com*)

Alliances of mass retail and instant delivery apps

- Auchan click&collect + Deliveroo

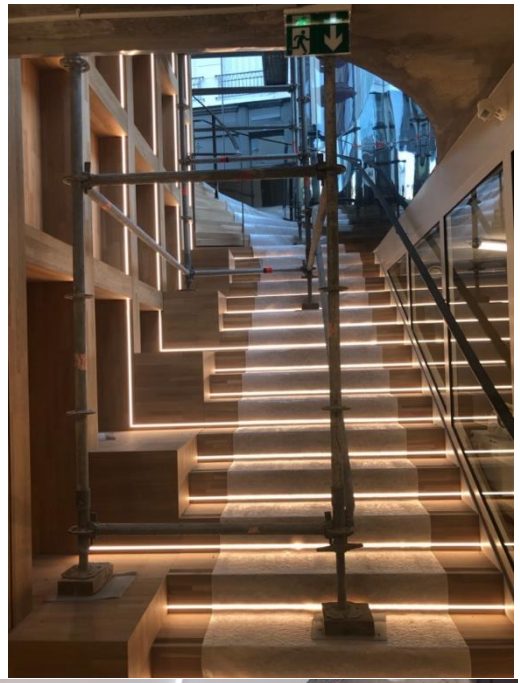
Amazon delivery service partners in multiple local hubs in Paris

F. Bouchon Le Figaro

Meituan drones in Shenzhen

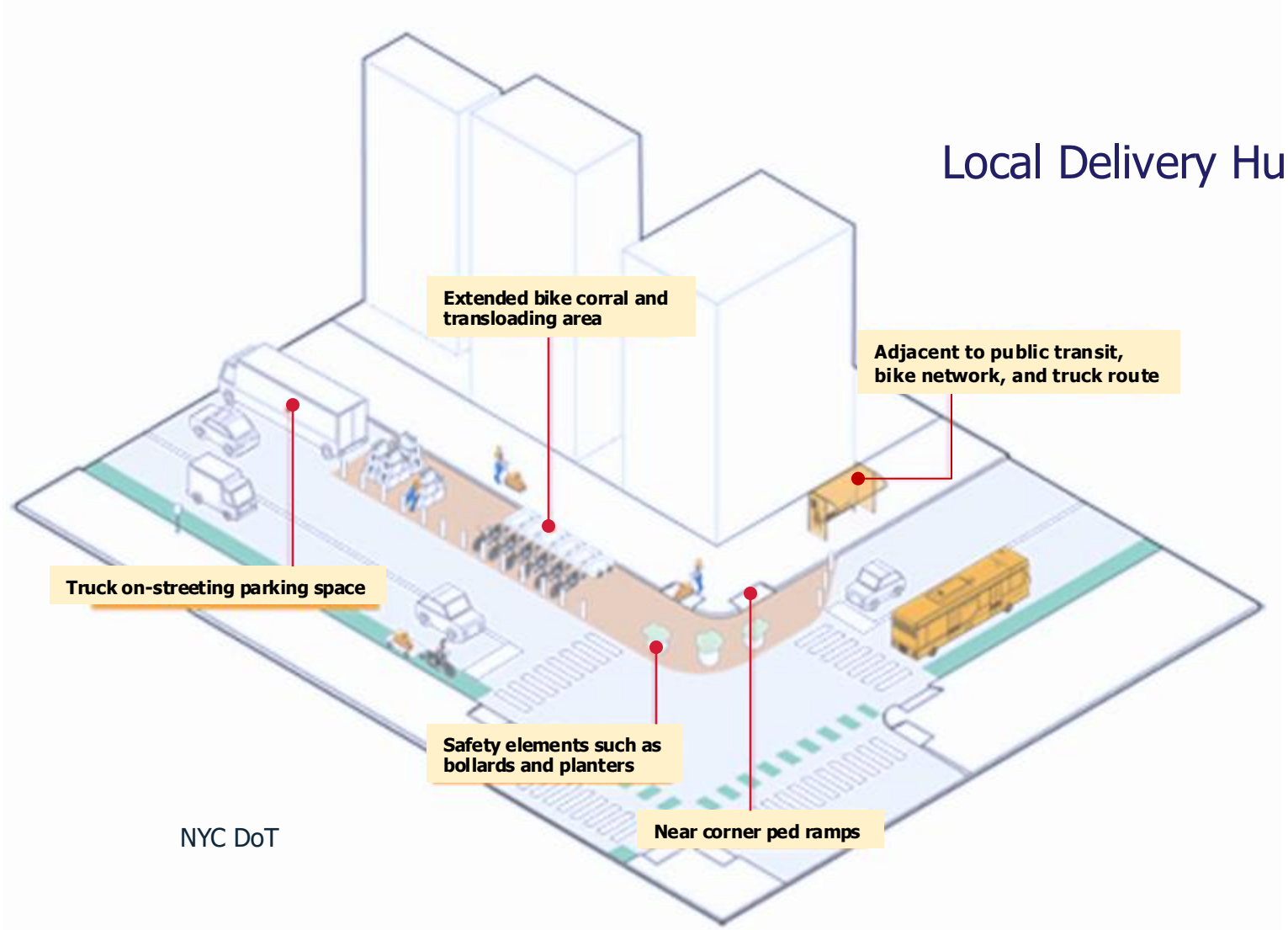
- A network of landing bases that serve as collect lockers
- A fixed set of flight corridors that are easier to regulate
- 600,000 deliveries in 2023


AMBASSADE
D'AUVERGNE



Street design and infrastructure

- Designed areas for delivery bays, loading/unloading zones and pickup lockers



Local Delivery Hubs in New York City

Diverging views in urban planning and logistics

Factors	**Proximity**	
	In urban planning	**In logistics**
Goal **(shared)**	minimizing travel distances, reduce emissions, travel costs	
Service focus **(diverge)**	Easy accessibility	Cost, time & service quality
Main stakeholder **(vary)**	City wide (public)	Private companies
Dynamics, **unclear**	• Integrating different elements • Space allocation • City-own contexts, retrofitting existing	• Changing business models • Consumer preferences • Long supply chains (outside of 15-minute dimension)

Conclusion

- In essence, e-commerce and e-commerce delivery contradict the fifteen-minute city
- They also represent an opportunity for engaging in partial strategies related to the fifteen-minute city
  - Deliveries with non-motorized modes
  - Home deliveries from local businesses
  - Logistics hubs potentially offering multiple local services
- Challenges: balancing affordability, service quality, and social inclusion

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ANR-FRESH project
https://fresh.raumplanung.tu-dortmund.de/project-description/about-the-project/

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