Regional land-use planning and sustainable logistics

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Regional aspects of land use planning and settlement structures for sustainable mobility patterns
13 March 2023
• Warehouses, innovations, new trends in consumption and impacts on city logistics

Results available online:
• Observatory of ecommerce mobilities
• Logistics real estate and relationships with urban form in 74 large cities around the world
• ‘Instant delivery’ gig workers in Paris (surveys 2016 to 2022)
What are the links between regional land-use planning and sustainable logistics?

- Land-use choices have an impact on the organization of logistics activities
  - Eg a medium size mall generates 150 deliveries a day
  - Eg a new housing complex of 300 apartments receives 30 parcels a day
- Logistics land-uses (warehouses) have an impact on regional traffic
- Suburban warehouses versus urban warehouses
- Warehouses related to energy issues, land artificialization, and environmental justice
Wealthy areas served by warehouses located elsewhere: example of Issy/Boulogne in the Paris metro area
Reducing CO₂ emissions by using an urban logistics hub, example of Chronopost parcel deliveries

Without an urban hub: 151 tons CO₂/y  
With an urban hub: 74 tons CO₂/y
The location of warehouses disrupts the spatial logic of traffic flows
Warehouses: new logistics landscapes in large urban regions

0.8% of total land-use

Los Angeles
Buenos Aires
Sao Paulo
Gothenburg
Réseau des entrepôts Amazon par type dans la région Nord-Est des États-Unis (Washington D.C-New York)

2021

Sources : MWPVL, OpenStreetMap Contributors

Warehousing clusters in megaregions

T. Lecourt, M. Schorung
Logistics City Chair, 2021
Logistics sprawl: decentralization of warehouses in suburban areas of large cities

Dablanc and Farr, 2012
Two recent evolutions

Solar panels
Amsterdam, 2022

Reduction in land footprint

2021 Amazon fulfillment center in Delaware, US

350,000 m² on 70,000 m² footprint
New formats in urban warehouses, micro-hubs, logistics hotels

- **Vertical** (underground and multistory)
- **Mixed-use**: logistics hotels
- **Temporary**: use of spaces waiting for a development permit, use of spaces available during the day

- Empty space turned into logistics hub under the Paris ring-road, reconvertible quickly
French spatial planning: also complicated!

Figure 2. Master and Mobility Plans in French freight spatial planning (arrow means prevalence)

Regional level
SRADDET: Regional Master Plan

Metropolitan level
SCOT: Metropolitan Master Plan
PLM: Mobility Plan (equivalent to European SUMPs)
Freight plans: indicative and non-mandatory

Municipal level
PLU: local zoning plan (increasingly metropolitan)
Building permits

Dablanc, 2023
“Location perimeters”: any development project must include at least 500 or 1,000 m² for logistics

- 61 location perimeters in the 2016 Paris zoning ordinance
Vertical and multi-story

Tokyo

Brooklyn

Paris
Delivery services from underground municipal car parks

Under the Louvre, Paris

Under Plaza Mayor, Madrid (FM Logistic Ibérica)

CITYLogin and Madrid’s Municipal Transport Company (EMT) have inaugurated a micro-fulfilment centre under Plaza Mayor, the Spanish capital’s famous main square. The 200-sqm. operational centre is expected to improve the speed and efficiency of deliveries in the area.

On October 20, 2021
Time-sharing

Amazon, Paris 14th use of of a bus depot during the day

F. Bouchon Le Figaro
Conclusion on spatial patterns and warehouses

• A very active real estate market in suburban areas
• A new niche market in central areas
• Can help consolidate freight operations and reduce freight veh-kms
• And reduce warehousing spatial footprint
• Need for zoning plans and architectural innovation
Ressources

• CHAIRE LOGISTICS CITY: www.lvmt.fr/en/chaires/logistics-city-sogaris/
• METROFREIGHT www.metrans.org/metrofreight
• Enquêtes sur les livraisons instantanées à Paris : https://hal.archives-ouvertes.fr/hal-02374915
• Urban freight platform: https://www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/defaul.aspx