

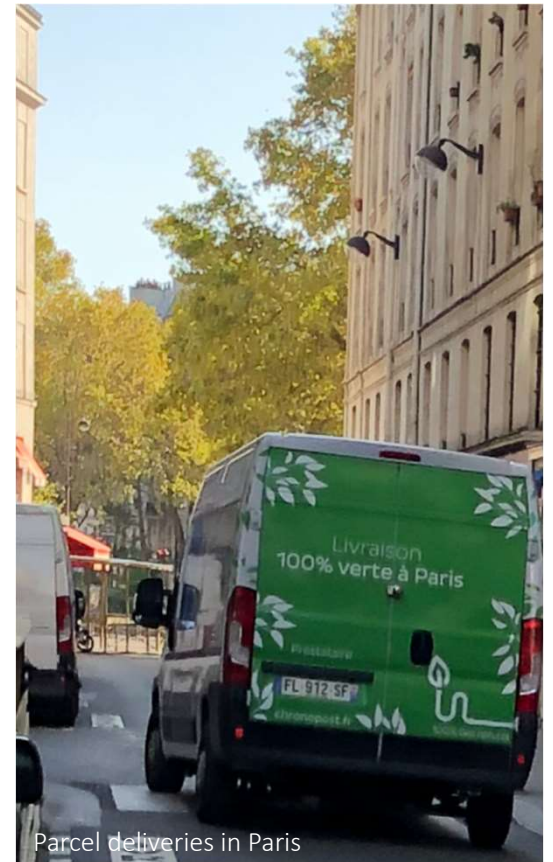
Proximity logistics and how urban logistics facilities can become good neighbors

Heleen BULDEO RAI

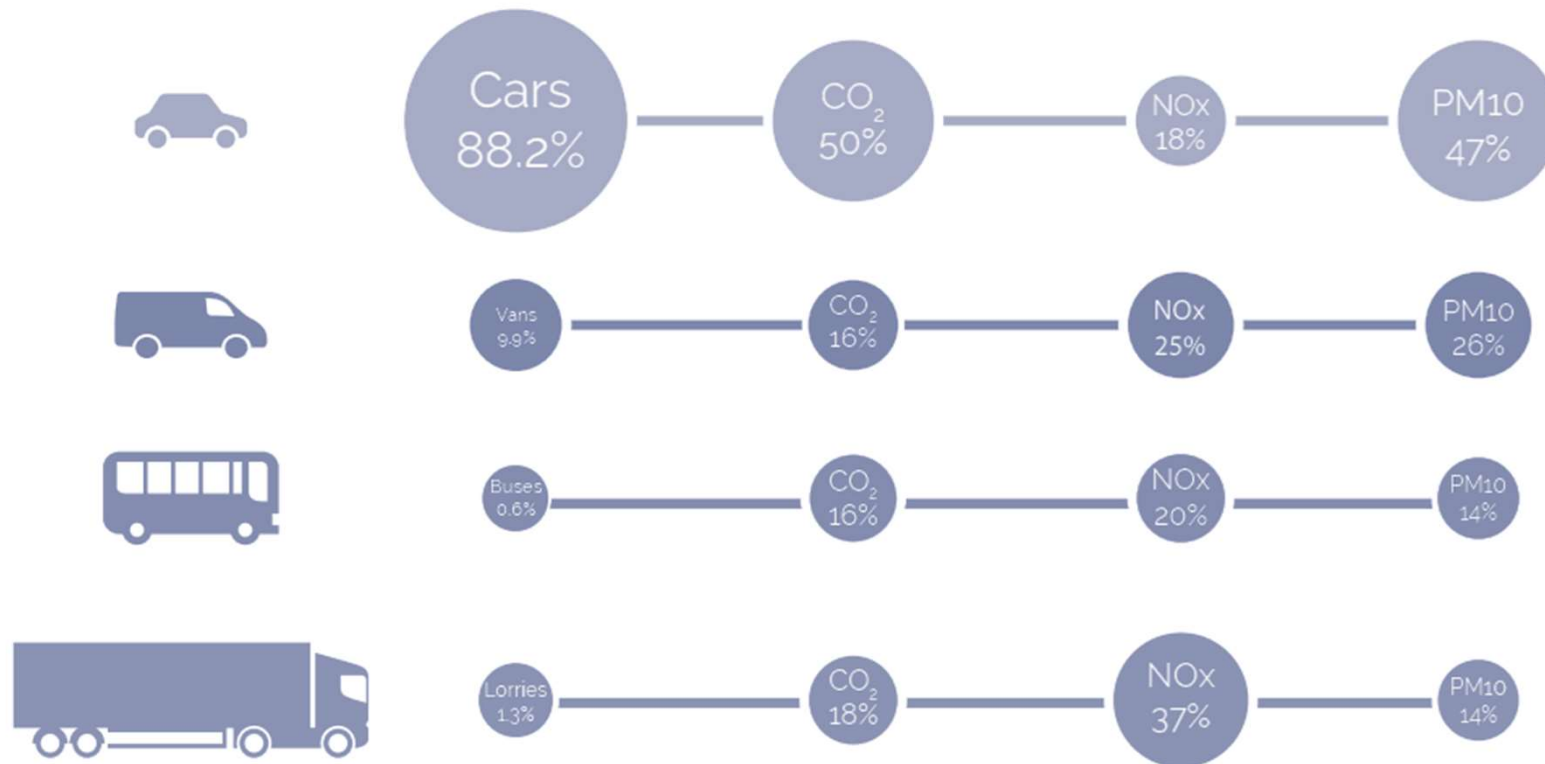
Logistics City Chair
Univ Gustave Eiffel



Urban logistics is changing rapidly, with consumer demand and supply as first force of change: e-commerce, omnichannel retail, 'logtech', and the gig economy

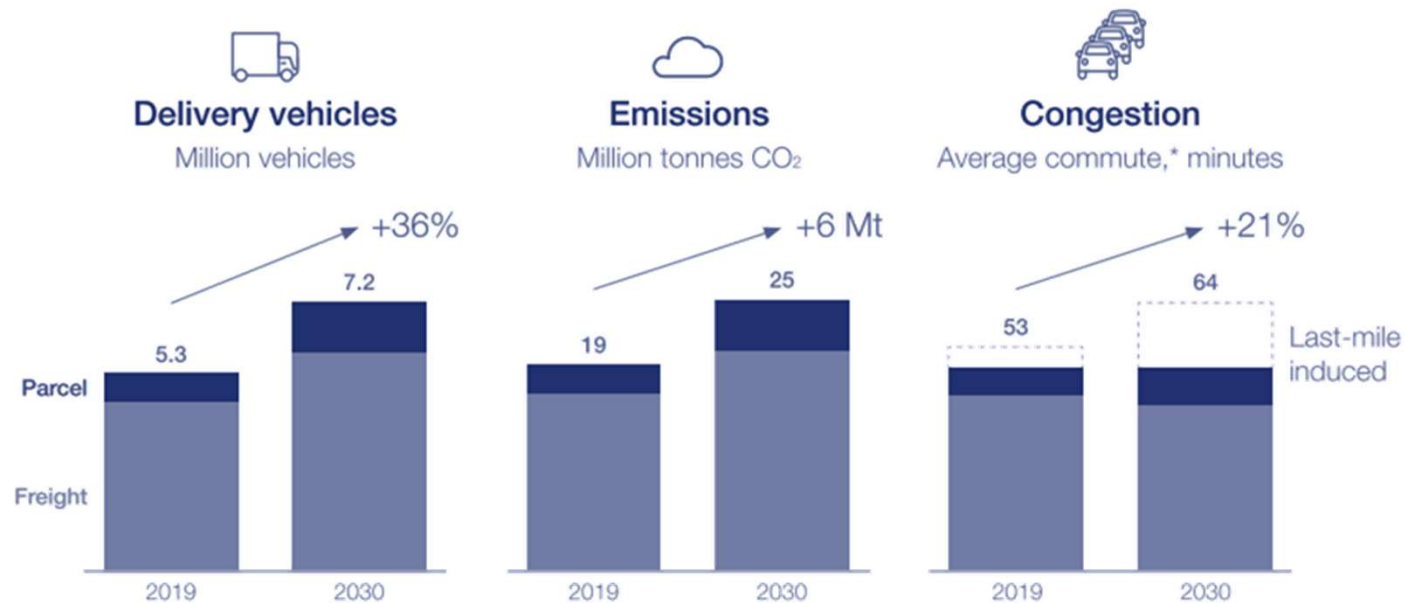


Policies and planning addressing goods transportation's negative impact, both restrictive and supportive, are a second force of change



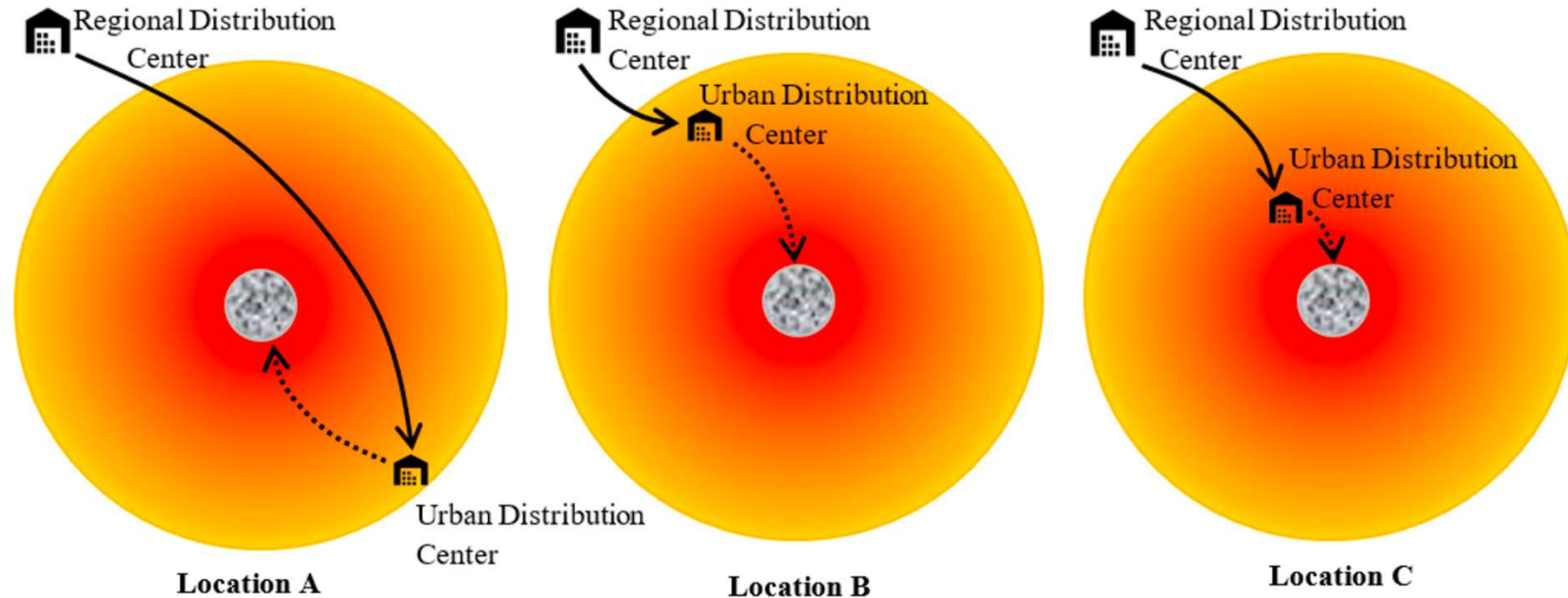
Without intervention, the number of e-commerce delivery vehicles will increase by 36% until 2030, increasing emissions from delivery traffic by 32% and congestion by over 21%

2030 base case scenario

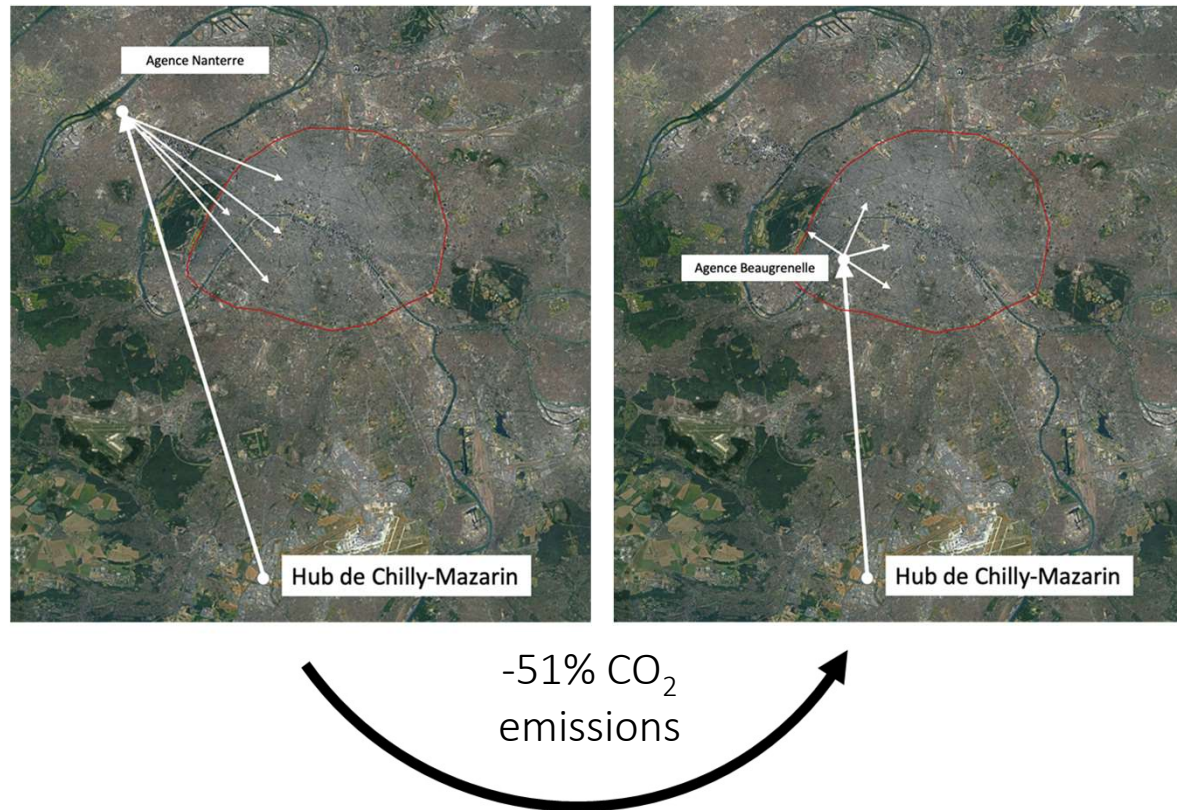


* Average commute for representative city
NOTE: Top 100 cities globally only.

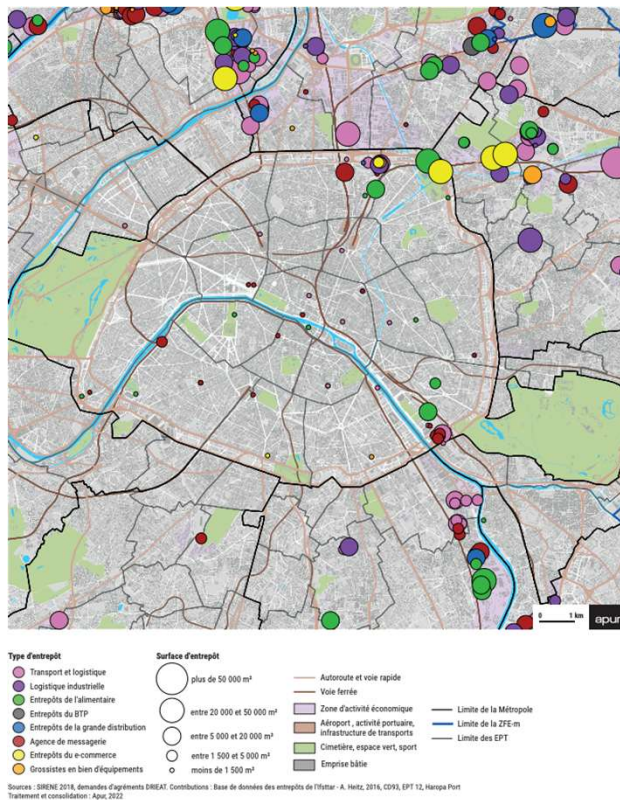
Efficient and zero-emission urban logistics relies on facilities closer to where goods are consumed, especially in high-demand areas



‘Proximity logistics’, or the development of logistics facilities in dense, mixed-use urban areas, extends and refines global logistics networks and counteracts some effects of ‘logistics sprawl’



Proximity logistics is observed in various cities including Amsterdam, London, Paris, Seoul, Shenzhen, and various cities in the United States



Al bijna 300 stadsdistributiehubs in Nederland

First study: to characterize and contextualize proximity logistics through collaborative comparative case studies, and a common typology

Logistics facility	Size	Service area	Activity
Cross-dock facility	M to XXL	Regional, national or international	Cross-docking
Air hub			
Wholesale and retail facility	M to XXL	Regional, national or international	Storage, fulfilment and cross-docking
Fulfillment center	M to XXL	Regional, national or international	Storage and fulfilment
Sortation center	S to XXL	Regional	Cross-docking
Delivery station	XS	Local	Cross-docking
This facility type also covers urban consolidation centers (Dupas et al., 2020; Marujo et al., 2018; Rudolph et al., 2021); micro-consolidation centers (Janjevic and Ndiaye, 2014; Marujo et al., 2018; Rudolph et al., 2021); micro-hubs which can be independent, shared or consolidated (Kim and Bhatt, 2019; Rudolph et al., 2021; Russo et al., 2021; Schodl et al., 2019); and mobile hubs (Arvidsson and Pazirandeh, 2017; Sheffi, 2020; Srivatsa Srinivas and Marathe, 2021; Verlinde et al., 2014).			
Fast delivery hub	XS	Local	Storage and fulfilment
This logistics facility type also covers urban satellites (Alfieri et al., 2021); dark stores ; and warestores (Sheffi, 2020).			
Pick-up location	XXS	Local	Collection
Local freight station			
These facility types also cover parcel lockers ; pick-up points (Onstein et al., 2021); click-and-collect stores ; and drives (Buldeo Rai et al., 2019).			

Innovative developments for e-commerce fulfilment and delivery, but different degrees of automation and governmental intervention

▼ Tokyo



▼ Paris



▼ Shanghai



Seoul ◀



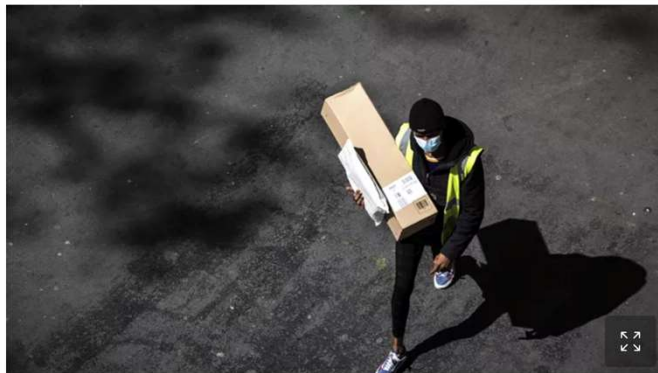
▶ New York City

Proximity logistics presents opportunities but also comes with a series of challenges, including concerns of and conflicts with communities

A Paris, des riverains protestent contre l'implantation prévue d'un centre de livraison

Par Océane Herrero

Publié le 01/09/2021 à 16:22, mis à jour le 01/09/2021 à 16:31



Protests against Ocado distribution hub next to north London primary school

[VIEW COMMENTS](#)



Concerned children wear face masks and wave placards in protest

Push to Clean Up Air Around 'Last-Mile' Warehouses Gets in Gear

BY SAMANTHA MALDONADO | SMALDONADO@THECITY.NYC | APR 20, 2022, 3:15AM UTC+1

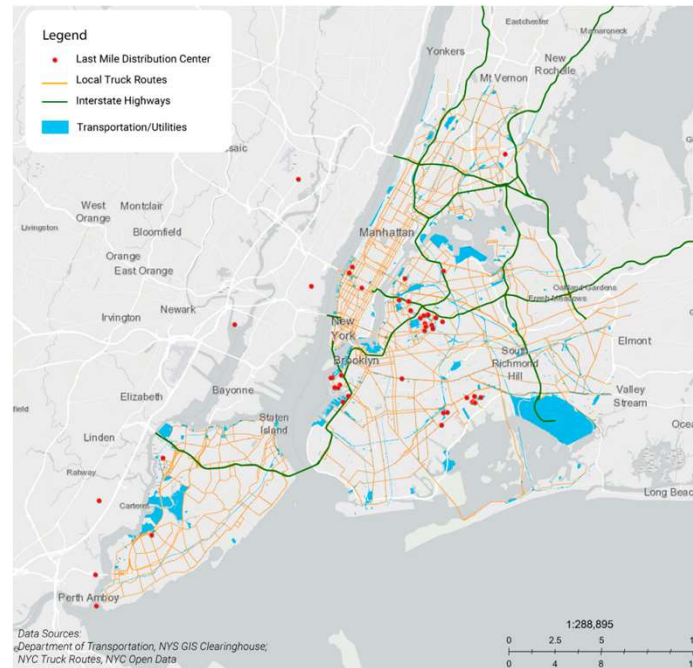
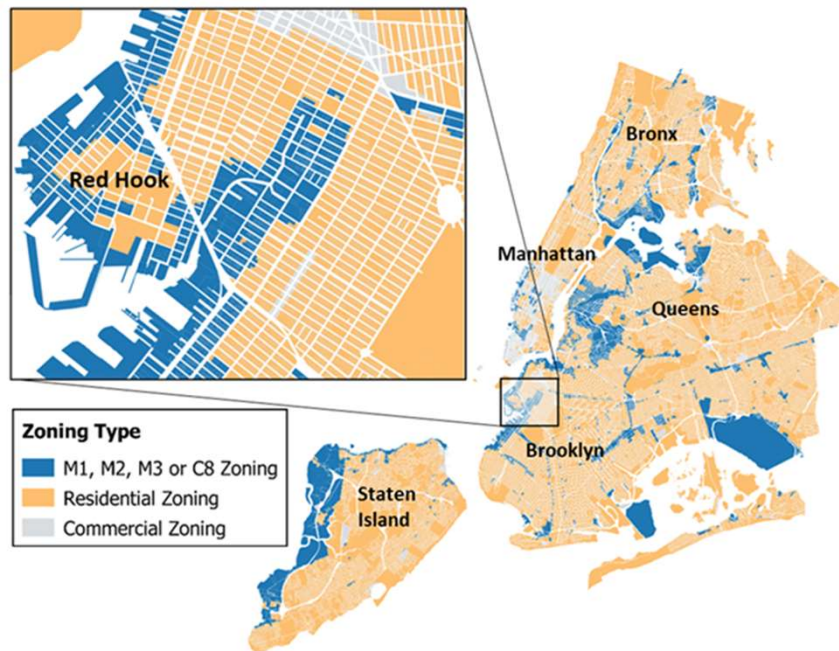
[f](#) [t](#) [SHARE](#) [REPUBLISH](#)



An Amazon truck makes deliveries in South Williamsburg, April 2, 2022. | Ben Fractenberg/THE CITY

Le Figaro, 2021; Evening Standard, 2019; THE CITY, 2022

Second study: to identify how proximity logistics facilities can become ‘good neighbors’ through a case study of New York City



Seven types of ‘best practices’ scaled from system (i.e., city) to site (i.e., warehouse), identified in conversation with urban and regional administrators, warehouse and vehicle developers, and architects

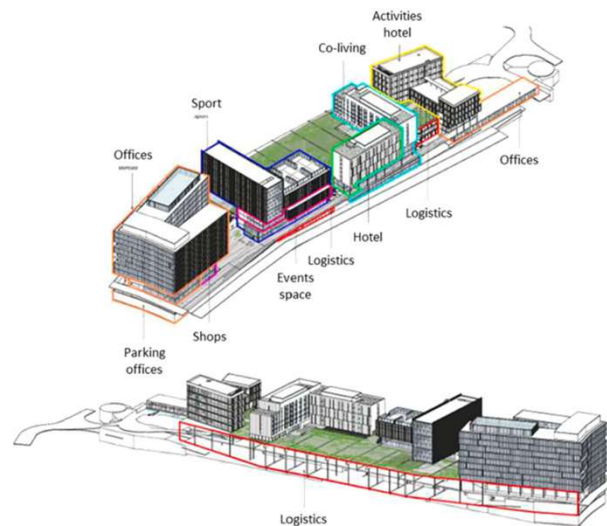


1. Zoning for innovation as well as nuisance monitoring and mitigation

Yet despite this massive jump in size, activity, and pollution, New York City's zoning code remains unchanged: Last-mile facilities built today still fall under the 1961 definition of a warehouse. And building them triggers the same environmental requirements — **none**. Rubiano, 2022

Some suggestions:

- Specific definitions in the zoning codes based on building size and vehicle trips
- Special zoning permits
- Limiting as-of-right development to manufacturing districts
- Rezoning neighborhoods
- Nondiscretionary review sliding scale
- Performance standards that enable hybrid buildings (e.g., logistics hotels)



▲ Design for Bercy-Charenton in Paris



▲ Strathcona Village in Vancouver

2. Environmental policy for movement and place



FOR IMMEDIATE RELEASE: May 7, 2021

MEDIA CONTACT:

Bradley Whitaker, (909) 396-3456, Cell: (909) 323-9516

Nahal Mogharabi, (909) 396-3773, Cell: (909) 837-2431

press@aqmd.gov

South Coast AQMD Governing Board Adopts Warehouse Indirect Source Rule

DIAMOND BAR – Today, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted Rule 2305 otherwise known as the Warehouse Indirect Source Rule (ISR). The rule requires warehouses greater than 100,000 square feet to directly reduce nitrogen oxide (NOx) and diesel particulate matter (PM) emissions, or to otherwise facilitate emission and exposure reductions of these pollutants in nearby communities.

▲ Indirect source rule for warehouses by the South Coast Air Quality Management District

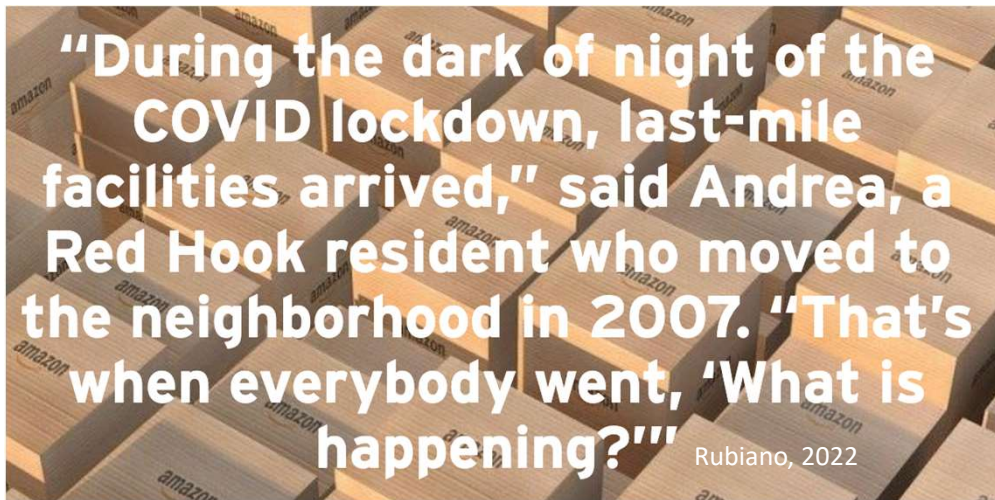
Other initiatives:

- Congestion pricing
- Zero-emission zones

But also:

- Advisory committees
- Public-private partnerships
- Dedicated freight persons at involved urban departments
- Dialogue between urban and regional departments

3. Supply chain awareness for citizens/consumers

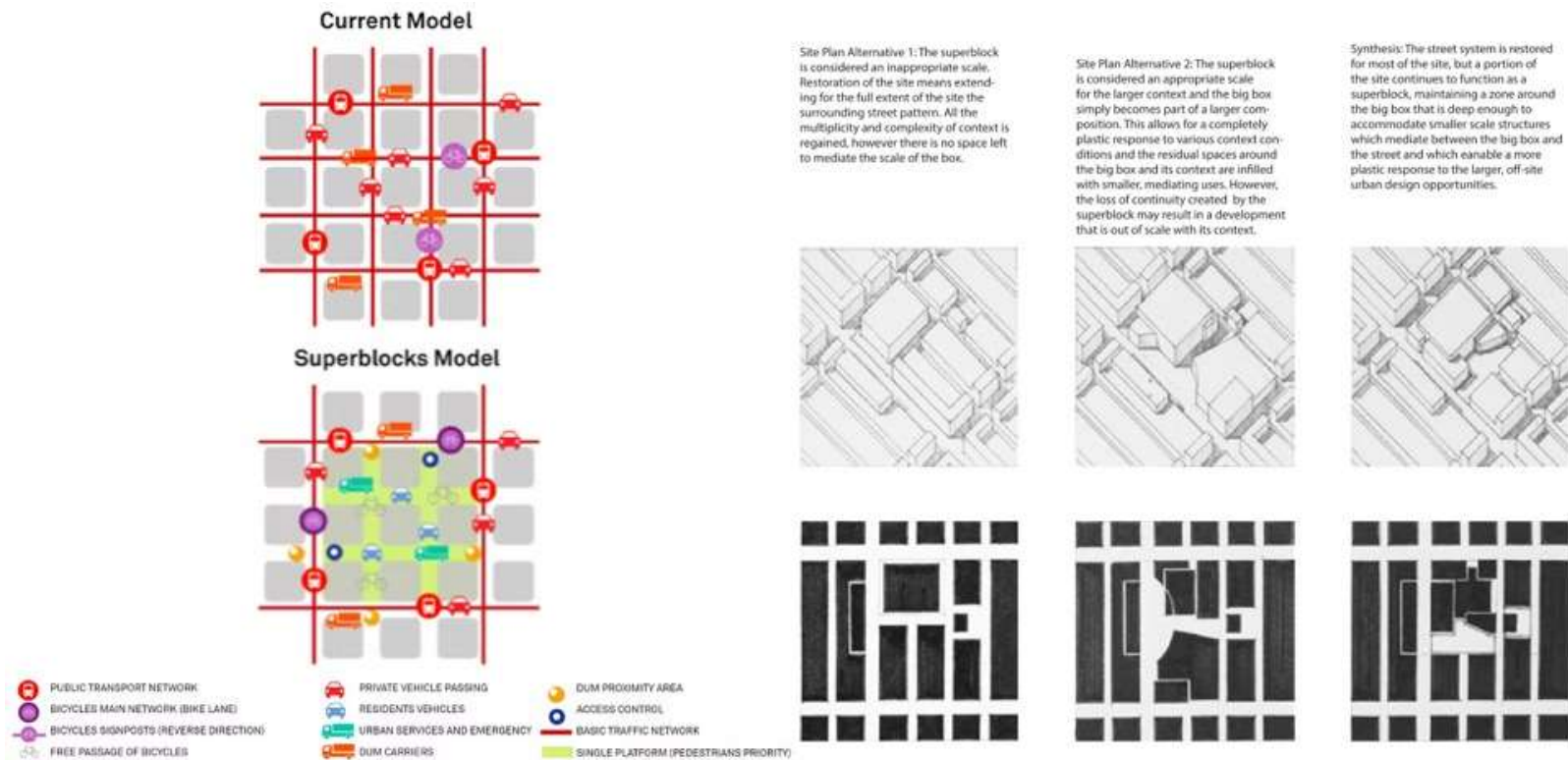


Are consumers that enjoy the benefits of online shopping, also the citizens bearing the burdens?

Various equity considerations

Témoin de l'agitation que suscite cet espace de distribution urbaine dans le voisinage, le patron de l'établissement se fend d'un rire sec: *«les gens veulent continuer de recevoir leurs colis, mais surtout pas que ça affecte leur quotidien»*, grince-t-il. Accoudés au bar, deux clients s'interrogent malgré tout: *«tu imagines Amazon dans cette rue, toi ?»* Herrero, 2021

4. Superblocks and buffers for neighborhood design



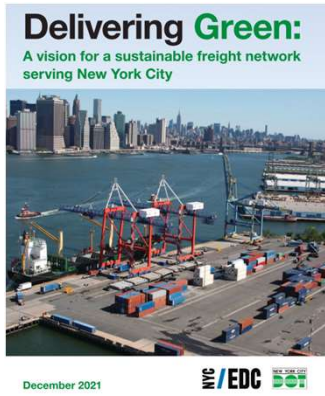
5. Community outreach

Planning boards and meetings are common, other suggestions:

- Good neighbor agreements (Lewis & Henkels, 1996)
- Community Benefits Agreement (Salkin & Lavine, 2009)
- Community managers (Lingel, 2021)
- Community funds (FHWA, 2012)
- Good, local and union jobs (Lewis & Henkels, 1996)

About two dozen residents, some of them represented by Leadership Counsel, pushed to be heard in the planning process. After two months of talks, residents struck a deal with developers and the city, requiring paved sidewalks, safe pedestrian crossings, and up to \$10,000 dollars for each affected family so they can double-proof their windows, install air filtering systems, and “basically fortify their homes in any way you can when you have heavy-duty trucks passing less than 30 feet in front of you,” Saunders said. Rubiano, 2022

6. Sustainable transportation transition for goods as well as people



▲► Design for UPS
in Red Hook



NYCEDC & NYC DOT, 2021; NYC DOT, 2021; AIANY, 2022; KSS Architects, 2022

7. Context-sensitive building design



◀▼ IKEA in Red Hook



▼ Design for warehouse in Toronto



✓
New sidewalk
along public
street frontage



⚠
Sidewalk blocked

⚠
Poor separation
from street traffic



✓
Varied
roof lines
✓
Architectural
rhythm
✓
Historic building
with original
building materials



⚠
Plain building
inconsistent with
adjacent historic
architecture
⚠
Poor adaptation
of original
architectural
features



✓
Building situated
to maximize
daytime lighting



⚠
Blank wall is a
missed opportunity
to provide daylighting

Some conclusions on proximity logistics

- A relatively recent phenomenon, e.g., at the time of the 2018 report, “Goods for the good of the city”, New York City was still experiencing sprawl.
- Primarily a metropolitan development, but not only.
- Focused on online shopping and delivery, but not only.
- Presents important opportunities and is even a condition for efficient and zero-emission urban logistics, although challenges are great.
- Has potential to be a ‘better neighbor’ through considerations on zoning, policy, design, transportation, outreach and advocacy by both public and private stakeholders.

References of the studies:

- Buldeo Rai, H., Kang, S., Sakai, T., Tejada, C., Yuan, Q., Conway, A., & Dablan, L. (2022) ‘Proximity logistics’: Characterizing the development of logistics facilities in dense, mixed-use urban areas around the world. *Transportation Research Part A: Policy and Practice*, 166, 41-61.
- Buldeo Rai, H. (2022) Urban warehouses as good neighbors, findings from a New York City case study. To be submitted to *Urban Studies*.