

Operator Safety and Working Conditions for Urban Goods Movement in NYC

Alison Conway

Herbert G. Kayser Professor of Civil Engineering



The City College of New York

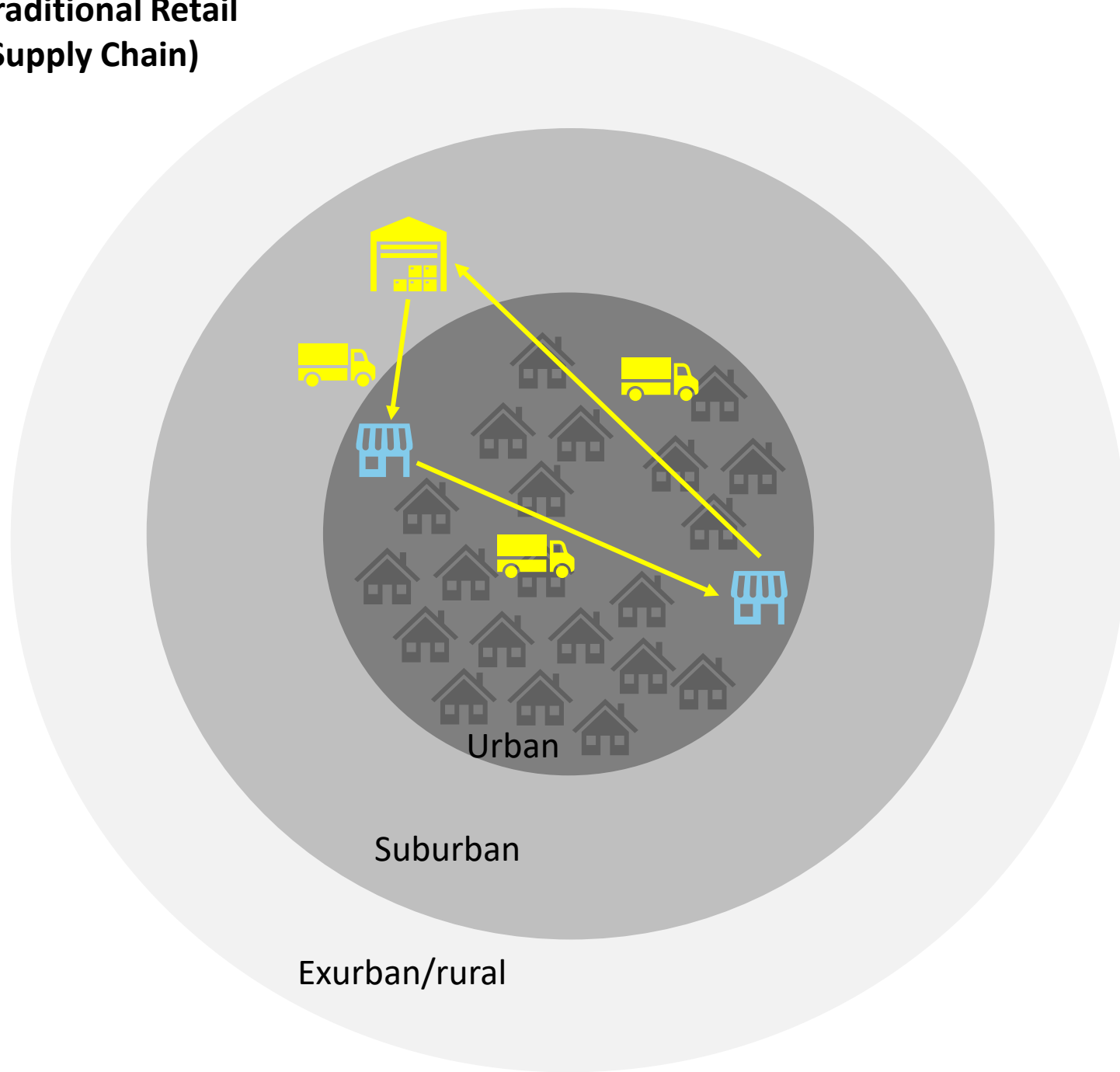
Vision Zero Research on the Road Symposium

November 20, 2025

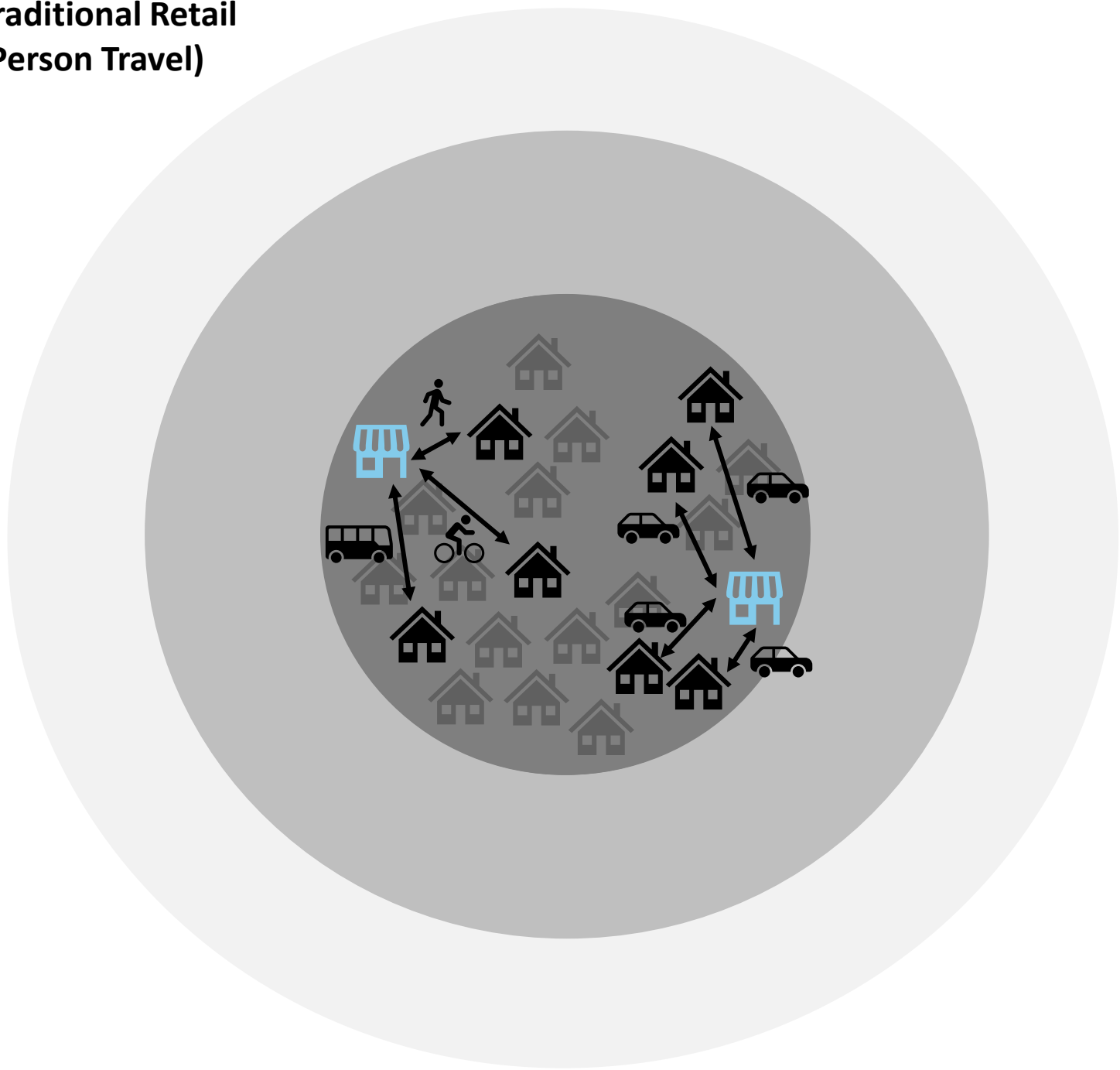
What type of goods move in NYC?

- Commercial goods
 - Food
 - Retail goods
 - Office supplies
- Industrial inputs and outputs
- Construction
- Waste
- Household goods
 - Parcels (of varying sizes)
 - Groceries
 - Prepared food

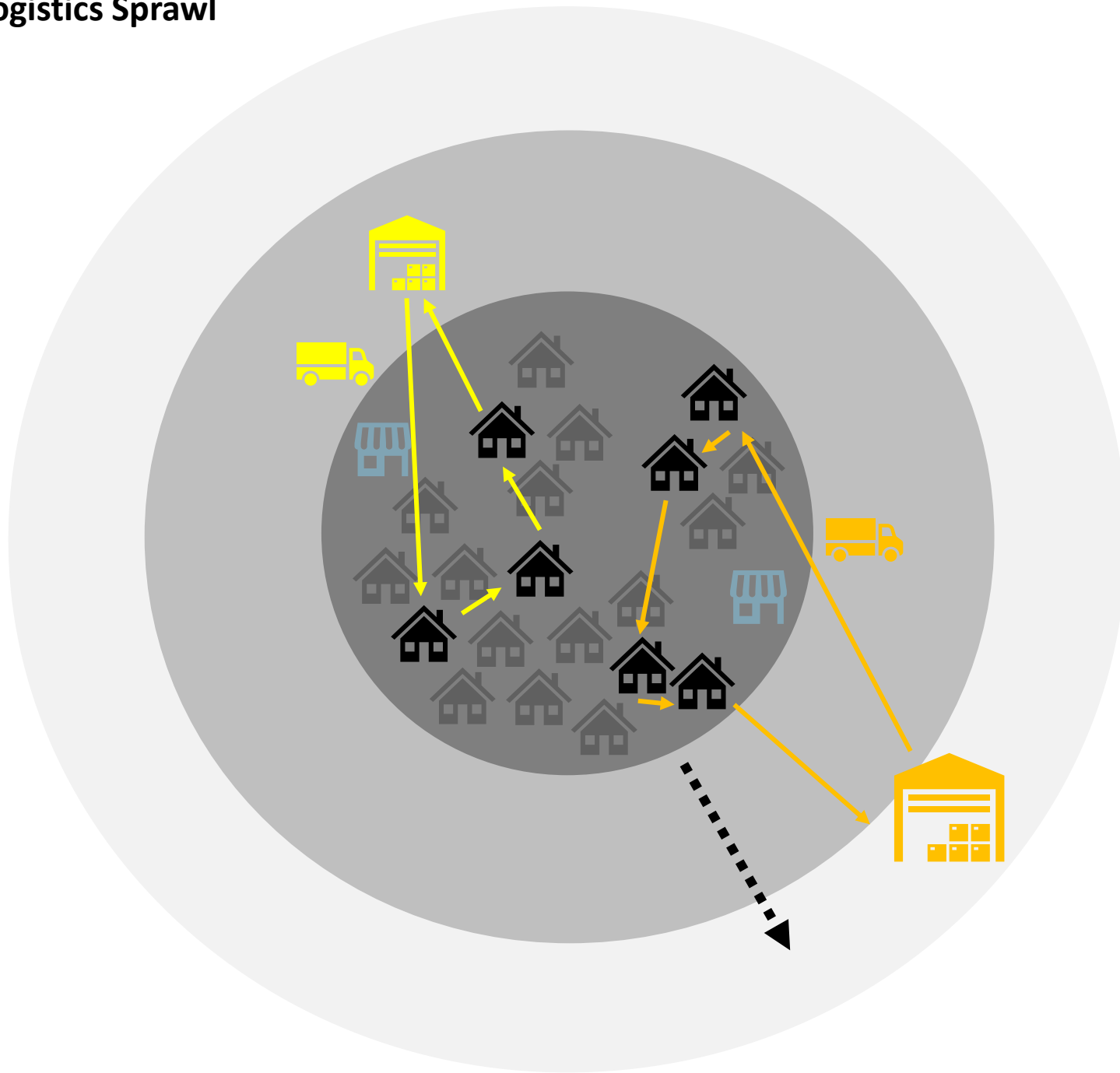
Traditional Retail (Supply Chain)



Traditional Retail (Person Travel)



Logistics Sprawl

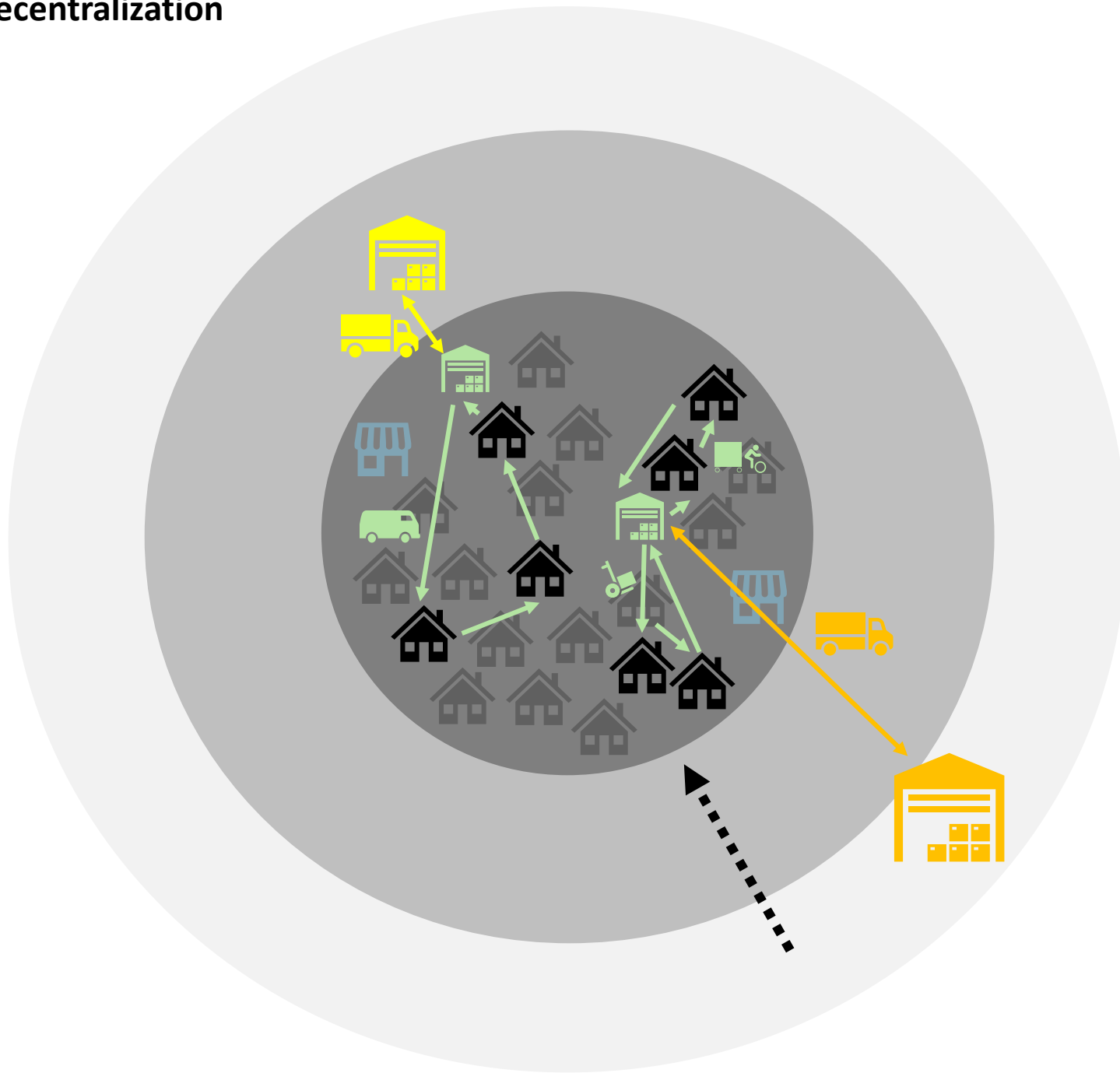


This Photo by Unknown Author is licensed under [CC BY-SA](#)

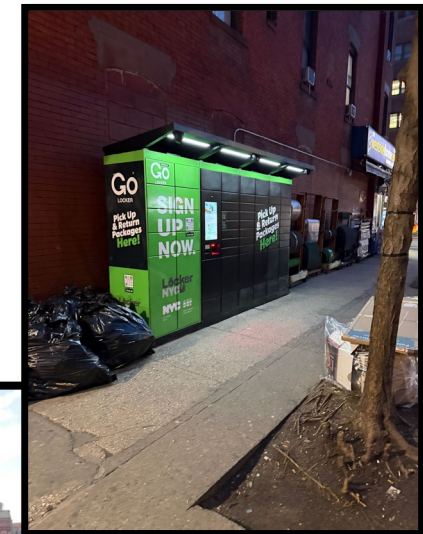
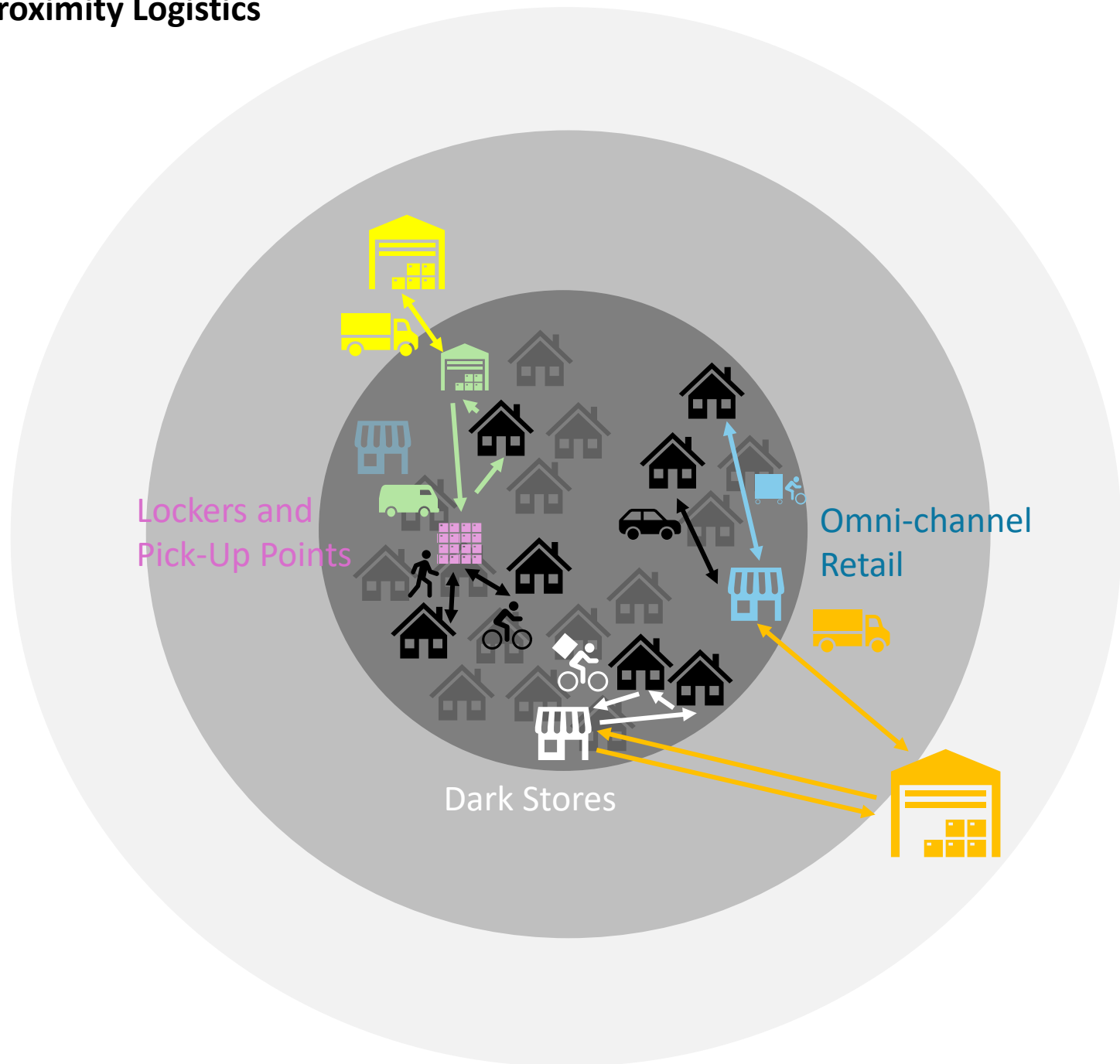


The City College of New York

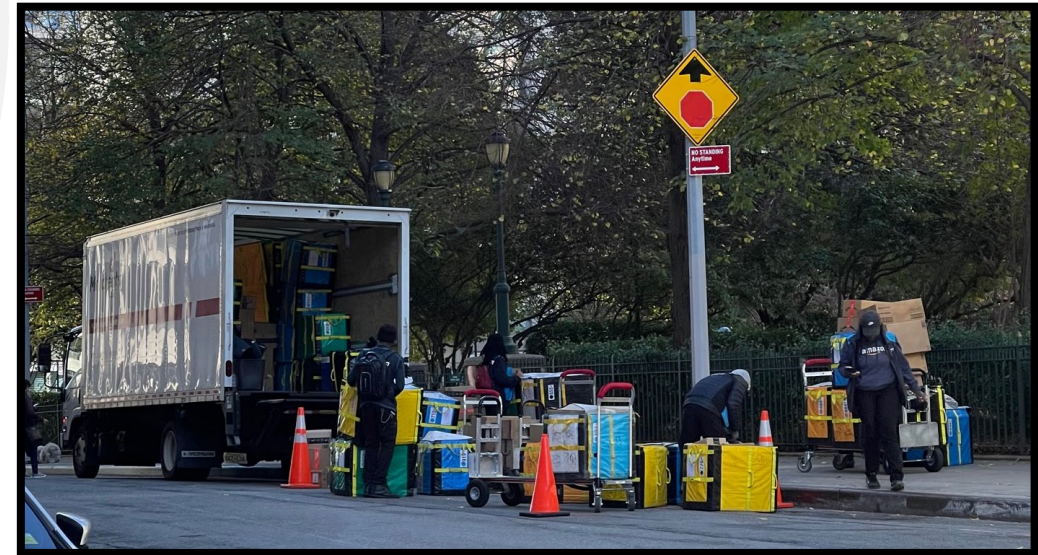
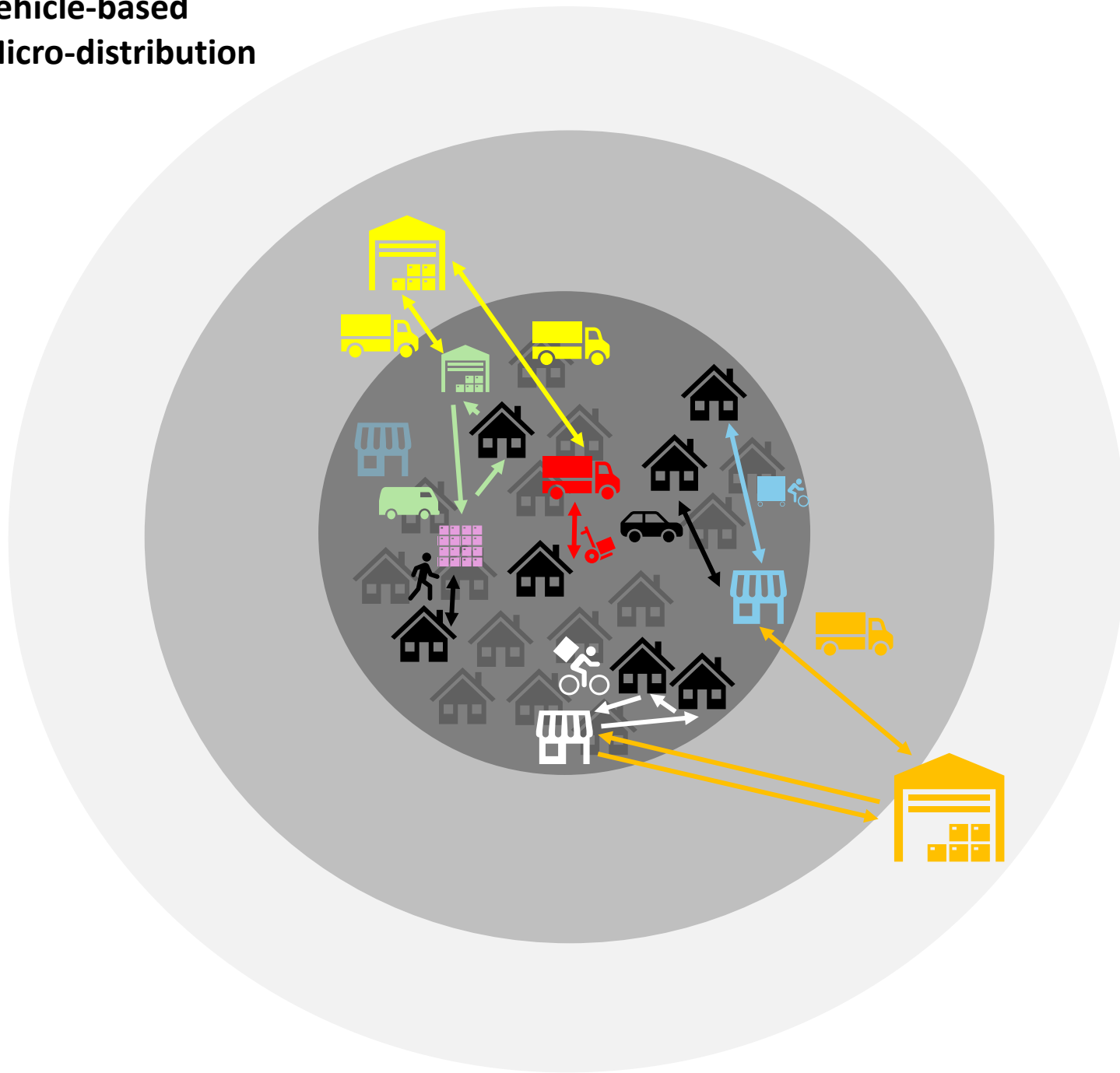
Recentralization



Proximity Logistics



Vehicle-based Micro-distribution

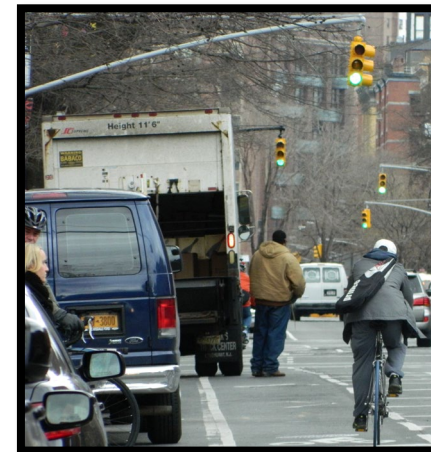
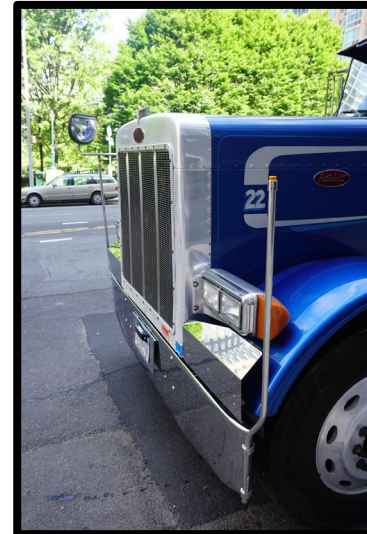


Freight Vehicles



Safety challenges for other street users

- Large vehicle-involved collisions
 - Blind spots
 - Severe outcomes
- Competition for limited space on-street and at the curbside
- Varying vehicle scales and speeds
 - No/lower licensing requirements
 - More collisions on local roads
- Travel and bike lane obstructions
- Infrastructure damage








Safety challenges for freight operators

- Unsafe loading conditions
 - Active travel lanes
 - Crowded sidewalks
 - Risk of theft
- Long off-vehicle travel distances
- Lack of access to facilities
 - Rest/shelter
 - Bathrooms
 - Battery charging
- High operator turnover rates
- Limited long-haul parking



Why do conflicts occur?

- Limited consideration of freight at project planning stage
 - Diverse generators
 - Diverse vehicles
 - Challenging stakeholder communications
- Mismatch between demand for goods and parking/loading supply
 - Zoning
 - Curb regulations
- Limited recognition of off-vehicle activity

User	Description	Relative Vulnerability
	People who walk, people who use a mobility assistance device such as a walker or a wheelchair. Inclusive of all ages and abilities.	High. Due to the speed and mass of vehicles, people walking are the most vulnerable. Safety of the most vulnerable users must be priority, as they are most at risk.
	People who bike or roll, including people who use scooters, skateboard, etc. Inclusive of all ages and abilities.	Medium-high. Less vulnerable than people walking, but more vulnerable than people driving due to their speed and mass. The range of age and experience for bicyclists varies broadly, which affects the needs and designs for projects.
	People who ride transit. Transit users often walk or bike to get to a transit stop.	High. People taking transit have a similar level of vulnerability as people walking or biking.
	People who drive. Inclusive of all drivers and trip types.	Low. Because of the relative safety provided by a vehicle (e.g., seatbelts, airbags), people driving are less vulnerable than people walking and biking.
	People who drive freight vehicles.	Low. Because of the relative safety provided by a vehicle, people driving freight vehicles are less vulnerable than people walking and biking.

Source: Minnesota DOT Complete Streets Handbook (2022)

How can we measure safety?

Sources

- NYPD collision records
- NYC DOF parking violation records
- Field observations
(off-vehicle, lane departures)
- Computer vision
(near miss events)
- Operator records
- Operator surveys

Challenges

- Inconsistent vehicle classifications
- Once off-vehicle, no way to distinguish freight operator
- Only includes collisions requiring police involvement
- Only records where enforcement occurs
- Limited sample size
- Expensive to record, transfer data
- Privacy concerns (and fear of regulations or enforcement)
- Expensive, potential for low response

Recent regulatory and infrastructure changes in NYC

- New vehicle regulations
 - Cargo bikes
 - E-bikes
- E-bike battery pilot
- Parking management
 - Overnight parking (NYC IBZs and PANYNJ @ JFK)
 - Neighborhood loading zones
 - Commercial vehicle loading zones
 - Micro-hubs
- *City of Yes* rezoning
 - Micro-distribution facilities in neighborhood commercial districts in Manhattan and in destination and regional retail districts in all boroughs
 - Use of space in commercial parking garages for micro-distribution activities

Thoughts for future research ...

- What would the system look like if we designed the urban environment to make the work of delivery personnel as safe/easy/efficient as possible?

Acknowledgements

- Students and collaborators
- AIANY
- NCHRP (and U of Washington)
- NYC Department of Transportation
- NYC Department of City Planning
- USDOT - TBD Center
- USDOT – SEMPACT Center
- Volvo Research and Educational Foundations

Contact

Alison Conway
aconway@ccny.cuny.edu

