E-Commerce in Massachusetts

Southwest Advisory Planning Committee Meeting

Prepared by the Metropolitan Area Planning Council
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Report Objective:
Better understand how e-commerce affects our communities, and to provide a resource for municipalities and policy makers grappling with the rapid growth and multiplying impacts of this expanding form of retail.

Report Chapters
01. Defining E-Commerce
02. Transportation Challenges
03. Land Use Challenges
04. Context of COVID-19
05. Future Trends and Additional Research Areas
06. Potential Policy Responses
07. Next Steps and Research
08. Actionable Steps
Defining E-Commerce

The buying and selling of good or services via the internet, and the transfer of money and data to complete the sale.

E-commerce **supply chain logistics** primarily refers to the processes involved in **storing and shipping inventory** for an online store or marketplace, including inventory management and the picking, packing, and shipping of online orders.

Modified from [https://www.the-future-of-commerce.com/2020/01/19/what-is-e-commerce-definition-examples/](https://www.the-future-of-commerce.com/2020/01/19/what-is-e-commerce-definition-examples/) and the Council of Supply Chain Management Professionals at [https://cscmp.org](https://cscmp.org) and [https://www.shipbob.com/blog/ecommerce-logistics/](https://www.shipbob.com/blog/ecommerce-logistics/)
Defining E-Commerce

Traditional Delivery Model

Trending Delivery Model

Percent of US Retail Sales Online

US Census Bureau, estimate based upon quarterly U.S. retail sales in dollars (adjusted). 2021 Figures preliminary.
US Postal Service Package Deliveries (billions)

Source: https://facts.usps.com/table-facts
Transportation Challenges

In theory, a consolidated delivery system of online orders should have fewer miles travelled compared to driving for shopping.

But there are factors to consider:

- Multiple boxes and multiple warehouses via a single online order.
- Size and emissions of delivery vehicles.
- People choosing same-day or next-day shipping, requiring less optimized distribution/routing.
- Customers both shopping on-line and in stores, and “Click and Collect”/“BOPIS” (trips not being offset).
- E-commerce return rates can be 30% or higher (in-store: 10%).
Amazon E-Commerce Facilities in Massachusetts

- No facilities before 2014
- Currently 34 active (5.2 million square feet) and future facilities (6.2 million square feet)
- If all future facilities become operational, total square footage could reach 11.4 million square feet

Source: MWPVL
https://www.mwpvl.com/html/amazon_com.html and various media reports compiled by MAPC.
Industrial Real Estate Market in SWAP

Change in Industrial Land Rents (median) from 2011-2021

Change in Industrial Vacancy Rates (median) from 2011-2021
Brick and Mortar Retail

The U.S. has more retail space per capita than any other country.
- Considered to be "overbuilt."
- Store closures reached an all-time high in 2017 and again in 2019.
- Retail sales are not declining – rather the retail landscape is transitioning.

Further developments since the release of Hidden and In Plain Sight....

Repurposing of Traditional Brick and Mortar Retail Sites
- Examples: Dark Stores and Ghost Kitchens
- Implications: Parking, Curbside Usage, Street Vitality, Local Economy?

Food and Beverage Growing in its Share of E-Commerce
- Increase in cold storage space (temperature-controlled warehousing) - still a speculative sector
Potential Policy Responses to E-Commerce

▶ Regional Coordination Among Municipalities
   Develop a transportation and land use design playbook for municipalities.

▶ Increase Transparency in the Growing E-commerce Industry
   Require e-commerce companies to report information and metrics (e.g., location of facilities, employment, transportation).

▶ Establish Incentives for Efficient Deliveries
   Set a fee structure that incentivizes companies and customers to opt for more sustainable delivery operations (e.g., combine orders into a single delivery, use common delivery/pick up areas, and not choose expedited deliveries).

▶ Implement Curb Management Strategies
   Apply dynamic pricing models (e.g., peak-period surcharges for deliveries).
   Establish enforcement mechanisms (e.g., in-field and/or remote (camera, GPS)).

▶ Track Innovations in E-commerce
   Monitor new developments against public-sector performance standards (e.g., traffic congestion, GHG emissions, employment, equitable service).
What keeps you up at night?
Proposed Online Playbook Topic Areas

01. Industrial Warehouse Market Conditions
02. Trip Generation and Vehicular Activities  
   (Impact Studies, Trip Forecasting, Curb Use, and Parking)
03. Site Plan Review/Special Permit Process
04. Traffic Mitigation  
   (Restriction Zones, Off-site Parking, Transportation Demand Management,  
   Fueling Operations, Signage, and Vehicle Idling)
05. Taxbase
06. Brick and Mortar Stores  
   (Dark and Semi-Dark Stores, Ghost Kitchens, and Parcel Lockers)
07. Project Monitoring Post Occupancy and Corrective Actions
08. Practices Outside Massachusetts  
   (California's Indirect Source Rule, Amazon's Housing Equity Fund)
09. Other?
Thank you!

Hidden and in Plain Sight:
Impacts of E-Commerce in Massachusetts
https://metrocommon.mapc.org/reports/20

Alison Felix
Principal Planner and Emerging Technologies Specialist
afelix@mapc.org

Travis Pollack
Senior Transportation Planner
tpollack@mapc.org
Industrial Real Estate Market in Massachusetts

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Transportation Challenges

Curb Impacts

- In cities commercial vehicles comprise nearly 30% of parking activity and more than 50% of parking violations. (Smart Cities Dive, 2020)

- Boston: substantial variation in curb space utilization and violations within only a few hundred feet throughout the day.

- Curb management pilots underway in Seattle, D.C., Toronto, Boston.

There is a lack of data on deliveries in defined geographies (cities, towns, neighborhoods) to determine whether e-commerce is creating trips, or replacing trips.
Top Ten US Retail E-commerce Companies
Percent of Total E-commerce Sales – 2021

Source: eMarketer, February 2021