

FEHR & PEERS

Nico Boyd

I-NUF

October 17, 2019

How Do Smart Growth Cities Take On Rocket Increase of E-Commerce? Assessing Effective Strategies for California Cities

Outline

- Background
- Challenges of Urban Growth
- E-Commerce & Retail Trends
- What is Smart Growth?
- California Sustainable Growth Initiatives
- Challenges for Urban Goods Movement
- Best Practices
- Future Considerations



Background

FREIGHT PLAN

California Freight
Mobility Plan



Challenges of Urban Growth

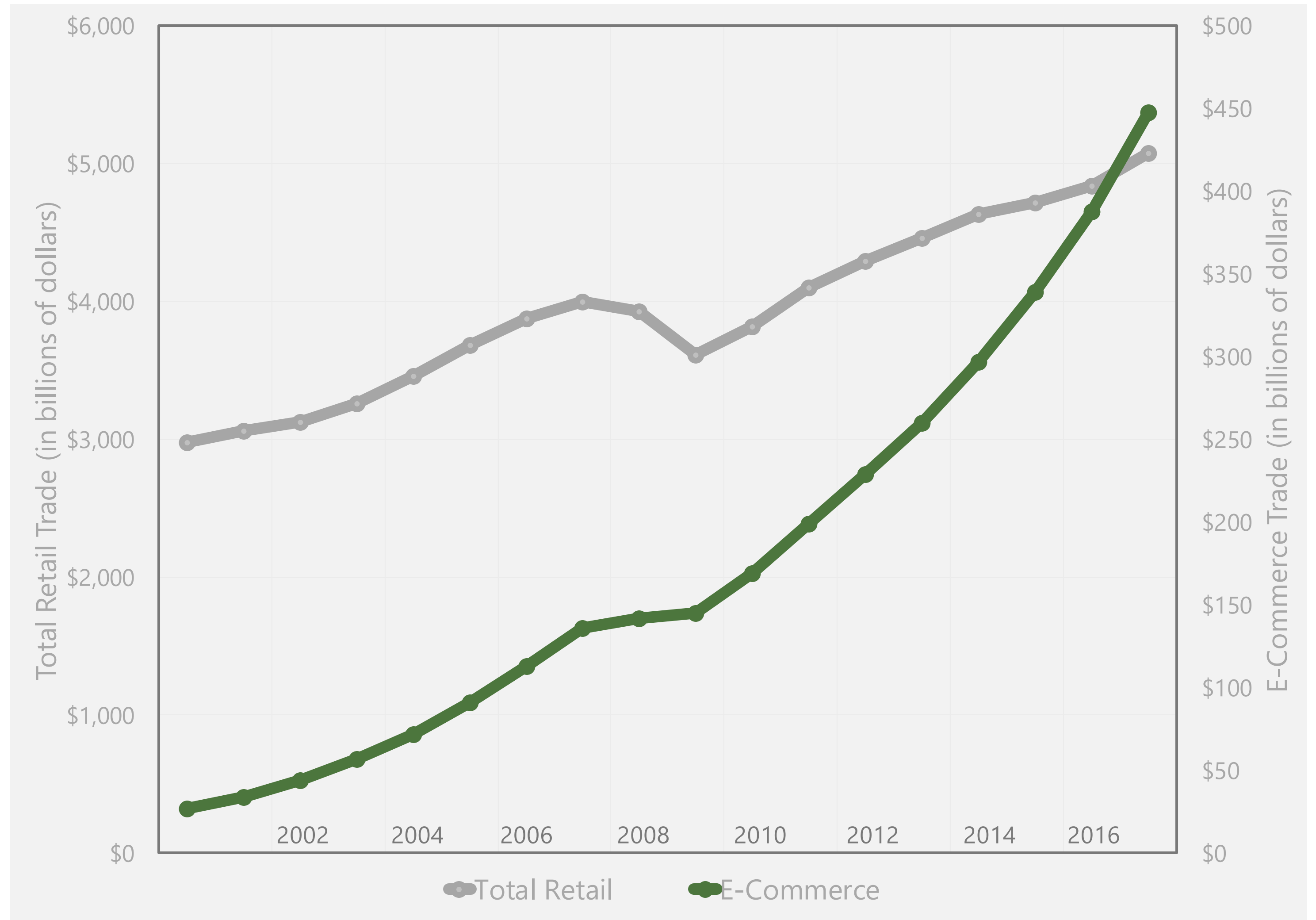
- World is becoming more urbanized, with greater commercial activity and demand for goods and services than ever before
- Automobile-oriented urban development has led to:
 - Increased GHG emissions
 - Increased quantity of impervious surfaces
 - Loss of open space



E-Commerce

Consumer Trends

- Younger generations are buying more goods online
- 16-percent growth in e-commerce in 2018
- CFMP 2019 public outreach survey:
 - 60% receive 1-2 online deliveries per month.
 - 35% receive 3-5 deliveries per month
 - 3% receive more than 5 deliveries per month
 - 2%- no response



Source: U.S. Census Bureau's 2017 Annual Retail Trade Survey.

Emerging Land Use Utilization Trends

Source: USA Today, "Macy's is closing these 68 stores: Is yours on the list?" (2017)

- In 2018, 87% decrease in retail space opened in 54 largest U.S. markets
- Biggest unknown for cities: long-term impact of e-commerce on sales tax revenue, land use, and infrastructure



E-Commerce Growth in California

Fulfillment and Distribution Centers

- New e-commerce fulfillment and distribution centers:
 - Inland Empire
 - Bakersfield
 - Stockton
- Average size between 50,000 and 500,000 sq. ft. and proximate to urban centers



Source: Amazon Blog, "Amazon's impact in Southern California" (2018)

E-Commerce Growth in California

Air Cargo Growth in CA Airports

- Due to proximity to airports/seaports and cities, Amazon's nine new hubs cluster around:

- Los Angeles
- San Francisco
- San Diego
- Sacramento
- San Jose

California's Top Air Cargo Airports	Total Cargo* Tonnage, 2011	Total Cargo Tonnage, 2017	Total Cargo* Tonnage, 2040
Los Angeles International Airport (LAX)	1,688,351	2,158,324**	3,016,000
Oakland International Airport (OAK)	499,365	593,947**	779,000
Ontario International Airport (ONT)	378,727	567,354**	972,000
San Francisco International Airport (SFO)	381,887	561,805**	592,000
San Diego International Airport (SAN)	128,282	171,937**	278,000
Sacramento International Airport (SMF)	65,326	81,181***	90,000
Hollywood Burbank Airport (BUR)	46,259	54,453***	72,000
Mineta San Jose International Airport (SJC)	39,946	61,365***	49,000
Sacramento Mather Airport (MHR)	37,331	35,074***	69,000
Long Beach Airport (LGB)	25,609	22,984***	20,000
Santa Ana (John Wayne) Airport (SNA)	14,296	19,101***	22,000
Fresno Yosemite International Airport (FAT)	10,000	9,950***	16,000

Sources: Airports Council International Airports Council International 2017 North American Airport Traffic Summary (LAX, OAK, ONT, SFO and SAN), airport websites; future 2040 projections derived from Caltrans' 2013 California Air Cargo Groundside Needs Study.

What is Smart Growth?

- Planning philosophy that aims to promote:
 - Compact development
 - Mixed land uses
 - Range of feasible transportation options
- Goal is ultimately to increase livability of cities by providing a range of transportation, housing, and commercial options at increased density

USEPA Smart Growth Principles

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with as strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

California Sustainable Growth Initiatives

AB 32

- Passed in 2006
- Requires California to reduce GHG emissions to 1990 levels by 2020
- Gives CARB authority over sources of GHG emissions, including those from transportation

SB 375

- Passed in 2008
- CARB sets regional targets for GHG reduction
- Designed as a 'bottom up' approach, directly involving cities and counties in achieving goals

SB 743

- Passed in 2013
- Intended to balance congestion management needs with statewide goals related to infill development, GHG reduction, and public health
- Focus on VMT as operational metric

Challenges of Rapid E-Commerce Growth for Cities

- Increased demand for curb space
- Increased congestion in downtown business districts and residential areas
 - Replacement of some personal automobile trips with delivery truck trips
- Increased conflict with active transportation users – delivery trucks block bike lanes and/or their pallets block sidewalks



Top: Santa Monica Next, "Make It Count: Santa Monica's Next Big Investment in Safe Biking, Walking, and Yes – Even Scooting" (2018)
Bottom: Pamplin Media, "New website shines light on bike, car conflicts " (2015)



Best Practices

Urban Consolidation Centers

- Padova, Italy
 - Developed Cityporto logistics scheme for freight in 2004
 - Includes urban consolidation center, a fleet of eco-friendly vehicles, and an ITS system
 - Cityporto vehicles are afforded benefits not available to independent freight transport operators:
 - 24-hour entry into the city
 - Permission to use bus lanes
 - Dedicated loading bays
 - Participation is voluntary

Source: Interporto Padova, "Cityporto," (2019)



Dynamic Routing/Intelligent Transportation Systems (ITS)

Source: Fehr & Peers, "Intelligent Transportation Systems," (2019)

- Detroit, USA
 - Dynamically routing trucks using real-time traffic data has yielded as much as a 45% reduction in drive time compared to historical congestion data
- Vienna, Austria
 - ILOS (Intelligent Freight Logistics in Urban Areas)
 - Floating car data used to optimize routes in real-time
 - Benefits include:
 - Reduced travel time
 - Reduced emissions
 - Reduced costs



Neighborhood Package Pickup Points / Automated Parcel Systems

Source: WSJ, "Amazon and Big Apartment Landlords Strike Deals on Package Delivery," (2017)

- Amazon

- Has deployed neighborhood-based lockers and apartment-based lockers
- Customers/tenants can have deliveries made to a secure locker for retrieval
- Located in over 900 U.S. cities and in apartment complexes representing over 850,000 units
- Functions for both package delivery and return/retrieval



Off-Peak / Overnight Deliveries

Source: Efficient Urban Freight – Best Practices

- New York City, USA
 - Pilot program from 2009-2010
 - Participating businesses asked to switch distribution and receiving activities to off-hours (7PM-6AM) for ≥ 1 month
 - 25 receivers and 8 carriers participated
- Barcelona, Spain
 - Municipal government collaborated with two supermarket operators to develop system for quiet nighttime deliveries
 - Utilized adapted trucks and quiet unloading methods



Future Considerations

*AVs /
Automation*

Traditional
Urban
Planning

Future
Proofing of
Infrastructure