

# Urban Freight Distribution Study: E-Commerce Trends, Impacts, & Opportunities for Regional & Urban Planning

TPP Technical Work Group

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# Background

## Why study e-commerce trends and impacts now?

Need for the study stems from

- Current growth trends in e-commerce activity are rapidly changing how and where consumers shop for goods
- Past concerns heard on livability and sustainability issues about local impacts of urban deliveries
- Desire to advance preferred outcomes and established goals of regional policy



# Regional Policy

## Relationship to Transportation Policy Plan (TPP)

The Study's recommendations and conclusions will support stated objectives under two TPP goal areas:

### 1. Healthy and Equitable Communities

- Objective A: *“Reduce transportation-related vehicle emissions”* (specifically, CO<sub>2</sub> and other greenhouse gases)

### 2. Competitive Economy

- Objective C: *“Support the region’s economic competitiveness through the efficient movement of freight.”*



# Regional Policy <sup>(2)</sup>

## Relationship to Land Use Policies in Thrive 2040

The Study's recommendations and conclusions will support these Land Use Policies:

### 1. Orderly and Efficient Land Use

*“Align land use, development patterns, and infrastructure to make the best use of public and private investment.”*

### 2. Building in Resilience

*“Promote sensitive land use and development patterns to achieve Minnesota's adopted greenhouse gas emissions goals at the regional scale and to develop local resiliency to the impacts of climate change.”*

# Study Purpose

## The purpose of this Study will be to

- Analyze trends in online consumer purchases nationally and for the Twin Cities region
- Estimate the relative impact of e-commerce parcel distribution (“last-mile” deliveries) on the region’s vehicle miles traveled (VMT) and associated greenhouse gas emissions;
- Provide guidance to cities engaged in curbside management through regional policy; and
- Identify possible strategies to increase efficiency and reduce regional VMT

# Scope of Work

## The Study will have three main areas of focus:

- Part I: E-Commerce Trends and Sustainability Impacts
- Part II: Trends in Siting of Warehouse/ Distribution Centers & Implications for Planning
- Part III: Curbside Management & New Technologies for Last-Mile Deliveries



# Scope of Work <sup>(2)</sup>

## **PART I: E-Commerce Trends and Sustainability Impacts**

### **Key Research Questions:**

1. What has been the trend in e-commerce sales pre-Covid and what can be assumed for short- and long-term conditions in the pandemic era?
2. What are the implications of increasing e-commerce activity for reducing regionwide VMT and associated greenhouse gas emissions?
3. To what degree does increasing e-commerce activity and its related changes in personal shopping trip behavior, increase or decrease VMT & associated GHGs?

# Scope of Work <sup>(3)</sup>

## **PART II: Trends in Siting of Warehouse/Distribution Centers & Implications for Planning**

### **Key Research Questions:**

With respect to minimizing VMT and maximizing delivery system efficiency:

1. What are the recent trends in e-commerce fulfillment center development and logistics management?
2. What are various regional-scale, land use or other strategies for siting major freight distribution centers that could minimize regional VMT & associated GHG emissions?
3. What are practical and sustainable strategies for locating parcel freight microhubs?
4. What are the pros and cons of siting fulfillment centers & freight microhubs in urban centers versus suburban or exurban communities?



# Scope of Work <sup>(4)</sup>

## PART III: Curbside Management & New Technologies for Last-Mile Deliveries

### Key Research Questions:

1. What are examples of best practices for managing curb space for urban deliveries?
2. What new or emerging technologies hold the most promise for reducing VMT and overall emissions of greenhouse gases?
3. What are the potential benefits of promoting automated technologies for “last-mile” parcel deliveries?
  - Air-based drones
  - Land-based drones (i.e., robots)
  - Cargo e-bikes
  - Automated (driverless) vehicles
4. To what extent does the efficiency or other benefits of such technologies vary in urban centers versus suburban or exurban communities?



# Study Advisory Group

## E-Commerce Study Technical Advisory Committee

Will be comprised of private sector and planning agency representatives from

- Metropolitan Council
- MnDOT
- Metro area counties having strong ties to e-commerce facilities
- Selected area cities
- MFAC members or their organization's designee

# Next Steps

## Tentative Timeline

- Release RFP for Consultant Proposals August 2022
- Project Start Date October 2022
- Convene E-Commerce Tech. Advisory Committee November 2022
- Study Completion Summer 2023



# Questions?

Thank you

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