

# Eco-friendly grocery delivery: 3 sustainable practices to reduce last-mile impact

## Introduction

Online grocery delivery services are experiencing [exponential growth](#). The ease and convenience of ordering from the comfort of a couch is understandably attractive, yet, as with anything, there are costs associated with this convenience.

The last mile of e-commerce grocery delivery carries a hefty carbon burden, most notably from inefficient packaging, a reliance on traditional carbon-polluting transportation, and the dependence on large brick-and-mortar stores to supply e-commerce customers.

Consumers are [actively seeking](#) brands that incorporate sustainable practices. In this article, we address the common challenges to sustainable last-mile grocery delivery and offer actionable and proven practices to lessen the environmental impact.

## Sustainability challenges in last-mile grocery delivery

The effective implementation of sustainable practices depends on understanding where the last-mile grocery delivery pain points lie. Packaging, delivery, and proximity are the principal challenges.

### The packaging problem

Plastic waste leakage into aquatic ecosystems is estimated to be in the range of [19-23 million tonnes per year](#). Many grocery sellers use Styrofoam, bubble wrap, and similar plastic to protect perishables from contamination, frequent temperature changes, and overall damage.

Moreover, items like fruits and vegetables come in a range of sizes, thus complicating the use of standard packaging sizes across products. The challenge for grocers in addressing sustainable last-mile grocery delivery is finding alternative packaging that doesn't pollute the environment.

### Delivery and routing concerns

Once the items are packaged, getting the groceries from A to B in a sustainable manner is equally demanding. Increased orders equate to more traffic and pollution. Without proactive interventions, a World Economic Forum study predicts a [36% increase](#) in delivery vehicles in cities by 2030.

The same study also notes that as demand grows for ever-more efficient delivery times, congestion and related emissions are predicted to increase by more than 30% in the world's largest 100 cities.

## Proximity is critical

Lastly, relying on large brick-and-mortar grocery stores as the main supply points for e-commerce orders extends delivery times. More customers shopping online equates to increased transportation and emissions. Greater proximity to customers will reduce transport emissions and contribute to sustainable last-mile grocery delivery.

## 3 sustainable practices to reduce last mile impact

### 1. Packaging approach

Nearly [three-fourths \(72%\)](#) of respondents in an SK Group survey of 1,500 adults preferred products packaged in reusable or recyclable materials, indicating that the move away from plastic for grocery deliveries is crucial.

Some common packaging alternatives include biodegradable materials such as cardboard, paper, and even plant-based plastics. There are now plastics being made from renewable resources like cornstarch.

Plus, "[intelligent packaging](#)" provides real-time information on the safety and freshness of foods via indicators in the packaged film that respond to pH and gas level changes. Real-time information on the freshness of a product reduces the delivery of an inedible product and its subsequent return.

### Case study: Sustainable packaging in action

One of the more exciting developments in packaging for sustainable last-mile grocery delivery is [corrugated bubble wrap](#). The company EcoEnclose manufactures its bubble wrap from 100% recycled materials, free of synthetic polymers (plastic), and made with 95% of consumed waste that would otherwise have been diverted to landfills.

### 2. Delivery approach

Thankfully, there are a host of green transportation alternatives today. Hybrid vehicles, electric vehicles (for shorter distances), e-motorbikes, and e-bikes (depending on the city) are zero-emitting options that are becoming cheaper by the year as green technologies advance.

Route optimization also helps to expedite orders and minimize time on the road. Route optimization tools are becoming more commonplace, assisting delivery drivers and logistics personnel in locating the most eco-friendly and efficient routes to the customer.

Route planning, coupled with the strategic bundling of orders, promotes a streamlined approach to achieving sustainable last-mile grocery delivery objectives.

#### Case study: Sustainable vehicles and routing in action

Maryland-based supermarket chain, Giant Food, incorporated [two fully electric step-vans](#) into its daily delivery fleet. The vans feature the same storage capacity as traditional vans and produce zero emissions.

The van manufacturer, [Motiv Power Systems](#), estimates the two vehicles will displace upwards of 210,000 gallons of petroleum over their lifetime—a 63% reduction in greenhouse gas emissions.

Meanwhile, a Co-op convenience store in Manchester, UK, partnered with Starship Technologies, to roll out [autonomous delivery bots](#) in March 2023. The Co-op is encouraging customers to receive their groceries via the bot instead of traveling to the store by car.

Finally, one of the most popular grocery delivery platforms across the US and Canada—Instacart—developed a [routing algorithm](#) to expedite sustainable last-mile grocery delivery. The algorithm takes into account delivery vehicles, customer residences, shop location, traffic, and weather conditions. The resulting routes are highly efficient and naturally minimize excess delivery emissions.

### 3. Micro fulfillment centers

Sustainable last-mile grocery delivery depends on shortening the distances between the grocer and the consumer. Micro fulfillment centers (MFCs) are grocer-operated mini-warehouses stocked with frequently ordered goods, positioned strategically in a city or town.

MFCs help grocers fulfill orders quickly, thereby maintaining convenience and efficiency while shortening commutes and associated CO2 emissions. Moreover, some MFCs operate as “dark stores,” fulfilling orders from other supermarkets in the general vicinity, which minimizes environmentally costly deliveries from larger warehouses elsewhere.

#### Case study: MFCs in action

Texas grocer H-E-B announced [the opening of an e-commerce MFC](#) in May 2023, dedicated solely to the fulfillment of home delivery and curbside orders. The MFC is lessening the burden on multiple deliveries from one static H-E-B store and contributing to a broader routing strategy with a similar H-E-B MFC that opened in Central Texas in 2022.

## Conclusion

As the popularity of grocery delivery services increases, so do the challenges associated with its convenience. Inefficient packaging, congested cities, and poorly located grocery hubs will only contribute further to the world's plastic waste and CO2 emissions problems.

Therefore, it's essential to adopt alternative strategies to alleviate the pressure on our environment. Eco-friendly solutions, such as reusable packaging, zero-emission vehicles, and appropriately located fulfillment centers not only reduce the impact of last-mile delivery but also satisfy customer preferences.