

## **E-Commerce Media Scan**

Sunny Fang & Emily Riera

Brooklyn College

E-commerce has grown rapidly over the past couple decades as well as in the face of COVID-19, integrating itself into the American life. The effects of e-commerce are pervasive; the economy, transportation, environmental sustainability, and community have all been impacted. While it is undeniable that e-commerce has become vital to the American way of life, especially during COVID-19 when social distancing and quarantine orders are in effect, it has also presented unintended negative impacts on the economy, environment, and local communities. The aim of this white paper is to outline recent trends in the economy, transportation systems, environment, and communities that have appeared as a direct result of e-commerce. Many of these trends reflect concerns that e-commerce operation is in direct conflict with urban sustainability efforts. Understanding the need for change regarding e-commerce is a necessary component to improving quality of life in the tri-state area. In the face of this conflict, this paper explores potential mitigation efforts as well.

### **Economy & Finance**

When it comes to economic and public finance in relation to e-commerce, many different trends can be observed. As Amazon and large corporations increase their hold on the e-commerce consumer market, real estate demands for warehousing and distribution spaces increase and Amazon receives large city and tax incentives for its presence. One example of this are the incentives offered to Amazon for its HQ2 location, “tax breaks that would have made up half of Amazon’s \$3.5 billion incentive package” (Chadha, 2020)<sup>1</sup>. However, promised employment opportunities are often insecure, without workplace or financial protection. This results in a lack of jobs within local sectors.

Many small companies or startups have arisen during the e-commerce era by attempting to address this waste issue. These companies offer services to consolidate and eliminate waste for consumers, acting as a go-between to collect goods and deliver at the same time or have contracts with companies to ensure sustainable packaging. These resources are either subscription based for the consumer or the business they are working with/whose packaging they are regulating. RePack, for example, offers reusable packaging in many different sizes, intended for corporation use and warehouse packing, that consumers return back to producers. Olive, a free platform for consumers, aims to consolidate deliveries with a ten percent commission from retailers. Olive has retail partners that consumers can shop with through the app, their ordered

---

1

<https://www.politico.com/states/new-york/albany/story/2020/08/10/tax-breaks-remain-intact-more-than-a-year-after-amazons-departure-1306420>

goods are then sent to an Olive consolidation facility, packaged in reusable packaging and deliveries made to households only once a week.

As the e-commerce market expands, warehousing and distribution jobs become widely available within the local community. However, reports of unsafe conditions at e-commerce companies have been common. Amazon delivery drivers and employees are liable for many accidents, traffic violations, or casualties that may occur while on the job. This can result in a number of life changing situations; increased debt, expensive lawsuits, and lasting legal fees for individual employees and their families. Unsafe working conditions are reported not only for delivery drivers but also those working in distribution and fulfillment centers. As workers are pushed to be as efficient as possible, they are often denied breaks of any kind, as The Intercept reports, “One document from January, marked “Amazon Confidential,” details various infractions by Amazon employees, including “public urination” and “public defecation.”” (Klippenstein, 2021)<sup>2</sup>. Another article cites that Walmart “routinely refuses to accept doctors’ notes, penalizes workers who need to take care of a sick family member and otherwise punishes employees for lawful absences” (Abrams, 2017)<sup>3</sup>. Working conditions have also resulted in an incredibly high number of workplace injuries, studies in 2019 using data from over 150 Amazon warehouses state that “In 2019, Amazon fulfillment centers recorded 14,000 serious injuries – those requiring days off or job restrictions. The overall rate of 7.7 serious injuries per 100 employees was 33% higher than in 2016 and nearly double the most recent industry standard.” (Evans, 2020)<sup>4</sup>. These workplace injuries can lead to lasting disability or even death.

In addition, as these warehouses and distribution centers become an increasing source of work for working class people in these areas, location becomes an issue. These employment opportunities also tend to be placed in more rural areas, areas near waterways, or areas on the edge of a city. This makes them potentially difficult to get to for employees, especially by public transportation. Extended travel costs as well as being located far from home and personal resources can become a great annual expense for working class people.

Amazon and other large e-commerce-based corporations tend to offer higher wages for warehousing work than smaller businesses. In this case a benefit to workers, it also puts pressure on smaller businesses, in addition to competing with goods prices and convenience. Many small businesses have made the transition, shifting their focus to online platforms in an attempt to offer the same kind of delivery services that e-commerce giants such as Amazon and Walmart do.

When it comes to public finance, Amazon and large corporations are typically very quiet about their financial dealings. Large cities offer tax incentives to corporations like Amazon and Walmart to build warehouses and distribution centers nearby. City and state tax incentives,

---

<sup>2</sup> <https://theintercept.com/2021/03/25/amazon-drivers-pee-bottles-union/>

<sup>3</sup> <https://www.nytimes.com/2017/06/01/business/walmart-workers-sick-days.html>

<sup>4</sup> <https://revealnews.org/article/how-amazon-hid-its-safety-crisis/>

utilizing tax-payer money, are given to e-commerce giants and large corporations in exchange for promises that they will create jobs and invigorate the local economy, though there is little accountability for failing to meet those targets. As seen with Amazon HQ2 initiatives, there was fierce competition between many states as to who can offer the best deal to Amazon. The top contending cities offered anywhere between \$2 billion and \$8.5 billion in tax credits, waivers, and subsidies. (Mak, 2018)<sup>5</sup>. The governmental deregulation of business markets and reduction in taxes for large corporations creates this competitive environment, pitting states and cities against one another. This business environment is often called the race to the bottom, or even referred to as an economic war between states. A report done by the non-partisan, progressive group Americans for Tax Fairness, discusses the tax subsidies received by Walmart, the top revenue producing company globally. (Russell, 2020)<sup>6</sup>. “The report estimates that Walmart and the Walton family—which co-founded the company and still owns a majority share—collectively profit from nearly \$7.8 billion per year in federal subsidies and tax breaks.” (Resnikoff, 2014)<sup>7</sup>. City and state governments, and many residents, feel the promise of jobs and economic growth is worth the public subsidies, while opponents point to the lack of accountability and transparency. As previously mentioned, there is a great lack of information available to the public about the role of public funds and taxpayer money when it comes to e-commerce expansion.

In the last decade or so there has been an increase in industrial buildings being utilized as is or as warehousing spaces for e-commerce operations. The Wall Street Journal notes that “As the rest of New York City’s real-estate market has cooled, warehouse sales during the first nine months of the year reached almost \$1.7 billion. That was more than double the total for the same period in 2016, according to a report from B6 Real Estate Advisors, an investment brokerage.” (Morris, 2019)<sup>8</sup>. Naturally, as demand for warehousing and distributional space increases, so does the value of warehouse and industrial properties and distribution centers all over the nation. Not only are these sites in demand, they are also being renovated to meet the technological needs of production as well as the storage needs for e-commerce giants that sell a wide variety of products.

## Transportation

---

5

<https://slate.com/technology/2018/11/amazon-hq2-incredible-incentives-losing-cities-offered.html#:~:text=The%20city%20also%20offered%20a%20maximum%20%24400%20million%20in%20income.%247.5%20million%20transportation%20infrastructure%20fund.>

6

<https://www.forbes.com/sites/callyrussell/2020/01/09/who-are-the-10-biggest-retailers-in-the-world/?sh=58100df43802>

<sup>7</sup> <https://www.msnbc.com/msnbc/walmart-government-subsidies-study-msna307306>

<sup>8</sup> <https://www.wsj.com/articles/e-commerce-drives-new-york-city-warehouse-boom-11573144779>

As the e-commerce market continues to expand rapidly, there are a number of impacts that urban areas, specifically the NYC area, are experiencing. Significant transportation trends related to e-commerce include: a push to solve the last-mile delivery issue; daily roadway, sidewalk, as well as interstate traffic; pollution increases; and worker and bystander safety. The promise of expedited delivery by e-commerce platforms creates a last-mile delivery problem: this is the final step of a package delivery process that entails getting products to the consumers doorstep (often from a distribution center). This step in the process is focused primarily on delivering the products as fast as possible to meet promised delivery quotas. The last-mile problem is often exacerbated by either an increase in traffic, making delivery to the residence difficult or lengthy or a long trip from a distribution center to a more rural residence. The last-mile delivery problem is something that Amazon and other large corporations are attempting to address with efficiency requirements for employees, contracting out package deliveries and increasing warehousing and distribution centers in areas where order rates tend to be higher.

Amazon, the leading e-commerce giant, and the first of many to offer the promise of expedited shipping, contracts private companies to deliver packages and in some markets also uses an individual driver recruitment tool called Flex. Launched in 2015 and similar to convenience delivery services like Instacart, the app allows individuals in 64 cities in the US to deliver packages for Amazon on their own time in their personal vehicles. While the NYC regional scale of the Flex app is unknown, Amazon announced in 2017 that they employ upwards of 75,000 drivers nationwide. To combat the last-mile delivery problem, e-commerce giants, specifically Amazon, have done an exceptional job at locating its facilities near metropolitan areas, Amazon Prime subscribers, major highways, major airports and major waterways. This intentional expansion is aimed at not only meeting current demand but anticipating future demand and business growth.

As e-commerce purchasing becomes a large part of the daily consumer's life, a correlation between an increase in delivery vehicles and an increase in traffic and pollution can be observed. There are many highways that connect the five boroughs to surrounding areas though the George Washington Bridge and the adjoining New Jersey Route 4 highway are the main way that packages enter New York City. This interchange has become the most congested interchange in the nation. (Paybarah, 2019)<sup>9</sup>. Additionally, there has been a noted increase in congestion and traffic violations on regular roadways in NYC as delivery trucks make stops along narrow or already traffic ridden streets, block parking spaces, and idle in one area to unload numerous packages. Along the same vein, sidewalk traffic has also intensified as employees make numerous trips, unloading upwards of a hundred packages or more per household. Amazon's use of contracted delivery services and reliance on Flex drivers to make

---

<sup>9</sup> <https://www.nytimes.com/2019/10/28/nyregion/amazon-delivery-nyc.html>

last-mile deliveries as fast as possible results in a larger number of small, individual cars on roads and expressways.

This abundance of individual vehicles could potentially cause more pollution than a larger vehicle able to transport multiple packages at one time. A report by the World Economic Forum that was released in 2020 states that “For instance, without intervention, the number of delivery vehicles in the largest 100 cities globally will increase by 36% over the next decade. The potential consequences are significant. Under this “business as usual” scenario, planet-warming carbon dioxide emissions from delivery traffic would increase by 32%, or about 6 million tons. In addition, congestion would increase by 21%. That translates to an additional 11 minutes of commute time for each passenger every day.” (Joselow, 2020)<sup>10</sup>.

As Amazon and similar e-commerce-based companies move to make deliveries easier, expansion of warehouses and distribution centers follows. These are often placed in communities of color and neighborhoods where industrial warehouses are plentiful, such as the South Bronx, plaguing already struggling communities with additional pollution. With already higher rates of child asthma, the Bronx is home to the highest rates of exposure to vehicular air pollution in the Northeast that will only worsen with the addition of new e-commerce infrastructure without policy intervention.

There have been a few responses to the issues of negative externalities due to e-commerce related transportation, by the city government as well as e-commerce companies themselves. Mayor Bill DeBlasio released a \$100m NYC Freight Plan in 2018 to combat issues of traffic congestion and pollution. This introduced plan proposes a move toward the usage of barges in NYC waterways, railway systems that will move freight, and the introduction of “freight hubs” that connect many means of distribution. This plan also proposes the “greening” of last mile delivery including rebates provided for companies that use “clean trucking” and practice sustainable packaging. With the exception of one article written in 2019 discussing sustainability concerns regarding the plan, there have been no public media updates on DeBlasio's Freight Plan.

In the summer of 2020 Amazon released a commitment to sustainability report mentioning that they plan to run on 100 percent renewable resources by 2025, make 50 percent shipments a net-zero carbon by 2030, make all business operations net-zero carbon by 2040, add a number of electric vehicles for delivery services, investing in the Right Now Climate fund, and pledging \$2 billion dollars “to support the development of technologies and services that decarbonize and help to preserve the natural world.” (Amazon, 2020). There has been no detailed plan of action available to the public about how these sustainability goals are to be met, nor have there been any updates on progress made.

---

<sup>10</sup> <https://www.scientificamerican.com/article/delivery-vehicles-increasingly-choke-cities-with-pollution/>

The emphasis on last-mile delivery service has also led to unsafe and unrealistic working conditions for those involved in e-commerce delivery. An emphasis on efficient service has led to an increase in package delivery related accidents for contracted delivery employees. “An investigation by ProPublica identified more than 60 accidents since June 2015 involving Amazon delivery contractors that resulted in serious injuries, including 10 deaths.” (Callahan, 2019)<sup>11</sup>. Delivery vehicles including walk-in trucks, cargo vans and box trucks are made to navigate very high populated areas, interacting with precarious environments that include traffic, narrow streets, parked vehicles, cyclists, and pedestrians.

As mentioned before, Amazon prides itself on its immediate service and there is a constant push for delivery drivers to be as fast and efficient as possible. Employees are put under pressure to meet Amazon’s standard that “999/1000 packages are delivered on time.” (Callahan, 2019)<sup>12</sup>. Amazon has implemented a number of things to ensure that they meet the standards of efficiency that they promise. For example, cameras are being installed in Amazon delivery trucks, workplace apps are used by management to closely track delivery driver activity and schedule, and employees are always subject to inquisitive phone calls from management if they seem to be behind schedule. (McFarland, 2021)<sup>13</sup>. Amazon also refuses to assume liability or responsibility for accidents that may happen involving a contracted delivery driver. Employees and contracted companies must sign liability forms indicating that they are responsible for any personal damage, loss or death that may occur during a car accident while on a contracted job with Amazon. (Callahan, 2019)<sup>14</sup>. The increase of delivery vehicles on the road, the demand for rapid delivery, and the lack of workplace safety and employee support creates an unsafe environment for both workers and bystanders.

### **Transportation/Air Pollution**

Amazon Prime’s two day free shipping promise has fundamentally changed the world of retail, shifting the focus from an improved shopping experience to an emphasis on delivery speed. The COVID-19 pandemic has increased reliance on e-commerce as consumers became less likely to shop in person due to social distancing and quarantine guidelines, which translates to an expansion of the transportation system and diversity of packaging materials. Transportation accounts for 29 percent of U.S. greenhouse gas (GHG) emissions, a disproportionate share of which is concentrated in communities of color or low-income communities (EPA, 2018). The inequitable exposure of New York’s communities of color to transportation pollution reflects decades of decisions about the location of highways, public transportation investments, and public housing. In many cases, local, state, and federal transportation policies have left

---

<sup>11</sup> <https://www.nytimes.com/2019/09/05/us/amazon-delivery-drivers-accidents.html>

<sup>12</sup> <https://www.nytimes.com/2019/09/05/us/amazon-delivery-drivers-accidents.html>

<sup>13</sup> <https://www.cnn.com/2021/02/25/tech/amazon-driver-monitoring/index.html>

<sup>14</sup> <https://www.nytimes.com/2019/09/05/us/amazon-delivery-drivers-accidents.html>

communities of color with inadequate access to public transportation and breathing air polluted by congested highways. Another key factor in the environmental impact of e-commerce lies in packaging, which pushes the responsibility of recycling upon the consumer. With the array of packaging options offered, from plastic bubble mailers to cardboard boxes, and no financial incentive for consumers to recycle, the majority of packaging waste goes directly into landfills. Transportation and packaging are the two most concerning consequences of e-commerce for not only the environment but also local communities. Environmentalists argue that companies need to reevaluate how they ship their products to consumers, but information about these issues also needs to be made available in order to increase public awareness and incentive for change. This change comes in the form of demands made by consumers to e-commerce companies regarding sustainability and transparency, the effects of which can already be seen in certain companies that have set sustainability goals or changed their practices in order to minimize their carbon footprints.

Transportation of goods in the United States is incredibly inefficient and carbon-intensive, the consequences of which can be seen in disadvantaged communities that major highways run through. The transition from brick and mortar retail to e-commerce has contributed to a rise in traffic and inefficiency as going to residential houses instead of a traditional business means heavier congestion and more failed deliveries, often resulting in additional transportation time. On demand services such as Amazon Prime or Instacart deliver within hours, often making dedicated trips through residential neighborhoods that are highly inefficient. Deliveries that contain groceries and perishables require refrigerated trucks which inevitably use more energy. Increased reliance on trucking as a method of transportation means higher GHG emissions compared to alternatives such as railways. Trains move 32 percent of goods in the United States and generate six percent of freight-related GHG emissions, while trucks account for 40 percent of freight transport and 60 percent of freight emissions (Delasalle & Erdenesanaa, 2019). The difference between the two is staggering and highlights the need for technological innovations within the transportation sector. Fuel-efficient vehicles, cleaner fuels such as biodiesel, hydrogen, electricity (e.g. plug-in technology including hybrid and all battery), ethanol, liquefied natural gas (LNG), liquefied petroleum gas (e.g. LPG or propane), and natural gas, and even optimizing trucking routes would save millions of gallons of fuel per year and increase efficiency exponentially.

Every gallon of gas emits twenty four pounds of carbon dioxide, five of which are from fuel production and nineteen being released from the tailpipe. Traditional trucks that utilize diesel release particulates containing nitrogen oxides and sulfur oxides directly into the air, which transform into "secondary" particulates in the atmosphere (UCSUSA, 2014). Health studies show that exposure to diesel exhaust primarily affects the respiratory system and can worsen or introduce medical issues such as asthma, allergies, bronchitis, and lung function (Sydbom et al., 2001). The effects of air pollution as a result of trucking can be seen in

low-income communities of color such as the South Bronx. Many retail companies choose to locate their warehouse and last-mile facilities in this area because of its ten connections to Manhattan, only one of which charges a toll. Air quality in the Bronx is worse than the city overall, but the health consequences are especially exacerbated in areas that are warehouse heavy. Mott Haven in the South Bronx, or “Asthma Alley”, as the residents call it, is a classic example where Black and Latinx residents experience a particularly insidious environmental inequality as a result of air pollution.<sup>15</sup> Residents inhale the emissions of the hundreds of daily trucks going in and out of the nearby Fresh Direct warehouse, and exhaust emitted by constant traffic on the four nearby highways. As a result, the asthma hospitalizations in Mott Haven are five times the national average and twenty one times higher than other NYC neighborhoods (Kilani, 2019). Most of the trucks serve more affluent neighborhoods located in Manhattan and Brooklyn, highlighting the racial–ethnic disparities in pollution exposure and consumption of goods and services in the United States.

### **Material Waste/Sustainability**

As e-commerce booms, so does the amount of packaging used in protecting shipments to consumers. The problem with packaging in this case is that it pushes responsibility for recycling to the consumer. Retailers recycle around 90 to 100 percent of their cardboard, and have a financial incentive to do so as they can sell cardboard back to be recycled. Consumers, however, only recycle around 25 percent nationally and generally have no financial incentive to recycle; oftentimes consumers are unaware of recycling rules such as taking plastic tape off of cardboard and disposing of it separately (Schlossberg, 2017). New York City has a long and uninterrupted history of paper recycling, with 71 percent entering the paper recycling stream (New York City by The Number, 2016). The high capture rate reflects the ease of recycling large foldable items like boxes. Paper is also the only material for which commodity prices exceed the cost of processing—meaning that New York City is paid to recycle paper.

E-commerce related waste due to packing and shipping consists mainly of cardboard and plastics of all kinds. In recent years it has increased nationwide. A few efforts to determine and distribute responsibility regarding that waste have been discussed and new markets have emerged that aim to “green” packaging and distribution or offer more sustainable alternatives to consumers. New York City state Assemblyman Robert Carroll proposed a \$3 Amazon tax that consumers absorb with hopes to funnel money into the local economy as well as use the tax proceeds to improve the MTA (Guse, 2020). Additionally, two Democratic state legislators in Long Island have proposed a New York state bill that will require product manufacturers to be responsible for recycling/processing of waste . The bill will shift responsibility from the

---

15

<https://www.theguardian.com/us-news/2019/apr/04/new-york-south-bronx-minorities-pollution-in-equity>

consumer to the producer and ideally provide incentives for product manufacturers to use more recyclable materials and reduce waste (Fuentes, 2021). While neither piece of legislation has moved forward, there has been a mixed effort to distribute waste management costs. As waste continues to increase due to e-commerce, NYC neighborhoods pile garbage on the streets for pickup, making pedestrian commuting, regular roadside parking and package delivery difficult. With this increase of e-commerce related waste, local management is often overwhelmed. An increasing number of bigger cities, NYC included, have begun outsourcing all waste to states like Maine that have large, private regional waste facilities (Davalos, 2021). While this alleviates NYC's burden, the communities absorbing this waste are left with the negative impacts.

Plastic on the other hand, is a much more complicated story. Currently, less than 14 percent of the nearly 86 million tons of plastic packaging produced globally each year is recycled. Plastic packaging is often single-use and made of polyethylene or vinyl, which can cause disease and death for coral, fish, seabirds and marine mammals. Plastic waste in the wild is often mistaken for food, and can release chemical toxins as it degrades. Studies show that microplastics accumulate at the top of the food chain, including humans, making their way into human placentas and disrupting the endocrine system, which can have unintended consequences on human growth and development. The vast majority of these plastics are landfilled, incinerated, or left to pollute waterways and poison wildlife.

The majority of the plastic used in packaging is rejected by recycling centers, with bubble mailers being the most common example. Amazon Second Chance is the company's way of helping reduce their customers' e-waste by providing lucrative ways to get rid of items no longer wanted in exchange for Amazon gift cards, as well as advice on how to correctly recycle their packaging. The website includes pictures of all the packaging materials they use and advice for how to recycle them, but instructions are vague since the availability of recycling services varies from city to city. They also offer trade-in and recycling programs for electronic devices, which many consumers do not know how to dispose of properly. This is also where customers can shop for secondhand or refurbished items, extending the lifespan of many of these products.

Though the vast expansion of e-commerce has clear consequences for the environment, it is gradually shifting toward more sustainable options. Etsy, an American e-commerce website focused on handmade or vintage items and craft supplies, announced zero-emissions shipping, which it plans on meeting by purchasing offsets, with projects including wind power generation, forest protection, and devising auto components that pollute less. This comes after the realization that shipping was responsible for 98 percent of their carbon impact. IKEA, the world's largest furniture retailer, has also committed to zero-emissions home delivery. FedEx and Ryder have teamed up to include electric vans in the delivery process. Amazon, the world's largest online retailer, set forth the Climate Pledge in 2019, which requires any company that joins to participate in regular reporting of greenhouse gas emissions implementing decarbonization

strategies in line with the Paris Agreement through real business change and innovations, including efficiency improvements, renewable energy, materials reductions, and other carbon emission elimination strategies; and taking actions to neutralize any remaining emissions with additional, quantifiable, real, permanent, and socially-beneficial offsets to achieve net zero annual carbon emissions by 2040.

### **Communities/Land Use**

The e-commerce market is a powerful force that can change the way in which urban landscapes are organized due to the distribution of goods to consumers, as well as redefine urban communities through the slow decline of traditional brick and mortar retail. The ongoing effect of the pandemic on retailers in New York City has intensified previously identified trends toward online shopping and has caused many big name stores in major shopping districts to shut down permanently. Consumers who originally preferred to buy online are ordering more and those who only began at the onset of the pandemic to avoid exposure, have been won over by the variety of options available and the relative ease compared to traditional shopping. The number of packages delivered every day in New York City has increased sharply during the pandemic to roughly 2.4 million, nearly half a million more than before the pandemic. City data shows that 80 percent of deliveries are to residential customers, compared with 40 percent before the outbreak. Daily grocery deliveries more than doubled between the beginning of 2020 and throughout 2021; restaurant and prepared food deliveries have increased by 12 percent and household goods deliveries have jumped by 24 percent (Haag & Hu, 2021). This radical shift in consumer habits, especially in a metropolis like New York City where shopping has traditionally been one of the greatest attractions, has caught the eye of e-commerce giants such as Amazon as the perfect testing ground for urban deliveries.

Over the course of the pandemic, Amazon has purchased at least nine new warehouses in the city and now has at least twelve warehouses in the five boroughs. The reason behind this shopping spree lies in the need for warehouse space in close proximity to the consumers located in New York City to store and quickly transport packages. New York has about 128 million square feet of industrial space, far less than many smaller cities across the country (Haag & Hu, 2021). In addition, there are many zoning rules in place to limit the construction of warehouses to designated manufacturing districts in order to protect residential neighborhoods from pollution and traffic. Many packages come to New York from New Jersey and Pennsylvania, where there is more available land to build larger and cheaper warehouses; in the past year Amazon has added fourteen new warehouses in New Jersey and on Long Island, totaling more than 7 million square feet. However, having warehouses in the city is more cost effective and can trim roughly 20 percent off delivery expenses compared with deliveries that originate in New Jersey. Other major retailers such as Target and Walmart have yet to lay claim to New York City signalling the dominance that Amazon has over not just the world of e-commerce, but also the warehousing real estate market. Walmart originally had a warehouse in the Bronx but later vacated the

property, which was promptly leased by Amazon. Walmart now uses warehouses in Pennsylvania to service customers in the city virtually. Some online retailers use other means of warehousing. Target, for example, uses its two dozen stores within NYC as mini distribution hubs to fulfill same-day delivery requests at a lower cost compared to utilizing out of state warehouses.

Over 3,000 of New York's small businesses have closed permanently as a result of the pandemic and the decrease in foot traffic, and those that remain are feeling the pressure to expand their online and delivery operations (Haag, 2020). Though many of these small businesses have begun to adapt to an online platform, it is a struggle to compete with retailers that typically charge less for the same items and have a far more robust delivery infrastructure. There are companies that independent businesses can join to expand their customer outreach, such as UberEats, Postmates, Etsy, and Shopify. However, these mobile platforms typically take a hefty portion of the profit away from these small businesses and limit the space or resources to advertise widely. Amid these obstacles, many entrepreneurs have had to implement creative initiatives including marketing strategies and product innovation in order to reach their customers in a safe and practical way. Small businesses have traditionally been incredibly adaptable as they have always had to face obstacles on the way to success, and to some, COVID-19 is just another one. Businesses that have thrived during this time have reevaluated their target audience, changing their focus to the local area or through an online platform. They have also reimagined their products in a way to allow consumers to enjoy them in the comfort of their own homes or to help with the pandemic efforts. These adaptations have made it more likely that small businesses will continue to thrive, even in the age of e-commerce.

Amazon's exponential growth in New York City comes after a loss at the hands of lawmakers and activists who stopped the construction of Amazon headquarters which was supposed to be located in Long Island City, Queens. This prevented Amazon, one of the world's wealthiest companies, from receiving the billions of dollars in government incentives that they had won in the face of city and state competition for Amazon's new headquarter space. Many activists cited the fact that they believed the money should be invested into the community in the form of government funded education, improved housing, and job training rather than allowing Amazon to reap all economic benefits while offering minimal support to the surrounding community. In addition, there were concerns regarding gentrification that would cause rent prices to increase, facilitating the departure of current community members who are unable to continue living there. The opening of warehouses has brought some economic benefits, for example the hiring of thousands of workers at wages that are competitive, especially at a time when many city residents are unemployed. However, the rapid expansion of the Amazon warehouse network New York has also brought the treatment of its employees, who oftentimes complain of the unfair working conditions that fail to treat them like human beings, into the public eye. This is an issue that Amazon workers have faced in all parts of the country and has led to unionization

efforts, most notably in Staten Island and Alabama. In New York, the attorney general has sued Amazon over conditions at two of its local warehouses citing issues of maintaining cleanliness in the facilities, conducting contact tracing regarding COVID-19, and taking action against employees who speak out against the company.

In examining the interactions between e-commerce and urban communities, many trends in sustainability, economics and transportation have presented themselves. An increase in transportational issues such as traffic and congestion plague already disadvantaged communities with health and safety concerns, unsafe and insecure working conditions are felt by workers within the emerging warehouse employment sectors all over the country, an increase in packaging waste and the distribution of this refuse contaminate the environment, the struggle of small businesses and local markets by being overshadowed and e-commerce giants such as Amazon, and the incentivization and offer of substantial tax subsidies by city, state and federal governments to continue expansion are just some of the trends observed concerning e-commerce. Efforts to mitigate these obstacles include an introduction of waste and transportational legislation, intentional sustainability efforts by retailers and collective action such as the unionization of workers. E-commerce has become a powerful force in redefining the urban lifestyle and environment, awareness of the impacts of the e-commerce market must be made available to the public in order to incentivize change in support of a future that prioritizes urban sustainability.