

# Storing Harm: the Health and Community Impacts of Goods Movement Warehousing and Logistics

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## Introduction

Every year millions of ocean freight containers – over half of those offloaded at the Ports of Los Angeles and Long Beach – are transported through and beyond southern California to their ultimate destination across the country. Before reaching the shelves of the nation’s stores, the contents of many of these containers are stored in warehouses along transportation routes from the coastal ports to the inland deserts. Distribution center activity significantly impacts public health due to particulate pollution emitted by the trucks and trains that supply the huge warehouse buildings with goods in shipping containers. The giant warehouses used by the goods movement industry are also a sprawling and ugly land use that swallows farmland and overwhelms the scale of adjacent residential and commercial neighborhoods. Environmental justice advocates have been following the growth in the warehousing/logistics industry with concern. They have advocated for attention to be paid to residential communities impacted by warehouse expansion. Their work provides a way forward, with strategies to mitigate the health impacts of existing warehouses, design, and operate storage facilities in a more responsible manner, limit excessive concentrations of warehouses, and better regulate land use so that the future of the region is brighter than being the rent-a-storage for the nation’s freight movers and retailers.

## The warehouse/logistics industry

Warehousing is an integral link in the goods movement chain that distributes products imported from Asia throughout the United States. Approximately 40% of the 13-15 million shipping containers entering the region’s ports each year are ‘transloaded’ before leaving greater Los Angeles, meaning that they spend some time in warehouse storage facilities being unpacked and repacked for their final destination.<sup>1</sup> The Los Angeles region currently has approximately 840 million square feet of warehouse facilities.<sup>2</sup> Clusters of warehouses exist along the I-710 and I-110 freeways north of the ports, in such cities as Carson, Compton, Commerce and

Bellflower; south and southeast of downtown Los Angeles; along the 91 freeway near Cerritos and Buena Park; along the 60 freeway in Puente and Rowland Heights; and in the Inland Valleys with massive concentrations in Ontario and Mira Loma (see figure 1). Modern warehouses used by the goods movement industry are vast buildings, some larger than 1.5 million square feet.<sup>3</sup> As close as one can come to “sprawl in a box,” these structures are spartanly built, lined with dozens of truck bays. The purpose of warehouses are to service distant points – factories in China, rail yards near the ports, Wal-Mart stores in Illinois – with little connection to the fabric of life in the communities where they are located.

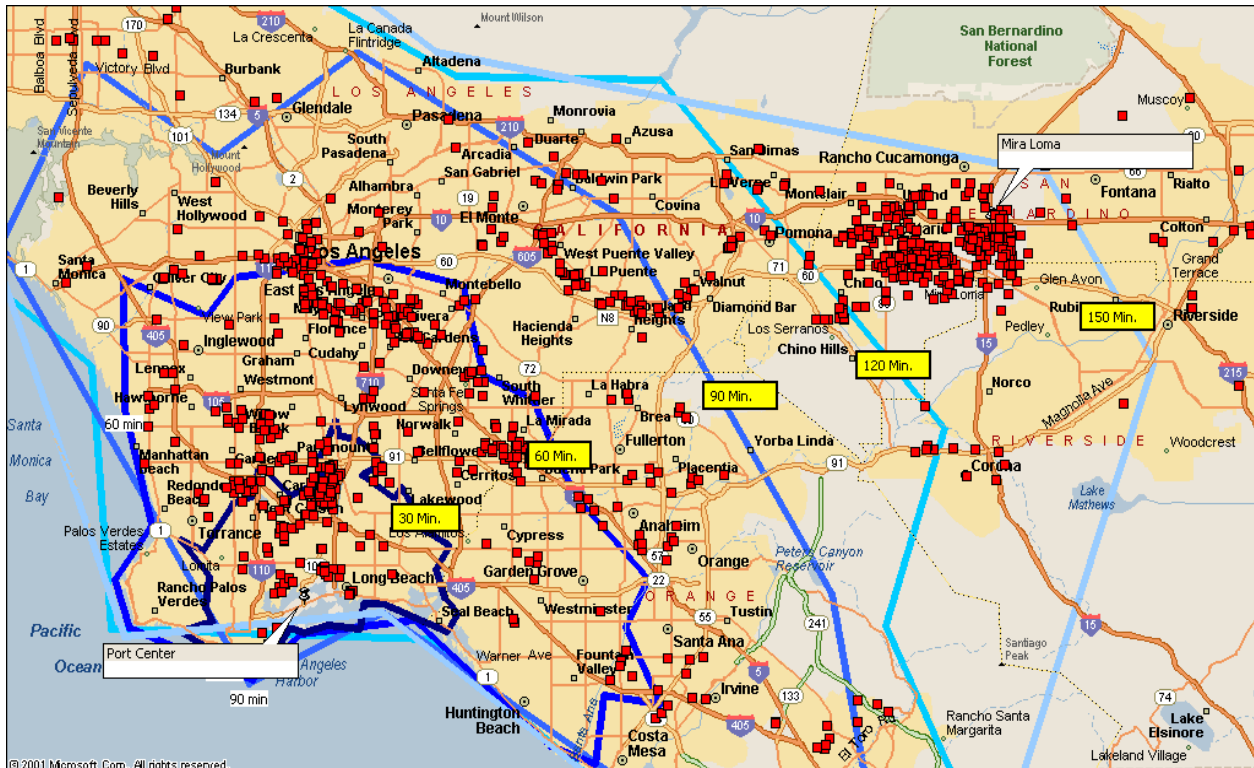


Figure 1: Map of warehouses in the Los Angeles region. From Cambridge Systematics, “Comprehensive Regional Goods Movement Plan and Implementation Strategy Study Update,” Presentation to SCAG, December 3, 2009.

## Case study: warehouses in the Inland Valleys

The fastest growing cluster of warehouses serving the goods movement and logistics industry lies in the Inland Valleys of Riverside and San Bernardino Counties in California. See Figure 2. In 2004, one-sixth of the commercial development in the entire nation was taking place in this area due to the rapid construction of warehouses.<sup>4</sup> The unchecked growth in this network of warehouses and the roads and railyards that serve them is transforming the landscape of the Inland Valley area and the health of its residents in a dramatic fashion. Farmland has been converted to immense, windowless warehouses surrounded by asphalt and chain link fencing—and some of the worst air pollution in the nation. Mira Loma, a low income Latino community in Riverside County, which is surrounded by warehouses and distribution centers,

is known to have among the highest levels of particulate pollution in the nation.<sup>5</sup> That pollution has resulted in startling findings — Mira Loma children have the slowest lung growth and weakest lung capacity of all children studied in southern California.<sup>6</sup>

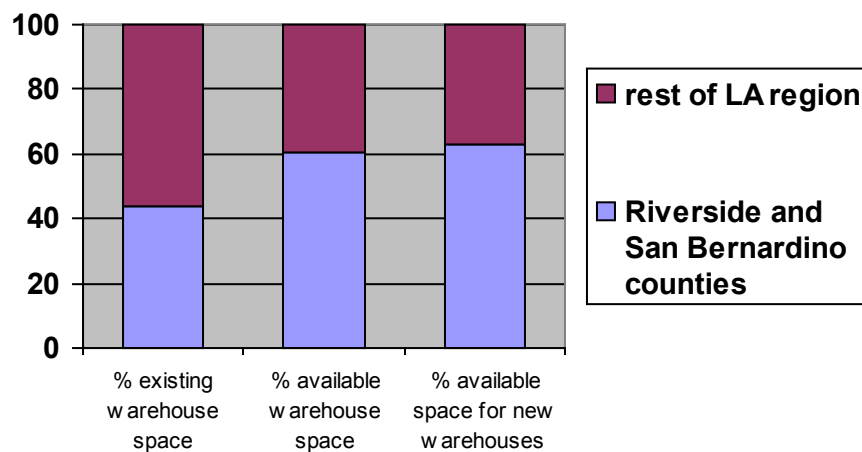


Figure 2: Concentration of Warehouses in Inland Valleys<sup>7</sup>

Huge warehouses and distribution centers are not just a California phenomenon. Wal-Mart alone has 40 regional distribution centers around the United States that are larger than one million square feet each. The corporation boasts that it has 53,000 trailer trucks on the move across the United States.<sup>8</sup> In 2007, Target opened its largest U.S. distribution center in Savannah, Georgia, which was 2.1 million square feet. In addition, there is a move to develop “inland ports” with intermodal rail facilities and distribution centers to serve East Coast ports, which anticipate a rise in imports from Asia when the Panama Canal expansion is completed in 2014.<sup>9</sup> Figure 3 shows some large warehouses/distribution facilities located across the country.

Figure 3: Some large distribution centers in the United States<sup>10,11,12,13,14</sup>

Corporation	Location	Size (millions of square feet)
Wal-Mart	Ellwood, IL (near Chicago)	3.4
Wal-Mart	Hampton Roads, VA	2.1
Target	Hampton Roads, VA	1.8
Ross Stores	Moreno Valley, CA	1.4
Ross Stores	Fort Mill, SC	1.3
Mattel	San Bernardino, CA	1.2
Pier 1	Savanna, GA	.78
Home Depot	Braselton, GA	.55

## Community impacts of warehousing

Local, state, and federal environmental protections have not kept pace with the rapid growth of warehousing in the Los Angeles region. The concentration and proximity of diesel trucks and the warehousing facilities that service them threatens the health of people living and working near busy roads and logistics facilities. The trucks and trains that carry freight to be warehoused (and trucks idling engines at or near warehouse sites) pollute by emitting small toxic particles

called particulate matter (PM) into the air. These particles are of varying size and toxicity—from PM<sub>10</sub> (dust and soot of 10 microns or less in size, that can irritate the throat and lungs); PM<sub>2.5</sub> (particles of 2.5 microns or less in size that are considered dangerous; and ultrafine particles (less than .01 microns in size) from fuel combustion, especially trucks and motor vehicles. Particulate emissions from diesel vehicles and equipment contribute to health problems that include cardiovascular problems, cancer, asthma, decreased lung function and capacity, reproductive health problems, and premature death.<sup>15</sup>

Beyond health threats from the transportation of freight, warehouses are also associated with negative impacts on residents' quality of life. Residents often feel a sense that they are losing their community to encroachment by warehouses and kept in the dark about what is being stored in facilities near their homes. Trucks servicing the facilities park and idle on public streets, sometimes using streets as "staging areas" because a warehouse property is over capacity or does not provide adequate on-site parking. There are also safety concerns as residents share roads not originally designed for heavy vehicles with lines of trucks. Warehouse centers also deprive local communities of land that could be used for future green space, schools and public buildings, and new residential, retail, and commercial centers.

## Policy Recommendations

Local government decisions have facilitated rapid and at times irresponsible warehouse development. Acres and acres of formerly agricultural land located next to residential areas have been rezoned to permit heavy industrial uses. Once warehouses are allowed, city and county officials approve new warehouse developments very close to existing residences, schools and other sensitive receptors, even though additional scientific research shows that health risks from particulates increases significantly when pollution sources are close to where people live.<sup>16</sup> Jurisdictions eager to attract new development have even fast-tracked warehouse projects, approving warehouses within 90 days of submitted plans, without adequate time for nearby residents to comment on a proposed project. Officials have also regularly granted "negative declarations" to proposed warehouse developments, meaning that warehouses do not have to undergo environmental impact assessments, despite the evidence of health harms associated with warehouses and trucks.<sup>17</sup>

The Impact Project is committed to zero emissions technologies and regulations across all stages of goods movement. Policy recommendations to reduce rather than eliminate emissions should be considered important interim steps towards achieving zero emissions.

1. Use zoning rules to protect health and quality of life and preserve farmland
  - › Create buffer zones. The California Air Resources Board recommends buffer zones between logistics facilities and sensitive receptors (homes, schools).<sup>18</sup> Community organizations active in THE Impact Project have often called for 1500 foot buffer zones. In addition, these rules should apply in both directions: no location of new industrial facilities near sensitive receptors, as well as no new sensitive receptors near industrial facilities.

- › Do not allow additional warehouses in air pollution hot spots. New warehouses should not be permitted in residential (homes, schools, parks, etc) areas that already experience unusually high concentrations of particulate pollution until pollution levels are reduced.<sup>19</sup>
  - › Protect high value farmland. Do not allow conversion of farmlands to warehouses, especially those designated by the state as high value farmland.
  - › Manage traffic routes and parking. Establish warehouse facility truck operating capacity limits and ensure that warehouses have enough property to allow deliveries and truck parking on site so trucks are not using public streets as staging areas. Designate truck routes with posted no stopping and parking signs on adjacent streets. Warehouse owners should be held accountable for parking and idling violations by trucks visiting their facility.
  - › Limit noise and light pollution. Require sound barriers, lower lights and light deflectors; and restrict hours of operation to limit noise and light pollution to nearby residential areas.
2. Require environmentally responsible operations by warehouse operators and truck drivers
- › Require clean trucks, with warehouse owners helping subsidize purchases of new vehicles.<sup>20</sup> Older trucks should be phased out in order to reduce emissions. Warehouses should be electrified so that arriving vehicles can plug in rather than run their engines.<sup>21</sup> In the mid to long term future, all new trucks should have electric rather than internal combustion engines.
  - › Plant trees and provide air filters to capture particulates. Warehouse owners should be required to plant trees around the edge of their property, especially in between the warehouse and adjacent residences. Warehouse owners should also be required to provide air filters to residents and schools located within 1500 feet of the facility. While reducing emissions should be the priority, air filters and mature trees may help reduce health impacts on nearby residents.<sup>22,23</sup>
  - › Require sustainability features in warehouses. Warehouse roofs should be white in color to deflect heat and reduce temperatures and air conditioning.
  - › Require companies to protect worker health. Warehouse workers should be given respiratory masks when opening containers because some shipping containers have had fumigant chemicals sprayed or released at their place of origin.
3. Inform and empower the public to improve community oversight
- › Notify the public about potentially toxic substances stored in warehouses and shipped on trucks. The public has a right to know what is being stored in facilities.<sup>24</sup>
  - › Require new warehouse developments to complete environmental impact assessments. If significant impacts are found, operation should not be permitted unless these impacts are mitigated.

## Conclusion

Corporations build and operate warehouses according to their own logistical needs and profit motives. Clusters of warehouses develop where land is located close to transportation infrastructure and is relatively inexpensive. But people also live near many warehouses, and warehouses bring pollution and noise, shape traffic patterns, and influence future economic and community development options. Decision-makers need to update land use rules and conditional use permits to ensure that warehouses are better neighbors, and, when appropriate, block new warehouses that would unfairly burden communities already facing polluted air.

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