



# The Industrial Ecosystem's Economic Contributions to Southern California

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# Executive Summary

Industrial space<sup>1</sup> is the physical platform on which much of Southern California's tradable economy operates, spanning roughly **2.5 billion square feet** across more than 66,000 properties. Across Los Angeles, Orange, Riverside, and San Bernardino counties, the businesses that occupy this space support roughly **1.45 million jobs**<sup>2</sup> and \$196 billion in GDP<sup>3</sup>, of which \$179 billion, approximately **11% of regional GDP**, is produced directly within industrial space. These properties accommodate a diverse range of activities, including manufacturing, logistics, construction, wholesale trade, and professional services that are fundamental to Southern California's economy.

Despite this, public debates over industrial land often focus on traffic, emissions, land consumption, and community impacts, while the economic functions industrial space supports are less frequently quantified. As policymakers consider issues such as California Assembly Bill 98 (2024), the South Coast AQMD Warehouse Indirect Source Rule (Rule 2305), industrial land conversion, and other land-use decisions, a clearer understanding of the employment, economic activity, and productive capacity associated with industrial space becomes increasingly important.

Industrial land capacity is increasingly constrained, difficult to replace, and vulnerable to conversion to other land uses. In many parts of the region, particularly the coastal counties, opportunities for expansion are limited. As a result, modernization and preservation of existing industrial land, rather than expansion alone, are central to sustaining regional economic performance.

Land-use decisions made today will determine whether Southern California preserves the industrial capacity that underpins its economic growth, logistics network, and a wage ladder that spans entry-level logistics to high-wage production and technical employment. That capacity, once lost, cannot easily be replaced.

<b>2.5B sq ft</b>	<b>1.45M</b>	<b>\$196B</b>	<b>~11%</b>
Across <b>66,000+</b> properties	Total jobs supported (direct, indirect, induced)	Total contribution to regional value added (GDP)	Industrial space's direct share of four-county GDP (\$179B)

<sup>1</sup> As used throughout this report, 'industrial space' includes both industrial and flex buildings, as classified by CoStar. See the Methodological Appendix for full definitions.

<sup>2</sup> Including payroll workers and self-employed individuals

<sup>3</sup> Total contribution, including indirect and induced (secondary) effects.

## Key findings

- **A broad economic base and a broad wage ladder:** Businesses located on these industrial sites provide crucial services, including goods movement and distribution (31% of direct employment), manufacturing (20%), and construction (12%), alongside a substantial share of administrative, professional, and real estate activity. Pay varies across this ladder, and the premiums are largest in the highest-skill manufacturing subsectors: transportation-equipment manufacturing pays about 43% above the local all-industry average in Los Angeles and about 29% above the average in Orange County. The overall industrial-space average sits modestly below the all-industry benchmark (\$71,861 versus \$76,092), with Los Angeles below the benchmark, Orange County slightly above it, and the Inland Empire well above it.
- **A large, concentrated platform serves the region.** More than 66,000 industrial properties, occupying roughly 2.5 billion square feet, anchor the region's production, distribution, and supplier networks. Measured by square footage,<sup>4</sup> industrial space exceeds both office and retail inventory in every county. Most properties are under 50,000 square feet, while large facilities above 200,000 square feet make up just 1 to 2% of properties in Los Angeles and Orange counties, compared with about 6% in Riverside and more than 8% in San Bernardino, reflecting the concentration of large-format development inland.
- **A measurable economic contribution.** Activity in industrial space directly supports about 1.36 million jobs, generates roughly \$179 billion in regional GDP, and accounts for approximately \$371 billion in output. GDP measures the value these businesses add to the economy, while output represents total sales, including both the value they create and the goods and services they purchase from other businesses. Including supplier and worker-spending effects, the total contribution reaches roughly \$196 billion in GDP, \$401 billion in output, and 1.45 million jobs. Although individual firms and facilities may change over time, the broader network of suppliers, workers, infrastructure, and business relationships that supports this activity is far more difficult to replace, making industrial land an essential long-term component of the region's economic capacity.
- **The Inland Empire is a major center of industrial activity.** Industrial activity accounts for about 23% of GDP in the Inland Empire, compared with roughly 8 to 9% across Los Angeles and Orange counties combined. The subregions perform complementary functions within the broader regional economy, with

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<sup>4</sup> Square footage is measured as rentable building area (RBA) of properties, from CoStar. RBA includes both occupied and vacant space.

The inventory covers industrial properties across the four counties and is drawn from parcel-level records, a broader universe than warehouse-only or single-subregion counts and not directly comparable to them. Greater Los Angeles is the largest industrial market in the United States by inventory (Colliers, 2025).

industrial activity, goods movement, production, ports, retailers, and consumer markets operating through closely connected supply chains and distribution networks.

- **Constrained and aging where it is most valuable.** More than 80% of Los Angeles County’s industrial stock predates 1990. In the Los Angeles market, sustaining industrial capacity depends less on the availability of new land and more on the reinvestment and redevelopment of existing sites, while large-scale warehouse and distribution development has increasingly shifted to the Inland Empire. As land-use restrictions tighten, downzoning and conversion pressures can make modernization and redevelopment more difficult. This limits production and constrains job growth, particularly in older, built-out industrial markets where expansion opportunities are limited.
- **Industrial networks are difficult to replace.** When industrial capacity declines, the consequences are felt by local economies. Relocation sends jobs and economic activity out of the region, weakens supplier relationships and labor access, and can increase emissions as goods are moved over longer distances. Once disrupted, those networks are difficult and costly to rebuild, particularly in older, built-out markets where little industrial land remains available for reinvestment or relocation.

# 1 Industrial Space as Economic Infrastructure

Southern California's industrial land is under active conversion and regulatory pressure. Across the four-county region, industrial parcels are subject to downzoning, conversion to residential and commercial uses, and new regulatory constraints, including California Assembly Bill 98 (2024) and the South Coast AQMD Warehouse Indirect Source Rule (Rule 2305). These decisions often require balancing competing objectives, including housing production, environmental quality, community impacts, and economic development. The economic activity that physically operates on industrial land is one input to that balance, and this study provides an accounting of that activity: the businesses occupying industrial space across Los Angeles, Orange, Riverside, and San Bernardino counties support roughly 1.45 million jobs and directly produce about 11% of regional GDP. These facilities support the receipt, storage, assembly, processing, and movement of goods before those goods reach businesses, construction sites, healthcare facilities, restaurants, and households.<sup>5</sup> In doing so, they generate employment, output, and public revenues that extend beyond the firms that directly occupy the space.<sup>6</sup>

Southern California is one of the largest and most trade-exposed regional economies in the United States, and industrial land is the physical basis of that position. The Ports of Los Angeles and Long Beach together handle close to a third of all U.S. containerized waterborne trade, anchoring a production and distribution system that spans Los Angeles, Orange, Riverside, and San Bernardino counties.<sup>7</sup> These four counties function as a spatially specialized system: the coastal counties concentrate high-value production, dense consumer demand, and final-mile distribution, while the inland counties supply the large-format capacity that moves goods at scale. The economic standing of the region rests on the efficiency of that system, and that efficiency depends on where industrial activity can physically locate.

The location of production and distribution responds to transport costs and to the advantages of clustering related activities together. As trade has expanded and supply chains have fragmented across longer distances, the cost of moving goods has become a larger determinant of where economic activity can operate efficiently.<sup>8</sup> The value of goods movement lies in its enabling role. By providing reliable, low-cost distribution, it allows higher-value

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<sup>5</sup> Southern California Association of Governments (SCAG), *Logistics and Warehousing in Southern California Whitepaper*.

<sup>6</sup> Christine Cooper, Shannon Sedgwick, and Somjita Mitra, *Goods on the Move! Trade and Logistics in Southern California*, LAEDC Institute for Applied Economics, Los Angeles County Economic Development Corporation, May 2017.

<sup>7</sup> Port of Los Angeles, *Facts and Figures (2025)*. The San Pedro Bay port complex (Los Angeles and Long Beach) handled approximately 31% of all U.S. containerized waterborne international trade in 2025, and the Port of Los Angeles has been the busiest container port in the Western Hemisphere for the past 25 years.

<sup>8</sup> Krugman, P. (1991). *Increasing Returns and Economic Geography*. *Journal of Political Economy*, 99(3), 483–499. See also Weber (1909) and Duranton and Puga (2004), cited above.

production, wholesale, and consumer-facing sectors to operate efficiently and remain cost-competitive.

**Industrial activity is deeply place-dependent.**<sup>9</sup> Productivity depends on proximity to ports, major multi-modal transportation corridors, suppliers, and labor markets, spatial conditions that shape operating costs, coordination efficiency, and reliability.<sup>10,11</sup> In a region where land must accommodate competing uses, choices about industrial space influence the type and scale of economic activity the region can sustain. Because production networks and logistics systems depend on continuity and geographic concentration, reductions in industrial capacity are not easily offset elsewhere.<sup>12</sup> Industrial land is therefore central to how the regional economy functions and grows over time, well beyond its role as real estate. The sections that follow quantify the economic activity that industrial space anchors and the channels through which it shapes the regional economy.

## 2 Approach and Methodology

Rather than pre-selecting a list of industries, this analysis measures the economic activity that physically occupies industrial real estate. The industrial property universe is drawn from CoStar and Urban Footprint/Lightbox using parcels classified as industrial, screened against land-use designations.<sup>13</sup> These parcels are then matched to California EDD establishment records to identify the employment and three-digit NAICS industry composition located within them.<sup>14</sup>

Defining the universe spatially rather than by industry code is this study's central methodological contribution. It measures the activity that industrial land actually carries and attributes that activity to the land use itself, capturing the full set of occupants, from manufacturing and goods movement to wholesale trade, construction, and a broad range of supporting services, rather than equating industrial real estate with any single sector.

Dependence on industrial land is not uniform across tenants. Goods movement, manufacturing, and construction, the activities most reliant on industrial space, account for roughly 63% of direct employment, or about 860,000 jobs; The remainder includes administrative, professional, and real estate activity, among others.

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<sup>9</sup> While manufacturing and logistics are sometimes characterized as "footloose" — implying that firms can easily relocate to minimize land or labor costs — this applies primarily to low-value, standardized operations. The industrial activity concentrated in Southern California reflects a different profile: manufacturing firms are deeply embedded in dense local supplier networks and specialized labor markets, while transportation and goods movement operations are physically anchored by proximity to the nation's largest port complex and a massive regional consumer base. As Scott (1988) notes, this locational clustering is a functional response to the need to minimize the costs and time-delays of transacting over space. Storper (1997) further argues that regional competitiveness is rooted in relational assets and local coordination rules that facilitate technological learning. Together, these factors generate productivity advantages that are difficult to replicate outside the region. See Scott, A.J. (1988), *Metropolis: From the Division of Labor to Urban Form*, University of California Press; and Storper, M. (1997), *The Regional World: Territorial Development in a Global Economy*, Guilford Press.

<sup>10</sup> Duranton, G., & Puga, D. (2004). Micro-foundations of urban agglomeration economies. In J. V. Henderson & J. F. Thisse (Eds.), *Handbook of regional and urban economics* (Vol. 4, pp. 2063–2117). Elsevier.

<sup>11</sup> Weber, A. (1929). *Theory of the location of industries* (C. J. Friedrich, Trans.). University of Chicago Press. (Original work published 1909)

<sup>12</sup> Bernard, A. B., Moxnes, A., & Saito, Y. U. (2019). Production networks, geography, and firm performance. *Journal of Political Economy*, 127(2), 639-688.

<sup>13</sup> Property universe and physical characteristics from CoStar (industrial inventory, 2024-2025). Analysis by Beacon Economics.

<sup>14</sup> Establishment employment and industry (NAICS) detail from the California Employment Development Department (EDD), Quarterly Census of Employment and Wages, geocoded to industrial parcels. Wage-and-salary basis. Analysis by Beacon Economics.

Even restricted to that space-dependent core, the activity anchored in industrial land is substantial, so the conclusions of this analysis do not rest on the activity of incidental occupants.

Two clarifications are important when interpreting the results:

- IMPLAN's employment definition includes proprietors and therefore reports about 1.36 million direct jobs, while wage-and-salary employment is about 1.03 million.
- Results are reported by modeled subregion and by county group (Los Angeles County, Orange County, and the Inland Empire).

This study measures the economic contribution of industrial space, not its economic impact. The two answer different questions: impact analysis estimates what would change if an activity were added, while contribution analysis estimates the share of existing activity associated with a sector already in place.<sup>15</sup> Because the question here is how much of the regional economy is tied to the industries that occupy industrial space, contribution analysis is the appropriate frame. Estimated in IMPLAN as an Industry Contribution Analysis and run as a multi-regional input-output (MRIO) model across nine Southern California subregions, it treats the analyzed industries as exogenous and recalculates the multipliers so that no transaction among them is counted twice.<sup>16</sup>

The approach is conservative by construction, and this is where it differs most from standard impact studies. Because the analyzed set is large and internally linked, most of its supply chain is already captured in the direct figure, so the resulting multipliers are low, close to one. Impact-based studies of overlapping industries report higher totals precisely because they count those same internal transactions as additional rounds of activity, double counting the linkages that contribution analysis removes by design.

The figures reported here should therefore be read as a conservative floor, a defensible lower bound on the footprint, and are not directly comparable to impact-based estimates of overlapping industries.

#### Key Data Sources:

- Industrial property inventory data from CoStar and parcel-level land use data from UrbanFootprint to capture square footage, facility characteristics, and spatial distribution.
- Employment and wage data from the California Employment Development Department and the U.S. Bureau of Labor Statistics.

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<sup>15</sup> Philip Watson et al., "Determining Economic Contributions and Impacts: What Is the Difference and Why Do We Care?," *Journal of Regional Analysis and Policy* 37, no. 2 (2007)

<sup>16</sup> Ronald E. Miller and Peter D. Blair, *Input-Output Analysis: Foundations and Extensions*, 2nd ed. (Cambridge: Cambridge University Press, 2009).

- NAICS-based sector definitions to define tenant activities.
- Multiregional input-output contribution analysis modeling using IMPLAN to estimate indirect and induced effects.
- Public finance data from the California Department of Finance.

## 3 The Physical Platform: Scale, Composition, and Geography

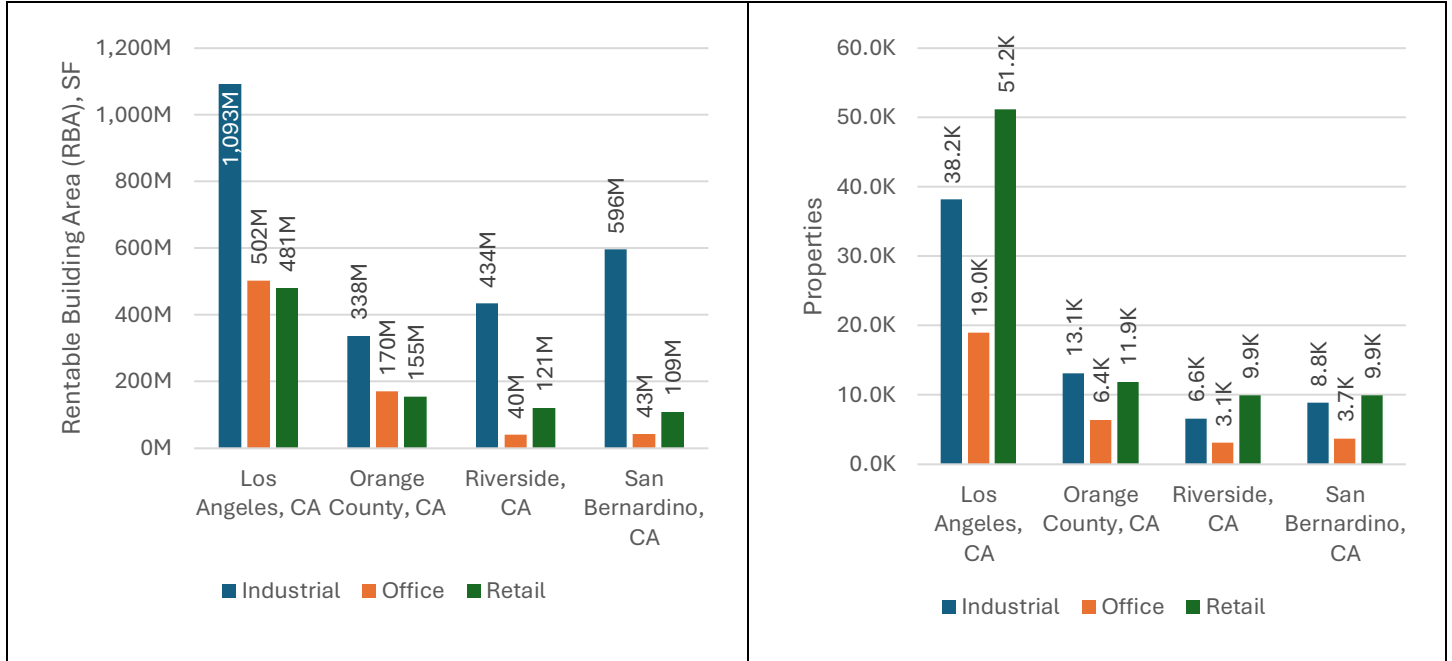
The structural role of industrial space is visible in its scale, composition, and spatial distribution. **More than 66,000 industrial properties, totaling roughly 2.5 billion square feet, form a region-wide platform of productive space.** Yet this system is neither spatially uniform nor functionally interchangeable: different parts of the region perform distinct roles within an integrated production and distribution network.

This regional platform is closely tied to Southern California's role as one of the nation's primary gateways for transpacific trade. Goods entering through the Ports of Los Angeles and Long Beach move through an interconnected network of industrial facilities that link international trade flows to national distribution systems.

The region's economy benefits from the complementary roles of its coastal and inland areas. Coastal locations provide access to consumers, suppliers, and production networks, while inland areas provide the space needed for freight movement and large-scale distribution facilities. These are not isolated submarkets operating independently, but interconnected parts of a broader regional system. As a result, capacity constraints or land-use changes in one part of the region can affect industrial activity across the others.

Industrial space represents one of the largest components of the region's commercial real estate footprint. Across all four counties, industrial space exceeds both office and retail inventory in square footage. Retail properties nevertheless outnumber industrial properties in every county except Orange because retail activity is spread across many smaller sites, while industrial activity is concentrated in fewer but much larger facilities (See Figure 1).

Figure 1. Commercial rentable building area (RBA) and property count by property type



Source: CoStar, 2024. Analysis by Beacon Economics.

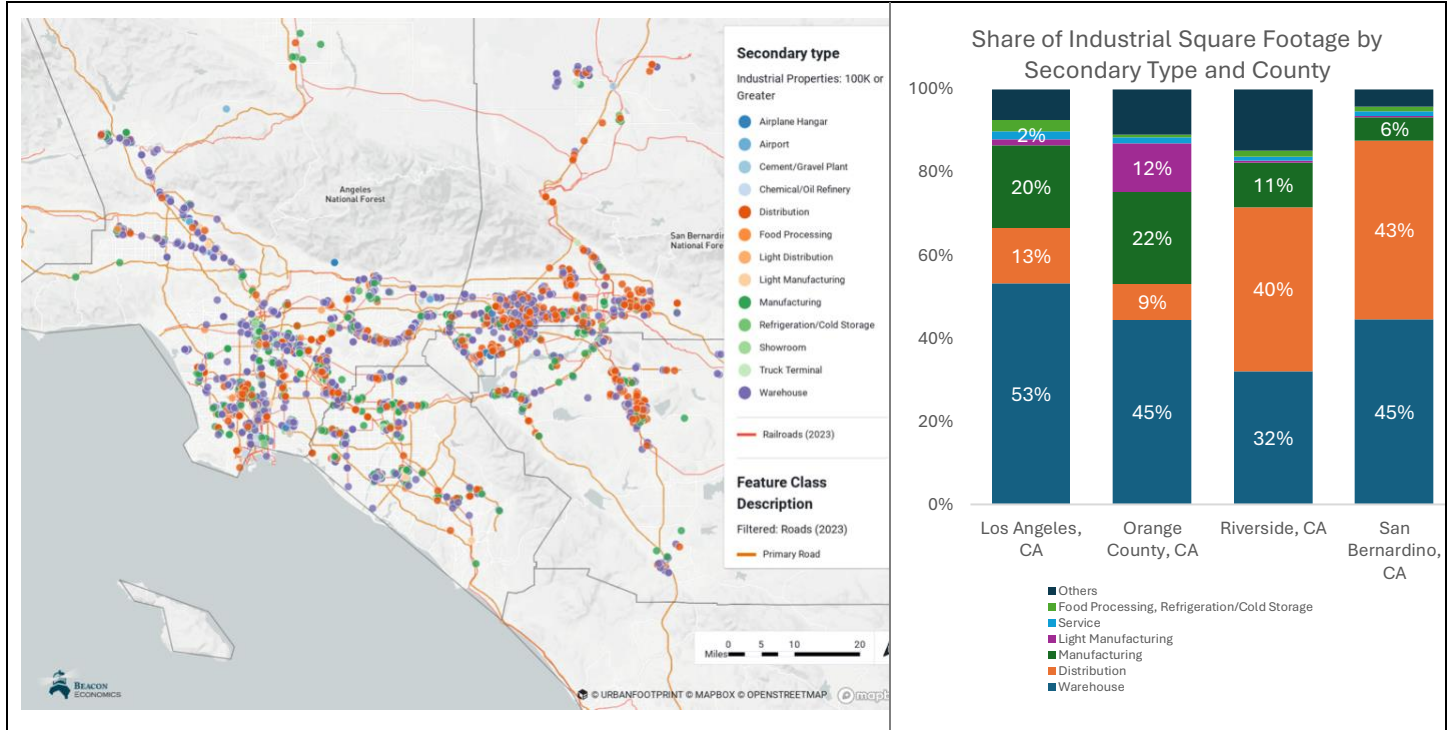
Square footage, not parcel count, is the right yardstick for industrial capacity. Policy that counts parcels will systematically undervalue what industrial land contributes and overstate how easily it can be replaced.

### 3.1 Composition by Property Type

The physical composition of the inventory varies substantially across counties. Warehouse accounts for the largest share of square footage in every county except Riverside, but then the counties diverge. Los Angeles pairs its warehouse base with a substantial share of manufacturing buildings, the region's most diversified physical stock. Orange County holds the region's highest concentration of light manufacturing space and the largest manufacturing share overall, a more production-oriented building stock. Riverside and San Bernardino are distinguished by purpose-built distribution facilities, which account for roughly 40 to 44% of their inventory, far above the shares observed in the coastal counties (See Figure 2).<sup>17</sup>

<sup>17</sup> Property types reflect CoStar's secondary-type classification, which describes the building's physical form and configuration, not the industry of the firm occupying it. Building type and tenant activity are correlated but not identical; the economic activity of tenants is analyzed in Section 4. See the Appendix for property type definitions.

Figure 2. Industrial composition and size distribution by county, 2025



Source: CoStar. Analysis by Beacon Economics.

### 3.2 Composition by Building Size

Coastal and inland markets diverge sharply by building size. In all four counties, most industrial properties are smaller than 50,000 square feet. Facilities above 200,000 square feet account for only 1 to 2% of properties in Los Angeles and Orange counties, compared with about 6% in Riverside and more than 8% in San Bernardino. Although small in number, these buildings account for a disproportionate share of industrial space: more than 60% of total square footage in Riverside and San Bernardino is located in facilities above 200,000 square feet, compared with 15 to 21% in the coastal counties (See Table 1).

Table 1. Industrial building size distribution by county

Share	Size band	Los Angeles	Orange	Riverside	San Bernardino
<b>Properties</b>	Under 50K SF	88.0%	91.2%	83.1%	79.1%
	50K-200K SF	10.2%	7.6%	10.9%	12.7%
	200K+ SF	1.9%	1.2%	6.0%	8.3%
<b>Square footage</b>	Under 50K SF	44.6%	56.4%	18.0%	16.8%
	50K-200K SF	34.5%	29.2%	16.3%	19.6%
	200K+ SF	21.0%	14.5%	65.7%	63.7%

Source: CoStar, 2025. Analysis by Beacon Economics

The region's distribution capacity is increasingly carried by a small number of large-format logistics and distribution facilities that support regional supply-chain resilience. Constraints on large-format development in the Inland Empire would bind on capacity quickly, because there is little substitute inventory at that scale in the coastal counties.

### 3.3 Composition by Building Vintage

Age composition reinforces this geographic split. Los Angeles County retains a large stock of legacy industrial space, with more than 80% of its industrial properties built or renovated before 1990 and roughly half dating to before 1970. Orange County is somewhat newer but still mature. The Inland Empire's industrial inventory is markedly newer, with about 60% of Riverside County's inventory and more than half of San Bernardino County's built since 1990.

The difference becomes even clearer when it comes to square footage. **In Riverside County, buildings constructed or renovated after 2010 account for about 19% of properties but more than 60% of square footage, indicating that recent development has occurred on a substantially larger scale.**

Table 2. Distribution of industrial properties and square footage by building vintage

Share	Vintage	Los Angeles	Orange	Riverside	San Bernardino
<b>Properties</b>	Pre-1945	9.4%	1.3%	1.7%	1.8%
	1945-1969	40.8%	19.0%	5.6%	10.5%
	1970-1989	31.9%	56.2%	32.7%	40.0%
	1990-2009	12.5%	16.0%	41.0%	32.5%
	2010-present	5.3%	7.5%	19.1%	15.2%
<b>Square footage</b>	Pre-1945	6.7%	0.5%	0.7%	1.1%
	1945-1969	29.1%	16.3%	2.2%	2.4%
	1970-1989	33.7%	50.2%	11.0%	16.5%
	1990-2009	18.1%	19.7%	25.0%	35.5%
	2010-present	12.5%	13.3%	61.1%	44.6%

Source: CoStar, 2025. Analysis by Beacon Economics

These patterns show a restructuring of the region's industrial geography. Coastal counties continue to host large, economically significant industrial ecosystems built largely of older, smaller facilities, while inland counties have absorbed most of the region's newer large-scale industrial developments.<sup>18</sup>

<sup>18</sup> CBRE Investment Management, "The Case for Modern Logistics Facilities," <https://www.cbreim.com/insights/articles/the-case-for-modern-logistics-facilities>.

In coastal markets, aging stock means future capacity depends on reinvestment in place, because little developable industrial land remains. Policies that foreclose the redevelopment of older sites effectively retire capacity.

## 4 Who Occupies Industrial Space?

About one million<sup>19</sup> wage and salary employees work at industrial properties across the four counties.<sup>20</sup> Over the past decade, employment at these facilities grew in every county, but very unevenly: Los Angeles County expanded about 5% between 2014 and 2024, and Orange County about 23%, **while the Inland Empire expanded 51%**. This divergence stems from the increasing concentration of warehouse and distribution activity in inland counties and a broader shift in the geography of the region's industrial economy.

While some critics argue that advances in automation and artificial intelligence may reduce the long-term employment benefits associated with industrial development,<sup>21</sup> emerging technologies are more likely to reshape the basis of industrial competitiveness than diminish the importance of industrial activity. As automation reduces the importance of labor costs for many manufacturing and logistics operations, factors such as transportation access, reliable infrastructure, power availability, supplier networks, and proximity to customers become increasingly important in location decisions.

Some industry analyses suggest AI may place a greater premium on well-developed industrial ecosystems and facilities capable of supporting higher-velocity, technology-enabled operations.<sup>22</sup> Southern California's extensive transportation infrastructure, deep supplier networks, and concentration of industrial activity position the region well to benefit from this transition. While the composition of employment will continue to evolve, preserving and modernizing industrial land will remain essential to supporting the region's long-term competitiveness and the diverse industrial ecosystem that underpins its economic contribution. Consistent with the region's continued industrial strength, total employment in industrial properties remained higher in 2024 than it was a decade earlier in every county, even as the geography of industrial activity continued to shift toward the Inland Empire.

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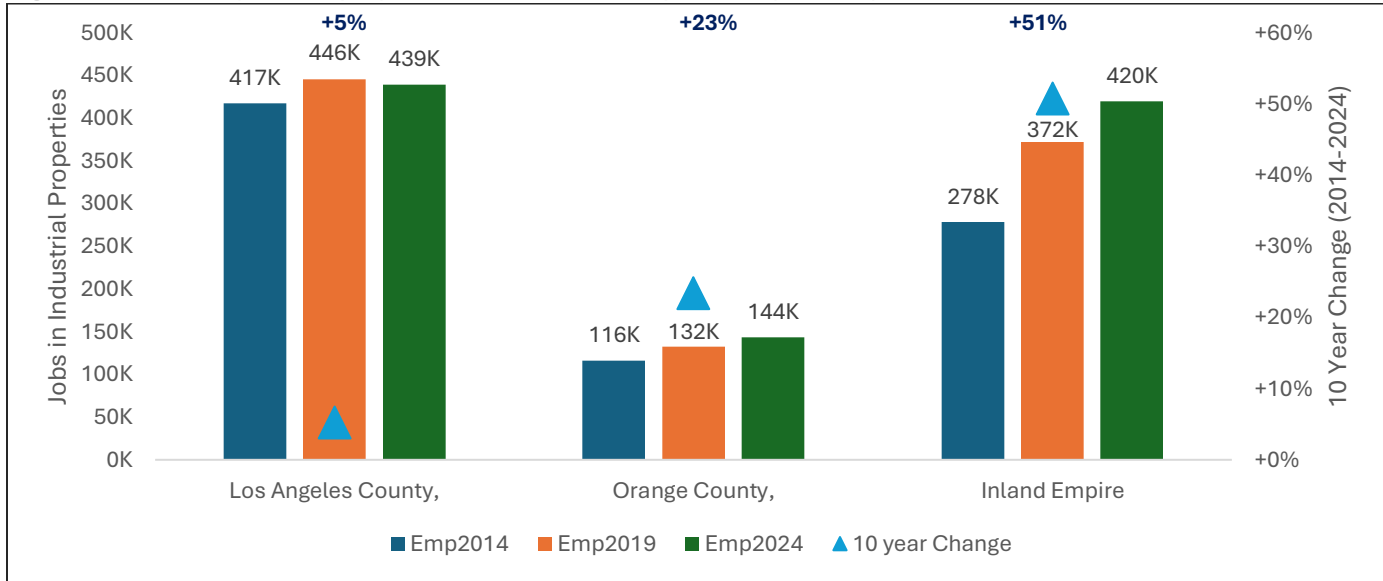
<sup>19</sup> Here, the employment is measured as wage-and-salary employment using California EDD establishment records geocoded to industrial parcels. IMPLAN's employment definition includes proprietors and therefore reports about 1.36 million direct jobs, while wage-and-salary employment is about 1.03 million.

<sup>20</sup> The four counties are Los Angeles, Orange, Riverside, and San Bernardino; Riverside and San Bernardino together form the Inland Empire.

<sup>21</sup> Phillips, S., McCarthy, M., Gonzalez, A., & Ruiz, M. A. (2026). Region in crisis 2: Warehouse sprawl, housing loss, and community harm in California's Inland Empire. Redford Conservancy for Southern California, Pitzer College; Center for Community Action and Environmental Justice; Sierra Club–San Geronimo Chapter.

<sup>22</sup> Pickering, R. (2026). AI impact on logistics & industrial. Cushman & Wakefield. <https://www.cushmanwakefield.com/en/insights/ai-impact-on-logistics-and-industrial>

Figure 3. Direct Payroll Employment in Industrial Properties by County, 2014–2024



Source: California Employment Development Department (EDD); CoStar, 2025. Analysis by Beacon Economics

## 4.1 A Diverse Industry Composition

The composition of activity in industrial space is reported using IMPLAN employment, which includes both wage-and-salary employees and proprietors (self-employed workers). Under this definition, industrial properties support approximately 1.36 million direct jobs, the same employment concept used in the economic contribution estimates presented later in the report.

The firms in industrial space span a wide range of activities. Region-wide, goods movement and distribution lead with 31% of direct employment, followed by manufacturing at 20% and construction at 12%. Administrative, professional, and real estate activities account for another substantial share of employment. Together, these patterns illustrate the diversity of activities supported by industrial properties, even as different sectors dominate in different parts of the region.

Subregional differences are pronounced. In Los Angeles and Orange counties, manufacturing accounts for 23% and 25% of industrial employment, respectively, while goods movement is at 26% and 18%. In the Inland Empire, the pattern reverses, with goods movement at 42% of industrial employment and manufacturing at 14%. Within manufacturing, the coastal counties concentrate in higher-value segments such as transportation equipment and computer and electronic product manufacturing, a more technology-intensive profile. Fabricated metal products appear consistently across Southern California, reflecting supplier-oriented manufacturing distributed broadly across the regional system.

- Within goods movement, the coastal and inland counties perform complementary functions in a regional freight system. In Los Angeles, couriers and last-mile delivery rank among the largest occupants, reflecting

the final distribution stage for goods moving through Southern California. In the Inland Empire, warehousing accounts for more than 112,000 jobs with average annual wages of approximately \$62,000, above the county-wide average of \$57,012. By comparison, warehousing supports only about 9,800 jobs across Los Angeles and Orange counties combined. These patterns reflect differences in function rather than competition: coastal facilities accommodate space-constrained operations and final-mile delivery, while inland facilities provide the large-format warehousing capacity that supports regional distribution. Both are integral components of the same logistics system and neither can readily substitute for the other.

- Within construction, specialty trade contractors are a significant share of industrial employment in the Inland Empire, reflecting sustained investment in large-scale logistics and industrial development.

Table 3. Direct employment in industrial properties by sector and county, 2024

Sector / subsector	Los Angeles		Orange		Inland Empire		Southern California	
	Employment	Share	Employment	Share	Employment	Share	Employment	Share
<b>Goods Movement and Distribution</b>	<b>162,165</b>	<b>25.7%</b>	<b>33,612</b>	<b>18.3%</b>	<b>229,454</b>	<b>41.8%</b>	<b>425,231</b>	<b>31.2%</b>
Wholesale Trade	74,352	11.8%	21,414	11.7%	50,860	9.3%	146,626	10.8%
Warehousing and Storage	6,599	1.0%	3,216	1.8%	112,694	20.6%	122,509	9.0%
Couriers and Messengers	50,756	8.0%	5,201	2.8%	31,914	5.8%	87,871	6.4%
Truck Transportation	18,870	3.0%	2,733	1.5%	26,861	4.9%	48,464	3.6%
<b>Manufacturing</b>	<b>144,730</b>	<b>22.9%</b>	<b>45,298</b>	<b>24.7%</b>	<b>77,982</b>	<b>14.2%</b>	<b>268,010</b>	<b>19.7%</b>
Fabricated Metal Product Manufacturing	23,601	3.7%	7,828	4.3%	13,088	2.4%	44,517	3.3%
Transportation Equipment Manufacturing	17,018	2.7%	6,116	3.3%	5,909	1.1%	29,043	2.1%
Food Manufacturing	16,608	2.6%	1,974	1.1%	9,878	1.8%	28,460	2.1%
Computer and Electronic Product Manufacturing	11,850	1.9%	10,336	5.6%	2,524	0.5%	24,710	1.8%
Plastics and Rubber Products Manufacturing	4,226	0.7%	2,602	1.4%	9,237	1.7%	16,065	1.2%
<b>Construction</b>	<b>61,059</b>	<b>9.7%</b>	<b>35,559</b>	<b>19.4%</b>	<b>70,679</b>	<b>12.9%</b>	<b>167,297</b>	<b>12.3%</b>
<b>Administrative and Support / Waste Management</b>	<b>45,314</b>	<b>7.2%</b>	<b>19,317</b>	<b>10.5%</b>	<b>31,981</b>	<b>5.8%</b>	<b>96,612</b>	<b>7.1%</b>
Passenger Transportation	41,318	6.5%	7,146	3.9%	20,779	3.8%	69,243	5.1%
Professional, Scientific and Technical Services	34,192	5.4%	8,609	4.7%	17,402	3.2%	60,203	4.4%
Retail Trade	28,823	4.6%	8,871	4.8%	22,994	4.2%	60,688	4.5%
Other	114,233	18.1%	25,016	13.6%	77,052	14.1%	216,301	15.9%
<b>Total, all sectors</b>	<b>631,834</b>	<b>100%</b>	<b>183,428</b>	<b>100%</b>	<b>548,323</b>	<b>100%</b>	<b>1,363,585</b>	<b>100%</b>

Source: California EDD; IMPLAN, 2024; CoStar. Analysis by Beacon Economics. Direct employment (includes proprietors). Classification follows the regrouped definition in Section 2: goods movement and distribution consolidates freight transport, warehousing, and wholesale trade; passenger transportation is reported separately. Goods movement and manufacturing are disaggregated into selected leading subsectors; other sectors are summarized. The Inland Empire combines Riverside and San Bernardino, consistent with the modeled subregions. The Administrative and Support / Waste Management grouping follows standard NAICS classification (sector 56), which covers a broad range of business-support functions such as office administration, facilities support, employment services, and security, and is not limited to solid-waste handling.

Industrial space is where the region's goods-producing and goods-moving employment physically lives. Goods movement and manufacturing together account for more than half of direct industrial employment in every county, and the mix differs sharply by geography: goods movement leads in Los Angeles and the Inland Empire, manufacturing in Orange County. Constraints on this space, therefore, fall disproportionately on tradable-sector activity.

## 4.2 Industry Reliance on Industrial Space

The relationship between industries and industrial space is shaped by what firms do and by where they operate. While manufacturing and goods movement depend on industrial properties throughout Southern California, that dependence varies by subregion.

Manufacturing provides a clear example. In Los Angeles and Orange counties, 45% and 28% of manufacturing employment, respectively, is located in industrial properties. In the Inland Empire, that figure is nearer to three-quarters. A similar pattern appears in goods movement, where industrial properties house two-thirds of employment in the Inland Empire.

While the degree of reliance varies by subregion, industrial properties support a substantial share of employment in several key sectors throughout Southern California. Regionwide, industrial properties account for 45% of manufacturing employment, 41% of goods movement and distribution employment, and more than half of passenger transportation employment (56%). These shares suggest that industrial space serves as a critical operating environment for industries involved in production, logistics, and transportation. They also indicate where the stakes of industrial land policy are highest: sectors with high reliance on industrial space have the fewest alternatives to it, while low-reliance sectors can more readily operate elsewhere.

The importance of these activities extends beyond the jobs located in industrial properties themselves. Manufacturing, transportation, and goods movement provide the facilities and infrastructure that allow goods, materials, and products to move efficiently throughout the regional economy. As a result, the economic role of industrial space is not limited to the activity that occurs in industrial buildings, but also includes the support it provides to businesses and consumers operating elsewhere in the region.

Table 4. Share of industry employment located in industrial space, by county

Sector	Los Angeles	Orange	Inland Empire	Southern California
Goods Movement and Distribution	29%	21%	68%	41%
Manufacturing	45%	28%	74%	45%
Construction	23%	24%	45%	29%
Administrative and Support / Waste Management	11%	10%	20%	13%
Passenger Transportation	58%	42%	58%	56%
Professional, Scientific and Technical Services	6%	3%	14%	6%

<b>Retail Trade</b>	<b>6%</b>	<b>5%</b>	<b>11%</b>	<b>7%</b>
<b>Other</b>	<b>3%</b>	<b>2%</b>	<b>6%</b>	<b>3%</b>
<b>Total</b>	<b>9%</b>	<b>8%</b>	<b>22%</b>	<b>12%</b>

Source: California EDD; IMPLAN, 2024; CoStar. Analysis by Beacon Economics. Shares of total employment in the geography that is located in industrial space. Classification per Section 2.

### 4.3 Wages and the Industrial Wage Ladder

Industrial spaces support a broad wage ladder, from entry-level logistics roles to high-wage manufacturing, construction, wholesale trade, professional and technical occupations, and its overall average wage reflects that mix. Employment-weighted wage compensation across industrial-space occupants averages around \$71,900 in Southern California, close to but slightly below the all-industry county average of roughly \$76,100. This pattern reflects the region's economic structure. Los Angeles and Orange County concentrate high-wage, office-based and headquarters employment that does not occupy industrial space and that lifts their county-wide averages. As a result, industrial-space pay sits below the Los Angeles County average and slightly above the Orange County average. The Inland Empire has a smaller concentration of high-wage office employment, making industrial activity an important source of above-average wages, which run about 14% above the county average.

Within industrial space, wages vary across subsectors, and the industrial ecosystem spans a wide range of occupations and pay levels, from entry-level roles to skilled-trade, technical, and advanced-manufacturing positions. Manufacturing, construction, and professional services each pay above the all-industry county average in every county analyzed, and the premiums are largest in the highest-skill subsectors: transportation-equipment manufacturing pays roughly 43% above the all-industry average in Los Angeles and 29% above the Orange County average. Computer and electronic product manufacturing pays well above average across the Southern California region.

Within goods movement, wholesale trade pays close to the regional average while couriers and last-mile delivery pay roughly 40% below it. This range is the structure of a wage ladder: the same facilities and supply chains provide both an accessible foothold in the labor market and skilled production and technical roles that pay well above it. Converting industrial space therefore affects jobs across the entire wage ladder, not just its lowest rungs.

Table 5. Average wages in major industrial tenant sectors, by county (2024, USD)

Sector	Los Angeles County	Orange County	Inland Empire	Southern California
Goods Movement and Distribution	\$69,716	\$75,758	\$63,267	\$66,377
<i>Wholesale Trade</i>	\$74,519	\$77,695	\$71,964	\$74,111
<i>Warehousing and Storage</i>	\$65,485	\$76,458	\$61,998	\$62,504
<i>Truck Transportation</i>	\$61,087	\$69,128	\$69,134	\$66,389
<i>Couriers and Messengers</i>	\$48,960	\$56,882	\$38,357	\$44,557
Manufacturing	\$83,291	\$90,690	\$67,212	\$79,975
<i>Fabricated Metal Product Manufacturing</i>	\$78,625	\$70,481	\$68,447	\$74,246
<i>Transportation Equipment Manufacturing</i>	\$116,128	\$103,836	\$69,382	\$104,036
<i>Food Manufacturing</i>	\$65,878	\$65,294	\$61,899	\$64,484
<i>Computer and Electronic Product Manufacturing</i>	\$100,482	\$131,678	\$70,438	\$110,454
<i>Chemical Manufacturing</i>	\$84,840	\$81,433	\$76,255	\$82,101
Construction	\$86,352	\$93,854	\$75,640	\$83,091
Administrative and Support / Waste Management <sup>23</sup>	\$50,823	\$56,013	\$48,339	\$51,181
Retail Trade	\$60,526	\$68,020	\$59,357	\$61,148
Professional, Scientific and Technical Services	\$94,643	\$108,241	\$74,319	\$91,875
Other Services	\$55,533	\$67,723	\$60,788	\$59,038
Health and Social Assistance	\$57,457	\$55,520	\$47,117	\$53,733
<b>All industrial space, wage average</b>	<b>\$75,074</b>	<b>\$82,102</b>	<b>\$64,987</b>	<b>\$71,861</b>
<b>All-industry, wage average</b>	<b>\$81,266</b>	<b>\$80,463</b>	<b>\$57,012</b>	<b>\$76,092</b>

Source: California EDD; QCEW. Analysis by Beacon Economics.

Note: This table reports average annual wage and salary income per wage-and-salary job (direct), calculated as total wage and salary income divided by wage-and-salary employment. This measure reflects gross earnings before taxes and deductions, excluding employer-paid benefits and income earned by business owners. Labor income, by comparison, also includes employer-paid benefits and income earned by business owners. The “All industrial space” row is the employment-weighted average across all industrial- -space tenants, while the “All-industry” row is the average across the full county economy. Goods movement and manufacturing are expanded into selected subsectors, with classifications based on Section 2.

Because industrial space concentrates tradable employment, converting well-located industrial land can reduce the region’s capacity for tradable sector activity and for jobs accessible to workers without a four-year degree, even where the replacement use has value in other policy contexts beyond land-use mix.

<sup>23</sup> “Waste Management” is a standard industry category defined under the North American Industry Classification System (NAICS). The category encompasses a broad range of activities, including waste collection, recycling, remediation services, and other environmental and business support functions.

# 5 The Economic Contribution of Industrial Space

Industrial space affects the regional economy through three distinct channels, each operating at a different scale and time horizon.

- a) **Construction, modernization, and maintenance** activate supplier networks across materials, equipment, engineering, and specialized trades. Region-wide, each dollar of new construction and maintenance spending supports about \$1.51 in total output, and each direct job supports about 1.56 jobs once supplier and income effects are included.<sup>24</sup>
- b) **Property operations**, including leasing and property management, generate a recurring stream of activity, reflecting earnings that circulate locally through professional and service linkages.
- c) **Tenant operations** are the most enduring channel: the firms occupying the space generate recurring demand for inputs and pay wages that support spending throughout the regional economy year after year. This is the focus of the contribution estimates that follow.

Table 6. Construction multipliers, Southern California

Channel	Employment	Labor income	GDP	Output
Construction and maintenance	1.56	1.41	1.55	1.51

Source: IMPLAN, 2024. Analysis by Beacon Economics. Construction reflects IMPLAN sectors for new manufacturing structures, other new nonresidential structures, and maintenance and repair of nonresidential structures. These multipliers are standard impact (not contribution) multipliers and are not directly comparable to the tenant-contribution figures in Table 7.

## 5.1 Tenant Operations Contribution

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*When supplier and worker-spending effects are included, activity tied to industrial tenants supports an estimated **1.45 million total jobs and \$196 billion in GDP.***

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GDP measures the value added generated by economic activity and is the standard measure of a region’s economic production. Direct activity associated with industrial properties generates approximately \$179 billion in value added annually, directly accounting for roughly **11%** of the four-county region's GDP.<sup>25</sup>

<sup>24</sup> These figures use a standard impact multiplier and capture the activity generated by building and maintaining the physical stock. They are reported on a different basis from the contribution estimates that follow, and are not additive with them.

<sup>25</sup> U.S. Bureau of Economic Analysis, 2024 Gross Domestic Product by County: All Industries. Los Angeles, \$1,002 billion; Inland Empire, \$272.7 billion; Orange, \$351.8 billion. Four-county total approximately \$1.63 trillion. The share expresses IMPLAN direct value added over BEA county GDP; both are measured on a value-added basis and are conceptually comparable.

Given the scale of activity in industrial space, changes to the industrial land base have implications that extend beyond individual properties. As industrial land is converted to other uses, downzoned, or otherwise constrained, the risk increases that businesses will be displaced from their current locations. Some firms may relocate elsewhere in Southern California, while others may fragment operations across multiple locations or leave the region altogether. The economic consequences depend largely on whether those firms can remain in Southern California. When displaced firms relocate elsewhere in Southern California, much of the associated economic activity remains in the region. However, relocation can disrupt existing business relationships and impose additional transportation, coordination, and operating costs, reducing efficiency even when economic activity is not lost entirely.

Industrial land conversion increases the risk that businesses and economic activity will leave the region. Given the scale of activity supported by industrial properties, even relatively small losses can affect employment, income, and regional GDP. Built-out coastal markets face the greatest risk because limited industrial land leaves few opportunities for businesses to relocate elsewhere in Southern California.

Table 7. Economic contribution of industrial tenant operations, 2024 (GDP, labor income, and output in \$ millions)

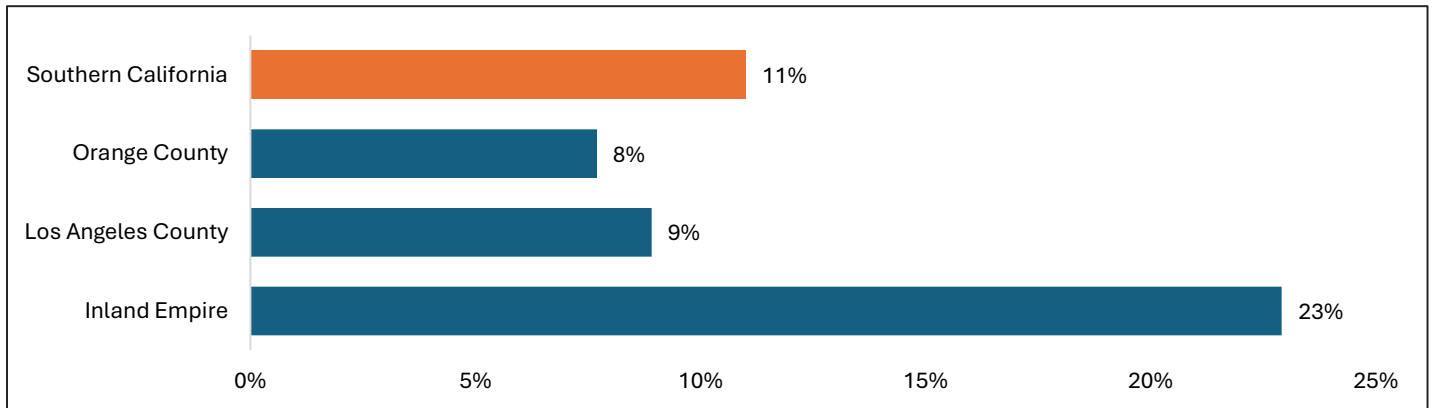
Geography	Impact	Employment	GDP (\$M)	Labor income (\$M)	Output (\$M)
Southern California	Direct	1,363,585	\$179,075	\$100,755	\$370,820
	Indirect + induced	88,083	\$16,720	\$9,682	\$30,378
	<b>Total</b>	<b>1,451,668</b>	<b>\$195,795</b>	<b>\$110,437</b>	<b>\$401,198</b>
	<i>Multiplier</i>	<i>x1.065</i>	<i>x1.093</i>	<i>x1.096</i>	<i>x1.082</i>
Los Angeles County	Direct	631,834	\$89,491	\$46,814	\$195,480
	Indirect + induced	42,984	\$8,059	\$4,370	\$14,863
	<b>Total</b>	<b>674,817</b>	<b>\$97,550</b>	<b>\$51,184</b>	<b>\$210,342</b>
	<i>Multiplier</i>	<i>x1.068</i>	<i>x1.090</i>	<i>x1.093</i>	<i>x1.076</i>
Orange County	Direct	183,428	\$27,082	\$16,307	\$50,789
	Indirect + induced	7,358	\$1,418	\$810	\$2,589
	<b>Total</b>	<b>190,786</b>	<b>\$28,500</b>	<b>\$17,117</b>	<b>\$53,378</b>
	<i>Multiplier</i>	<i>x1.040</i>	<i>x1.052</i>	<i>x1.050</i>	<i>x1.051</i>
Inland Empire	Direct	548,323	\$62,503	\$37,634	\$124,551
	Indirect + induced	37,741	\$7,243	\$4,502	\$12,927
	<b>Total</b>	<b>586,064</b>	<b>\$69,745</b>	<b>\$42,137</b>	<b>\$137,478</b>
	<i>Multiplier</i>	<i>x1.069</i>	<i>x1.116</i>	<i>x1.120</i>	<i>x1.104</i>

Source: IMPLAN, 2024 (Industry Contribution Analysis, multi-region). Analysis by Beacon Economics. IMPLAN employment includes proprietors and exceeds the EDD wage-and-salary count. The Inland Empire is reported as a combined area; the model's subregions do not map to Riverside and San Bernardino county boundaries.

## 5.2 Value Added Contribution

The contribution is far from evenly distributed. Industrial activity directly supports about 23% of GDP in the Inland Empire, compared with roughly 8 to 9% in the Los Angeles-Orange coastal area. **At the subregion level, the Western Inland Empire industrial activity alone supports more than 520,000 jobs and about \$63 billion in GDP, the single largest concentration in the region, followed by the City of Los Angeles, the Gateway Cities, and North Orange County.**

Figure 4. Direct industrial GDP as a share of regional GDP, by area, 2024



Source: IMPLAN, U.S. Bureau of Economic Analysis. Analysis by Beacon Economics.

Table 8. Total economic contribution by subregion<sup>26</sup>, 2024

County and subregion	Total jobs	Labor inc. (\$M)	GDP (\$M)	Output (\$M)
<b>Los Angeles County</b>	<b>674,817</b>	<b>\$51,184</b>	<b>\$97,550</b>	<b>\$210,342</b>
City of Los Angeles	229,910	\$15,245	\$27,994	\$51,551
Gateway Cities	204,450	\$15,119	\$30,571	\$70,851
San Gabriel Valley	88,994	\$7,128	\$12,534	\$25,708
Other LA County	77,463	\$6,909	\$12,303	\$24,064
South Bay	73,999	\$6,783	\$14,148	\$38,168
<b>Inland Empire</b>	<b>586,064</b>	<b>\$42,137</b>	<b>\$69,745</b>	<b>\$137,478</b>
Western Inland Empire	527,855	\$38,713	\$63,574	\$125,130
Eastern Inland Empire	58,208	\$3,423	\$6,171	\$12,347
<b>Orange County</b>	<b>190,786</b>	<b>\$17,117</b>	<b>\$28,500</b>	<b>\$53,378</b>
North Orange County	181,934	\$16,231	\$27,058	\$50,791
South Orange County	8,852	\$886	\$1,442	\$2,587
<b>Region total</b>	<b>1,451,667</b>	<b>\$110,437</b>	<b>\$195,795</b>	<b>\$401,198</b>

Source: IMPLAN, 2024. Analysis by Beacon Economics. Totals include direct, indirect, and induced effects. County rows (shaded) are subtotals of the subregions nested beneath them; Inland Empire subregions are modeled NAIOP geographies and do not align with Riverside and San Bernardino county boundaries. Subregions are ordered by total employment within each county.

<sup>26</sup> List of cities within subregions are provided in the Appendix section 8.4.

The Inland Empire is the part of the regional economy most dependent on industrial space, which directly accounts for roughly 23% of its GDP. Including supplier and wage-spending effects, the total reaches about 26% of Inland Empire GDP, as wages earned in warehousing, logistics, and manufacturing recirculate through local retail, housing, and services, and area suppliers are tied to the same operations.

These effects would not stay local. Coastal and inland economies are linked through a single goods-distribution system: imports entering the San Pedro Bay port complex are warehoused and redistributed throughout the Inland Empire before reaching markets across the country.<sup>27</sup> Because coastal and inland economies operate through an integrated goods distribution system, constraints on Inland Empire industrial capacity are likely to have consequences that extend beyond Riverside and San Bernardino counties.

### 5.3 The Composition of Industrial Activity by Subregion

Although industrial space is most readily associated with logistics, and goods movement is indeed the activity most dependent on it, the analysis shows that the space supports employment across a far wider range of industries than just logistics. This breadth operates through three channels.

- Industrial space directly houses a diverse set of firms: distribution, manufacturing, construction, and professional services, among others.
- Those firms purchase from suppliers throughout the regional economy, so the space sustains employment in industries that are not physically located in it.
- The wages paid there circulate through local spending, supporting activity in sectors from retail to health care.

Once indirect and induced effects are included, industrial space supports activity in all 21 sectors of the regional economy, reaching through supply chains and wage spending well beyond the goods-movement core with which it is usually identified.

In each county, subregions host distinctly different economies. The tables below decompose total supported employment (*direct, indirect, and induced*) for each subregion. The two sectors most central to industrial space are further broken down into their leading subsectors.

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<sup>27</sup> The San Pedro Bay port complex (Ports of Los Angeles and Long Beach) is the largest containerized gateway in the United States, handling about 20 million TEUs in 2025, roughly 31% of all U.S. containerized waterborne trade. The majority of this cargo is destined for markets beyond the Los Angeles Basin, and the Inland Empire provides the bulk of the inland warehousing that sorts and redistributes it. Sources: Port of Los Angeles, Facts and Figures (2025); R. C. Leachman, UC Berkeley (2017);

Port of Los Angeles. "Facts and Figures," Statistics (Calendar Year 2025). <https://portoflosangeles.org/business/statistics/facts-and-figures> (accessed June 2026).

Robert C. Leachman. "Strategic Initiatives for Inland Movement of Containerized Imports at San Pedro Bay." Department of Industrial Engineering and Operations Research, University of California, Berkeley, January 2017. [https://ieor.berkeley.edu/wp-content/uploads/2019/10/RCL-LA-Basin-Initiatives-Jan\\_13\\_2017.pdf](https://ieor.berkeley.edu/wp-content/uploads/2019/10/RCL-LA-Basin-Initiatives-Jan_13_2017.pdf) (accessed June 2026).

Southern California Association of Governments (SCAG). "SCAG Goods Movement System," Transportation Committee presentation, February 2, 2023. <https://transfin.scag.ca.gov/sites/default/files/2024-05/tc020223agn08-presentation.pdf> (accessed June 2026).

### 5.3.1 Los Angeles County

Los Angeles County is the region's most diversified industrial base, and its subregions specialize in different directions.

- The City of Los Angeles and the Gateway Cities are the county's principal goods-movement subregions, but unlike the Inland Empire, their activity is centered on wholesale trade and local distribution rather than large-scale warehousing. In the City of Los Angeles, couriers and messengers along with wholesale trade account for most goods-movement employment, while warehousing and truck transportation play relatively limited roles. The Gateway Cities combine the county's largest wholesale base with its highest concentration of truck transportation activity, making them the county's primary distribution hub.
- Manufacturing is present in every subregion and varied, with no single anchor: apparel and food is concentrated in the Gateway Cities, food and fabricated metal in the San Gabriel Valley, and fabricated metal is distributed across the county as a whole.
- The South Bay is the county's advanced-manufacturing subregion, led by transportation-equipment manufacturing, the county's largest such concentration, oriented toward aerospace and precision production. Goods movement plays a comparatively smaller role than in many other industrial areas.

Table 9. Total supported employment by subregion, Los Angeles County

Sector / subsector	City of LA	Gateway	San Gabriel	Other LA	South Bay	County total
<b>Goods Movement and Distribution</b>	<b>55,984</b>	<b>74,340</b>	<b>17,135</b>	<b>9,578</b>	<b>10,475</b>	<b>167,512</b>
Wholesale Trade	22,226	31,010	12,663	4,913	5,288	76,100
Couriers and Messengers	26,877	22,229	336	2,030	1,218	52,690
Truck Transportation	2,559	12,788	1,748	1,066	1,311	19,472
Transportation Support Activities	2,241	2,909	1,172	490	1,667	8,479
Warehousing and Storage	993	3,706	1,177	918	398	7,192
<b>Manufacturing</b>	<b>37,306</b>	<b>49,064</b>	<b>22,913</b>	<b>21,227</b>	<b>19,775</b>	<b>150,285</b>
Fabricated Metal Product Manufacturing	6,328	9,030	3,804	3,460	2,125	24,748
Transportation Equipment Manufacturing	3,714	1,921	914	4,600	6,243	17,392
Food Manufacturing	2,888	7,213	4,659	1,338	1,494	17,592
Computer and Electronic Product Manufacturing	4,656	928	1,565	3,037	2,145	12,331
Apparel Manufacturing	2,623	7,278	1,125	750	481	12,258
Chemical Manufacturing	4,672	2,671	1,816	1,661	851	11,672
<b>Construction</b>	<b>19,696</b>	<b>14,533</b>	<b>14,562</b>	<b>5,603</b>	<b>6,916</b>	<b>61,310</b>
<b>Administrative and Support / Waste Management</b>	<b>13,198</b>	<b>9,690</b>	<b>5,525</b>	<b>5,318</b>	<b>13,624</b>	<b>47,355</b>
<b>Passenger Transportation</b>	<b>29,822</b>	<b>7,016</b>	<b>3,789</b>	<b>596</b>	<b>329</b>	<b>41,552</b>
<b>Professional, Scientific and Technical Services</b>	<b>9,847</b>	<b>9,927</b>	<b>3,615</b>	<b>8,461</b>	<b>4,523</b>	<b>36,373</b>
<b>Other Services</b>	<b>12,037</b>	<b>11,719</b>	<b>2,726</b>	<b>5,363</b>	<b>2,489</b>	<b>34,334</b>
<b>Retail Trade</b>	<b>11,258</b>	<b>7,047</b>	<b>6,261</b>	<b>3,419</b>	<b>3,066</b>	<b>31,051</b>
<b>Real Estate and Rental/Leasing</b>	<b>9,600</b>	<b>4,677</b>	<b>1,777</b>	<b>3,861</b>	<b>3,407</b>	<b>23,322</b>
<b>Health Care and Social Assistance</b>	<b>6,424</b>	<b>3,816</b>	<b>2,102</b>	<b>1,791</b>	<b>2,738</b>	<b>16,871</b>
<b>Information</b>	<b>5,673</b>	<b>346</b>	<b>760</b>	<b>5,369</b>	<b>1,208</b>	<b>13,356</b>
<b>Accommodation and Food Services</b>	<b>6,448</b>	<b>1,873</b>	<b>1,083</b>	<b>1,056</b>	<b>1,102</b>	<b>11,562</b>
<b>Others</b>	<b>12,617</b>	<b>10,402</b>	<b>6,746</b>	<b>5,821</b>	<b>4,347</b>	<b>39,933</b>
<b>Total, all sectors</b>	<b>229,910</b>	<b>204,450</b>	<b>88,994</b>	<b>77,463</b>	<b>73,999</b>	<b>674,816</b>

Source: IMPLAN, 2024. Analysis by Beacon Economics. Total supported employment (direct, indirect, and induced); includes proprietors; subregion totals reconcile to Table 8. Classification follows the regrouped definition in Section 2: goods movement and distribution consolidates freight transport, warehousing, and wholesale trade; passenger transportation is reported separately. Goods movement and manufacturing are opened to their leading subsectors (shown where a subsector ranks among the largest in a subregion or exceeds 10% of its sector there, subject to a minimum size threshold); other sectors are summarized. IMPLAN aggregates wholesale trade, so the goods-movement definition here is marginally broader.

### 5.3.2 Inland Empire

- The Western Inland Empire is the region's logistics core, operating at a scale nothing else in the region approaches: goods movement supports roughly 223,000 jobs, of which warehousing alone accounts for about 112,000, more than the entire industrial-space employment of most other subregions in the region.
- The Eastern Inland Empire is a much smaller and a structurally different economy, where goods movement and manufacturing are modest, and agriculture-linked activity is proportionally far more present than anywhere else in the region.

Table 10. Total supported employment by subregion, Inland Empire

Sector / subsector	Western IE	Eastern IE	County total
<b>Goods Movement and Distribution</b>	<b>223,011</b>	<b>9,533</b>	<b>232,544</b>
<i>Warehousing and Storage</i>	111,934	1,036	112,970
<i>Wholesale Trade</i>	49,862	2,449	52,311
<i>Couriers and Messengers</i>	28,167	4,239	32,406
<i>Truck Transportation</i>	25,826	1,413	27,238
<i>Transportation Support Activities</i>	6,676	342	7,018
<b>Manufacturing</b>	<b>74,710</b>	<b>6,533</b>	<b>81,243</b>
<i>Fabricated Metal Product Manufacturing</i>	13,008	739	13,747
<i>Food Manufacturing</i>	10,139	332	10,471
<i>Plastics and Rubber Products Manufacturing</i>	9,005	428	9,433
<i>Chemical Manufacturing</i>	4,299	1,084	5,383
<b>Construction</b>	<b>63,660</b>	<b>7,225</b>	<b>70,885</b>
<b>Administrative and Support / Waste Management</b>	<b>29,578</b>	<b>3,933</b>	<b>33,511</b>
<b>Other Services</b>	<b>22,539</b>	<b>2,749</b>	<b>25,288</b>
<b>Retail Trade</b>	<b>21,971</b>	<b>2,500</b>	<b>24,471</b>
<b>Professional, Scientific and Technical Services</b>	<b>18,528</b>	<b>1,618</b>	<b>20,146</b>
<b>Passenger Transportation</b>	<b>9,278</b>	<b>11,663</b>	<b>20,941</b>
<b>Health Care and Social Assistance</b>	<b>12,631</b>	<b>1,750</b>	<b>14,381</b>
<b>Real Estate and Rental/Leasing</b>	<b>10,214</b>	<b>1,496</b>	<b>11,710</b>
<b>Agriculture, Forestry, Fishing and Hunting</b>	<b>4,639</b>	<b>5,265</b>	<b>9,904</b>
<b>Educational Services</b>	<b>6,414</b>	<b>857</b>	<b>7,271</b>
<b>Management of Companies</b>	<b>5,462</b>	<b>308</b>	<b>5,770</b>
<b>Others</b>	<b>25,220</b>	<b>2,778</b>	<b>27,998</b>
<b>Total, all sectors</b>	<b>527,855</b>	<b>58,208</b>	<b>586,063</b>

Source: IMPLAN, 2024. Analysis by Beacon Economics. Total supported employment (direct, indirect, and induced); includes proprietors; subregion totals reconcile to Table 8. Classification follows the regrouped definition in Section 2: goods movement and distribution consolidates freight transport, warehousing, and wholesale trade; passenger transportation is reported separately. Goods movement and manufacturing are opened to their leading subsectors (shown where a subsector ranks among the largest in a subregion or exceeds 10% of its sector there, subject to a minimum size threshold); other sectors are summarized. IMPLAN aggregates wholesale trade, so the goods-movement definition here is marginally broader.

The region's distribution capacity sits almost entirely in the Western Inland Empire. A binding land constraint in the Western Inland Empire cannot be fully absorbed by the Eastern Inland Empire or by the coastal counties, and activity would be pushed out of the region.

### 5.3.3 Orange County

Orange County's industrial space is the highest-value production base of the Southern California region in employment composition. Within Orange County, industrial activity is concentrated almost entirely in North Orange County; South Orange County is a minor industrial subregion. In North Orange County, manufacturing exceeds goods movement and is anchored by computer- electronic products and transportation equipment. As a result, the area's industrial base is more manufacturing- than distribution-oriented.

Table 11. Total supported employment by subregion, Orange County

Sector / subsector	North OC	South OC	County total
<b>Goods Movement and Distribution</b>	<b>33,303</b>	<b>1,147</b>	<b>34,450</b>
Wholesale Trade	20,717	909	21,626
Couriers and Messengers	5,550	38	5,589
Warehousing and Storage	3,210	65	3,275
Truck Transportation	2,724	93	2,817
<b>Manufacturing</b>	<b>43,516</b>	<b>3,061</b>	<b>46,577</b>
Computer and Electronic Product Manufacturing	10,250	346	10,595
Fabricated Metal Product Manufacturing	7,999	132	8,131
Transportation Equipment Manufacturing	6,208	52	6,259
Miscellaneous Manufacturing	2,750	1,817	4,567
<b>Construction</b>	<b>34,802</b>	<b>797</b>	<b>35,599</b>
<b>Administrative and Support / Waste Management</b>	<b>19,009</b>	<b>521</b>	<b>19,530</b>
<b>Retail Trade</b>	<b>8,517</b>	<b>673</b>	<b>9,190</b>
<b>Professional, Scientific and Technical Services</b>	<b>7,514</b>	<b>1,275</b>	<b>8,789</b>
<b>Health Care and Social Assistance</b>	<b>6,508</b>	<b>211</b>	<b>6,719</b>
<b>Passenger Transportation</b>	<b>7,174</b>	<b>3</b>	<b>7,177</b>
<b>Other Services</b>	<b>4,966</b>	<b>377</b>	<b>5,343</b>
<b>Real Estate and Rental/Leasing</b>	<b>4,784</b>	<b>235</b>	<b>5,019</b>
<b>Information</b>	<b>2,156</b>	<b>88</b>	<b>2,244</b>
<b>Accommodation and Food Services</b>	<b>2,075</b>	<b>100</b>	<b>2,175</b>
<b>Management of Companies</b>	<b>2,039</b>	<b>93</b>	<b>2,132</b>
<b>Others</b>	<b>5,571</b>	<b>271</b>	<b>5,842</b>
<b>Total, all sectors</b>	<b>181,934</b>	<b>8,852</b>	<b>190,786</b>

Source: IMPLAN, 2024. Analysis by Beacon Economics. Total supported employment (direct, indirect, and induced); includes proprietors; subregion totals reconcile to Table 8. Classification follows the regrouped definition in Section 2: goods movement and distribution consolidates freight transport, warehousing, and wholesale trade; passenger transportation is reported separately. Goods movement and manufacturing are opened to their leading subsectors (shown where a subsector ranks among the largest in a subregion or exceeds 10% of its sector there, subject to a minimum size threshold); other sectors are summarized. IMPLAN aggregates wholesale trade, so the goods-movement definition here is marginally broader.

Across the the study area, industrial space hosts three different economies: urban distribution and diversified manufacturing in Los Angeles, concentrated logistics and goods movement in the Western Inland Empire, and high-value production in Orange County. No single industrial land-use policy fits all three.

# 6 Industrial Land Policy and Long-Term Productive Capacity

## 6.1 Modernization

Much of the region's industrial stock was built for an earlier era of logistics and distribution (more than 80% of Los Angeles County's industrial properties were built or renovated before 1990, and roughly half before 1970), with smaller floor plates and lower clear heights than contemporary distribution requires. In mature coastal markets where new development is limited, reinvestment and redevelopment of existing sites have become the principal means of sustaining capacity.<sup>28</sup>

**Redevelopment can increase the amount of industrial economic activity the region supports with a limited supply of land.**

The coastal industrial stock is aging, but it remains occupied because many firms still depend on these locations for access to ports, suppliers, labor pools, and regional markets. The continued demand for these sites suggests that their value lies not only in the buildings themselves, but also in the access and connectivity they provide.

The appropriate policy response is to reinvest in and modernize aging facilities rather than preserve them unchanged or convert them to non-industrial use. Treating aging buildings as obsolete would eliminate still-functioning industrial capacity, while leaving them untouched would allow that capacity to erode.

In markets where opportunities for new industrial development are limited, renovating existing buildings is a way to add productive capacity because a modernized facility yields more output on the same footprint than the stock it replaces. Reinvestment, therefore, raises the ceiling on what coastal industrial land can produce. Modernization improves the productive use of land in three ways:

- **Land-use efficiency.** Modern facilities expand usable capacity within the same footprint. A building with 36-foot clear heights provides roughly 80% more cubic storage than the same footprint built to 20-foot standards.<sup>29</sup>
- **Lower vehicle miles traveled.** Retaining and modernizing well-located facilities, rather than displacing activity to more peripheral sites, keeps goods movement close to the markets it serves. Research on

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<sup>28</sup> Southern California Association of Governments (SCAG), Regional Transportation Plan / Sustainable Communities Strategy: Goods Movement Technical Report (2024).

<sup>29</sup> CBRE Research, 2022 U.S. Industrial & Logistics Occupier Survey (2022); CBRE Investment Management, The Case for Modern Logistics Facilities.

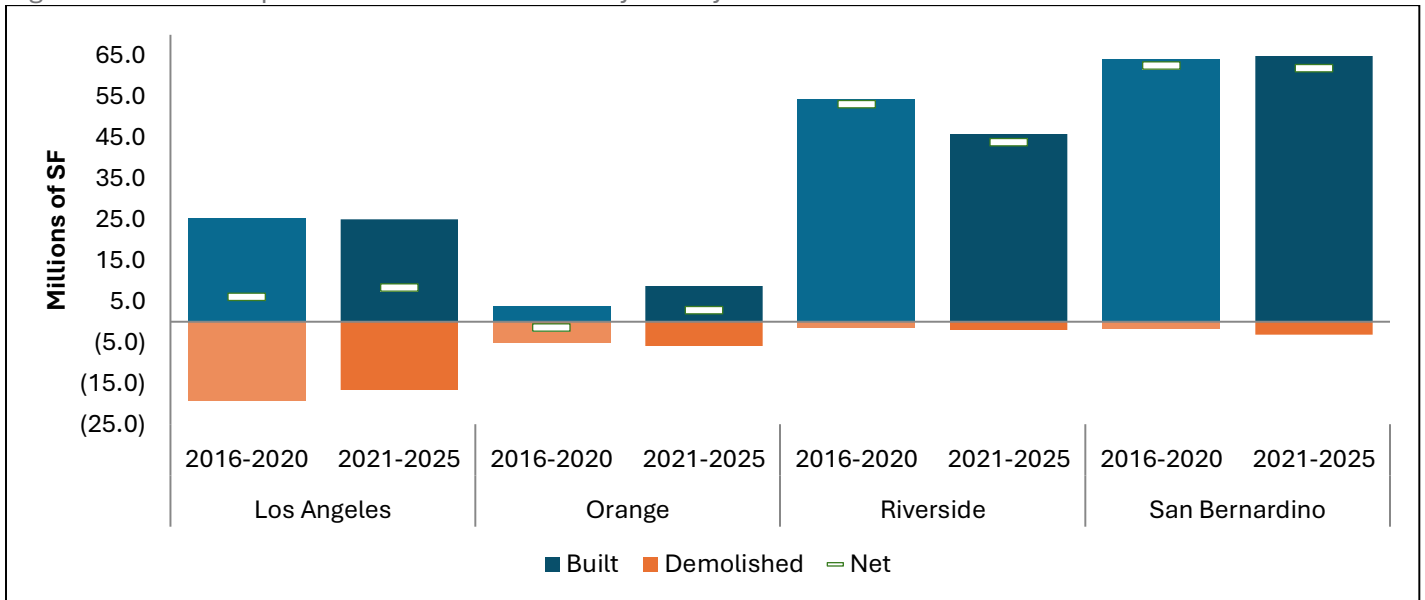
logistics sprawl finds that as distribution facilities move away from those markets, truck miles and associated emissions rise.<sup>30</sup>

- **Energy efficiency and lower emissions.** Modern buildings accommodate efficient systems, on-site renewable energy, and reduced resource use that legacy stock cannot support.<sup>31</sup>

Redevelopment, in turn, raises economic capacity and improves environmental performance. Yet replacing or modernizing older facilities can be challenging. Infill redevelopment often requires navigating permitting processes, capital investment, and other constraints that can discourage reinvestment.

Over the past decade, Los Angeles and Orange counties built roughly 63 million square feet of industrial space. At the same time, around 47 million square feet was demolished, meaning net capacity grew by only about 16 million square feet. The Inland Empire built about 229 million square feet and demolished only 8 million, a net gain of more than 220 million square feet. The coast demolished close to three-quarters of the space they built, while the Inland Empire demolished almost none, a split that persists across both halves of the decade. New construction can keep expanding the inland platform, but on the coast, it mostly offsets demolition. In coastal areas, sustaining industrial capacity depends on modernizing and redeveloping the land already in use, and whether that happens is shaped as much by land-use policy as by market forces.

Figure 5. Industrial space built and demolished by county: 2016-2020 vs 2021-2025



Source: CoStar, industrial deliveries and demolitions by county (SF). Analysis by Beacon Economics.

<sup>30</sup> Aljohani, K., & Thompson, R. G. (2016). Impacts of logistics sprawl on the urban environment and logistics: Taxonomy and review of literature. *Journal of Transport Geography*, 57, 255-263. For Los Angeles specifically, see Dablanc, L., Ogilvie, S., & Goodchild, A. (2014), Logistics sprawl: differential warehousing development patterns in Los Angeles and Seattle, *Transportation Research Record*, 2410, 105-112.

<sup>31</sup> Perotti, S., & Colicchia, C. (2023). Greening warehouses through energy efficiency and environmental impact reduction. *International Journal of Logistics Management*, 34(7), 199-234; U.S. Green Building Council (2025), *Applying LEED to Warehouse and Distribution Center Projects*.

Under the study's space-based framework, employment density can be estimated for each county, allowing the square-footage changes above to be expressed in employment terms. On average, industrial space supports between about 5 and 6 direct jobs per 10,000 square feet, ranging from roughly 5.3 in the Inland Empire to 5.8 in Los Angeles, where the building stock is more employment-intensive. Across counties with very different building mixes, industrial space supports a broadly similar level of direct employment per square foot.

Table 12. Average direct employment per 10,000 square feet of industrial space, by county, 2024

Area	Direct jobs	Industrial RBA (million sq ft)	Direct jobs per 10,000 sq ft (Average)
Los Angeles	631,834	1,093	5.8
Orange	183,428	338	5.4
Inland Empire	548,323	1,030	5.3
Four-county total	1,363,585	2,461	5.5

Source: Figures are direct employment per 10,000 square feet, calculated as total direct employment divided by total rentable building area. These are averages; actual density varies substantially with the type of activity a building houses, as warehousing and distribution are far less employment-dense than manufacturing space. Direct employment includes proprietors. The Inland Empire combines Riverside and San Bernardino. Source: California EDD; IMPLAN, 2024; CoStar. Analysis by Beacon Economics

These densities indicate the scale of activity associated with a given amount of industrial space, on average, not a measure of net job change. The figures above show net new construction against the demolition of older space, and the employment outcome depends on how much displaced activity relocates within the region, is genuinely lost, or has already vacated obsolete space.

## 6.2 Downzoning, Land Supply, and Property Value Dynamics

The supply of industrially zoned land directly shapes property values, occupancy costs, and the long-term configuration of industrial activity. Industrial land can be lost through downzoning, a form of rezoning that reduces the range or intensity of industrial activities permitted on a site, as well as through conversion to residential, commercial, or mixed-use development. For example, Los Angeles County's Metro Area Plan proposed replacing M1 (Light Manufacturing) zoning with a more restrictive M0.5 designation in parts of West Rancho Dominguez. The proposed change would reduce both the range and intensity of industrial activity permitted on affected properties, limiting future industrial development and illustrating how downzoning can constrain industrial capacity even when land remains designated for industrial use.<sup>32</sup>

When industrial parcels are converted to residential or other uses, the effects are asymmetric: downzoned parcels typically lose value as permitted intensity falls, while remaining industrial parcels face upward price pressure as

<sup>32</sup> Klein, J. (2023). New industrial down zone for West Rancho. Klein Commercial Real Estate. <https://www.kleincom.com/2023/02/new-industrial-west-rancho/>

supply contracts against sustained demand.<sup>33</sup> In built-out coastal markets, where residential land values far exceed industrial values, reconversion back to industrial use becomes economically unlikely under most conditions.

These dynamics extend beyond individual parcels. As industrial land tightens, occupancy costs rise for the many tenants who lease rather than own. Land scarcity can displace established firms even as aggregate property values rise, because rents come to reflect scarcity rather than productivity. When firms relocate or close down, the supplier relationships, workforce connections, and logistics networks they depend on are weakened. Once these networks are dispersed, they can be difficult to rebuild. Research suggests that land-use constraints in highly productive locations can reduce overall economic output by pushing businesses to less productive areas.<sup>34</sup> The same logic applies to industrial land: its value derives substantially from where it sits, so constraints that force relocation impose costs that parcel-level valuations do not capture.<sup>35</sup>

Parcel-level land values do not capture the broader system-level effects associated with agglomeration, supplier relationships, workforce access, and freight efficiency, which do not show up in any single transaction but accrue to the whole regional economy.

## 6.3 Policy Implications

The analysis suggests a single organizing principle: **land-use decisions should account for the efficiency and value of the regional system, not only the value of individual sites in isolation.** Four policy implications follow.

- a) **Preserve strategically located industrial land.** The case for preservation is strongest for parcels with critical access to ports, freight corridors, rail infrastructure, and major population centers. These locations provide advantages that cannot be easily replicated elsewhere and support industrial activity that has value beyond any individual site. Preservation should focus on protecting industrial land and its productive function, not freezing existing buildings in place.

Because the value of these sites derives largely from their location and connectivity, industrial capacity lost in these areas can be difficult and costly to replace elsewhere. If policymakers determine that preserving industrial capacity is an objective, potential tools include requiring a full accounting of the economic

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<sup>33</sup> Grodach, C., Taylor, E., Hurley, J., & Martin, D. (2025). Industrial district transitions: Agglomeration and gentrification in urban industrial zones. *International Journal of Urban and Regional Research*, 50(1), 170-190.

<sup>34</sup> Hsieh, C.-T., & Moretti, E. (2019). Housing constraints and spatial misallocation. *American Economic Journal: Macroeconomics*, 11(2), 1-39.

<sup>35</sup> Bertaud, A. (2018). *Order Without Design: How Markets Shape Cities*. MIT Press; Glaeser, E. (2011). *Triumph of the City*. Penguin Press.

activity at stake before industrial land is downzoned or converted to other uses, particularly in areas with access to ports, freight corridors, rail infrastructure, and major consumer markets.

New York City's Industrial Business Zone program provides one example of this approach. Established in areas facing significant development pressure, the program sought to preserve industrial land and employment by limiting conversions to non-industrial uses. Research finds that the program was effective at slowing the loss of industrial land,<sup>36</sup> suggesting that targeted preservation policies can help maintain industrial capacity where location-specific advantages are most difficult to replicate.

- b) **Prioritize modernization and reinvestment, not expansion alone.** Redevelopment and modernization of aging facilities on existing industrial land should be encouraged to maintain and expand regional capacity. In coastal markets where land is effectively built out, enabling redevelopment of aging sites is the most effective way of preserving capacity, improving environmental performance, and sustaining productivity. Policies that facilitate industrial modernization may include streamlined permitting for redevelopment projects, zoning flexibility that allows industrial sites to accommodate higher-intensity uses, and more activity on the same footprint where appropriate. Together, these measures can increase the amount of industrial activity supported on existing sites without expanding the industrial footprint.

Singapore provides a useful example. Facing severe land constraints, the country's 2025 Draft Master Plan rezoned portions of Woodlands North Coast and Changi Business Park to permit more intensive industrial uses and greater development flexibility.<sup>37</sup> The objective was not to expand the industrial land base, but to increase the productivity and capacity of existing areas by accommodating evolving manufacturing and logistics needs. This initiative illustrates how land-constrained regions can support industrial growth through modernization and intensification rather than outward expansion.

- c) **Plan housing and industry as a system, not a trade-off.** Housing and industrial capacity compete for the same land, but the trade-off is not zero-sum. Aligning land use with transportation and employment access, and drawing housing supply from sources other than productive industrial land, can serve both needs. Where the two are planned together as one regional system, both can expand; where one use is simply swapped for the other, both tend to lose.<sup>38</sup>

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<sup>36</sup> Davis, J., & Renski, H. (2020). Do Industrial Preservation Policies Protect and Promote Urban Industrial Activity? Examining the Impact of New York City's Industrial Business Zone Program. *Journal of the American Planning Association*, 86(4), 431–442. <https://doi.org/10.1080/01944363.2020.1753563>  
See also Lester, T. William. "Making Room for Manufacturing: Understanding Industrial Land Conversion in Cities." *Journal of the American Planning Association*, Informa UK Limited, 2013.

<sup>37</sup> Wei, C. (2025, September 16). *How Master Plan 2025 is reshaping SG's industrial landscape: Singapore's Draft Master Plan 2025 showcases strategic industrial rezoning to meet evolving market needs*. JLL. <https://www.jll.com/en-au/insights/how-master-plan-2025-is-reshaping-sgs-industrial-landscape>

<sup>38</sup> Nancey Green Leigh and Nathanael Z. Hoelzel, "Smart Growth's Blind Side: Sustainable Cities Need Productive Urban Industrial Land," *Journal of the American Planning Association* 78, no. 1 (2012): 87–103.

Converting centrally located industrial land is not simply a matter of relocation. Most manufacturing firms are small and depend on proximity to customers, suppliers, and workers, therefore requiring centrally located industrial space. Large industrial sites on the urban fringe are often poor substitutes, which can make relocation difficult and reduce access to workers without a four-year degree.<sup>39</sup> Developable industrial land in built-out coastal markets is already scarce, so each conversion permanently tightens that supply and erodes the local base of land that anchors these accessible jobs.<sup>29</sup>

In a region such as the Inland Empire, where both population growth and logistics activity continue to expand, housing and industrial development increasingly compete for the same land. The challenge is accommodating both uses while minimizing conflict between them. Siting them in coordination, with homes closer to jobs and preserving the efficiency of goods movement, allows the region to add housing without sacrificing industrial capacity. SCAG's current regional plan takes this approach, prioritizing development that brings housing and jobs closer together while supporting efficient goods movement.<sup>40</sup>

d) **Protect job access alongside productive capacity.** The industries on industrial land employ a wide range of workers across the region, and many of those jobs, in production, warehousing, and transportation, do not require a four-year degree.<sup>41</sup> For workers without a degree, that makes industrial space a major source of employment.

Whether people can access these jobs depends on where the land is situated. Where well-located industrial land is preserved, the jobs stay close to nearby workers. Where land is converted, firms may move to cheaper locations on the edge of the region, which is what warehousing has already done across Los Angeles.<sup>42</sup> Research finds that lower-income workers with weaker access to nearby jobs take longer to find work.<sup>43</sup> The farther this employment moves from where people live, the harder it becomes for workers to access.

Dispersing accessible employment toward the urban edge, therefore, widens the gap between these jobs and the workers who depend on them. This makes a case for treating workforce access, as well as goods-

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<sup>39</sup> Grodach, C., Hatuka, T., Ferm, J., Danan Vincent, A., Nalçakar, E. M., Çalışkan, O., & Chang, R. A. (2024). Industrial Lands and Development: Edited by Carl Grodach and Tali Hatuka. *Planning Theory & Practice*, 25(5), 699–727. <https://doi.org/10.1080/14649357.2024.2435191>

<sup>40</sup> Southern California Association of Governments (SCAG), *Connect SoCal 2024: 2024–2050 Regional Transportation Plan / Sustainable Communities Strategy*, adopted April 2024.

<sup>41</sup> U.S. Bureau of Labor Statistics, Occupational Outlook Handbook and Employment Projections, education and training assignments by detailed occupation. Production occupations and transportation and material-moving occupations, which account for a large share of industrial and warehousing employment, typically require a high school diploma or no formal educational credential for entry rather than a bachelor's degree.

<sup>42</sup> Dablanc, L., Ogilvie, S., & Goodchild, A. (2014). Logistics Sprawl: Differential Warehousing Development Patterns in Los Angeles, California, and Seattle, Washington: Differential Warehousing Development Patterns in Los Angeles, California, and Seattle, Washington. *Transportation Research Record: Journal of the Transportation Research Board*, 2410(1), 105–112.

<sup>43</sup> Fredrik Andersson, John C. Haltiwanger, Mark J. Kutzbach, Henry O. Pollakowski, and Daniel H. Weinberg, "Job Displacement and the Duration of Joblessness: The Role of Spatial Mismatch," *The Review of Economics and Statistics* 100, no. 2 (2018): 203–218.

movement value, as a criterion when deciding which industrial land to protect from conversion: land that anchors jobs for nearby workers should get the same careful review before it is converted as land that serves the ports and freight corridors.

# 7 Conclusion

**The industries located on Southern California industrial land directly produce about 11% of the GDP generated across the four-county region, roughly one dollar in nine.** Much of that value reflects the concentration of manufacturing, logistics, construction, wholesale trade, and other industries that depend on industrial space. But it also reflects advantages that are difficult to replicate elsewhere: proximity to suppliers, access to specialized labor pools, and direct connections to transportation infrastructure and the ports that handle close to one-third of the nation’s containerized seaborne trade.

When industrial land is converted to other uses, the working assumption is often that economic activity simply relocates. Yet part of the value created by industrial firms comes from being embedded within a broader network of suppliers, workers, and infrastructure, and those locational advantages cannot always be replicated elsewhere. That risk is greatest in the built-out coastal markets, where little industrial land remains available for relocation.

A conversion may create value on an individual parcel while reducing capacity that supports production, logistics, and business activity elsewhere in the region. The benefits of conversion are often visible at the site level, while the costs are dispersed across many firms, workers, and jurisdictions. As a result, those regional impacts may not be fully reflected in individual land-use decisions.

Southern California’s industrial economy is not a single market. Los Angeles County, Orange County, and the Inland Empire each support different industries, building types, and economic functions. Manufacturing remains more concentrated in the coastal counties, while logistics and distribution play a larger role inland. Because these industrial ecosystems are complementary rather than interchangeable, a single approach to industrial land policy is unlikely to fit all parts of the region equally well.

The findings of this paper suggest that industrial land should be evaluated not only as a local land use but also as regional economic infrastructure. The question is not simply how much industrial land Southern California retains, but where that land is located, how effectively it functions, and whether it can continue to modernize over time. Those decisions will help shape the structure, productivity, and competitiveness of the regional economy for decades to come.

The next two papers in this series examine how the economic activity identified here moves through supplier networks and into public revenues. Together, the three papers provide an evidence base for evaluating industrial land not only as a collection of individual sites, but as part of the infrastructure that supports Southern California’s economy.

## THE ORGANIZING PRINCIPLE

Land-use decisions should account for the efficiency and value of the regional system, not only the value of individual sites in isolation.

***The Research Series:** This paper establishes the scale and composition of the industrial platform. Two further papers extend the analysis to the questions this one identifies but does not measure: supply-chain enablement and fiscal contributions.*

### White Paper 1

#### Economic Footprint

Quantifies the employment, labor income, output, and value added anchored in industrial space, with subregional detail.

**THIS PAPER**

### White Paper 2

#### Supply-Chain Enablement

Maps the interindustry linkages through which industrial activity supports the wider economy and evaluates how capacity constraints are transmitted to dependent industries.

**FORTHCOMING**

### White Paper 3

#### Fiscal Contributions

Assesses how industrial and logistics activity supports public revenues at the city, county, and state levels.

**FORTHCOMING**

# 8 Appendix

## 8.1 Definitions

### Industrial Building

A type of building(s) adapted for a combination of uses such as assemblage, processing, and/or manufacturing products from raw materials or fabricated parts. Additional uses include warehousing, distribution, and maintenance facilities. Self-storage facilities are also tracked as an industrial type, but CoStar does not list such space for lease in the database.<sup>44</sup>

### Flex Building

An **industrial property** designed to be used in a variety of ways. Flex buildings usually include a minimum of 25% non-industrial space (like office or retail), and allocate the remaining space to industrial uses (like warehouse or distribution). Flex buildings typically have ceiling heights under 18 feet, possibly within a light industrial zoning designation. Flex buildings have also been called RandD and Incubator buildings in markets throughout the country.<sup>45</sup>

Both industrial and flex buildings, as defined above, are included in the inventory analyzed in this report. For simplicity and readability, the two are referred to collectively as 'industrial space' or 'industrial properties' throughout.

Flex properties serve industrial functions and account for approximately 6% of the region's industrial floor area.

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<sup>44</sup> Definitions based on CoStar's definitions

<sup>45</sup> Definitions based on CoStar's definitions

Secondary Types include:

Type	Typical size	Clear height	Loading ratio	Office share	Notes
<b>Warehouse</b>	25,000+ sf, box	22+ ft	1 dock / 15,000 sf of RBA	Up to 20%	Site coverage up to 50%
<b>Distribution</b>	200,000+ sf	28+ ft	1 door / 10,000 sf of RBA	Up to 5%	These are typically large buildings, both single and multi-tenant, used for the warehousing and distribution of inventory. Often cross-docked; trailer parking
<b>Manufacturing</b>	300,000+ sf	—	1 dock / 15,000 sf of RBA	Up to 50%	—
<b>Light manufacturing</b>	Smaller-scale	—	—	—	Lower-intensity production, assembly, fabrication

Source: CoStar secondary property-type definitions. RBA denotes rentable building area.

Other Secondary Types:

**Service:** Industrial zoned building designed for vehicle repair. It may include cranes for moving engine blocks, electric or hydraulic lifts, and numerous drive-in doors.

**Food Processing:** A facility used for the processing of food goods. These buildings may or may not have cold storage or freezer space. Typically uses include: bakeries, canneries, frozen foods, and dry foods.

### 8.1.1 Key Terms

Term	Definition
<b>Direct Effect</b>	The economic activity of the firms that occupy industrial space: the employment, wages, output, and purchases of inputs generated by their ongoing operations. It is the activity measured before any supplier or wage-circulation effects are added.
<b>Employment</b>	The number of jobs supported in the analysis year, 2024. It includes full-time, part-time, and seasonal jobs, and includes both wage-and-salary employment and proprietor (self-employed) employment.
<b>GDP / Value Added</b>	Also called value added or gross regional product (GRP). Measures the value created in the economy. It is calculated as the difference between an industry’s total output and the cost of goods and services purchased from other industries. The remaining value represents income generated through wages, business profits, and taxes on production.
<b>IMPLAN</b>	Industry-standard regional input-output economic impact modeling system (2024 data year used in this analysis).
<b>Indirect Effect</b>	Economic activity through the supply chain as vendors and suppliers respond to direct activity.
<b>Induced Effect</b>	Economic activity generated when workers whose income is supported by direct and indirect activity spend their wages on household goods and services.
<b>Intermediate Inputs</b>	Purchases of goods and services that are used to produce other goods and services rather than for final consumption.
<b>Labor Income</b>	Total income earned by workers and business owners, including wages, salaries, employer-paid benefits (such as health insurance and retirement contributions), payroll contributions, and proprietor income.
<b>Multiplier</b>	The ratio of total contribution to direct contribution. Because this study measures a large share of the regional supply chain at once, most inter-industry purchases fall inside the analyzed set and are netted out, which produces deliberately conservative multipliers. A multiplier of 1.10, for example, means that each direct job or dollar supports an additional 0.10 elsewhere in the regional economy through purchases and worker spending that fall outside the analyzed industries.

Term	Definition
<b>MRIO</b>	Multi-Region Input-Output modeling. A framework that traces effects across multiple geographic units simultaneously, capturing supply chain spillovers between regions.
<b>Other Property Income</b>	Equal to gross operating surplus minus proprietor income. It includes consumption of fixed capital, corporate profits, and net business current transfer payments.
<b>Output</b>	The total dollar value of everything produced, counting both the value an industry adds and the cost of the goods and services it buys from other businesses to produce it. Because it includes those purchased inputs, output is always larger than GDP and reflects the total volume of business activity set in motion, rather than the net value created.
<b>Proprietor Income (PI)</b>	Payments received by self-employed individuals and unincorporated business owners and the current-production income of sole proprietorships, partnerships, and tax-exempt cooperatives.
<b>Taxes on Production and Imports net of Subsidies</b>	All taxes less subsidies on production, including taxes on the production and import of goods and services, the employment of labor, and the ownership or use of land, buildings, or other assets used in production.

## 8.2 Methodology and Data

This study measures the economic activity that physically occupies industrial real estate, rather than a pre-selected list of industries. The approach proceeds in four steps

**1 Define the property universe.** The property universe is primarily based on UrbanFootprint parcel-level land-use designations, supplemented by CoStar property records in the City of Los Angeles and the Inland Empire. Parcels are retained where the available data sources indicate they function as industrial or flex space. Because some industrial properties may not be identified by either source, the resulting estimates should be interpreted as a conservative estimate of the economic activity associated with industrial properties.

**2 Identify occupants and industry composition.** Parcels are matched to California EDD establishment records to identify employment and the three-digit NAICS industries operating within them. Three-digit NAICS industries are subsequently aggregated into broader industry categories for reporting purposes. Because the definition is spatial, the analysis captures the range of activity that uses industrial space.

**3 Regroup to economic function.** Three-digit NAICS industries are mapped to broader industry categories for reporting purposes. For example, goods movement and distribution combines freight transportation, warehousing, and wholesale trade, while passenger transportation is reported separately because it moves people rather than goods; this category appears in the industrial universe because transit, fleet, and vehicle-maintenance facilities are frequently sited on industrially zoned land. Government and non-NAICS establishments are also grouped separately.

**4 Estimate economic contribution.** The economic contribution of businesses operating within industrial and flex properties is estimated using IMPLAN's Industry Contribution Analysis.

Employment and payroll associated with establishments located within the identified properties are aggregated using matched California EDD establishment records. Employee compensation is estimated by applying IMPLAN industry-specific employee compensation-to-wage ratios to EDD wage and salary data.

A contribution framework is used because the analysis measures the economic activity supported by existing businesses rather than new spending or investment. Unlike a traditional economic impact analysis, contribution analysis accounts for economic activity already occurring within the study area to avoid overstating indirect supply-chain effects through double counting. As a result, the estimated multipliers should be interpreted as conservative measures of the economic activity supported by industrial and flex properties. The analysis is conducted as a multi-region model spanning nine Southern California subregions, allowing indirect and induced effects to be traced throughout the region.

## The modeling framework

An input-output model is a detailed map of how money moves between industries. When one industry receives spending, the model traces what it must purchase from other industries to meet that demand, and what those industries purchase in turn, until the spending eventually leaves the local economy. This is what allows the analysis to estimate not only the direct activity of the industries occupying industrial space, but the additional activity that this direct activity supports across the regional economy.

The study uses this input-output framework, implemented in IMPLAN, but applies it as an Industry Contribution Analysis rather than a standard impact analysis. A standard impact analysis traces the activity set in motion by a new, external injection of spending, such as a new facility or a new public investment. Because this study measures industries that are already operating, it instead asks how much of the regional economy their ongoing activity supports.

An **Industry Contribution Analysis** is deliberately conservative. It nets out the purchases that the analyzed industries make from one another, so that no dollar of activity is counted twice. Because this study measures a large share of the regional supply chain at once, most inter-industry linkages fall inside the analyzed set and are removed by design. The result is a set of conservative multipliers and a total contribution that can be defended as a lower-bound, non-double-counted measure of the footprint, a more credible basis for policy than headline figures built on large assumed multiplier effects. The modest size of the multipliers reflects that most of the supply chain is already captured directly, not that the activity is economically shallow.

## Direct, indirect, and induced effects

The contribution captures three types of effects:

- **Direct effects.** The immediate economic activity of the industries occupying industrial space: their employment, payroll, and output. Examples include warehousing and distribution, freight transportation, wholesale trade, and manufacturing operating in industrial facilities.
- **Indirect effects.** Activity generated as the industries occupying industrial space purchase goods and services from other businesses in the regional supply chain. Examples include equipment and maintenance, packaging, professional and business services, utilities, and transportation inputs sourced within the region.
- **Induced effects.** Activity generated when workers whose income is supported by the direct and indirect activity spend their earnings in the regional economy, on housing, groceries, health care, retail, transportation, and other goods and services.

Total contribution is expressed as  $T = D + I + N$ , where D, I, and N denote the direct, indirect, and induced effects.

The indirect and induced effects together are referred to as secondary effects, and the total contribution is the sum of the three.

## Regional scope and model design

The analysis uses a multi-region input-output framework that distinguishes the host geography from the surrounding economy, so that supplier and household-spending effects are traced where they actually occur. The model spans nine Southern California subregions across Los Angeles, Orange, Riverside, and San Bernardino counties, with linkages to the rest of California and the rest of the United States captured separately. This separates the effects that remain in Southern California from the spillovers that flow to other geographies, and it reflects the region's character as an integrated, port-anchored production and distribution system rather than a set of independent local markets.

## Reporting conventions

All estimates are reported in 2024 dollars. The results are a single-year contribution estimate for 2024; they measure the economic activity supported by the occupants of industrial space in one representative year, not a cumulative or projected total. Employment is reported as IMPLAN total employment in the contribution tables and as wage-and-salary employment in the composition and wage tables, consistent with the reconciliation notes below.

## Limitations of the Industry Contribution Analysis

Input-output contribution modeling provides valuable insight into how activity circulates through an economy, but the results should be read within several analytical boundaries:

- **Static and linear framework.** Input-output models assume fixed production relationships and constant returns to scale. They do not capture behavioral responses, input substitution, or price changes over time.
- **Modeled supply chains.** Results depend on IMPLAN's representation of inter-industry purchasing patterns, which may differ from the procurement structure of any individual establishment.
- **No supply constraints.** The model assumes that industries, labor, and inputs are available to meet demand, and does not account for resource shortages, labor-market constraints, or capacity limits.
- **Data and assumptions.** Results reflect the accuracy of the underlying employment and establishment data and the assumptions about local purchasing patterns and industry composition.
- **Gross-contribution framework.** The analysis estimates the activity supported by the industries occupying industrial space. It does not net out activity that might occur elsewhere in the economy in their absence, so the contribution is a measure of a current footprint rather than a forecast of what would be lost or gained under any specific land-use change. Value added includes a capital-income component, such as operating surplus and rent, whose ultimate distribution among local and non-local owners is outside the scope of this study. The figures also measure gross economic contribution only and do not monetize the local environmental, health, congestion, or housing costs associated with industrial activity, which belong on the other side of any land-use decision.

These boundaries should be kept in mind when interpreting the results.

## Reconciliation notes

Item	Treatment
Employment concept	IMPLAN employment includes proprietors and reports about 1.36 million direct jobs, the basis for the composition, contribution, and subregional tables. The EDD wage-and-salary count is about 1.03 million and is the basis for the historical employment trend and the per-job wage averages.
Geography	Economic-contribution results are reported by modeled subregion and by county group (Los Angeles County, Orange County, and the Inland Empire). Property and employment-composition tables are reported by county, consistent with the geography of each underlying source.
Inland Empire	Reported as a combined area. The model's subregions (Western and Eastern Inland Empire) do not align with Riverside and San Bernardino county boundaries, so the two counties are not separated in contribution results.
Wholesale trade	IMPLAN aggregates wholesale trade, so the goods-movement definition in the IMPLAN-based subregion tables is marginally broader than in the EDD-based composition tables, which exclude wholesale agents and brokers.
Wage benchmark	The benchmark row in the compensation table is the average across all industrial-space tenants, not the all-industry average of the county economy. Employee compensation includes employer-paid benefits and therefore exceeds take-home wages.

## Limitations of Spatial Data Analysis

As discussed above, industrial and flex properties were identified using UrbanFootprint land-use data and CoStar property records. While these sources provide broad coverage of industrial space, some qualifying properties may not be identified because of outdated or incomplete land-use classifications. In addition, the methodology relies on the accuracy of establishment geocodes in the California EDD data. In some cases, an establishment may be located within an industrial property but have a geocode that falls just outside the parcel boundary, preventing a match. As a result, the methodology is more likely to miss qualifying establishments than to incorrectly include nonqualifying establishments, creating a downward bias in the results. Consequently, the economic contribution estimates presented in this report should be interpreted as conservative.

For Orange County and Los Angeles County (excluding the City of Los Angeles), the analysis relied primarily on UrbanFootprint land-use classifications and parcel-level spatial matching. For the City of Los Angeles, Riverside County, and San Bernardino County, additional steps were taken to improve match quality. CoStar property records were used to identify industrial properties that were not classified as industrial in UrbanFootprint. For example, the Amazon Fulfillment Center ONT6 in Moreno Valley is classified as commercial in UrbanFootprint but industrial in CoStar. Establishments were matched to CoStar properties using an address-standardization algorithm designed to reconcile differences in address formatting across datasets. Remaining unmatched records between CoStar and EDD were evaluated using fuzzy matching techniques, with particular attention given to large employment sites.

In addition, establishments that did not match an industrial parcel during the initial UrbanFootprint-EDD spatial join were evaluated using a fuzzy spatial matching procedure to identify cases where minor geocoding

discrepancies placed establishments just outside qualifying parcel boundaries.<sup>46</sup> These additional procedures were intended to recover valid matches that would otherwise be missed while minimizing the risk of incorrectly assigning establishments to properties.

This methodology provides a detailed picture of the economic activity occurring within industrial space. Nevertheless, the results could be further refined with more current land-use data and broader access to establishment-level employment records. In particular, access to establishment-level EDD data for Orange County and the Los Angeles County would allow the same enhanced matching procedures used in the City of Los Angeles and the Inland Empire to be applied throughout the study area.

### Comparison with prior cluster estimates

The estimates here can be compared with the LAEDC *Goods on the Move* study of the Southern California Trade and Logistics industry cluster,<sup>47</sup> but the two are not built the same way and should not be read as competing estimates of the same quantity. That study defines its universe by industry, a list of trade and logistics NAICS codes across five Southern California counties, and applies standard impact multipliers. This study defines its universe spatially, the establishments that occupy industrial and flex space across Southern California, and applies contribution analysis. The two universes overlap in warehousing and distribution, but neither contains the other: this study adds manufacturing and other industrial occupants that the cluster definition excludes, while the cluster definition includes trade and logistics activity located outside industrial space. The construction explains the results. This study reports a larger direct footprint, because the spatial universe is broader on the industrial side even across fewer counties. Yet this study reports a smaller total, about 1.45 million jobs and \$401 billion in output against 2.0 million jobs and \$498 billion. That difference is methodological: Impact analysis counts the transactions among the cluster industries as additional indirect and induced activity, roughly a million jobs in the LAEDC figures. Contribution analysis nets those transactions out to avoid double-counting, which is why the secondary effects here are about 88,000 jobs. Measured directly, this study captures more of the regional economy; measured in total, it reports less, because it does not count the same dollar twice.

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<sup>46</sup> Picard, Robert, (2019), GEONEAR: Stata module to find nearest neighbors using geodetic distances, <https://EconPapers.repec.org/RePEc:boc:bocode:s457146>

<sup>47</sup>Los Angeles County Economic Development Corporation, Institute for Applied Economics, *Goods on the Move: Trade and Logistics in Southern California* (March 2025), commissioned by the Southern California Leadership Council. Reported figures reflect 2022 economic activity for the five-county Southern California region. Available at [https://scag.ca.gov/sites/default/files/2025-05/Addendum%20to%20Business-Report\\_May%202025\\_0.pdf](https://scag.ca.gov/sites/default/files/2025-05/Addendum%20to%20Business-Report_May%202025_0.pdf)

Measure	LAEDC Trade and Logistics cluster (2025)	This study (Industrial and Flex properties)
Universe definition	Industry-cluster (NAICS: trade + logistics), five counties	Spatial (establishments on industrial/flex parcels), four counties
Method	Standard impact multipliers	Industry Contribution Analysis
Direct jobs	~902,400	~1,363,585
Total jobs (incl. secondary)	~2,000,000	~1,451,668
Indirect + induced jobs	~1,059,000	~88,083
Direct output	\$289.6B	\$370.8B
Total output	\$497.6B	\$401B
Labor income	\$157B (total)	\$110B total (\$100.8B direct)
Implied output multiplier	~1.72	~1.08
Implied employment multiplier	~2.2	~1.06

### Data sources

Source	Use
<b>CoStar (2024–2025)</b>	Industrial and flex property inventory, square footage, building size, and vintage.
<b>California EDD</b>	Establishment employment and three-digit NAICS composition, geocoded to industrial parcels; wage-and-salary basis.
<b>IMPLAN (2024)</b>	Industry Contribution Analysis, multi-region; direct, indirect, and induced employment, labor income, value added, and output.
<b>U.S. Bureau of Economic Analysis (2024)</b>	County GDP totals used to express industrial contribution as a share of the regional economy.

All figures are contribution estimates for 2024. Construction and property-operation multipliers reported in the body are standard impact multipliers from a separate IMPLAN run and are not directly comparable to the tenant-contribution figures. Analysis by Beacon Economics.

## 8.3 Region Definitions

**Note:** Subregions are defined using ZIP code boundaries rather than municipal boundaries. The city lists are provided only to help illustrate the geographic composition of each subregion and are based on Lightcast place-name assignments, which match each ZIP code to the city or place containing the largest share of its area. As a result, a city's appearance in a subregion does not necessarily mean that the entire city is included.

For example, ZIP code 90001 spans portions of both the City of Los Angeles and the census-designated place Florence-Graham, but is assigned to Los Angeles because most of the ZIP code falls within the city. Because ZIP code 90001 is part of the Gateway subregion, Los Angeles appears in that subregion's city list even though only a small portion of the city is represented. Similarly, some cities, such as Whittier, may appear in multiple subregions where associated ZIP codes span more than one market area.

### **City of Los Angeles**

Canoga Park, Chatsworth, Encino, Granada Hills, Los Angeles, Mission Hills, North Hills, North Hollywood, Northridge, Pacoima, Pacific Palisades, Panorama City, Playa del Rey, Playa Vista, Porter Ranch, Reseda, Sherman Oaks, Studio City, Sun Valley, Sunland, Sylmar, Tarzana, Tujunga, Valley Village, Van Nuys, Venice, West Hills, and Woodland Hills.

### **Gateway Cities**

Artesia, Bell, Bell Gardens, Bellflower, Carson, Cerritos, Compton, Downey, Hawaiian Gardens, Huntington Park, La Mirada, Lakewood, Long Beach, Los Angeles, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, San Pedro, Santa Fe Springs, Signal Hill, South Gate, Whittier, Wilmington.

### **San Gabriel Valley**

Alhambra, Altadena, Arcadia, Azusa, Baldwin Park, Claremont, City of Industry, Covina, Diamond Bar, Duarte, El Monte, Glendora, Hacienda Heights, La Puente, La Verne, Monrovia, Monterey Park, Pasadena, Pomona, Rosemead, Rowland Heights, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, South Pasadena, Temple City, Walnut, West Covina, and Whittier.

### **Other Los Angeles County**

Acton, Agoura Hills, Avalon, Beverly Hills, Burbank, Calabasas, Canyon Country, Castaic, Culver City, Glendale, La Cañada Flintridge, La Crescenta, Lake Hughes, Lancaster, Littlerock, Llano, Los Angeles, Malibu, Montrose, Mount Wilson, Mt. Baldy, Newhall, Palmdale, Pearblossom, Santa Clarita, Santa Monica, Stevenson Ranch, Topanga, Toluca Lake, Universal City, Valencia, Valyermo, Verdugo City, Whittier, and Wrightwood.

### **South Bay**

Carson, Compton, El Segundo, Gardena, Harbor City, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Long Beach, Manhattan Beach, Marina del Rey, Palos Verdes Peninsula, Playa del Rey, Rancho Palos Verdes, Redondo Beach, San Pedro, and Torrance.

### **Eastern Inland Empire**

Adelanto, Aguanga, Amboy, Angelus Oaks, Anza, Apple Valley, Baker, Banning, Barstow, Big Bear City, Big Bear Lake, Blythe, Blue Jay, Cabazon, Cathedral City, Cedar Glen, Cedarpines Park, Cima, Coachella, Daggett, Desert Center, Desert Hot Springs, Earp, Essex, Fawnskin, Forest Falls, Fort Irwin, Green Valley Lake, Helendale, Hemet, Hesperia, Hinkley, Indian Wells, Indio, Idyllwild, Joshua Tree, La Quinta, Landers, Lake Arrowhead, Lucerne Valley, Ludlow, Mecca, Morongo Valley, Mountain Center, Mountain Pass, Needles, Newberry Springs, Nipton, North Palm Springs, Oro Grande, Palm Desert, Palm Springs, Parker Dam, Phelan, Pioneertown, Rancho Mirage, Red Mountain, Running Springs, Sugarloaf, Thermal, Thousand Palms, Trona, Twentynine Palms, Valyermo, Victorville, Vidal, Whitewater, Yermo, and Yucca Valley.

### **Western Inland Empire**

Beaumont, Bloomington, Bryn Mawr, Calimesa, Chino, Chino Hills, Colton, Corona, Crestline, Eastvale, Fontana, Grand Terrace, Guasti, Hemet, Highland, Homeland, Jurupa Valley, Lake Elsinore, Loma Linda, Lytle Creek, March Air Reserve Base, Menifee, Mentone, Mira Loma, Montclair, Moreno Valley, Murrieta, Menifee, Nuevo, Norco, Ontario, Perris, Pinon Hills, Patton, Rancho Cucamonga, Redlands, Rialto, Rimforest, Riverside, San Bernardino, San Jacinto, Skyforest, Temecula, Twin Peaks, Upland, Wildomar, Winchester, and Yucaipa.

### **North Orange County**

Aliso Viejo, Anaheim, Atwood, Brea, Buena Park, Corona del Mar, Costa Mesa, Cypress, East Irvine, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, La Habra, La Palma, Los Alamitos, Midway City, Newport Beach, Newport Coast, Orange, Placentia, Santa Ana, Seal Beach, Stanton, Sunset Beach, Surfside, Tustin, Villa Park, Westminster, and Yorba Linda.

### **South Orange County**

Aliso Viejo, Capistrano Beach, Dana Point, El Toro, Foothill Ranch, Ladera Ranch, Lake Forest, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Mission Viejo, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Silverado, and Trabuco Canyon.

## 8.4 Industry Definitions

**Note:** Industries are regrouped from the North American Industry Classification System (NAICS) into broader categories used throughout this analysis. The corresponding NAICS codes are shown in parentheses. Most categories are defined using three-digit NAICS industries, although some are represented by a broader two-digit NAICS sector where appropriate (e.g., Construction [23]).

### **Agriculture, Forestry, Fishing and Hunting**

Crop Production (111); Animal Production and Aquaculture (112); Forestry and Logging (113); Fishing, Hunting and Trapping (114); Support Activities for Agriculture and Forestry (115)

### **Mining, Quarrying, Oil and Gas**

Oil and Gas Extraction (211); Mining, except Oil and Gas (212); Support Activities for Mining (213)

### **Utilities**

Utilities (221)

### **Construction**

Construction (23)

### **Manufacturing**

Food Manufacturing (311); Beverage and Tobacco Product Manufacturing (312); Textile Mills (313); Textile Product Mills (314); Apparel Manufacturing (315); Leather and Allied Product Manufacturing (316); Wood Product Manufacturing (321); Paper Manufacturing (322); Printing and Related Support Activities (323); Petroleum and Coal Products Manufacturing (324); Chemical Manufacturing (325); Plastics and Rubber Products Manufacturing (326); Nonmetallic Mineral Product Manufacturing (327); Primary Metal Manufacturing (331); Fabricated Metal Product Manufacturing (332); Machinery Manufacturing (333); Computer and Electronic Product Manufacturing (334); Electrical Equipment, Appliance, and Component Manufacturing (335); Transportation Equipment Manufacturing (336); Furniture and Related Product Manufacturing (337); Miscellaneous Manufacturing (339)

### **Goods Movement and Distribution**

Wholesale Trade (42); Air Transportation (481); Rail Transportation (482); Water Transportation (483); Truck Transportation (484); Pipeline Transportation (486); Scenic and Sightseeing Transportation and Support Activities (487–488); Couriers and Messengers (492); Warehousing and Storage (493)

## **Retail Trade**

Motor Vehicle and Parts Dealers (441); Building Material and Garden Equipment and Supplies Dealers (444); Food and Beverage Stores (445); Health and Personal Care Stores (446); Furniture, Home Furnishings, Electronics, and Appliance Retailers (449); General Merchandise Retailers (455); Gasoline Stations and Fuel Dealers (457); Clothing, Clothing Accessories, Shoe, and Jewelry Retailers (458); Sporting Goods, Hobby, Musical Instrument, Book, and Miscellaneous Retailers (459)

## **Passenger Transportation**

Transit and Ground Passenger Transportation (485)

## **Information**

Publishing Industries (511); Motion Picture and Sound Recording Industries (512); Broadcasting and Content Providers (516); Telecommunications (517); Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services (518); Web Search Portals, Libraries, Archives, and Other Information Services (519)

## **Finance and Insurance**

Monetary Authorities–Central Bank (521); Credit Intermediation and Related Activities (522); Securities, Commodity Contracts, and Other Financial Investments (523); Insurance Carriers and Related Activities (524); Funds, Trusts, and Other Financial Vehicles (525)

## **Real Estate and Rental/Leasing**

Real Estate (53); Rental and Leasing Services (532); Lessors of Nonfinancial Intangible Assets (533)

## **Professional, Scientific and Technical Services**

Professional, Scientific, and Technical Services (54)

## **Management of Companies**

Management of Companies and Enterprises (551)

## **Administrative and Support / Waste Management**

Administrative and Support Services (561); Waste Management and Remediation Services (562)

## **Educational Services**

Educational Services (611)

### **Health Care and Social Assistance**

Ambulatory Health Care Services (621); Hospitals (622); Nursing and Residential Care Facilities (623); Social Assistance (624)

### **Arts, Entertainment and Recreation**

Performing Arts, Spectator Sports, and Related Industries (711); Museums, Historical Sites, and Similar Institutions (712); Amusement, Gambling, and Recreation Industries (713)

### **Accommodation and Food Services**

Accommodation (721); Food Services and Drinking Places (722)

### **Other Services**

Repair and Maintenance (811); Personal and Laundry Services (812); Religious, Grantmaking, Civic, Professional, and Similar Organizations (813); Private Households (814)

### **Government**

Administrative Government (92)