

Hybrid-Industrial Zoning:
A Case Study in Downtown Los Angeles

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Abstract

Historically, land use planning has treated industrial land uses either antagonistically or ambivalently. Traditional zoning approaches have restricted, regulated, spatially isolated, and pushed industrial land to the periphery of cities, resulting in a significant loss of urban industrial land across American cities. But as the United States experiences a manufacturing renaissance and cities begin to recognize the value of centrally located industrial land in its contribution to the regional economy, planners are grappling with the issue of how best to secure these viable but vulnerable sites of employment and production. Advanced technologies that are changing the nature of manufacturing and logistics present an exciting opportunity and potential solution: the industrial mixed-use zone. This thesis explores the emerging land use tool of industrial-mixed use zoning, using Los Angeles as a case study.

The intent of the industrial mixed-use zone, which permits non-industrial uses, to varying degrees of intensities, in otherwise industrial districts, is to protect central locations for industrial operations when market forces might otherwise price them out. On the one hand, the zone can impede industrial business displacement through offering protection to compatible lighter industrial uses in transitioning neighborhoods. In doing so, it aims to create a live/work urban district in which several planning agendas are met and balanced, providing for industrial employment alongside affordable housing and public realm improvements. On the other hand, without strict use definitions, mix requirements or consistent regulation, the industrial mixed-use zone risks both accelerating the land use conversion process, operating as residential and commercial upzoning, and gentrifying industrial districts toward more artisanal and boutique industrial operations.

In 2019, the Los Angeles Department of City Planning will rezone industrial land in Downtown Los Angeles under a new zoning classification: hybrid-industrial. Through an exploration of Los Angeles' industrial land use policies, a process tracing of the evolution of hybrid-industrial zoning, and a dissection of the zoning ordinance's text, this thesis demonstrates the trade-offs associated with a mixed-use district and the potential challenges and pitfalls of implementation.

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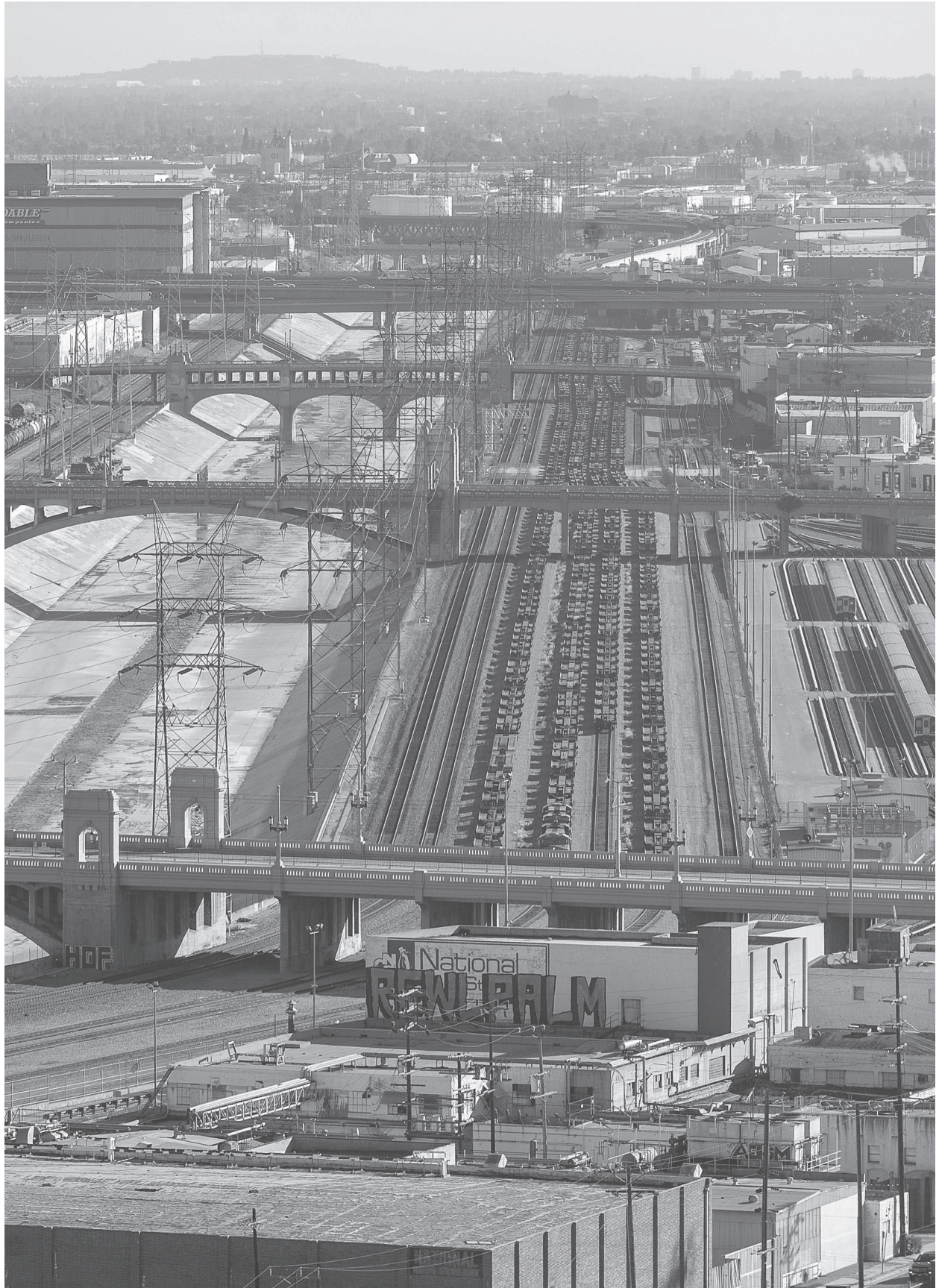
To my parents, thank you for your unwavering support in all that I do. Mom, thank you for the pep talks. Dad, thank you for the martini study breaks.

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Introduction

A New Zoning Classification: Hybrid-Industrial

The Los Angeles Department of City Planning is currently updating two community plans, Central City and Central City North, that together make up Downtown Los Angeles. This community plan update, an initiative known as DTLA 2040, will contain policies and objectives reflecting a future vision for Downtown Los Angeles, as well as designate land for a range of general uses and intensities. Additionally, the update includes the power to amend the city zoning map to be consistent with new land use designations. DTLA 2040 is faced with the challenge of planning for unprecedented growth. Regional projections suggest that by 2040, 125,000 people, 70,000 housing units, and 55,000 new jobs will be added to Downtown Los Angeles. The purpose of the DTLA 2040 plan update, therefore, is to “support and sustain the ongoing revitalization of Downtown while thoughtfully accommodating projected future growth.”¹ One such growth-management mechanism that the proposed plan introduces is a new zoning classification: hybrid-industrial.

DTLA 2040 defines the proposed hybrid-industrial zone as intended for areas

that “preserve productive activity and prioritize space for employment.”² Sample productive activities listed include light industrial, new industry, commercial, and creative office. Additionally, the hybrid-industrial zone also allows for the “careful introduction of live-work uses,” and in doing so, would be the first zoning instrument in the city that would allow for the colocation of residential and industrial uses.³ While the plan update process is still underway and slated for completion in 2019, the city has published a concept map of where they intend to use the new hybrid-industrial zone classification – notably, in a slice of industrial land wedged between Alameda Street and the Los Angeles River, an area inclusive of the Arts District and surrounding blocks.

DTLA 2040’s creation of this new zoning classification reflects larger national trends in which city planners, faced with the dwindling supply of urban industrial land, are grappling with the issue of industrial land’s vulnerability in city cores and designing new tools to effectively secure industrial land as viable sites of production and employment. One such tool includes industrial mixed-use districts such as the proposed hybrid-industrial zone, in which non-industrial uses are permitted, to varying degrees of intensities, in otherwise industrial zones. On

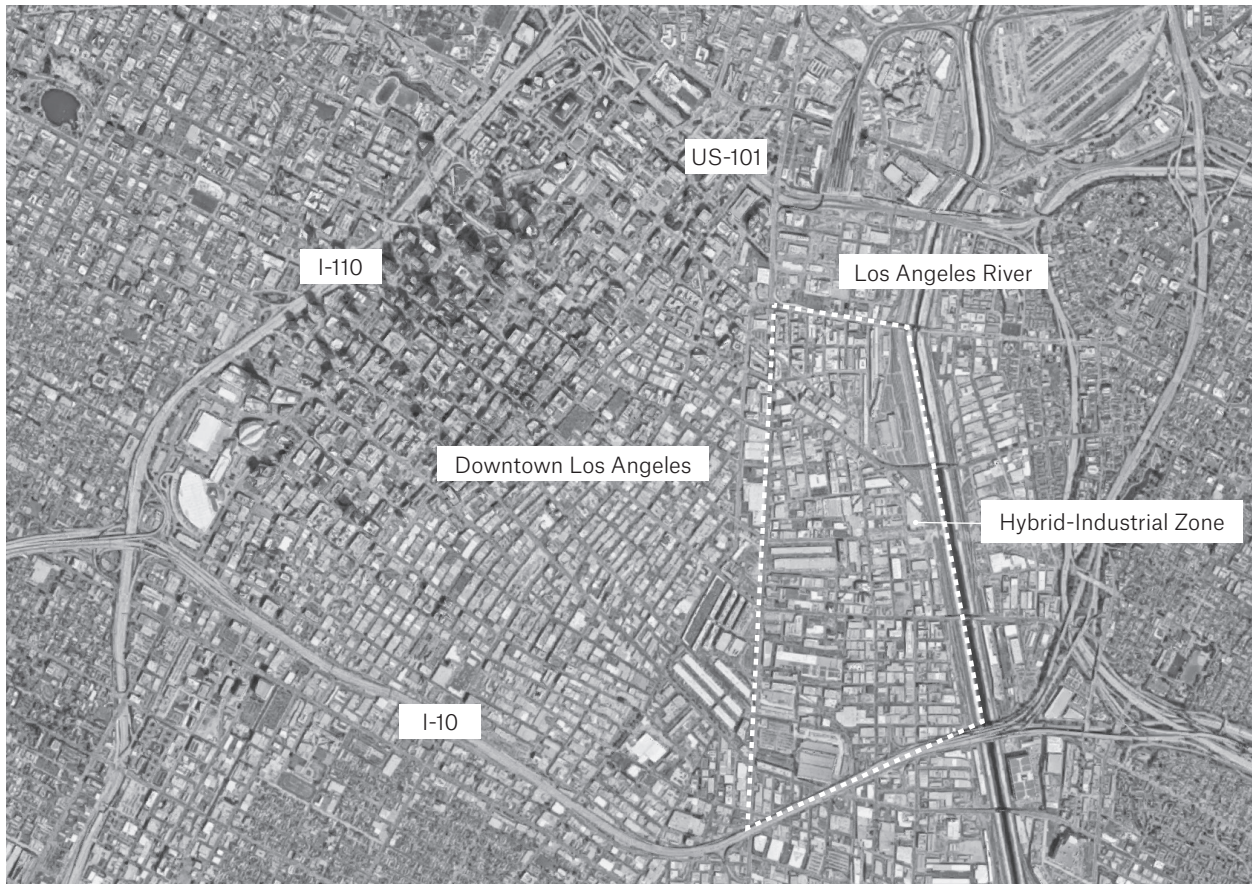


Figure 0.1

Downtown Los Angeles and proposed hybrid-industrial zone.

the one hand, industrial mixed-use zoning is an innovative tool that can help secure central locations of industrial uses when market forces might otherwise price them out. These mixed-use districts aim to impede industrial business displacement through offering protection to compatible lighter industrial uses in transitioning neighborhoods. If executed properly, the industrial mixed-use zone can, in theory, create an urban district in which several planning agendas are met and balanced, providing for industrial employment alongside affordable housing, equitable access to transportation infrastructure, or open

space improvements. On the other hand, without strict mix requirements and consistent regulation, industrial mixed-use districts can in fact accelerate the land use conversion process, opening the flood gates for residential and commercial encroachment. This thesis seeks to explore the industrial mixed-use zone as an emerging tool in contemporary land use policy, using Los Angeles as a case study.

The Case for Los Angeles

Los Angeles, specifically Downtown Los Angeles, is an apt case study to examine this

issue for several reasons. First, the Los Angeles metropolitan area is the largest manufacturing center in the country, employing over half a million in the manufacturing sector, more than any other American city. Over one fifth of the workforce in the City of Los Angeles is employed in the industrial sector. Despite the role that Los Angeles' manufacturing, trade, and logistics sectors play as vital components of the metropolitan area's employment base, there exists a mismatch between the industrial proportion of the workforce and industrial proportion of land, with only 9% of Los Angeles total land area currently zoned for industrial uses.

Furthermore, the decentralized and polynodal growth of Los Angeles has left a spatial distribution of industrial land unlike any of its East Coast or Midwest contemporaries, with a significant deposit of industrial land still existing in the city's symbolic core of Downtown Los Angeles. And as the growth projections of DTLA 2040 suggest, the city is beginning to reorient itself inward, with heightened development interest in the industrial zoned land located in Downtown Los Angeles. As housing needs in the area grow at an extraordinary rate, the viability and value of this industrial land is in question, and there is increasing pressure on city planners to meet the market demand for converting centrally located industrial land to higher uses.

Lastly, the DTLA 2040's proposed hybrid-industrial zoning classification demonstrates that the Department of City Planning is developing new tools to address this very issue. In fact, the hybrid-industrial zone is part of a larger narrative in planning policies in Los Angeles, and it can be seen as a culmination of twenty years of city initiatives aimed to better protect industrial land for job-producing uses. For these reasons, tracing the evolution of the industrial mixed-use zone in Los Angeles and dissecting the definitions of

hybrid-industrial zoning can help illuminate the opportunities and potential pitfalls of this emerging land use tool.

Methodology

Both Chapters 1 and 2 review the secondary literature which grounded this research. First, Chapter 1 provides theoretical and historic frameworks for understanding the relationship between city and industry. It examines this spatial separation of industrial land uses from non-industrial land uses through two theoretical lenses – descriptive urban growth models and structural urban land economic models – as well as the historic role that zoning has played in both codifying this separation and perpetuating the conception that industrial land is best left relegated to city peripheries.

Chapter 2 then situates the most recent shift in planning practice toward a favorable industrial land use approach. Drawing from recent research, this chapter contextualizes the problem – industrial land loss in American cities – and outlines the understood rationale for preserving urban-industrial land. It concludes with a brief case summary of the industrial land use policies of three pro-industrial cities – Chicago, New York, and Philadelphia – as a means of demonstrating what policy tools and zoning regulations are being deployed as strategies of industrial land preservation. This chapter presents an analysis of the scales of integration of industrial and non-industrial uses – categorized as mixed cities, mixed districts, and mixed buildings – that planning professionals are trying to achieve.

The following chapters examine the case city of Los Angeles at three scales – citywide, Downtown Los Angeles, and the proposed hybrid-industrial district. These chapters draw from both a textual analysis of policy directives, planning documents, and zoning codes as well as a spatial analysis of industrial

land conditions (zoning, land use, business location, parcel size, building characteristics) and market pressure conditions (historic real estate development, projected real estate development).

Chapter 3 explores the industrial employment, zoning, and land use policy in the city of Los Angeles. It presents a proportional mismatch between the city's industrial employment and the availability of its industrial land. Through a textual analysis of the city's land use policy and subsequent industrial land use policy initiatives, it analyzes the effectiveness of industrial preservation in Los Angeles at the citywide level.

Chapter 4 shifts the focus to Downtown Los Angeles and, using a spatial analysis of industrial land in the city, positions this seven square-mile area as a primary cluster of several distinct patches of industrial activity. Through a market analysis of historic and forward-looking development data, this chapter will qualify and quantify Downtown Los Angeles' current real estate boom and suggest that the area's unprecedented growth places industrial land at risk of conversion. Using a series of indicators, this chapter concludes with an anticipatory risk assessment of industrial displacement in Downtown Los Angeles, and assigns risk scores to each of the industrial patches in Downtown Los Angeles, drawing a correlation between the proposed hybrid-industrial zone and the highest risk areas.

Finally, Chapter 5 utilizes a textual analysis of city ordinances, community plans, specific plans, and policy directives to demonstrate that the concept of the industrial mixed-use district has existed in various forms in Los Angeles city planning. A process tracing of the evolution of industrial mixed-use – its definitions, goals, motivations, and intended beneficiaries – helps to contextualize the latest iteration of the hybrid-industrial zone, as presented in the Hybrid Industrial Live/Work Zone Ordinance. A dissection of

this ordinance's text illuminates the potential opportunities and pitfalls of Los Angeles' new industrial mixed-use tool.

This thesis concludes with a series of findings regarding the limitations of industrial land use policies and the mixed-use zone in the City of Los Angeles, and outlines a number of considerations that may strengthen future industrial mixed-use zoning tools.

00 Endnotes

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Industry and the City: Theoretical and Historical Frameworks of Spatial Separation

Much has been written with regards to the relationship between industrialization and urbanization, the location of industrial land in urban areas, and the spatial separation of industrial land uses from non-industrial land uses. These foundational frameworks can best be understood in three categories: descriptive historic models of urban growth which look to expansion patterns of modern Fordist cities to explain the collocation of like land uses; structural economic models of urban land markets which rationalize industrial firm location as a product of market efficiency; and the historic practice of zoning as a planning tool which aims to segregate industrial land use and mitigate the negative externalities associated with industrial production.

Descriptive Models of Urban Growth

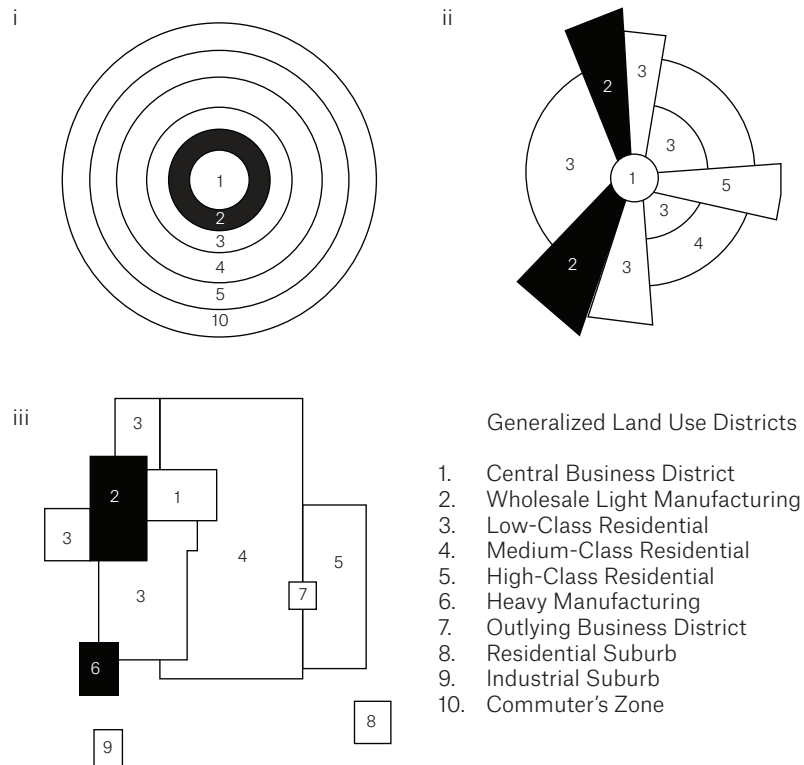
To understand the character of industrial land use today, it is valuable to highlight the lockstep relationship between industrialization and urbanization. Three descriptive models of urban growth, derived from historic patterns of growth in modern Fordist cities such as Chicago, demonstrate that urban expansion initiates a process of spatially organizing land into districts of compatible and supporting land uses. Examining these three models with

attention to industrial land helps contextualize clustering consequences of expansion, and the ways in which industrial land has been leapfrogged, pushed, or abandoned through the process of urban growth.

Ernest Burgess of the Chicago School of Urbanism was the first to study the process of urban expansion, which he posited was best illustrated through a series of concentric circles. Burgess' model, published in 1925, reflects the tendency of urban areas to expand radially from their central business district into successive zones. These include, in sequential order, the zone of transition, which includes manufacturing; the zone of workingmen's homes, inhabited by those industrial workers who can afford better living conditions but still wish to locate within close proximity to work; the residential zone, for high-income single-family residential homes; and beyond that, the commuter zone of suburban areas and satellite cities. In Burgess' model, the industrial area exists at the core, encircling the central business district, demonstrating that its function as a major employment hub still demands a central location. But it is also an "area of deterioration," home to the "bad lands" and "lost souls" and associated with poverty, disease, degradation and crime, an area to be "escaped" by those who can afford to do so.¹

Figure 1.1

Comparative urban growth models, including i) Burgess' concentric ring model, ii) Hoyt's sector model, and iii) Harris and Ullman's multiple nuclei model.



In 1939, Homer Hoyt refined Burgess' model, replacing the concentric rings with sectors. In the sector model, also derived from studying Chicago's growth patterns and its axial development along main transportation routes, Hoyt suggests that growth along a particular axis of transportation usually consists of similar types of land use. In Hoyt's model, the city still grows radially outward, but similar types of land use originate in the center of the circle and migrate outward in sectors toward the periphery, resulting in the same segregation of land uses as Burgess, but a more linear spatial organization. With regards to industrial land, Hoyt highlights a recent trend of industries moving away from city centers and into the periphery, hugging rail infrastructure along the way. He suggests that factories favor these peripheral locations where land is vacant and thus more affordable, permitting the customization of one-story factory buildings and street-rail connections that enhance the

efficiency of operations. The advent of the automobile still allows the industrial firm access to labor, without the barriers associated with central city location. "Hence," Hoyt writes, "the danger of industries invading residential areas, once the bane of the city planners, has, to a considerable extent, become a thing of the past."² Like Burgess, Hoyt asserts that cities expand in segregated zones, but Hoyt's model emphasizes transportation infrastructure in driving the spatial organization of these zones and notably relegates industrial land to the periphery.

Lastly, the multiple nuclei model, first presented by Chauncy Harris and Edward Ullman in 1945, attempts to build off the Burgess and Hoyt models while addressing the more realistic complexities of growth over time. Harris and Ullman argue that a city may start with a central nucleus – a central business district, a port, a factory – but that over time, differentiated districts emerge. This

scattering of land uses occurs because certain like activities require specialized facilities, certain like activities cluster together because they profit from cohesion, and certain unlike activities are detrimental to each other.³ This is particularly applicable to industrial uses: manufacturing districts require large blocks of land and water or rail connections, derive benefit from locating near supply and consumer networks, and are incompatible with residential areas. In the multiple nuclei model, these scattered districts gain importance and evolve into distinct nuclei that shape the activities around them. Harris and Ullman's model is a notable departure from Burgess and Hoyt in that it refutes the centrality of the single urban core. In doing so, it deemphasizes the role of land value in the core as the primary factor in pushing and segregating uses, and instead cites self-selecting factors like natural attachment of certain activities to transportation infrastructure and the advantages of unlike activities separating and like activities concentrating. Nevertheless, the multiple nuclei model reinforces the synchronized relationship between the expansion of cities and the segregation of land uses.

Structural Models of Urban Land Markets and Firm Location

While these urban growth models aim to generalize historical urban expansion patterns and the subsequent separation of land uses, they are also complemented by structural economic models of urban land markets that help demonstrate through a market equilibrium argument why land uses segregate.

The bid-rent theory of land economics suggests that in order for a monocentric city to exist, firms must value proximity of land close to the city center more than households, which will result in a steeper land rent gradient for non-residential land uses than for residential

uses. In order for this to occur, the shipping costs of a firm per acre of commercial or industrial use must increase by more than the commuting costs of employers to these firms per acre of residential use. Thus, a central business district occurs when firms have a higher willingness to pay, driven by higher costs of production, than households.

In the nineteenth century, the market conditions which cause firms to locate in the center of the city were more likely, as the cost of moving goods and materials was more expensive than moving people. But beginning in the twentieth century, technological developments shifted the nature of industrial operations such that industrial firms began to decentralize. Largely, this was the result of two technological developments. First, the evolution of a car-oriented transportation system created a more dispersed system of freight terminals and highways, freeing the industrial firms from the need to move products through and receive materials from the center of the city. Second, technologies of industrial production – such as the integrated horizontal assembly line – and storage – such as modern inventory methods which demand long single-story structures – increased the amount of land used per unit of output for industrial firms. As a result, industrial firms were willing to pay less per unit of land for a central location than other firms. In a competitive market, it became more profitable for industrial firms to choose peripheral locations.⁴

Understanding the economic framework for industrial firm location as an optimization problem, in which firms seek to minimize costs of production through locational decisions, helps provide a market rationale for the urban growth patterns described by Burgess, Hoyt, Ullman, and Harris, and contextualizes the spatial organization of industrial land uses today.

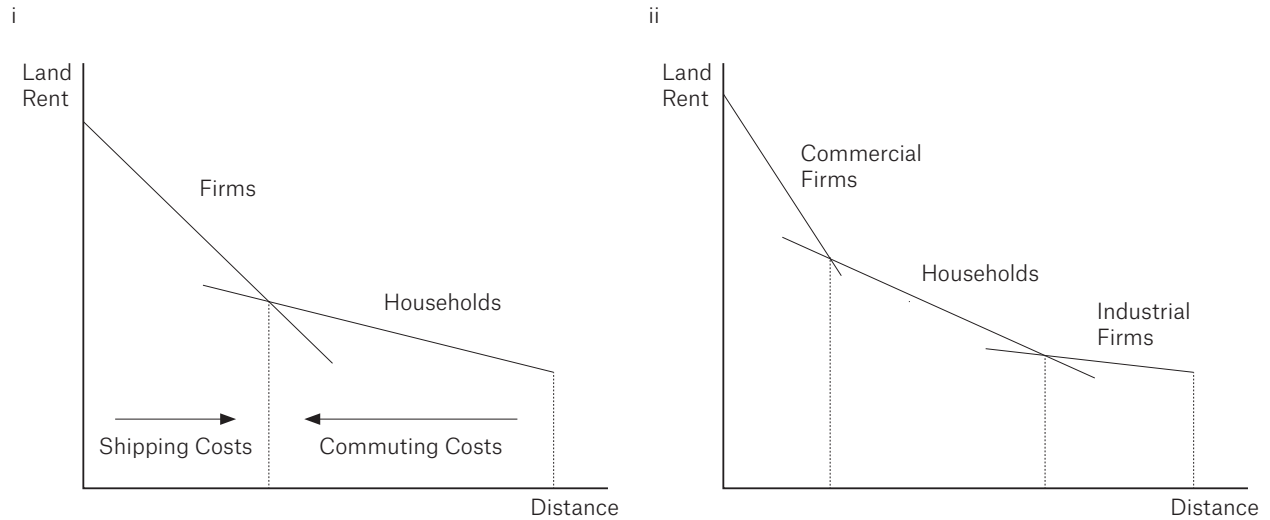


Figure 1.2
Urban land markets and spatial separation, demonstrating a i) central business district model and ii) the phenomenon of industrial firm decentralization.

Zoning, Smart Growth and Industrial Land's Bad Rep

Despite the relationship between industrialization and urbanization, a conception of industry as incompatible with urban life has persisted in the discourse of city planning, reinforced through the practice of zoning. Not long after the Industrial Revolution introduced manufacturing and production uses into the city, planners began calling for a segregation of industrial land from other residential and commercial uses, citing noise, pollution, and environmental degradation as causes of unlivable conditions. In fact, the prevention of the growth of industry was the basis for the seminal *Village of Euclid vs. Ambler Realty Company* court case, which constitutionally legitimized the practice of zoning in the United States. Thus, a desire to separate non-industrial land from the noxious impacts of industrial operations is deeply

embedded in the history and ideals of modern American zoning.

In theory, using zoning tools to create industrial districts performs two functions. First, hierarchical zoning, or the practice of separating lower uses such as agriculture and industry, from higher uses, such as commercial and residential, prevents the negative externalities cited above from effecting less noxious uses. Second, zoning allows city authorities to delineate types of appropriate development that maximize the land's productive capacity. In other words, it helps the market understand the land's highest and best use.⁵ Exclusionary zoning is the term used for zoning tools that aim to secure industrial land location in urban areas by prohibiting higher uses, despite market interests. Eric Heikkila and Thomas Hutton have presented arguments for and against exclusionary zoning, and argue that this type of approach to industrial land is only appropriate when the industrial

activity is healthy, stable, and economically viable, when there is a high level of structural unemployment that industrial jobs can help mitigate, and when the extent of negative externalities is so great that public authorities must interfere with market to separate land uses.⁶

But the practice of exclusionary zoning has only reinforced the negative conception of industrial operations, relegating these functions into consolidated and distinct districts that further push manufacturing, warehousing, and logistics terminals toward the city's periphery. This has created an "either-or" dichotomy between industrial and non-industrial land uses in cities. A 2012 study of industrial land policies in 14 American cities determined a recurring theme in which "industrial development is pitted against mixed-use, retail, commercial, office, high-technology, and residential development."⁷

Furthermore, while the intention of exclusionary zoning is to secure industrial land, in practice, zoning is not nimble and the onerous process of rezoning makes it difficult to change to respond to market conditions. As such, there is a potential for exclusionary zoning to create inefficiencies in the market by distorting the supply of land, reserving it for uses that may not be demanded by the market. Heikkila and Hutton suggest that exclusionary zoning's "artificial" retention of industrial land both inhibits the efficient utilization of scarce land resources as well as sends wrong signals to long-run decision makers regarding viability of industrial investment, and potentially initiate a "vicious cycle" of solidifying land use organization that is unable to respond to the market.⁸

Additionally, recent scholars have pointed out that the advent of smart growth policies – which aim to guide sustainable urban development through limiting sprawl and revitalizing central cities – predominantly view urban industry as impeding future

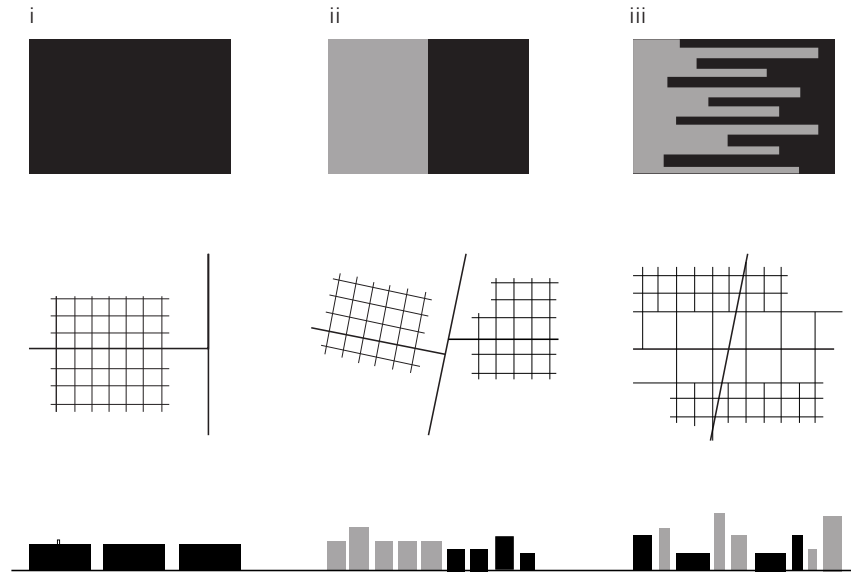
growth.⁹ Research by Nancey Green Leigh and Nathanael Hoelzel, who studied ten smart growth publications and the perceptions of urban industrial development, concludes that urban industrial areas are believed to be "functionally obsolete, underutilized, or otherwise insufficient to support dense, mixed-use development."¹⁰ Leigh and Hoelzel identified a "blind side" in smart growth policies, in that they not only failed to emphasize the positive benefits of industrial development for urban revitalization, but they also promoted the absorption of industrial land for non-industrial use. For example, several smart growth publications promoted rezoning existing urban industrial areas to better accommodate a mix of land uses, though did not mention industrial reuse as one such possibility. While both dense infill redevelopment and transit-oriented development are core tenet of smart growth policies, encouraged as a means to create greater access to jobs, the publications focused primarily on residential and commercial densities and none offered guidance on how to provide workers with adequate transit services to areas of industrial employment. In this way, smart growth-oriented cities have failed to recognize the value of urban industrial land, and where deindustrialization has left urban areas abandoned and blighted, have welcomed the market response for "highest and best use" development and promoted the rezoning of industrial land to allow for "post-industrial" revitalization.

Spatial Typologies of Industrial Districts

Recent research by Tali Hatuka and Eran Ben-Joseph suggest that these historic dynamics between cities and industrial operations shaped the urban form of cities in such a way that they have left behind "spatial footprints."¹¹ They propose three spatial typologies of industrial space observed today: the integrated, the

Figure 1.3

Spatial typologies of industrial land, including i) autonomous, ii) adjacent, and iii) integrated.



adjacent, and the autonomous.

First, the integrated prototype is an industrial district within the city that maintains a merging of or close proximity between residential and industrial uses. Integrated industrial spaces present many locational benefits, such as proximity to jobs for residents and proximity to services and infrastructure for businesses, but also present potential conflicts, particularly with regard to noise, pollution, and congestion. Formally, the integrated industrial space exists within the existing street grid and block structure, and while walls and barriers surround the industrial operation, there are no explicit boundaries and the industrial uses often “dissolve” into the existing building fabric.¹² Hatuka and Ben-Joseph indicate that the integrated typology is often the result of unplanned urban expansion, and suggest that its prevalence is decreasing among many contemporary cities.

The second prototype, the adjacent

industrial space, is an industrial area located close to the city, often buffered from non-industrial uses through roads, railway lines and open spaces in between. Adjacent industrial spaces, the legacy of city planning’s attempt to mitigate nuisances through zoning, create physical separation and “contributes to the cognitive disconnect” between the city and its industrial area.¹³

Lastly, the autonomous prototype is used to describe the standalone industrial parks or large factories, located at the periphery of the city and near transportation hubs. This prototype is characterized by large-scale zones of industrial land, occupied by uniform buildings and surrounded by constructed barriers. Hatuka and Ben-Joseph argue that the industrial park typology is the preferred spatial models for those firms that seek a global presence. The preference for many manufacturers to exist in an autonomous and isolated district on the periphery of cities both

reflects and reinforces urban planning's lack of consideration of industrial land location as well as points to the profession's lack of solutions for how best to preserve and integrate industrial land in urban cores.

Together, these frameworks – the theoretical models of urban growth and urban land markets that explain industrial land use separation, zoning's historic role in supporting and codifying this separation, and the resulting spatial typologies of industrial districts – provide a foundational understanding of city planning's traditional attitudes toward urban industrial land, in which planning's approach to industrial development is indifferent at best, and exclusionary at worst. This reveals the profession's "blind side," the gaps and limitations of zoning, and the lack of motivation and solutions for integrating industrial land uses with non-industrial uses. Such limitations in the field can help contextualize the current problem of industrial land loss in American cities and the emerging new strategies for urban industrial land preservation, which are explored in the following chapter.

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Industry and the City: Shifting Attitudes and Contemporary Planning Practice

In recent years, contemporary planning practice has shifted its attitude toward industrial development. This chapter will first contextualize the impetus for this shift – the critical issue of industrial land loss in American cities – and then outline arguments why urban industrial land is worth preserving. It will examine emerging land use and zoning tools aimed at addressing the preservation, and at times integration, of industrial land in three “manufacturing-aware” cities: Chicago, New York, and Philadelphia.

Industrial Land Loss in American Cities

Concerns regarding the loss of productive industrial land in American cities has been likened to the concerns once raised about farmland – once it is lost, it is nearly impossible to reclaim.¹ And American cities have been, some slowly and some rapidly, losing their industrially zoned land. Research by Nancey Green Leigh and Nathanael Hoelzel compared the reduction of industrially zoned land in a number of cities over the past several years, finding that the promotion of smart growth infill mixed-use development projects designed to accommodate growing demand for residential and office space has significantly deteriorated the inventory of industrial land

(Table 2.1). In a high-growth market such as San Francisco, where demand for large-scale residential projects is high, the city has lost almost half of its industrial land to conversion pressures. The narratives are similar, though not so dramatic, in other American cities too. Portland’s industrial land remains under conversion pressure, exacerbated by need to construct infill housing because of the region’s urban growth boundary; Baltimore’s inner harbor has been championed for a revitalized waterfront but at the expense of its port operations; Minneapolis converted fifteen industrial buildings to new city-living luxury lofts in less than four years; and New York lost 1,797 acres of industrial land, 14% of the city’s total, in a period of just five years.²

As alluded to in Chapter 1, there are certainly a number of factors outside of market conversion pressures which may make central locations in cities less attractive to industrial business operators. These include obsolete facilities, limited space for expansion, limited access to urban infrastructure, and competition from peripheral, suburban, or overseas locations. However, Leigh and Hoelzel’s study of industrial land use policies in American cities found that increased market-driven conversion pressures on industrial land was specifically cited as the primary driver in

Table 2.1

Industrial land loss across seven American cities, 1990 - 2009.

Cities	Industrial Land Lost		Years
Atlanta, GA	800 acres	12%	2004 - 2009
Minneapolis-St. Paul, MN	1,812 acres	18%	1990 - 2005
New York, NY	1,797 acres	14%	2002 - 2007
Philadelphia, PA	1,645 acres	8%	1990 - 2008
Portland, OR	489 acres	2%	1991 - 2001
San Francisco, CA	1,276 acres	46%	1990 - 2008
San Jose, CA	1,470 acres	9%	1990 - 2009

industrial land loss.³

The Case for Preserving Urban Industrial Land

The condition of industrial land loss in American cities begs the question: why should planners care? The strongest argument for the preservation of urban industrial land is its contribution to the regional economy through its retention of job-generating uses. As demonstrated in Figure 2.1, despite the overall decline in manufacturing jobs over the last several decades, the sector still employs over 12.5 million workers in the country, and unlike many other sectors, it has consistently added jobs since the end of the 2009 recession.⁴ This uptick may very well be a recession-driven bounce back in demand, but several scholars have posited that the “manufacturing moment” in America is a longer term trend that is here to stay. The recent boom in American oil and natural gas production has boosted the demand for the machinery and chemicals used to extract oil and gas and also provided manufacturers with an inexpensive, reliable energy source. Additionally, recent developments in China, the major destination for offshore manufacturing, such as the rise in Chinese labor costs, have reduced

China’s competitive advantage and caused many manufacturers to reconsider the costs of offshoring. The trends toward reshoring manufacturing are expected to be boosted by the use of advanced manufacturing techniques that promise to make production a less labor-intensive process.⁵ And most relevant for city planners, the reshoring of American manufacturing presents a great urban opportunity; a recent study found that manufacturing activity in the U.S. is primarily urban, with metropolitan areas containing 80% of all manufacturing jobs in the country in 2010.⁶

In addition to industrial land serving as a site for employment in the manufacturing sector, it also contributes to the regional economy as an integral location for public services and supplies and back-of-house functions. Industrial zoned areas may house government services such as waste hauling and transfer, street cleaning, snowplowing, road construction and repair, and recycling. They may also house back-office activities that support non-industrial sectors and the local population, such as auto repair shops, household repair services, and warehousing of consumer products.⁷

Another argument for the preservation of urban industrial land is one grounded in

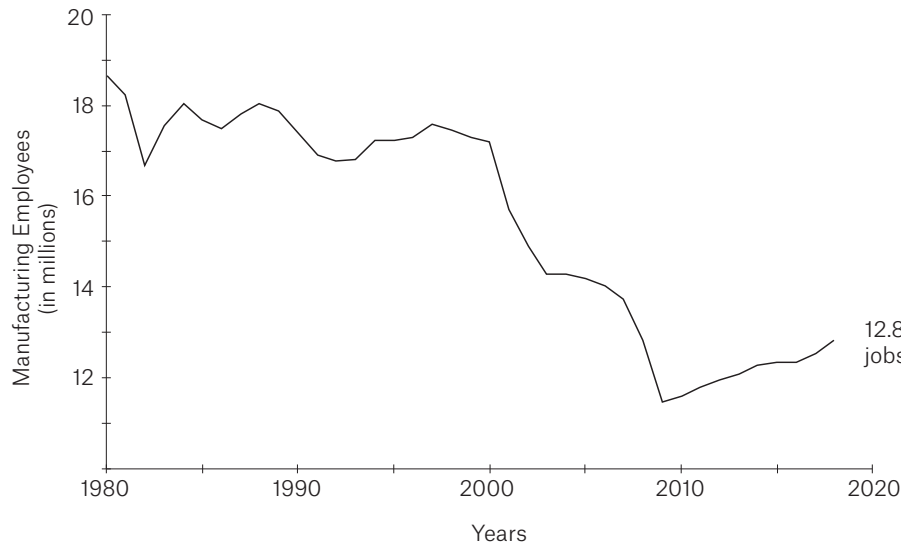


Figure 2.1
Manufacturing employment in the United States, 1980 - 2018.

the urban land markets theories and industrial firm site selection presented in Chapter 1. To optimize profits by decreasing shipping and commuting costs, certain industrial businesses must locate within city centers, close to labor, service providers, and customers. Most recently, this concept of proximity to labor, consumers, and competitors as unlocking additional value has been expanded by Gary Pisano and Willy Shih, who argue that modern American manufacturing hinges on an “industrial commons,” or “webs of technological knowhow, operational capabilities, and specialized skills that are embedded in the workforce, competitors, suppliers, customers, cooperative R&D ventures, and universities that often support multiple industrial sectors.”⁸ Pisano and Shih posit that the industrial commons cultivates knowledge spillover, formal and informal technology sharing, cross-firm collaborations, and a concentrated and highly-skilled workforce, creating a “powerful gravitational pull on the location of industries and innovation.”⁹ These arguments reiterate the argument for centrally locating like-businesses in cities, such that the clustering of industrial businesses generates greater advantages in access to the appropriate set of workers, engineers, managerial talent, suppliers, and

universities.

Additionally, centrally locating urban industrial businesses can, in fact, plug into smart growth’s call for creating mixed-use districts that balance jobs and housing and thereby reduce job sprawl and job-resident spatial mismatch. As discussed in Chapter 1, smart growth advocates have often overlooked industrial employment as part of the solution for locating jobs where people live.¹⁰ Furthermore, centrally located industrial operations can shorten commutes and delivery times and overall reduce trucking mileage, which fulfills the anti-sprawl sustainability goals of smart growth policies.

Lastly, the changing nature of industrial operations presents an opportunity greater than ever before for heightened compatibility with residential and commercial uses. Large-scale industrial production is giving way to smaller-scale facilities, and advances in manufacturing technology is both reshaping traditional industries to be smarter, cleaner, and more connected, as well as creating new digital industries all together. The result is that certain industrial businesses engaging in more modern and sustainable manufacturing processes can occupy smaller building footprints, keep sounds and odors to a minimum, and better coexist with non-industrial uses.¹¹ Thus, these

developments in manufacturing technologies not only support the existing arguments for industrial land preservation, but also present opportunities to mix industrial uses in cities in a way previously impossible, and are prompting city planners to reimagine the potential of urban industrial mixed-use districts.

Strategies for Urban Industrial Land Preservation

In recent years, many “manufacturing-aware” cities have begun to recognize these benefits of retaining industrial land and the potential impacts of unchecked industrial land conversion, and thus have employed a number of strategies to secure its location in city centers.¹² These can be primarily categorized as 1) land use policies that give directions regarding when industrial land use conversion should be allowed and 2) modification of zoning tools to impede non-industrial conversion of land. A brief examination of three cities approaches to industrial land planning – Chicago, New York, and Philadelphia – reveals the benefits and potential pitfalls of such strategies, and the varying scales of aspirational integration with non-industrial uses.

Chicago

With regards to zoning-based approaches to industrial land, Chicago’s Planned Manufacturing Districts (PMD) were one of the earliest examples of protective zoning explicitly aimed to curb industrial displacement in rapidly gentrifying areas. Introduced in 1988, the PMD zone established industrial special-purpose districts which place significant restrictions on the rezoning of industrial land for non-industrial uses. The intent, as stated in the Chicago Zoning Ordinance, is to foster the city’s industrial base, to maintain the city’s diversified economy

for general welfare, strengthen existing manufacturing areas, and encourage industrial investment, modernization, and expansion by providing stable and predictable industrial environments.¹³ To retain industrial viability of PMDs, only a select range of non-industrial uses that are deemed compatible, supportive, and not detrimental to industrial uses are permitted. These include postal services, utilities, building maintenance services, construction, warehousing and distribution, and automobile repair.

The implementation of PMDs represented a significant trade off on behalf of the City of Chicago. The city elected to forgo higher property tax revenues associated with residential and retail development in gentrifying neighborhoods in order to secure and create industrial job opportunities for city residents. As such, the creation of PMDS, of which there are now fifteen in total, signified a major shift in city planning’s attitude toward industrial development, its recognition of the value of industrial land, and the development of land use tools to secure it.

A 2005 report has demonstrated that manufacturing employment, as well as employment in the service, transportation, and whole sale trade sectors that support manufacturing, have increased since the introduction of the PMDs.¹⁴ However, the use of special permits is still allowed in PMDs, which softens the zone’s power in the face of planning officials who have the ability to approve, case-by-case, special conditions that can undermine the intent of the manufacturing district.

New York

In 1997, New York created a new “Special Mixed-Use District” or “MX” zoning classification, intended to pair light manufacturing with residential uses in a new mixed-use district. Partly, this new

zoning tool was born out of a 1993 “Citywide Industry Study” which identified the decline in manufacturing in the city, but it was also partly a tool designed to bring into compliance non-conforming residential and commercial uses that had long existed in otherwise industrial districts. Unlike the Chicago PMDs before it, the MX zone was less about protecting and fostering industrial employment and more about the mixing of uses. The stated intention of the zone is to encourage investment in mixed residential and industrial neighborhoods by permitting expansion and new development of a wide variety of uses, to promote the opportunity for workers to live in the vicinity of their work, and to create new opportunities for mixed use neighborhoods.¹⁵

However, the MX zone permits residential, commercial, and light industrial uses as-of-right without any requirement for preserving a mixture of uses. Without such requirements, the zone allows for full non-industrial development, and in the reality of a high-growth market such as New York City, this has led to the rapid conversion of industrial space for higher-profit uses such as residential and commercial. Since the MX zone was first applied in 1997, over 4.2 million square feet of industrial space has been converted to non-industrial uses.¹⁶

In 2006, the Bloomberg administration introduced the Industrial Business Zone (IBZ) designation, assigning it to sixteen industrial districts in the city as a means to protect existing manufacturing districts and encourage industrial growth. The IBZs are not zoning and thus not regulatory tools, but they are positioned as safe havens for manufacturing and industrial firms, under which the city guarantees not to support the rezoning of properties to allow residential uses. Today, the number of IBZs have grown to 21, but many critique the policy as a weak approach with little regulatory power. The intent of the IBZ policy is not always followed by land use


decision makers, and non-industrial uses such as entertainment, retail, hotel, and commercial offices are still allowed, by-right, to locate in the existing industrial zoned areas.

Additionally, beyond the city-wide initiatives of MX zoning and IBZ designations, the City of New York is exploring the concept of the industrial mixed-use building as a solution to the lower-rent industrial uses being priced out by higher non-industrial uses in zones which permit both. The prototype of the industrial mixed-use building may require or incentivize the creation of industrial space within buildings that are being developed for uses that generate higher rents, such as office or residential, and in doing so, secure the supply of industrial land without sacrificing growth in other sectors. A 2018 report commissioned by the Department of City Planning explored the feasibility for such projects across three dimensions – tenancing and operational compatibility, physical feasibility, and financial feasibility – and found that industrial mixed-use development is achievable in New York City, but that strict requirements for the inclusion of industrial space may slow private investment.¹⁷

More likely, without requirements for productive space, the market will not deliver industrial mixed-use projects unless under incredibly special circumstances. One such unique project is Plaxall Inc.’s, a family-owned plastics manufacturer, redevelopment of their 12-acre site along the Anable Basin of Long Island City. Working with the Department of City Planning, Plaxall’s proposal will rezone the site into a special district that will establish almost 5,000 units of housing, 25% of which will be affordable, and require 7% of gross square footage of the total development be reserved for lease by creative production and light-industrial uses.¹⁸ It was recently announced that Amazon will be primary tenant of Plaxall’s 335,000 square feet of productive space, as the Anable Basin and neighboring

Table 2.2

Comparative strategies for urban industrial land use planning.

City	Name	Goal	Description	Scale of Integration
Chicago	Planned Manufacturing Districts (PMDs) 1988 Zoning	Strengthen Chicago's industrial base Maintain a diverse economy Promote industrial employment growth	Created special-purpose districts for industrial use that prohibit residential and commercial encroachment	 Mixed City
	MX Zoning Classification 1997 Zoning	Enhance the vitality of existing neighborhoods with mixed residential and industrial uses Create expanded opportunities for new mixed-use communities	Permitted (but did not require) residential and industrial uses to be developed as-of-right and located side-by-side or in the same building	 Mixed District
New York	Industrial Business Zones (IBZs) 2006 Policy Directive	Prevent further conversion of industrial land to non-industrial use Minimize nuisance complaints Provide industrial businesses with certainty about ability to remain/expand in current locations	Assigned the IBZ designation to industrial zones City guarantees not to support the rezoning of properties to allow for residential use	 Mixed City
	Plaxall Development 2017 Private Development + Special District Zoning	Promote diverse employment and business opportunities Accommodate mixed-income housing needs	Created a special zoning district for a new mixed-use development Required a minimum floor area of all new development be reserved for creative production and light-industrial uses	 Mixed Building
Philadelphia	IRMX + ICMX Zoning Classification 2012 Zoning	Accommodate a mix of low-impact industrial uses and residential and commercial Serve as a buffer between industrial zones and non-industrial zones	Extensively revised zoning code and industrial uses definitions Added two new "mixed" industrial district zones which permit (but do not require) the colocation of uses	 Mixed District

blocks were selected for the site of Amazon HQ2's Long Island City campus.

Philadelphia

In 2012, Philadelphia also modified its zoning approach to industrial land by updating the definitions and permitted uses of its existing four industrial zones (light industrial, medium industrial, heavy industrial, and port industrial) and introducing two intermediate industrial mixed-use zones (industrial residential mixed-use and industrial commercial mixed-use). These two new mixed-use zones, IRMX and ICMX, are designed to greatly restrict housing and retail from encroaching upon traditional industrial zones, while also allowing some curated low impact industrial activity, defined as “artisanal” or “boutique,” to exist within a mixed-use district.¹⁹ The massive update to Philadelphia's zoning code greatly expanded the list of land uses that may be permitted to exist in an industrial district and was applauded for its innovative approach to allowing for mixed-use neighborhoods. However, like New York's MX Districts, the IRMX and ICMX permitted but did not mandate a mixture of uses. In 2015, recognizing the potential for IRMX to be misused for residential upzoning, a bill was adopted by the Philadelphia City Council to revise IRMX's zoning regulations to require that new developments must reserve a minimum floor area for industrial uses that is equal to at least 50% of the ground floor area of the project.²⁰

Scales of Integration

Each of these manufacturing-aware cities have developed, to varying degrees of success, sets of land use policy and zoning tools designed to better secure space for industrial employment, demonstrating an increasing recognition in the field of city planning of the

value in preserving industrial land. As Table 2.2 demonstrates, a review of these three case studies also highlights a growing trend toward the integrating industrial and non-industrial uses as a favored tool in balancing industrial preservation goals with market pressures for conversion. Together, the examples of Chicago, New York, and Philadelphia reveal planners are seeking integration at three different scales: the mixed city, such as Chicago's PMDs and New York's safe-haven IBZs; mixed district, such as Philadelphia's IRMX and ICMZ zoning; and mixed building, such as the Plaxall development site.

Though it is too early to evaluate the success of initiatives such as Philadelphia's zoning update and Plaxall's productive space requirements, these case studies reveal the limitations of zoning tools in the face of special permits and discretionary approvals, the limitations of land use policy directive without regulatory powers, and perhaps most importantly, that in the search for the ideal industrial mixed-use district, permission of non-industrial uses without requirements for industrial uses will inevitably be abused by the market.

These cases provide important precedent for the exploration of Los Angeles' hybrid-industrial zone, which falls both in the category of mixed district, in its permission of live/work uses in an otherwise industrial zone, and mixed building, in its inclusion of spaces for productive uses. However, Los Angeles' zoning ordinance marks an important departure from these precedents in its requirement that a certain amount of square footage of all new residential development be reserved for jobs-producing uses. The following chapters will further dissect in detail the evolution of this hybrid-industrial zone, beginning with citywide industrial land use policies.

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Los Angeles: Industrial Employment, Zoning, and Land Use Policies

This chapter will introduce the importance of the industrial sector in the overall employment of the Los Angeles metropolitan area to underscore the necessity in preserving industrial land for job-producing activities. It will briefly review the zoning classifications for industrial land in Los Angeles and argue that Los Angeles too faces a dwindling supply of this valuable industrial land. It will then identify the city's primary industrial land use policy – to preserve industrial lands that provide job opportunities – and analyze the effectiveness of this policy and two subsequent policy initiatives in promoting and retaining industrial land uses.

Los Angeles Industrial Employment

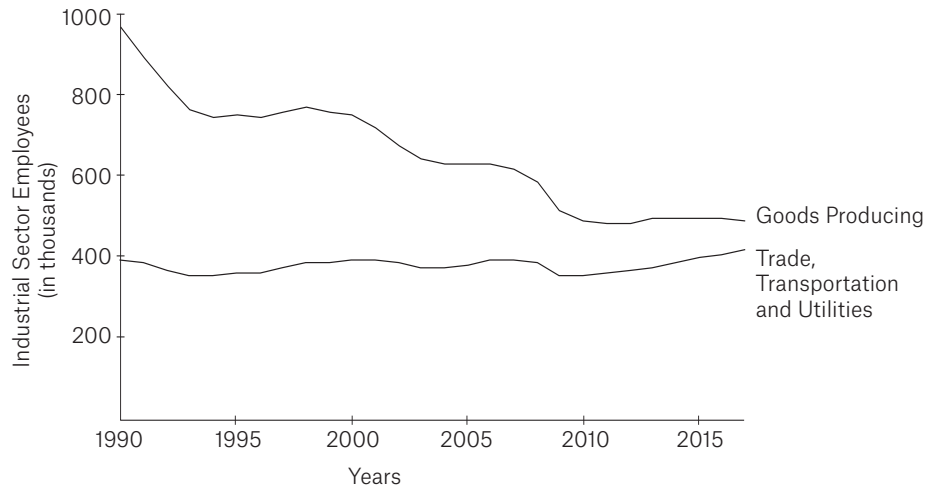
In May of 2016, Mayor Eric Garcetti of Los Angeles launched a two-year initiative to support the manufacturing ecosystem of Los Angeles. Founded in partnership with GE Ventures, the MAKE IT IN LA program aimed to support and connect both startups and the established industrial base in Los Angeles through providing more than one thousand entrepreneurs and manufacturers with industry support, networking opportunities, and educational programs. This initiative was born out of a 2015 study led by Krisztina Holly,

an Entrepreneur-in-Residence of the Mayor's Office, which surveyed 1,600 businesses, spatially analyzed 30,000 local manufacturing companies, hosted roundtables and CEO focus groups, and interviewed about 100 urban manufacturing leaders. Holly's study found that more than 85% of manufacturing businesses experienced stability or growth in income and employment in 2015, over 2,500 new manufacturing businesses were started in Los Angeles in the last three years, and the majority expressed a desire to remain and expand within Los Angeles. However, many businesses admitted challenges such as access to capital, access to a trained workforce, and difficulty in navigating state and local regulations – limitations which Garcetti's MAKE IT IN LA program has been addressing.¹

Holly's study offers just a glimpse into the complex and diverse manufacturing ecosystem of Los Angeles. In fact, in 2015, the Los Angeles metropolitan area took the lead as the largest manufacturing center in the country, employing over half a million manufacturing workers, topping the historic blue-collar factory cities of Chicago, Detroit and Philadelphia.² Over 35,000 businesses in Los Angeles identify as manufacturing, largely concentrating in what the Los Angeles County Economic Development Department defines

Figure 3.1

Historic industrial employment in Los Angeles, annual average, 1990 - 2017.



as “key industrial clusters” of aerospace and defense, biomedical, advanced transportation, apparel and fashion, and food and beverage manufacturing.³

The manufacturing clusters of Los Angeles are supported by an equally strong trade, logistics, and warehousing ecosystem. According to the California Employment Development Department, over 420,000 workers were employed in transportation, warehousing, and trade in Los Angeles County in 2018.⁴ And while like other American cities, manufacturing jobs have declined in Los Angeles, the logistics sector of trade, transportation, and utilities has remained steady and is climbing post-recession, as Figure 3.1 demonstrates.⁵ The twin ports of Los Angeles and Long Beach combine to make the largest port in the western hemisphere, handling over 40% of all inbound containers to the United States. Los Angeles’ port infrastructure is supported by sophisticated logistics network of trains and freeways. Main rail lines for both the Burlington Northern Santa Fe and Union Pacific railroads as well as an intricate freeway and highway system ensure efficient and multimodal movement of goods to and from the ports. In particular, the Alameda Corridor, a 20-mile long rail cargo expressway, links the ports with Downtown Los Angeles

and the transcontinental rail network.⁶

Los Angeles Industrial Zoning

Yet, despite the recognition that Los Angeles’ manufacturing, trade, and logistics sectors are a vital component of the metropolitan area’s economy, there exists a mismatch between the industrial proportion of the workforce and the industrial proportion of land. With 20% of the workforce employed in the industrial sector, only 9% of Los Angeles’ 469 square miles is currently zoned for industrial uses – and removing the land reserved for LAX and the Port of Los Angeles, the number shrinks to just under 6%.

The Los Angeles Zoning Code categorizes industrial land into six zoning classifications. In order of most restrictive of industrial uses to least restrictive, these include: commercial manufacturing (CM), restricted industrial (MR1), limited industrial (M1), restricted light industrial (MR2), light industrial (M2), and heavy industrial (M3). Each successive classification generally includes permission to develop more industrial uses than what was permitted in the previous classification. For example, CM permits warehousing; MR1 permits warehousing and furniture manufacturing; M1 permits

Industrial Sector	Employees	% Total Workforce
Goods Producing	492,800	10.8%
Mining/Logging/Construction	142,000	3.1%
Manufacturing	350,800	7.7%
Trade/Transportation/Utilities	427,800	9.3%
Wholesale Trade	224,700	4.9%
Transportation/Warehousing/Utilities	203,100	4.4%
Total Industrial Employment	920,600	20.1%

Table 3.1

Industrial employment in Los Angeles by sector, monthly estimate, December 2018.

warehousing, furniture manufacturing, and heavy machinery rental, and so on. Within the context of industrial mixed-use zoning, residential and commercial uses are not permitted as-of-right in M1, M3, and M2 zones, under which over 80% of the industrial zoned land in Los Angeles is classified. The map in Figure 3.2 demonstrates the spatial distribution of these six zoning classifications across the city.

City planning in Los Angeles is such that the Zoning Code is merely the implementation arm of the Department of City Planning, and that more comprehensive visions for growth and land use are set by the Los Angeles General Plan. Thus, an examination of Los Angeles' land use policies, and the ways in which they aim to preserve and encourage industrial development, begins with an analysis of 1996 Los Angeles General Plan.

Los Angeles Industrial Land Use Policy and Policy Initiatives, 1996 – 2008

Framework Element of the Los Angeles General Plan, 1996

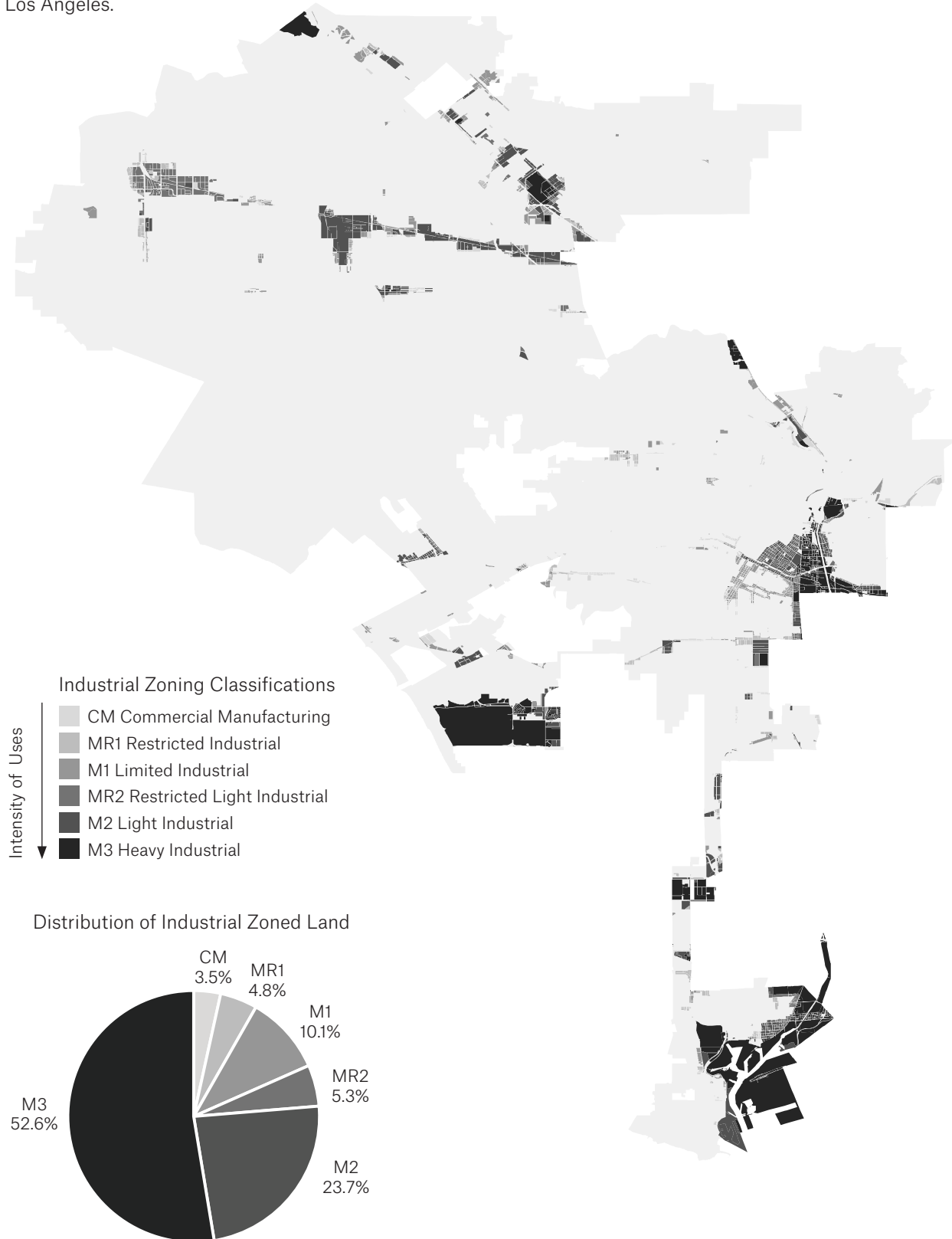
The City of Los Angeles' current policy regarding industrially zoned areas derives from the 1996 Framework Element of the

Los Angeles General Plan, a document which serves as a comprehensive and long-term growth strategy for the city. While the Framework Element provides goals, objectives, and broad policies across a number of topics – including land use, housing, urban form, open space, economic development, transportation, and infrastructure and public services – the document primarily serves as a foundational visioning plan. With regards to land use, the Framework Element provides a list of generalized land use designations, but does not “convey or affect” entitlements for any property, meaning it does not spatially tie these uses to any particular area nor does it include the power to zone.⁷ Instead, specific land use designations are set forth by the city's 35 community plans, which determine allowable land uses and zoning specific to each unique community.

Nevertheless, the Framework Element, specifically the chapters on land use and economic development, remains the most authoritative policy document regarding industrial land in Los Angeles. The Framework states that its intention with regards to industrial land is to “preserve industrial lands for the retention and expansion of existing and attraction of new industrial uses that provide job opportunities for the City's residents.”⁸

Figure 3.2

Industrial zoned land in Los Angeles.



The Framework explicitly addresses industrial development goals in two chapters – Land Use and Economic Development – and provides a series of policies in each, designed to ensure sufficient lands for existing and new industrial firms and to discourage the conversion of existing industrial land to other uses.

As the guiding land use policy document, the Framework is foundational in explicitly tying Los Angeles’ industrial land use policy to job retention and production. The parallel policies in both the land use and economic development chapters reiterate this value of industrial land as sites of employment opportunities, and point toward the need for synchronization across both physical planning and economic development initiatives in order to meet the policy goals.

But still, ingrained in the policy document is this “either-or” dichotomy discussed in Chapter 1 between industrial and non-industrial uses, in which neither are expected to coexist compatibly. This is reflected in protective policies, such as “limit the introduction of new commercial and non-industrial uses in existing manufacturing zones” and “limit the redesignation of existing industrial land to other land uses.”⁹ But it is also reflected in conversion policies which allow for the “redesignation of marginal industrial land for alternative uses” if the conditions of these sites meet specific criteria, such as existing parcelization which may preclude industrial functions, inadequate infrastructure which may not feasibly support industrial functions, and where the size, use, or configuration of parcels may “adversely impact adjacent residential neighborhoods.”¹⁰ In this way, even in policy sections designed to ensure “industrial growth that provides job opportunities,” the Framework Element’s protective measures are not only soft, but also create pathways for development that may accelerate the decline of industrial land.¹¹

Furthermore, with regards to

implementation of policies, the Framework Element delegates all land use decisions and rezoning powers to the 35 community plans. This both renders the document somewhat weak in its administrative and regulatory powers, as well as shifts responsibilities to the neighborhood scale and localizes the decision-making process. Putting the onus on the community planning process can be particularly problematic in the case of industrial development, where the value of industrial land is much better recognized at the metropolitan scale in its contribution to the regional economy than at the community scale, in which highly local attitudes toward industrial neighbors may be perceived only as nuisances.

Lastly, it is perhaps obvious but important to call attention to the age of the Framework Element. Los Angeles has not revised its land use policy in over twenty years, and despite the city’s small inventory of industrial land and the trend in planners developing tools to secure places for industrial productivity, there have been no comprehensive updates to this guiding policy document. There have, however, been two initiatives which aimed to explore the character and condition of industrial land in Los Angeles and evaluate the effectiveness of the Framework’s industrial land policy.

Industrial Development Policy Initiative, 2003 – 2004

Despite the Framework Element’s policies designed to support industrial land and its employment-generating uses, Los Angeles has been no exception to the trend of increasingly vulnerable industrial land in high-growth American cities. Since the Framework Element’s adoption in 1996, areas such as West Los Angeles, Hollywood, and Downtown have come under heightened pressures to convert relatively inexpensive

industrial land to non-industrial uses, such as residential, retail, schools and open space, forcing the city to reexamine the effectiveness of its industrial land preservation measures. In 2003, recognizing the implication of these development pressures on the city's workforce, the Mayor's Office of Economic Development appointed an Industrial Development Advisory Committee to analyze the conditions, performance and trends associated with the city's industrially-zoned land. The purpose of this study, later dubbed the Industrial Development Policy Initiative (IDPI), was to make policy recommendations that would encourage industrial economic activity, retain and optimize the uses of the city's industrially zoned land, increase the number of quality jobs available to local residents, and increase the city's revenues from industrial activity.¹²

The IDPI serves as the first in-depth analysis of the character and condition of industrial land in Los Angeles – the first to spatially organize the city around six distinct industrial regions, the first to argue for the economic value of the industrial land base, and the first to quantify the trend of industrial land loss in Los Angeles.

The study subdivided Los Angeles into six industrial regions – North Valley, Central Valley, West Valley, West Los Angeles, Metro, and Harbor – determined by existing jurisdictional boundaries and geographically similar clusters (Figure 3.2). The Metro Industrial Region, in which Downtown Los Angeles is located, it determined, held the largest concentration of industrially zoned land, over one third of the total in the city, and as a result, provided the greatest economic value to the city.

As defined by the IDPI, the economic value of Los Angeles industrial land base can be measured in three ways: the value to the residents as employment, the value to the city in form of revenues, and the value to the business and development community

in terms of investment opportunities. With respect to these three components, the IDPI found that in 2002 over 509,000 workers were employed in the industrial sector, representing 29% of the city's total workforce; that industrial property, utility, business, and sales taxes accounted for \$219.4 million in annual tax revenues generated for the city, representing 13% of total city revenues; and that building permit valuations, an indicator of development activity, for industrially zoned parcels totaled \$1.6 billion, representing 12% of the citywide total.¹³ However, of note with regards to development activity as indicated by building permit valuations, over half of this private investments was for conversion to non-industrial uses, a signifier of the vulnerability of industrial land inventory.

The IDPI for the first time quantified this condition of industrial land loss in Los Angeles. As of 2002, of the city's total industrial zoned land, approximately 26% had been converted over time to non-industrial uses. Light manufacturing remained the predominant use of industrially-zoned land (28%) and warehousing the second (12%), but the study found that non-industrial uses that are not permitted as-of-right in industrial zones such as institutional (10%) and retail (8%) were in fact more prevalent than heavy manufacturing (7%). In addition, they identified 1,700 acres of vacant industrially land, equal to 9.4% of the total industrial zoned land.¹⁴ In keeping with Leigh and Hoelzel's findings that market conversion, not industrial business decisions, are the primary driver in the loss of industrial land, the IDPI pointed to the high market value of non-industrial uses as the major driver in the conversion of industrial land, citing the assessed property value of non-industrial land as, on average, 29% greater than industrial land, with retail and commercial uses representing 2 to 2.5 times the average assessed value of prior industrial land.¹⁵

The IDPI argued that these value-

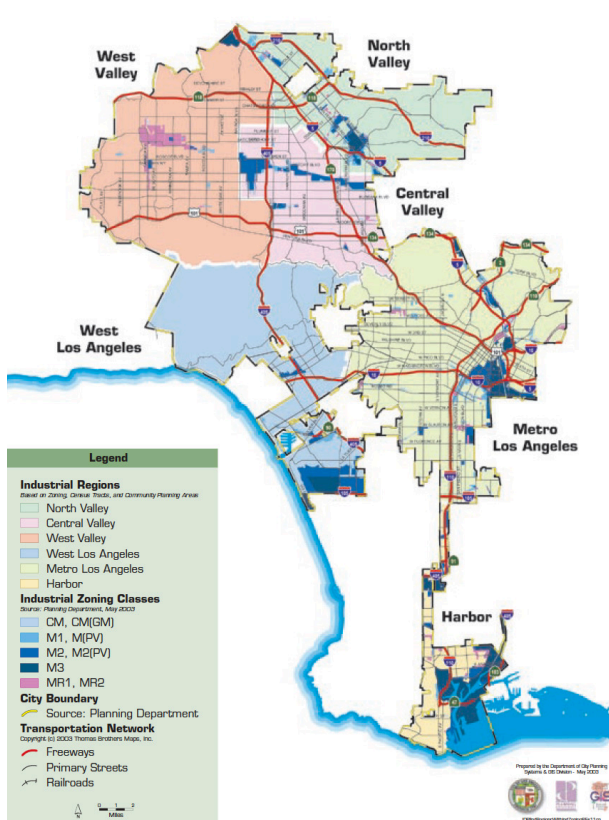


Figure 3.3
 Industrial Development Policy Initiative's six industrial regions, 2004.

driven market forces, coupled with the city's permissive zoning code and entitlement process, have interacted to diminish industrial development in Los Angeles, and called for an informed policy intervention from the city in order to counter these trends. The study concluded with five emerging policy issues that it recommended that the city address; chief among them, industrial land use conversion and availability, but also infrastructural challenges of roadways and freight movement constraints, the changing industrial base of the city, quality workforce development, and environmental challenges.¹⁶

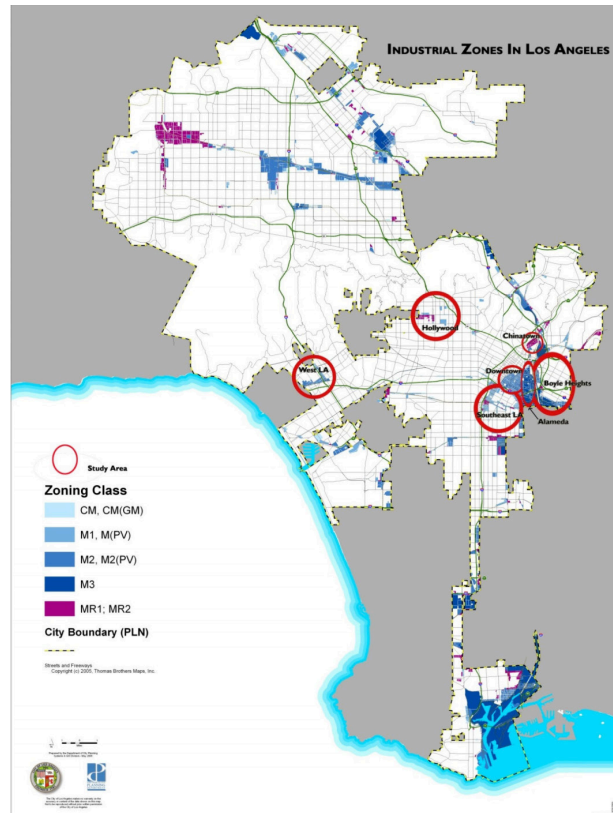


Figure 3.4
 Industrial Land Use Policy Project's seven industrial study areas, 2007.

The IDPI never evolved into its final phase of formal policy recommendations, but it proved a foundational document for examining the character of industrial land in Los Angeles and the factors that encourage and impede industrial development. More than anything, it underscored the important connection between Los Angeles' industrial land use policies and the city's economic vitality.

Industrial Land Use Policy Project, 2006 – 2008

In 2006, recognizing the need for more urgent recommendations to address industrial

land use, the Mayor tapped the Los Angeles Department of City Planning (DCP) and the now defunct Community Redevelopment Agency of the City of Los Angeles (CRA) to look more deeply into the issue. The Industrial Land Use Policy Project (ILUP Project) was thus undertaken in order to 1) address the increasing number of zone changes, general plan amendments, and development applications to convert industrial land to other uses and 2) evaluate the effectiveness of the city's existing industrial land use policy, as laid out in the Framework Element of the General Plan.¹⁷

The ILUP Project was a two-year study that included a detailed analysis and evaluation of the viability of the city's industrial districts, using the IDPI findings as a jumping off point but diving more specifically into those districts that were experiencing the greatest pressure to convert to other uses. The study resulted in a 14-page memorandum, directed to the staff of DCP and CRA, which provides short- and long-term guidance for how best to implement the city's adopted policy to retain industrial land for job producing areas. In the short-term, it is recommended that the city staff use the geographic specific recommendations for selected industrial districts to aid their evaluation of entitlement applications and zone changes. In the long-term, the memorandum provides directions for how to integrate industrial land retention goals into community plan updates, zoning and building code revisions, and citywide economic investment strategies.

Whereas the IDPI's analysis operated at the city scale and identified six industrial regions within Los Angeles, the ILUP Project focused on the district, examining selected industrial clusters of land in seven areas in the city that were undergoing the highest pressures for conversion (Figure 3.3). These included three districts in Central City – Downtown, Chinatown, and Alameda – as well as areas in

Boyle Heights, Southeast Los Angeles, West Los Angeles, and Hollywood, for a total of 3,300 acres studied.¹⁸ The land within each study area was then categorized into four typologies based on the DCP and CRA's understanding of various degrees of the current condition of transition away from industrial land use. These include:

1. *Employment protection districts*, defined as areas where industrial zoning should be maintained and residential uses are not appropriate.
2. *Industrial mixed-use districts*, defined as areas that should remain predominantly industrial districts, but which may support a limited amount of residential use.
3. *Transition districts*, defined as areas where the viability of industrial land has been greatly compromised by land conversion to non-industrial uses and thus this transition to other uses should be continued.
4. *Correction areas*, defined as areas where earlier land use decisions have resulted in inappropriate land use patterns and thus a change in zoning to correct existing land use conflicts should be encouraged.

The memorandum is accompanied by an attachment of maps and analysis that designate and assign these categories to areas within the selected seven districts. The methodology for assigning these four typologies included considerations of current conditions, viability of existing uses, and compatibility issues within district and adjacent areas. Analysis included a field survey to catalog existing uses and accompanying data on business employment numbers and industrial and residential market data. In addition, the staff presented preliminary conclusions to community members, residents, business owners, and developers for reviews and comments over a six-month period, and incorporated additional

analysis to address issues that were raised in the review process.

Each of the four categories is accompanied by short- and long-term directions to the staff. While the long-term recommendations are often delegated to the community plan update process, the short-term recommendations explicitly deal with how staff should approve or deny applications for zoning changes or new development. For employment protection districts, no zoning changes or land use conversions are allowed and any residential use applications should be denied; for industrial mixed-use districts, generally no changes or land use conversions are allowed, but should the city approve any residential development, they should do so only with the promise of a jobs-producing community benefit from the memorandum's list. For transition districts, changes of use or zone are generally allowed provided community benefits are incorporated. For correction areas, conversion of industrial zoning to non-industrial zoning should be encouraged and community benefits are not required.¹⁹ In this way, the short-term recommendations are very much reactive; they aim only to preserve the land use conditions of each area as existing in 2008.

In addition, on its face, the memorandum explicitly did not change land use designation, zoning code, or land use policy with respect to industrial land for Los Angeles. Instead, it reaffirmed the policy as described in the Framework Element of the General Plan, directed DCP staff how to handle applications use conversion in the short term, and pushed the responsibility of district-wide zone changes onto future community plan update processes.

A review of these policy documents reveals a number of conclusions regarding Los Angeles' industrial land use policies. First, the Framework Element of the General Plan

establishes the importance of industrial land for employment purposes, and sets the retention of this land as a guiding priority in the long-term growth of the city. Yet the document further enforces the trade-off between industrial and non-industrial land, and fails to imagine any potential mixing of these uses as one such growth strategy. In addition, the Framework Element alone lacks any implementation powers with regards to land use designation, zoning, or economic development strategies, and for this reason, it remains somewhat limited in its regulatory abilities.

While the IDPI and ILUP Project successfully qualified the condition of industrial land loss in the city and reinforced the importance of the Framework Element's protective approach to industrial land use, the two documents did not develop long-term comprehensive strategies for industrial land preservation. At best, the ILUP Project concluded with site-specific policy directives that sought only to maintain the existing balance of land uses, a snapshot of 2008 conditions, and while in the short-term this can succeed in protecting industry against encroaching gentrification, the categories of "industrial mixed-use district" and "transition-district" can also be critiqued as following market-driven land use conversions. Furthermore, placing decision-making authority onto DCP staff, who may approve industrial land conversion on a discretionary case-by-case basis, softens the power of these policy directives and risks, much like Chicago's PMDs and New York's MX districts, undermining the intent of the initiative. Additionally, this highly localized approach to industrial development invites a set of consequences at the neighborhood scale, in which industrial land is more likely to be perceived as a nuisance than as a contributor to the regional economy. In general, Los Angeles' land use policy is structured such that all use designation, zoning, and implementation

is placed on the 35 community plans. This points to the overall weakness of these city-wide policy documents, and suggests that the effect of these policies must be examined at the neighborhood scale. As such, a dissection of the DTLA 2040 community plan update process – the site conditions, the projections for growth, and the proposed zoning updates – is all the more critical in understanding how these land use policies are being implemented on the ground.

03 Endnotes

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Downtown Los Angeles: An Industrial Patchwork at Risk

As previously mentioned, Downtown Los Angeles is in the midst of an unprecedented growth and primary goal of the community plan update is to support the ongoing revitalization of Downtown Los Angeles while accommodating growth inclusively, equitably, and sustainably.¹ At the same time, almost half of Downtown Los Angeles is zoned for industrial uses, introducing a point of conflict with the city's industrial land use policy for retaining industrial land for industrial employment. Thus, in order to understand how the city is positioning hybrid-industrial as a solution to this difficult balancing act, it is first important to contextualize the great transformation occurring in Downtown Los Angeles and its implications for industrial land conversion.

This chapter will first establish Downtown Los Angeles as primary cluster of industrial activity in comparison to other industrial zoned areas in the city and will explain, from the perspective of urban growth, how the decentralized expansion of Los Angeles contributed to this industrial stronghold. It will then highlight the complex patchworks of industrial districts that make up the industrial zoned land in Downtown Los Angeles, and through qualifying and quantifying the area's current real estate boom,

position these districts to be at considerable risk. Lastly, this chapter will conclude with an anticipatory risk assessment of industrial displacement in Downtown Los Angeles to demonstrate that of all of the patches of industrial land located Downtown, the Arts District and surrounding blocks are at the highest risk for development.

A Primary Industrial Node

As discussed in the previous chapter, only 9% of Los Angeles' 469 square miles is currently zoned for industrial uses. A closer examination of the map of the industrial zoned land in the city reveals a distinct spatial distribution pattern of this land (Figure 4.1). As to be expected, there is a clear relationship between industrial land and the city's infrastructure: the river, the rail lines which originally followed the low-lying paths of the riverbed, and the freeway system. In this way, Los Angeles follows the sectoral growth model of Hoyt, in the linear stretches of industrial land that hug the rail, but also Harris and Ullman's multiple nuclei model, with large clusters of industrial land both centrally and peripherally located. This can be simplified into two distinct spatial typologies of industrial land groupings – linear

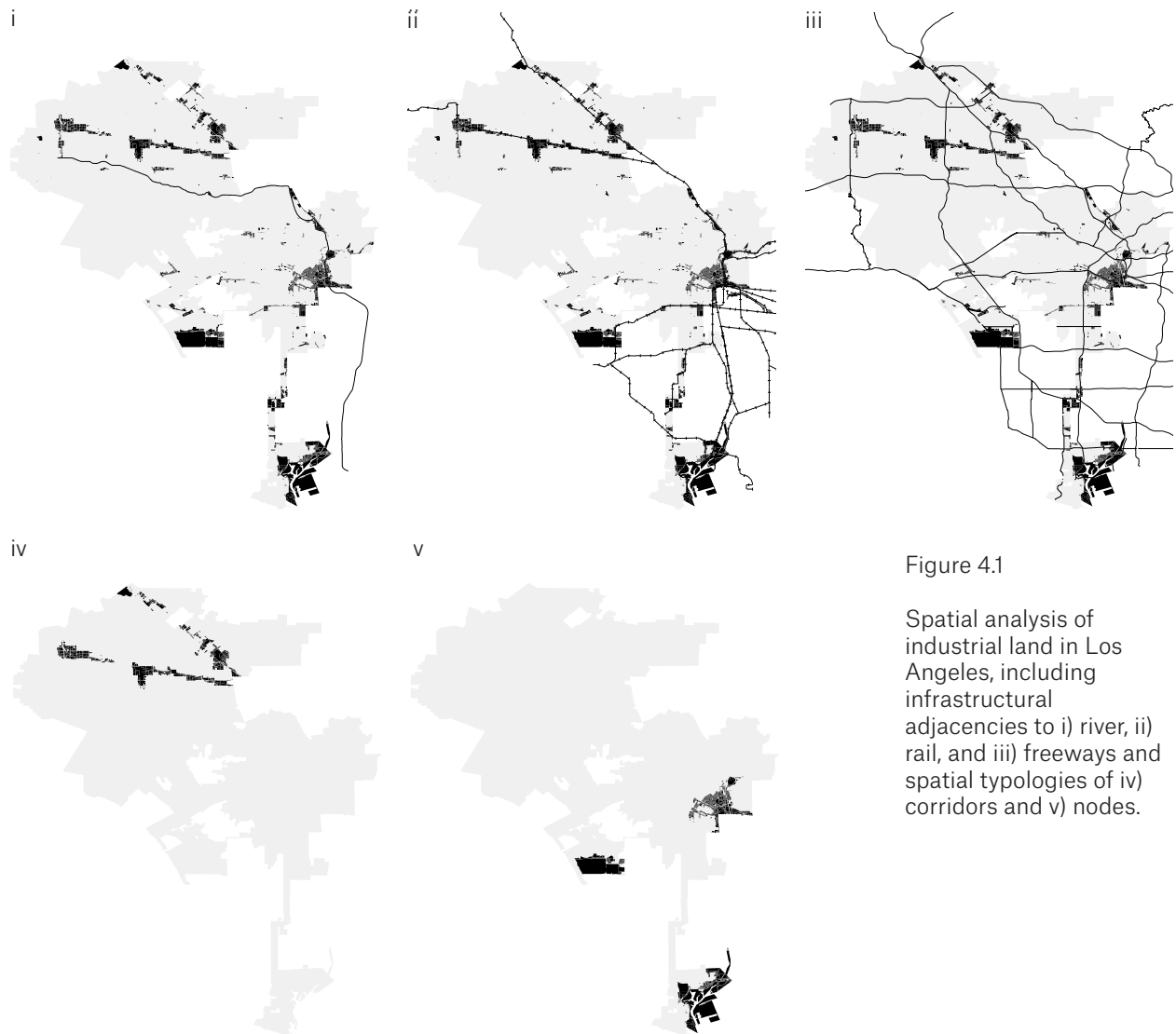


Figure 4.1

Spatial analysis of industrial land in Los Angeles, including infrastructural adjacencies to i) river, ii) rail, and iii) freeways and spatial typologies of iv) corridors and v) nodes.

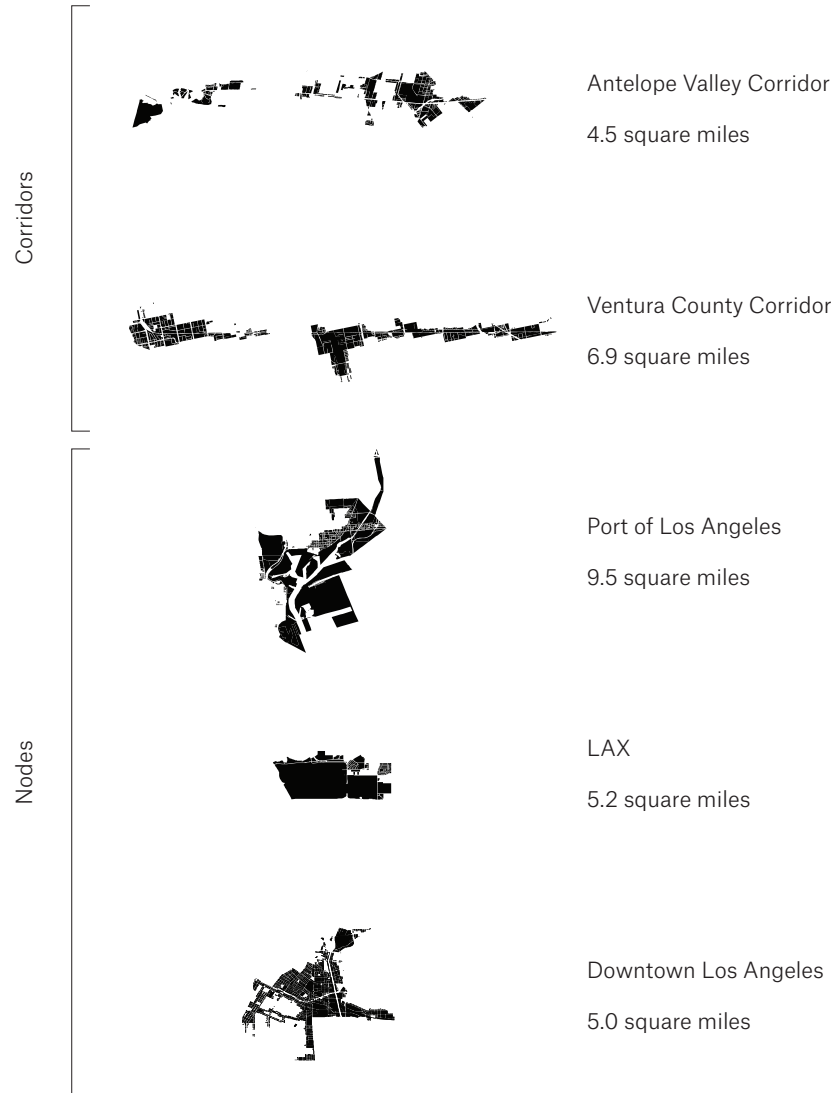
corridors and nodes. Whereas the linear corridors stretch outward and northeast along rail lines, the city has three primary nodes: LAX, the Los Angeles Port, and Downtown Los Angeles. But whereas the port and the airport are monolithic infrastructural hubs pushed to the coastal edges of the city, the cluster of industrial land in the heart of the city is an industrial land use typology entirely of its own that deserves further analysis.

Neither single-use nor peripheral, the industrial land in Downtown Los Angeles is not one but many: a complex patchwork comprised of many miniature manufacturing

and logistics ecosystems, encircled by freeways and intersected with rail lines, wedged up against historic landmarks and tent cities, and currently in the middle – both spatially and temporally – of one of the largest real estate development booms in the city’s history. And in a city of sprawl, the central metropolitan area has remained the industrial stronghold of the city. The IDPI found that of the six industrial regions identified in Los Angeles, the central metropolitan area leads the city in terms of employment and tax revenues, and the ILUP Project’s three selected areas located in the city’s core are consistently the highest

Figure 4.2

Industrial nodes and corridors.



ranked in terms of jobs and businesses there. How such a large deposit of industrial land and employment has remained in the core of Los Angeles, when it has been converted and pushed to peripheries in other American cities, speaks to how the city has traditional turned its back on its downtown, sprawling outward and leaving a residue of industrial land in its wake.

Where the Action Cannot Possibly Be

In *Los Angeles: The Architecture of Four Ecologies*, Reyner Banham titled his chapter on Downtown Los Angeles “A Note on

Downtown...” with the footnote “... because that is all downtown Los Angeles deserves.”² Even Banham, who asserted that Los Angeles should be a city taken seriously and read on its own terms, who found unity in a dizzying place when his contemporaries were want to “reject the inscrutable, and hurl the unknown into the ocean,” even Banham believed in the “sheer irrelevance” of downtown.³ Downtown Los Angeles, he proclaimed, would never hold the “sense of moral and municipal hegemony” belonging to other American city centers.⁴ “This is where the action cannot possibly be.”⁵ Banham subscribes to the almost

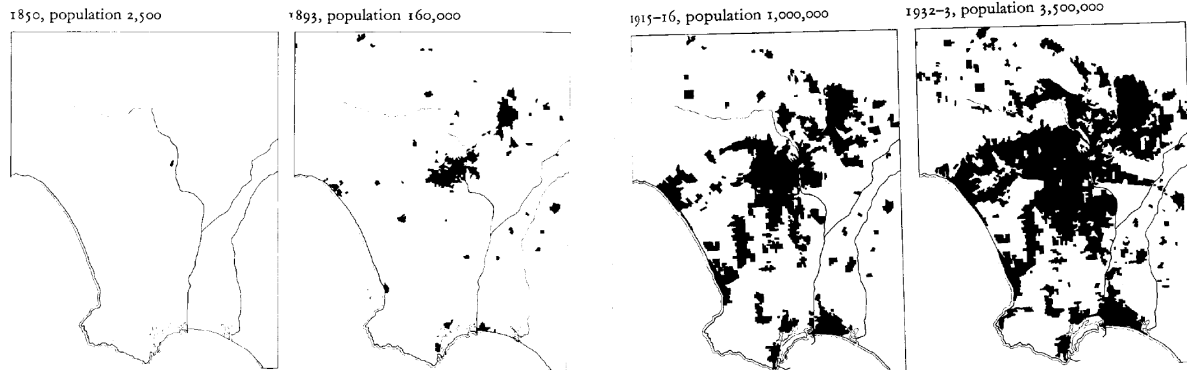


Figure 4.3

Urban growth in the greater Los Angeles area, 1850 - 1933.

universally held conception that Los Angeles is the great outlier of American metropolises, a city that defies the tenets of traditional urbanism. And for much of the twentieth century, Los Angeles' exceptionalism confounded historians, geographers, planners, and visitors alike. As early as 1907, in his beautification plan for the city, Charles Mulford Robinson posited that "the problem offered by Los Angeles is a little out of the ordinary."⁶ Carey McWilliams called it a "great exception."⁷ Reyner Banham found it "as unrepeatable as [it is] unprecedented."⁸ Historian Robert Fogelson perhaps summarized it best: "The essence of Los Angeles was revealed more clearly in its deviations from than in its similarities to the great American metropolis of the nineteenth and twentieth century."⁹ Downtown Los Angeles – its location, growth and significance (or rather insignificance) – is one such deviation.

Other great American cities were founded with a crucial locational advantage, typically a port, out of which the central business district and greater metropolis would later rise. Los Angeles, on the other hand, was founded by the Spanish in 1781 in an empty plain in the bottom of a valley, adjacent to an unnavigable and unpredictable river, over fifteen miles away from the Pacific Coast and

any prospects of a suitable harbor. "A foolish location for a city," writes William Fulton.¹⁰ And yet, El Pueblo de Neustra Senora la Reina de Los Angeles expanded outwards, first gradually into peripheral ranches and farms, then rapidly in the era of the electric rail into residential enclaves and competing commercial districts, and eventually into the sprawling metropolis of Los Angeles today. The pueblo gave its name to Los Angeles, gave its location to present-day downtown, and served as the transportation hub out of which major rail lines sprung, but the list of its historical significance ends there. Unlike the typical growth patterns of other American cities, Los Angeles began to decentralize before its downtown could establish itself as an authoritative core, as Reyner Banham's mapping demonstrates (Figure 4.3). The result is a city without a center, a patchwork with no hierarchy. And in comparison to other American cities, this decentralization resulted in a different spatial organization of industrial and non-industrial land uses.

Historical Industrial Development in Downtown Los Angeles

The transcontinental railroad reached Los Angeles in 1876, and the connections it

offered, coupled with the expansion of local road and water infrastructure networks, shifted growth away from the pueblo. By 1885, prosperous individuals had moved out of downtown, erecting houses on outlying tracts in the foothills or southern and western flats. At the same time, retailers followed the new residential subdivisions, and many businesses moved from central to southern Los Angeles. What remained in the city's core was a concentration of businesses forming the primary commercial center, wholesalers grouped around the central railroad station, and a wide spread of craftsmen throughout the south-central section of downtown. In particular, a small manufacturing complex – comprised of a gas plant, flour mills, rail yards, and slaughterhouses – had developed along the eastern edge of downtown, hugging the route of the Southern Pacific Railroad along the Los Angeles River.¹¹

Over the next five decades, the downtown district established itself as regional employment center, evolving from a few of offices covering several blocks to many large mercantile and professional buildings spread over one square mile, the most concentrated section of professional services in Southern California. Many small manufacturers continued to operate in the area. While residential and commercial land uses were dispersing, many industrial operators felt little incentive to relocate. The transcontinental railroad did not operate freight trains on every line, nor were utility services distributed everywhere in the region. Pockets of downtown, north and southeast of the central business district, still offered enough land at reasonable prices such that manufacturers found centralization profitable. On the other hand, heavier industries, which required more land at a cheaper price, began relocating along the waterfront, which offered immediate access to the harbor, adequate rail and truck connections, abundant water and power, and

inexpensive land. But by 1920, industrial land uses in Los Angeles were primarily concentrated downtown, southeastern strips along the Los Angeles River, and waterfront industrial districts.¹²

The automobile has been charged with decentralizing Los Angeles, and this is true too for industrial uses. The extensive highway system enabled industrial firms to move freight through the region by trucks, and sprawling residential suburbs, combined with widespread automobile ownership, unlocked affordable peripheral land without compromising access to the workforce. Large manufacturing firms began establishing autonomous industrial complexes outside of central Los Angeles; steelmakers built plants in Torrance, oil producers constructed refineries in El Segundo, and aviation companies moved to Santa Monica.¹³ Thus by the 1930s, the decentralization of Los Angeles had a segregating effect on industrial land uses, such that wholesalers and small manufacturers remained in the edges of the city center, and large manufacturing firms had sprawled to the suburbs.

Whereas several American cities experienced deindustrialization in the post-war era, Los Angeles was, as Edward Soja has written, “reindustrializing,” restructuring its industrial economy as it shifted away from large-scale assembly line Fordist modes of production to more global, flexible, and information intensive high technologies.¹⁴ In Los Angeles, the decentralization effect created “regional technopoles,” a term used by Soja and Allen Scott to describe suburban centers of high-technology industries such as aerospace and defense around which new rounds of residential development spatially clustered. But the high-technology industry is one of two “species” of post-Fordist industrialization in Los Angeles. The other, as Scott points out, is the labor-intensive and design-intensive craft industries, such as the small manufacturing

Figure 4.4

Industrially zoned land,
Downtown Los Angeles.

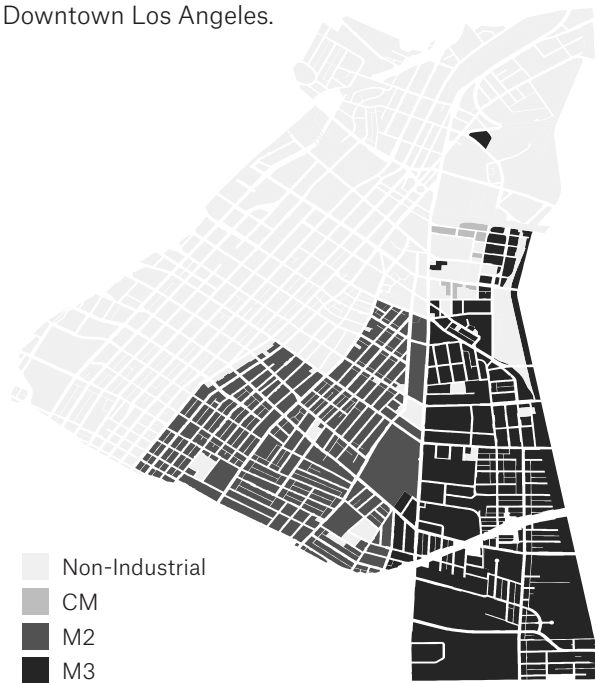


Figure 4.5

Industrial land uses,
Downtown Los Angeles.



firms that produce textiles, apparels, furniture, and jewelry. In the second half of the century, as the high-technology industries moved to the outer fringes of Los Angeles, these craft industries dug in, remaining in the immediate vicinity of the central city Los Angeles.¹⁵ This historical decentralization of Los Angeles can help contextualize how and why industrial land uses still remain in the city center today.

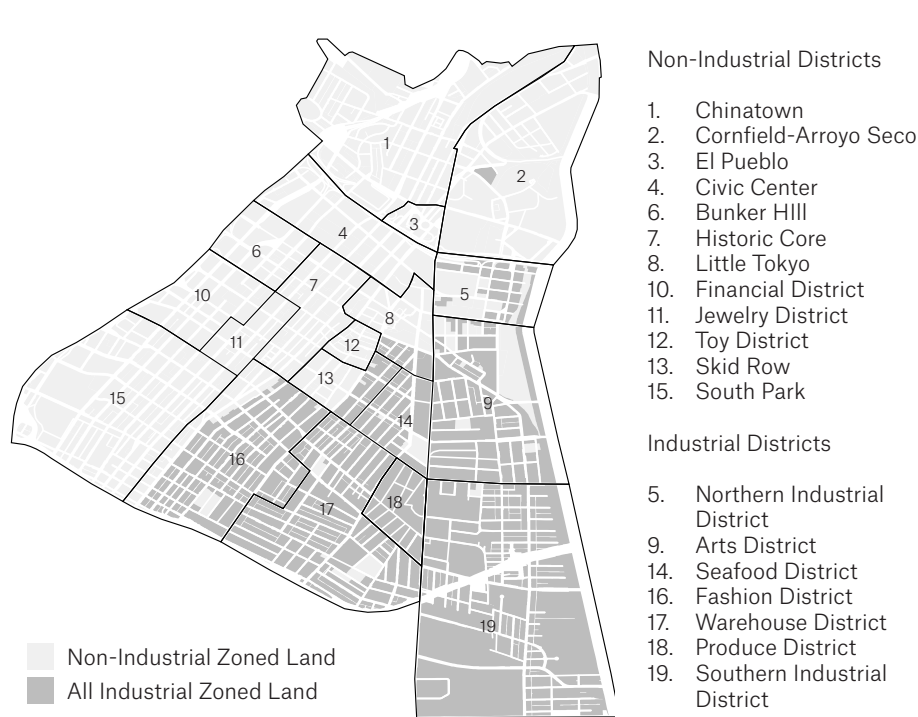
Industrial Patchwork of Downtown Los Angeles Today

Today, the seven square miles of Downtown Los Angeles is home to over 52,000 residents and 290,000 jobs.¹⁶ And not unlike contemporary American downtowns, it is a locus of employment, civic and entertainment uses: the largest concentration of offices and jobs in the Southern California, the largest hub of government employment outside of Washington D.C., rich cultural districts like

Little Tokyo and Chinatown, and one of the world's largest entertainment complexes. And yet, it also remains a stronghold of industrial land.

Of the total zoned land in Downtown Los Angeles, almost half – 46% – is zoned for industrial use (Figure 4.4). This is entirely concentrated in the south-central and eastern areas of downtown, with north-south Alameda Street dividing the M2 designated light-industrial land to the east and the M3 designated heavy-industrial land to the west. The zoning map suggests an ordered binary split of industry along Alameda, but a closer examination of the land uses reveal this to be an oversimplification. The industrial land use map of downtown Los Angeles suggests the deterioration of these industrial districts, with non-industrial uses occupying over 20% of industrially zoned land, and an eastward gradient of dissolution of industrial use, as the street network morphs into a more legible

Figure 4.6



Neighborhood patchwork in Downtown Los Angeles.

grid, parcel sizes shrink and the intensity of industrial uses is absorbed into the central business district (Figure 4.5).

Additionally, neither zoning nor land use maps can accurately demonstrate the complex patchwork of production and distribution ecosystems in downtown Los Angeles (Figure 4.6). The industrial district is in fact comprised of several distinct patches, each spatially clustered and organized around a shared product or service: the Jewelry District, the Fashion District, the Toy District, the Seafood District, the Produce District, the Warehouse District, the Arts District, and so on. And while small-scale manufacturing remains – with over 9,000 currently employed in the sector – the majority of these districts support wholesale trade, distribution, and warehousing.¹⁷ The Fashion District, for example, which spans over one hundred blocks of south-central downtown and averages \$10 billion a year in business

volume, is home to over 2,000 independent apparel and textile wholesalers that generate 70% of the district's business revenues.¹⁸ Just a few blocks west, the Alameda Street is flanked by the Produce District and Seafood District, historically family-operated food processing and distribution companies owned by Japanese, Irish and Italian immigrants, and today a large network of markets, warehouses, and cold-storage facilities.

These patches highlight a more dynamic and differentiated industrial district than any zoning map of downtown Los Angeles could illustrate. Each cluster is unique not only in the product or service they provide, but also in its history, the community that it supports, and the regional network of economic flows to which it belongs. The different characteristics of these industrial patches present different sets of operational needs and locational challenges. And as recent trends in downtown real estate development continue to change the face of

Figure 4.7

Historic development in Downtown Los Angeles, new build and renovation, 2008 - 2018.

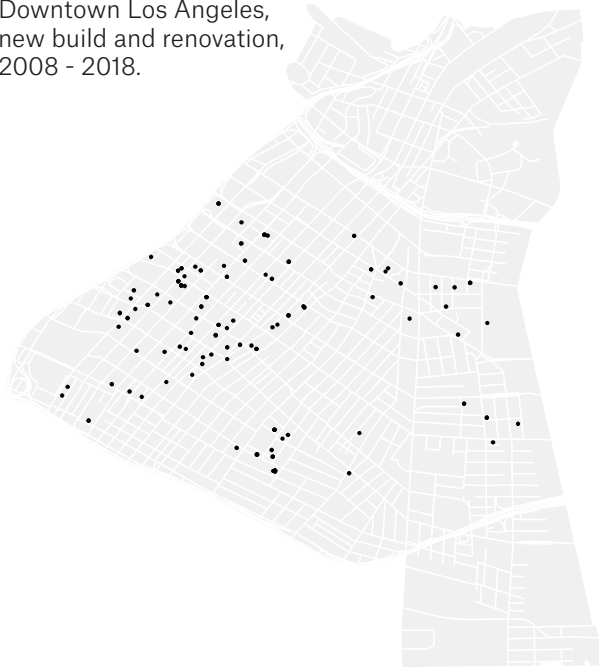
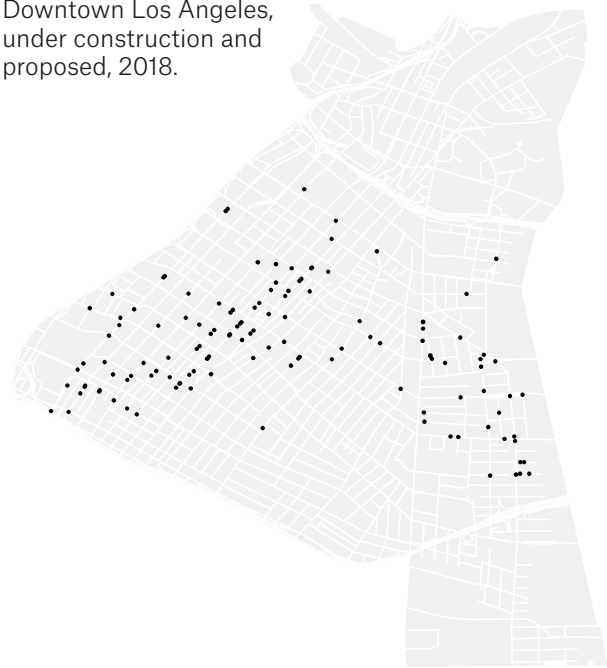


Figure 4.8

Projected development in Downtown Los Angeles, under construction and proposed, 2018.



the area, the patchwork also presents different levels of compatibility with non-industrial uses, different levels of interest in locating near and benefiting from new development, and different scales of vulnerability to industrial gentrification.

A Downtown in Transition

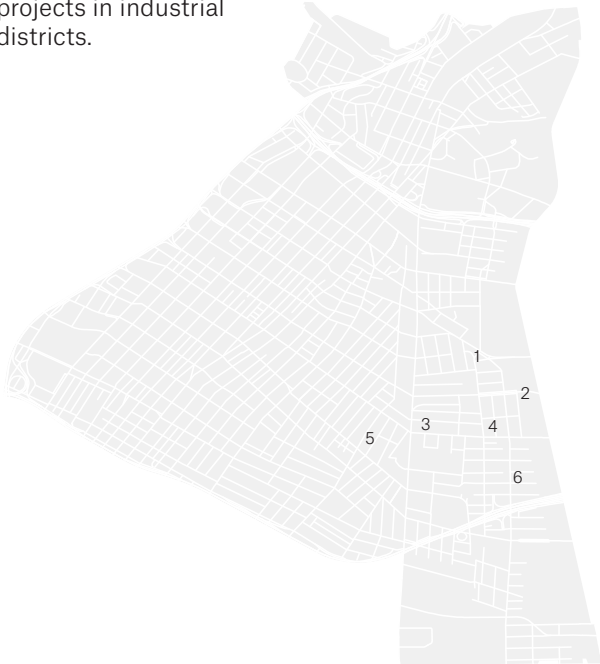
After decades of disinterest, downtown Los Angeles is currently experiencing its largest development boom since the 1920s, with a population that has more than doubled since 2000 and is expected to climb to over 100,000 residents in the next ten years.¹⁹ Downtown's real estate market is experiencing an explosion of both ground-up and adaptive reuse projects, several of which are large infill mixed-use developments. This unprecedented private sector investment is supported and encouraged by several city-led initiatives, such as a new comprehensive public transit rail network

centered on downtown and the corresponding Transit Oriented Communities incentive program, a suite of density bonus incentives for affordable high-rise development, a partnership with the Army Corps of Engineers to restore downtown-adjacent stretches of the Los Angeles River, and additional investments in public realm improvements for new park projects and bike infrastructure. The decentralized Los Angeles of Banham is reorienting itself.

Over the last ten years, real estate transactions in downtown Los Angeles have neared \$2 billion dollars. Over 150 development projects have been constructed, the majority of which have been renovation projects. Since 2008, the market has delivered over 13,000 residential units, 4,000 hotel rooms, 15,000,000 square feet of office space, and 2,000,000 square feet of retail.²⁰ Largely, these investments have been concentrated on the westside of downtown Los Angeles in areas

Figure 4.9

Sample development projects in industrial districts.



Project: At Mateo
 Status: Under Construction +50,000 sf office
 Type: New Build +125,000 sf retail

Project: 670 Mesquit
 Status: Proposed +250 apartments
 Type: New Build +225 hotel rooms
 +800,000 sf office

Project: 6AM
 Status: Proposed +1,305 apartments
 Type: New Build +412 hotel rooms
 +253,500 sf office
 +125,000 sf retail

Project: Ford Motor Factory
 Status: Proposed +254,000 sf office
 Type: Adaptive Reuse +60,000 sf retail

ROW DTLA
 Status: Completed +1,200,000 sf office
 Type: XX +200,000 sf retail

Soho House
 Status: Under Construction +36 hotel rooms
 Type: Adaptive Reuse +1,500 sf performance space

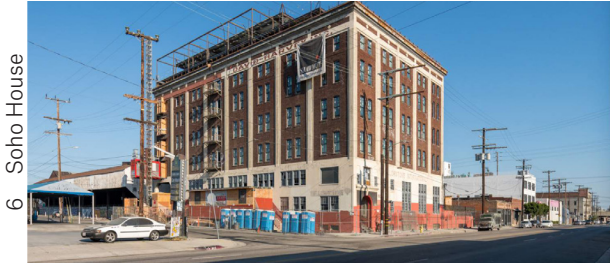
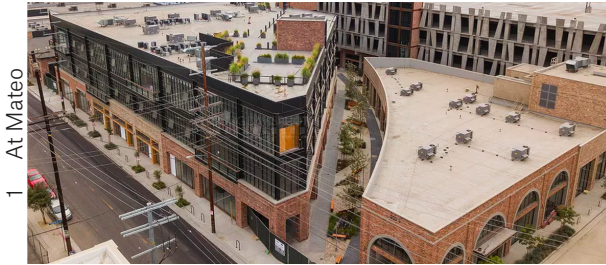


Table 4.1

Industrial risk assessment index and scoring results.

	Risk Criteria	Arts District	Fashion District	Northern Industrial District	Produce District	Seafood District	Southern Industrial District	Warehouse District
Economic Factors	Agglomeration	1	0	1	0	0	1	1
Use Factors	Compatibility with non-industrial	1	1	0	1	0	0	0
Physical + Spatial Factors	Building stock	1	0	0	0	0	0	0
	Parcel size	1	0	0	1	0	1	1
	Proximity to public amenities	1	1	1	0	0	1	0
Political Factors	Community organization	0	0	1	0	0	1	1
Total risk score		5	2	3	2	0	4	3

more akin to the functions of a traditional central business district. This includes the Financial District, the Historic Core, and the rapidly transforming South Park district, which is home to the Los Angeles Convention Center, the Staples Center, and the LA Live entertainment complex.

While the action over the last ten years has been noticeably west of Main Street, which serves as the edge of the industrial district, there has also been a smattering of new developments, twenty in total, in otherwise industrial zoned land. This includes a cluster of small-scale renovations in the Fashion District

and a several mixed-use projects throughout the Arts District. Recent investment in the Arts District, attractive for its comparatively lower land prices and large underdeveloped parcels, has prompted many market professionals to speculate that downtown Los Angeles' center of gravity is shifting east.²¹ Looking forward at projects under construction and proposed in Downtown Los Angeles, this certainly seems to be the case. Of the 140 projects in the pipeline, over a quarter are located east of Alameda Street (Figure 4.8).²²

A Risk Index for Industrial Displacement

Of course, pressures to convert industrial land in high growth markets such as downtown Los Angeles is not a unique condition in contemporary American cities. But with almost half of the land in downtown Los Angeles zoned for industrial uses, the race toward investment in the Arts District begs the question: what factors make this patch of industrial land more attractive to real estate developers than adjacent industrial land, and thus more vulnerable to land use conversion pressures and industrial displacement?

To explore this question, this thesis utilizes a risk assessment index for the seven industrial districts in downtown Los Angeles. The seven districts were assessed across six criteria, which include economic, use, and spatial factors, that can indicate either the district's likeliness to impede industrial redevelopment or its vulnerability to conversion. This index uses a binary scoring system, such that districts were assigned either the category of "low risk" for 0 points or "high risk" for 1 point, meaning the total possible points reflecting the highest risk of industrial conversion is 6. A description of each factor and the rationale for scoring methodology is included below and is accompanied by the risk assessment index and total scoring results in Table 4.1.

1. *Agglomeration.* Industrial districts that are clustered around a shared product or service derive additional benefit from colocation. The additional value generated by clustering may strengthen the economic productivity of certain districts, increasing land values and decreasing vacancies, and aiding to protect against pressures of conversion. On the other hand, businesses located in industrial districts with heterogeneous product offerings, without the benefits of agglomeration, may be

economically weaker and more vulnerable to redevelopment. For this reason, the Fashion District, Seafood District, Produce District, and Warehouse District, each its own miniature wholesale, distribution, and storage ecosystem, derives strength in numbers and may be better suited to resist industrial land use conversion pressures.

2. *Compatibility with non-industrial uses.* If industrial districts are 1) agglomerated around a single product or service and 2) that product or service may require or benefit from on-site showrooms or markets, there exists a higher potential for synergies with other uses. Wholesalers and industrial firms with retail components, are likely more consumption-oriented than production-oriented. As such, they may benefit from street level visibility, pedestrian traffic, and public realm maintenance to enhance the customer experience. By contrast, neither warehousing nor more heavy industrial uses, such as scrap metal recycling plants, operate businesses that must consider on-site customer experience. For this reason, the Arts District, Fashion District, and Produce District fall into a higher risk category than their industrial neighbors.
3. *Building stock.* Historic industrial brick lofts, unique to Los Angeles building fabric and prevalent in the Arts District, are particularly attractive to private real estate investment. This building typology, with its large open floor plates, high ceilings, and big windows, has traditionally been converted to and branded as luxury residential lofts, leading to a market appetite for industrial aesthetics. In recent years, tech companies and creative office spaces are looking toward industrial building inventory as well, attracted not just to their aesthetics, but to the functional



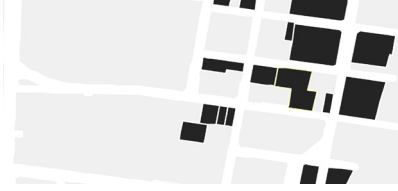
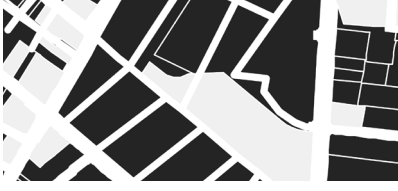
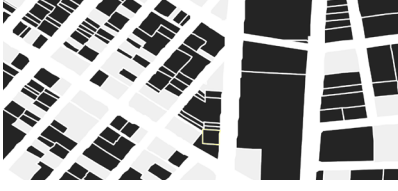

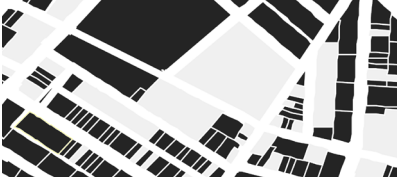
Figure 4.10

Building stock analysis.



Figure 4.11

Parcel size analysis.

	Industrial Parcels	Average Parcel Size	Maximum Parcel Size
Arts District		1.37 acres	23.04 acres
Fashion District		0.43 acres	10.80 acres
Northern Industrial District		0.66 acres	8.23 acres
Produce District		9.07 acres	20.22 acres
Seafood District		0.70 acres	6.63 acres
Southern Industrial District		1.00 acres	15.98 acres
Warehouse District		1.08 acres	9.97 acres

capacity of wide and flexible spaces.

Adaptive reuse of industrial buildings for these purposes is common in cities like New York, Boston, and San Francisco, and the rarity of this building typology in Los Angeles makes areas like the Arts District, one of the few places in the city that retains an inventory of early twentieth century industrial buildings, all the more vulnerable.

4. *Parcel size.* Larger underdeveloped parcels, common in industrial district because of the operational requirements of manufacturing and warehousing businesses, present greater opportunity for large scale infill development projects. And for a city as developed as Los Angeles, downtown offers quite a few. As 2017 market outlook for downtown Los Angeles suggests, “You don’t find many five-acre parcels that can support \$1 billion developments in many downtowns.”²³ Because of the warehousing and storage facilities located in districts such as the Arts District, Seafood District, Produce District, and Southern Industrial Districts, these sites have considerably larger parcels than the other industrial zoned land and thus receive a higher risk score.
5. *Proximity to public amenities.* Industrial districts are typically underserved with regards to public amenities such as open space and transportation access. But with the expansion of the Gold Line eastward into downtown Los Angeles and the revitalization of the Los Angeles River, there is an increase in amenities in these previously underserved areas, opening up market interest in land between Alameda Street and the river, such as the Northern Industrial District, the Arts District, and the Southern Industrial District. increasing the appetite for new development.

6. *Political representation and community organization.* Integral to the preservation of industrial land is an organized community of industrial business owners and operators and political representation. Community groups and business improvement districts are best positioned to advocate on behalf of industrial businesses in the face of transition and can be a powerful tool in the resistance of land conversion. Of the eight BIDS downtown, only three exist for industrial districts, covering the Arts District, Fashion District, Seafood District, and Produce District.

By scoring each of these districts across the six criteria, the Arts District, as expected, scores in the highest category, with 5 out of 6 total points, and the Southern Industrial District scores second, with an overall risk score of 4. By assigning each of these industrial patches an overall risk score and mapping it on to the forward-looking development pipeline in downtown Los Angeles, this risk hypothesis is supported. Looking forward, industrial land east of Alameda Street contains the overwhelming majority of projects, both under construction and proposed. A total of 37 projects are either under construction or proposed east of Alameda street, promising to deliver over 6,000 residential units, 900 hotel rooms, 3,000,000 square feet of office and 1,000,000 square feet of retail.²⁴ In addition, there are also a smattering of proposed projects along corridors connecting east and west downtown in lower scoring districts, suggesting a spillover of the Arts District’s momentum and the potential next wave of development interest downtown.

This risk analysis is valuable because it begins to break down the seemingly one-dimensional understanding of industrial land and reveal instead a differentiated patchwork of strong

Figure 4.11

Industrial displacement risk, mapped by industrial district.



and vulnerable districts. The risk index tool can help point to accelerating factors, beyond simply land values, that may make industrial land as more attractive to real estate developers, as well as impeding factors that can strengthen the resistance of industrial business communities. In addition, the scoring methodology can potentially be used to help predict the next wave of industrial redevelopment to hit downtown Los Angeles so that transition can be anticipated and displacement can be mitigated before it occurs.

Additionally, DTLA 2040's hybrid-industrial zone is proposed to be assigned

to the area inclusive of the Arts District and northern portions of the Southern Industrial District, those areas with the highest risk scores in the assessment. This suggests that this emerging land use tool, described as a mechanism to retain productive jobs, is being deployed in sites of highest historic transition and highest future risk, and is thus, simply following the market. This lesson will be further explored in the following chapter, which traces the iterations of industrial-mixed use districts in Los Angeles, both at the site of the Arts District and elsewhere, and the ways in which they may be leading or following

market-led land use conversion and ways in which they are or not successfully protecting industrial uses in the wake of this transition.

04 Endnotes

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The Hybrid-Industrial District

The new hybrid-industrial zoning classification proposed by DTLA 2040, while the first zoning tool in the city to explicitly permit the colocation of industrial and residential uses, is not the first ideation of industrial mixing. The evolution of Los Angeles' hybrid-industrial zone can be traced back across three phases of industrial mixed-use land use planning: the legitimization of a residential community in the industrial zoned Arts District between 1981 and 2000, the citywide initiatives designed to balance industrial land preservation with other growth areas between 2008 and 2013, and lastly, the development of the Hybrid Industrial Live/Work Zone Ordinance, the legal codification of the new zone and enabling tool for DTLA 2040's proposed rezoning.

Hybrid Industrial 1.0: Residential Encroachment, 1981 – 2000

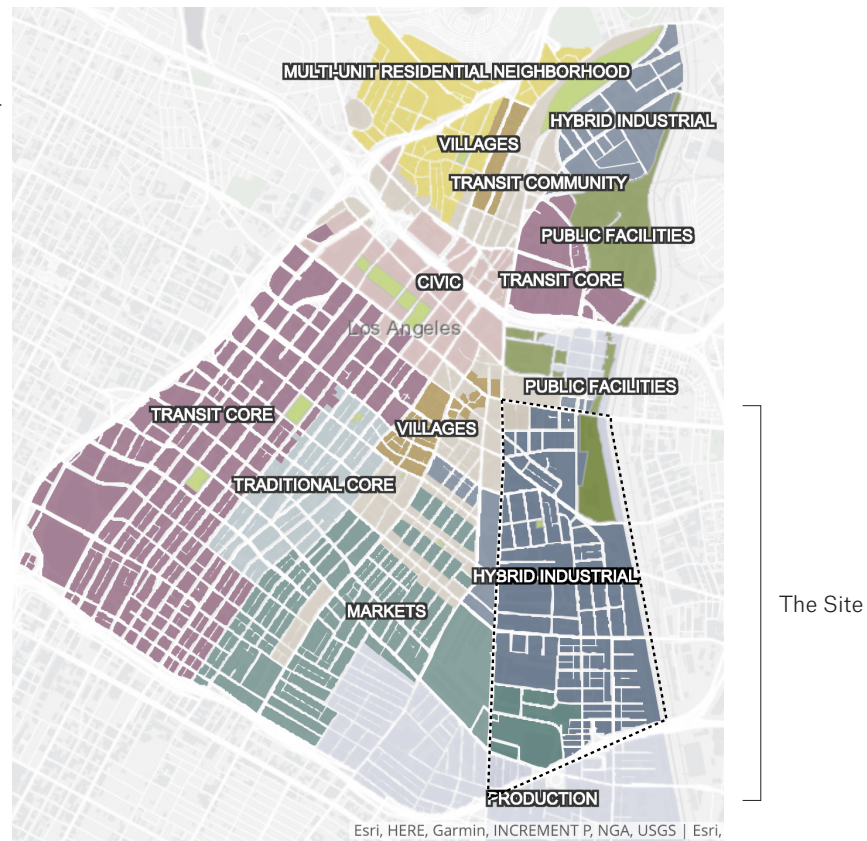
In some ways, the introduction of the hybrid-industrial zone is a spatial legal codification of a transformation that has been occurring east of Alameda Street for nearly fifty years. Beginning in the 1970s, a group of artists, many of whom were being priced out of increasingly expensive bohemian neighborhoods such as Venice and Santa Monica, began looking downtown for affordable relocation opportunities.

Underutilized warehouses – once occupied by small manufacturers of rubber, auto parts, furniture, and other goods – offered large floor plates and flexible spaces for artist studios. Despite the area's industrial zoning designation, several artists began illegally inhabiting these buildings.¹ Cheap rents drew more and more young creatives and by the 1980s, the artist community, known as the Arts District, was so substantial that the City was pressed to acknowledge it.

In 1981, the City passed the Joint Living and Work Ordinance No. 155,843, or the Artist-in-Residence (AIR) Ordinance, which legalized the use of industrial buildings for artist residences and work spaces by permitting the limited conversion of existing industrial buildings to live/work units. The AIR Ordinance has been the predominant legal tool which has allowed for the majority of residential units constructed in the otherwise industrial district. The approval process for projects using the AIR Ordinance is similar to most development approval processes seeking relief from zoning requirements. The project must provide an essential or beneficial service to the neighborhood, be compatible with the features of adjacent properties, and demonstrate that it will not be detrimental to health and safety of prospective residents. But

Figure 5.1

DTLA 2040 concept map and future hybrid-industrial site. .



the AIR Ordinance also requires that these live/work conversion projects “will not displace viable industrial uses and will not substantially lessen the likelihood that the property will be viable in the future for industrial uses.”² In this way, while the AIR Ordinance aims to satisfy a housing need, the approval process includes safeguards aimed to be consistent with the Framework Element’s land use policy to retain and attract industrial uses. However, as is the case with discretionary approvals, many projects have been approved that only partially meet the criteria set forth by the AIR approval process, resulting in development inconsistent with the General Plan’s land use designations. The ILUP Project found that downtown conversion projects were often evaluated with a site-specific perspective and on a case-by-case basis, and this narrow approach failed to recognize issues at the larger scale, such as compatibility with neighborhood character or longer-term goals to sustain employment.³

While the 1981 AIR Ordinance was the first attempt to legalize residential uses in an industrial zone, it has two limitations: it may only be used for the conversion of existing industrial buildings and only for the creation of live/work units. Beginning in the 1990s, however, there was significant market interest in the Arts District for new ground-up construction of traditional residential projects, so much so that in 1998 the DCP rezoned five blocks in the corner of Alameda Street and 1st Street to C2 zone, a commercial designation which allows for residential use. This resulted in the first new construction mixed-use development projects in the area. Such development include traditional residential enclaves such as the Savoy, a rental and condominium residential community that spans an entire city block, and more modern mixed-use development projects, such as One Santa Fe, a low-rise “side-scraper” wedged on a narrow lot between railyards that offers 438

residential units, 88 of which are affordable, and 78,000 square feet of retail space tenanted by specialty boutiques, restaurants, bars, ice cream shops, and a neighborhood market.

Thus by 2000, the City had established two vehicles for introducing residential uses into an otherwise industrial district: the AIR Ordinance and the commercial zoning of a few select blocks. It is worth noting that the AIR Ordinance, though its origins are tied to the Arts District, is a city-wide ordinance and is not designated for use in any specific geographic areas. Thus, while the city had established a tool for residential conversion of industrial building inventory, it had not yet, at least explicitly, targeted the Arts District and surrounding areas for redevelopment. It was not until 2000, with the most recent update for the Central City North Community Plan, that any specific geographic boundaries were implied. The Central City North Community Plan defines an Artist-in-Residence District as bounded by Alameda Street, 1st Street, the Los Angeles River, and 6th Street, though the creation of the boundary is more symbolic than operative. The Artist-in-Residence District is not tied to any implementable zoning change or special use district, nor is it the only place that the AIR Ordinance can be used. Instead, the purpose of creating these boundaries, as stated in the community plan, is to “identify the presence of the artists as a distinct and integral part of the Central City North Community.”⁴

Additionally, in the land use objectives and policy recommendation chapter, the Central City North Community Plan interestingly categorizes policies relating to the Artist-in-Residence district not in the residential section, but in the industrial. In fact, the industrial land use section outlines three objectives: to provide for existing and future industrial uses, to retain industrial land use designations to maintain and increase industrial employment, and to “encourage the

continued development and maintenance of the artists-in-residence community.”⁵ These goals are of course seemingly contradictory, as any advancement of artist-in-residence community is an encroachment on industrial uses. A rereading of the Central City North Community Plan reveals that planning professionals either failed to recognize, or chose to ignore, that legitimizing the artist community without firm safety measures for industrial businesses was an endorsement of residential encroachment.

Together, these land use initiatives – the 1981 AIR Ordinance, the 1998 zone changes to commercial use, and the legitimization of an Artist-in-Residence District in the 2000 Central City North Community Plan – represent ways in which the City has not just allowed, but actively supported, the dissolution of industrial land uses in this particular area of Downtown Los Angeles. Understanding this wave of land use legislation and policies and the resulting non-industrial development helps to contextualize the existing conditions of the proposed hybrid-industrial district, bounded by 1st Street, Alameda Street, the I-10, and the Los Angeles River. Even as it is currently zoned, with almost 90% of land zoned for industrial uses, the one square mile site slated to be rezoned to hybrid-industrial is considerably non-industrial (Figure 5.2). In reality, 2016 assessor data reveals that only 64% of the land within this site is used for industrial uses (Figure 5.3). Furthermore, of the over 1,600 businesses located in the district, only 20% fall in the categories of production, distribution, or repair.⁶ These data points suggest that the Arts District and surrounding areas, as a result of the factors discussed in Chapter 4’s risk assessment and the residential planning agenda of the city between 1981 and 2000, has already felt the consequences of industrial displacement.

This suite of land use policies between 1980 and 2000 demonstrate the Department

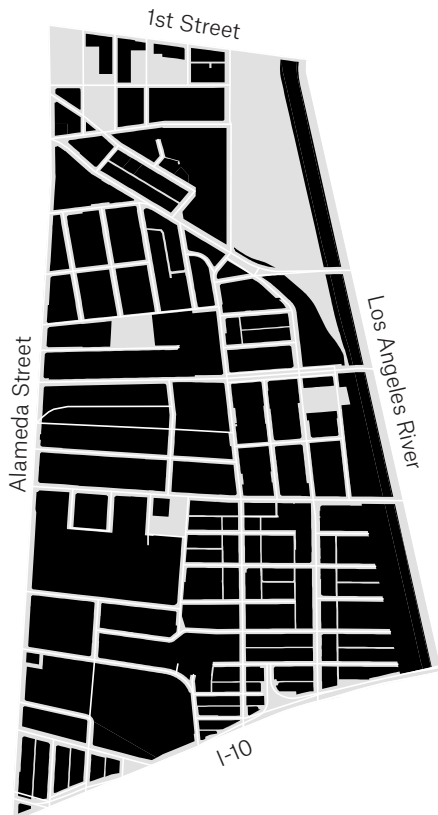


Figure 5.2
Industrial zoned land in future hybrid-industrial site.



Figure 5.3
Industrial land uses in future hybrid-industrial site.

of City Planning’s willingness to accommodate market change and to support the housing needs of a growing creative community. However, consideration of industrial stakeholders and policies aimed to protect industrial land in the wake of this change are noticeably absent. It was not until the aforementioned 2008 Industrial Land Use Policy Study that the City began to engage critically with how to balance the industrial employment with the emerging residential community. In order to understand the intentions and implications of the proposed future hybrid-industrial zone, it is helpful to

trace the process of city initiatives, planning documents, and policy recommendations that provide the underpinnings for the hybrid industrial district typology.

Hybrid-Industrial 2.0: Developing Industrial Mixed-Use, 2008 – 2014

The Industrial Mixed-Use District, 2008

As discussed in Chapter 3, the Industrial Land Use Policy Study selected seven industrial study areas, identified as areas that were experiencing the greatest pressure for land use conversion,

and provided geographically specific directions to the Department of City Planning on how best to handle development and zoning applications in these areas. The industrial district between Alameda Street and the Los Angeles River was one selected study area.

Most relevant to the evolution of hybrid-industrial zoning, the ILUP classified the blocks between 1st and 6th Street as an “industrial mixed-use district,” meaning that staff were directed to maintain this area as predominantly an industrial employment district, but allow a limited amount of residential uses. Specifically, they call for the continued allowance of live/work uses and adaptive reuse of existing buildings, as well as approval of new residential construction only “when it is consistent with and supports the intents of the Artist in Residence District.”⁷ Areas south of 6th Street, on the other hand, were categorized as an “employment protection district,” with direction to preserve industrial zoning and allow only industrial and ancillary commercial uses.

Additionally, as outlined in Chapter 3, the accompanying ILUP memorandum states that while the industrial mixed-use district should remain primarily job-producing land, residential development projects should only be approved if they provide a jobs-producing component and other community benefits to offset the potential loss of economic activity. The memorandum suggests a number of community benefits, several which aim to directly mitigate potential employment effects. These include relocation assistance for displaced businesses, a payment of \$15,000 for each job displaced into a job training assistance fund, and a minimum job-producing space. The latter would require that approved residential projects provide a minimum percentage of floor area equivalent to at least one story be permanently maintained for industrial employment use and occupancy.⁸

On the one hand, the ILUP

recommendations are very much reactionary. They essentially direct staff to approve projects that maintain the current conditions of the site: approval for non-industrial projects in the already residential community of the Artist-in-Residence District and preservation of industrial land in the area with the greatest number of job-producing industrial businesses. But the ILUP recommendations for this industrial district also mark a shift in city attitude: the first formal recognition of the state of industrial land loss and potential employment impacts in Downtown Los Angeles and an attempt to mitigate these impacts through thoughtful curation of new development. The ILUP recommendations are markedly more pro-industrial than any land use polices for the area prior to 2008, and the introduction of the industrial mixed-use district and jobs-producing space requirement is an important foundation for the evolution of DTLA 2040’s hybrid-industrial district.

Cornfield Arroyo Seco Specific Plan, 2013

The term “hybrid-industrial” was first introduced into the Los Angeles city planning lexicon in 2013 via the Cornfield Arroyo Seco Specific Plan (CASP), a specific plan for the 660-acre stretch of industrial land just north of Downtown. The primary vision of the CASP, which includes the neighborhoods of Lincoln Heights, Cypress Park, and Chinatown, is to transform an “underserved and neglected vehicular-oriented industrial and public facility area into a cluster of mixed-use, pedestrian-oriented, and aesthetically pleasing neighborhoods.”⁹ To achieve this, it proposed designating swaths of industrial land with new land use category of “hybrid-industrial” to accommodate a mix of industrial, residential, and commercial uses.

The CASP breaks down the “hybrid-industrial” land use designation into three categories, or zone districts: Urban Village,

Urban Center, and Urban Innovation. Neither single-family residential development nor heavy manufacturing is permitted in any of the three zones. The three zones do, however, allow for light industrial uses, such as light manufacturing and assembly, repair and maintenance facilities, research and development, and warehouse, distribution, and storage facilities. Additionally, all three zones may permit non-industrial uses, such as multi-family residential housing, retail, commercial offices, hotels, and entertainment and cultural facilities. Notably, the residential options permitted in the hybrid-industrial district expand well beyond the live/work unit of the AIR Ordinance, and allow any structure with multiple dwelling units.

The difference across the three zones is primarily in their intensity of non-industrial uses. For example, the Urban Village, envisioned as mixed-use high-density residential community, allows up to 90% of a building's floor area to be used for residential multi-family, whereas the Urban Innovation and Urban Center zones limits it to 20% maximum. In this way, the CASP is the first formal planning instrument in Los Angeles that introduces non-industrial uses into an otherwise industrial district, explicitly provides the list of definitions of these permitted non-industrial uses, and prescribes rules of use, density, and form.

The CASP's concept of "hybrid-industrial" is a mediated one. On the land use spectrum, it prohibits both extremes: single-family residential and heavy manufacturing. In doing so, it implies a neutral vision, favoring neither industrial nor residential. And while the document states that the purpose of the zoning regulations is to "protect existing light industrial areas from residential encroachment" and to "provide areas where residential, commercial, and light-industrial uses can co-locate horizontally and/or vertically," the majority of the zoning goals

outlined in the document are solely concerned with advancing residential, specifically affordable housing, options.¹⁰ In fact, upon the document's approval in 2013, the CASP was lauded for its radical elimination of parking requirements – the first of its kind – and its innovative approaches to incentivizing new affordable housing. Much attention was given to the CASP's potential to create a new mixed-use residential community, projected to attract 25,000 additional residents by 2035, with little discussion of the implication on industrial employment.¹¹ Of the fifteen purposes of the document listed in the CASP's introductory chapter, not one references industrial land or jobs. So on the one hand, the CASP's careful curation of permitted and prohibited uses suggest the city is beginning to think critically about levels of integration and degrees of compatibility. But beyond describing permitted industrial uses, the CASP does not provide any concrete visions for future industrial development. The goals are primarily to increase residential development, and thus the "hybrid-industrial" terminology employed by CASP is really empty language, a masked attempt at residential upzoning.

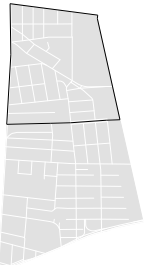
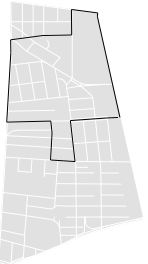
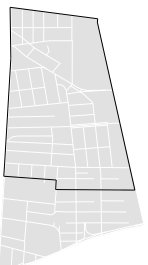
Additionally, it is important to note that despite the CASP's creation of "hybrid-industrial" as a land use designation, the adoption of CASP did not rezone any parcels. After a Community Plan or Specific Plan updates the land use designation, a rezoning requires both a plan amendment and an update to the city's zoning map. Therefore, the CASP, while notable for its conceptualization for the "hybrid-industrial" land use designation, remains limited in its powers of implementation.

The Live/Work Interim District, 2014

Returning to the Alameda site, in 2014, the Department of City Planning began developing a new zoning tool, tailored specifically to the

Table 5.1

Process tracing industrial mixed use planning initiatives in Los Angeles, 1981 - 2014.

	Year	Scale	Type of Tool	Hybrid-Industrial Foundational Component	Shifting Boundaries
Hybrid-Industrial 1.0	1981	Citywide	Los Angeles Municipal Code Ordinance	Allows conversion of existing industrial buildings to live/work units	
	2000	District	Community Plan (Land Use Plan, No Zoning Powers)	Legitimizes artist-in-residence community in Arts District	
Industrial Land Use Policy Study	2008	Citywide with Geographic Specific Staff Directions	Policy Directive	Short-term recommendations for "industrial mixed-use districts" Approves residential projects if they provide a jobs-producing community benefit	
Hybrid Industrial 2.0	2013	District	Specific Plan (Land Use Plan, No Zoning Powers)	Introduces the land use designation of "hybrid-industrial" Permits (but does not require) mix of industrial and residential uses	
	2014	District	Proposed Zoning Tool (Evolved into Hybrid-Industrial Zoning Ordinance)	Proposed the new construction of live/work units in the Arts District	

Arts District, that would allow for the new construction of live/work units, aimed to replace the AIR Ordinance's policy of only allowing live/work units through adaptive reuse of existing buildings. The Interim Arts District Live/Work Zone, as the tool was called, would also regulate uses and set development standards for all new projects with live/work units constructed in the designated zone, which the DCP defined by the boundaries of 1st Street and Violet Street. These boundaries extended the Artist-in-Residence District four blocks south into the previously determined "employment protection district," an encroachment which contradicts the ILUP recommendations from just six years earlier.

The DCP-stated goal for the Live/Work Zone was, much like the CASP, one of balance: "to maintain the employment, artistic and productive functions of the neighborhood while allowing further opportunities for the creation of live/work units."¹² Additionally, recognizing that the DTLA 2040 initiative was on the horizon, the DCP designed the Live/Work Zone to be an interim tool, which would allow only a limited number of live/work units to be constructed until permanent regulations could be established through the more comprehensive planning and zoning initiatives.

The DCP worked on developing the Live/Work Zone for several months, engaging with the Arts District community throughout the process, but as they progressed, they began to recognize that such a tool may be applicable in other industrially transitioning areas in the city, not just in the Arts District. Just like the AIR Ordinance's permission to convert industrial buildings to live/work units was derived from the Arts District but implemented citywide, the tool to create ground up construction of these live/work units could also incorporate lessons learned from the Arts District in developing a mechanism that operates citywide. Therefore, the City did not follow through on the geographically specific

Arts District Live/Work Zone, and instead, beginning in 2015, shifted their attention toward a city-wide ordinance.

Hybrid-Industrial 3.0: The Hybrid-Industrial Zoning Ordinance, 2015 – 2019

The most evolved conceptualization of the hybrid-industrial zone, therefore, arrived in 2015 with the proposed Hybrid Industrial Live/Work Zone Ordinance and the creation of a new zoning classification: hybrid-industrial. The DCP positions this ordinance as a culmination of prior initiatives. First, it is billed as a direct response to the 2008 ILUP Project's long-term recommendation that the city "revise zoning to identify and encourage industrial and employment uses that complement one another" in industrial mixed use-districts.¹³ Second, as clarified in the DCP's Recommendation Report to the City Planning Commission, the ordinance evolved directly out of lessons learned from the 2014 Interim Arts District Live/Work Zone's initiative to develop tailored district-specific guidance for new construction of live/work housing. But because the findings from the ILUP Project suggested that the phenomenon of industrial land conversion was not just specific to the Arts District, the DCP recognized that other areas "could also benefit from such a zone that protects employment and productive functions traditionally associated with industrial land" and wished to create a tool with the ability to serve a broader range of geographic areas.¹⁴ While the Hybrid Industrial Live/Work Zone Ordinance was eventually adopted and then tabled for reasons discussed at the end of this chapter, it provides the most evolved set of definitions and implementation tools for a hybrid-industrial district, and the enabling legislation for DTLA 2040's proposed rezoning.

As stated in the ordinance, the intended purpose of the hybrid-industrial live/work zone is, in keeping with the Framework Element's

industrial land use policy, to regulate land uses as a means to “preserve land for jobs and foster job creation.”¹⁵ The provisions of the ordinance can be separated into three categories of regulations and incentives: use, building form and material, and public realm.

With regards to use regulations, the proposed hybrid-industrial zone would allow a mix of light industrial, commercial, live/work and hotel uses. In keeping with the intentions of the 2014 Arts District Interim Live/Work Zone, the ordinance would allow for new construction of live/work units as a means of increasing residential use, but all other types of residential development would be prohibited. The proposed zone would also allow all industrial uses currently allowed under M2 light-industrial zoning, with the additional allowance of select heavy industrial uses, specifically beverage manufacturing, fabrication of iron or steel, and other similar uses as long as they are not “obnoxious or offensive by reason of emission of odor, dust, smoke, noise, gas, fumes, cinders, vibration, refuse matter or water-carried waste.”¹⁶

According to the DCP’s Recommendation Report, one of the primary goals of the ordinance is to “position industrial areas for 21st century employment where jobs and housing can coexist, while retaining a jobs focus.”¹⁷ In this way, Los Angeles’ hybrid-industrial zone joins the ranks of cities like New York and Philadelphia in its ambitions to create a harmonious industrial mixed-use district. The ordinance aims to introduce non-industrial uses, specifically residential, while still prioritizing employment through three requirements. First, the ordinance requires that all live/work units meet a minimum average unit size of 750 square feet, with 48 to 50% of the live/work unit designated for work space, requiring that the work space shall be no smaller than 150 square feet to allow for expanded work functions. Second, for those projects that wish to exceed the baseline floor-

area-ratio of 1.5:1, the ordinance requires a minimum amount of space reserved for arts and productive uses at a ratio of 200 square feet of floor area per live/work unit and 25 square feet of floor area per hotel guest room. For example, a project containing 100 live/work units would be required to contain 20,000 square feet of floor area on site to house non-residential productive uses. By pairing this with the minimum average unit size of 750 square feet, it aims to ensure projects create smaller units to ensure affordability of live/work units as well as greater square footage for productive areas. Third, the ordinance also grants additional floor-area if a live/work development project provides a minimum of 500 square feet of on-site non-leasable resident production space, reserved for manufacturing or gallery uses and available free of charge to residents, an amenity designed to increase production capacity and “foster creativity and collaboration.”¹⁸

These use requirements and incentives are innovative in several ways. First, while the typology of the live/work unit was introduced in 1981 with the AIR Ordinance, this proposed ordinance would be the first to require a minimum average size, a provision which was contested among community members who believed that 750 square feet was too small to provide adequate space whereas the DCP was adamant that anything larger would inhibit affordability of units. Second, the ordinance is significantly more favorable to industrial uses than the CASP in its permitted and prohibited use. Unlike the CASP, it bans conventional housing all together and does not completely exclude heavy industrial. Rather than eliminate either extreme, it attempts to mitigate potential conflict through prohibiting noxious uses and requiring a minimum of 15 feet between existing heavy industrial uses and new live/work construction. Lastly, through introducing development incentives for the inclusion of arts and productive spaces, it is the first of the

hybrid-industrial texts to explicitly push for the creation of jobs-producing industrial uses, a call back to the ILUP Project's recommendation to add jobs-producing spaces as a community benefit in industrial-mixed use districts. The ordinance never explicitly states how it defines "arts and productive uses," only that they must be non-residential and exclude retail and restaurants. Drawing from 2014 draft language, examples of "arts and productive uses" include artist studios, art galleries and exhibition/performance spaces, co-working facilities, artisan manufacturing, creative office, research and development, urban agriculture, and light manufacturing and industrial use.¹⁹ Thus, while theoretically any light use allowed in M2 zones is permitted, the city quite clearly has imagined a particular type of polished, creative, artisanal 21st century "industry" that it favors for the hybrid-industrial district. Through examining the ordinance's proposed standards with respect to building form, construction type, and public realm, this bias becomes increasingly clear.

The hybrid-industrial ordinance provides a set of development standards such that future development "preserves the surrounding industrial and artistic character, supports enhanced street level activity, maintains a consistent urban street wall, minimizes conflicts between cars and pedestrians, and orients buildings and pedestrians toward public streets."²⁰ With regards to building form, these standards include a maximum building height of 110 feet as well as a minimum floor-to-ceiling height requirement of 16 feet for ground level and 10 feet for upper floors in order to "ensure the functionality" of viable productive employment uses.²¹ Additionally, the ordinance includes floor area incentives for adaptive reuse projects and – most unusual for a zoning ordinance – Type I, II and IV construction. In order to preserve the "local character," the ordinance aims to encourage adaptive reuse of existing

buildings by excluding the floor area of the existing structure from FAR calculations. To promote specific construction types, the ordinance reserves maximum FARs, granted upon provision of public benefits, for projects using Type I and II construction (steel and concrete buildings) and Type IV construction (buildings made of heavy timber with fire resistant chemicals).

Such attention to height and building material is rationalized by the DCP as a means to "ensure functionality of buildings to house viable space for employment" and to "promote compatibility with existing development."²² In fact, both building height and construction type were contentious topics during the 2014 discussions with the Arts District community and the tiered FAR system included in the 2016 ordinance represents the DCP's attempt to placate community concerns. Community members passionately advocated for banning all but Type I and II construction in the live/work zone to "maintain the legacy" of industrial buildings.²³ However, the DCP asserted that expensive steel and concrete construction types would raise the cost of construction and make future live/work units unaffordable. Given that the primary intention of the ordinance was to accommodate space for live/work and productive activity and that this functional capacity could be achieved through other construction types, the final ordinance did not ban any construction types, and instead reserved the maximum FARs for the community's preferred construction types. The community pushed back, and requested that the ordinance increase the proposed height limit to make Type I and II construction more economically viable, but the DCP resisted this too, arguing that industrial mixed-use areas "tend to be low scale in nature, and in some instances, are not well served by transit."²⁴ Both the community and the DCP shared an interest in maintaining the industrial character of the buildings, but remained divided on whether

restricting building height or construction type is the best vehicle to achieve this. In the end, the DCP had to balance financial feasibility and affordability of units with community interests, but the debate demonstrates the shared concern with the aesthetics of future hybrid-industrial districts, further illustrating that industrial scenery is a highly valuable trait in contemporary development trends.

Lastly, in keeping with the embedded aesthetic intentions of the hybrid-industrial zone, the ordinance requires several development standards designed to enhance the street level experience and public realm. These include limiting the length of building frontages to no more than 275 feet and requiring 30 feet of separation between buildings as a means of promoting pedestrian circulation. To ensure that the ground level of future projects contribute to a vibrant pedestrian experience, the ordinance not only requires that the ground levels be reserved for “active” non-residential uses such as “workshops, production spaces, art galleries, and creative offices,” but it also requires that a minimum of 50% of the street-facing façade be comprised of transparent windows or openings.²⁵ In order to “minimize the impact of large blank walls that often characterize industrial buildings,” the ordinance also requires a minimum of 15% of one building façade be reserved for a public art mural or green wall.²⁶

In addition to the regulations regarding street frontages and ground level activity, the ordinance both requires and incentivizes ample open space. New construction of all live/work projects must at minimum provide 100 square feet of on-site open space, either public or private, for each live/work unit. For example, a 100-unit building would generate 10,000 square feet, or roughly ¼ acre of open space. For lots greater than 50,000 square feet, a public plaza at least 2,500 square feet in size must be provided. For blocks exceeding 400

feet in length and where building frontages exceed 300 feet, development sites must provide a pedestrian paseo or pathway to enhance pedestrian circulation and create additional public space.

The ordinance’s requirements for public realm improvements and “livable and sustainable streets” is designed to provide amenities for the expanding residential population in industrial mixed-use districts. “Streets are the lifeline of the neighborhood,” the DCP Recommendation Report asserts.²⁷ Yet despite the ordinance’s emphasis on street activation and pedestrian circulation, there is not one provision that protects the functionality of streets for truck and freight traffic and sidewalks for distribution and warehousing. In fact, several of the requirements and incentives – such as maintaining a transparent façade, limiting the length of a street frontage, installing a pedestrian pathway to break up the block – may be in direct conflict with the operations of traditional production and distribution uses. Thus while the ordinance did not technically exclude industrial uses, the implications of its development standards and public benefits suite de facto restricts certain types of productive uses and industrial employment.

Toward Implementation

In February 2016, the Los Angeles City Council adopted the Hybrid Industrial Live/Work Zone Ordinance. The process had been expedited because the DCP applied for a “common sense exemption” from the California Environmental Quality Act (CEQA) environmental review process, an exemption reserved for projects if “it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment.”²⁸ Because the ordinance only provided for the creation of a new zoning classification and did not explicitly rezone any blocks, the city

argued that it would not directly spur any new development or change in land use, intensity or density, and thus would not qualify as a “project” under CEQA definitions.

One month after the ordinance passed, representatives from the Arts District Community Council and the Los Angeles River Artists and Businesses Association brought a suit to the City, claiming that they were incorrect in determining that the ordinance was exempt from CEQA review. Ultimately, the judge ruled in favor of the community members, claiming that the city had only considered “direct effects of adoption of the ordinance, without considering whether it may cause reasonably foreseeable indirect physical changes to in the environment.”²⁹

This victory on behalf of Arts District community is, however, limited and short-termed. The court ruled only that the ordinance was not exempt from CEQA review. It did not rule against any of the content of the ordinance. Rather than initiate a time and resource consuming CEQA review process for the hybrid-industrial zone, the City, recognizing that the DTLA 2040 planning initiative was forthcoming, instead bundled the hybrid-industrial classification into community plan update, which is already mandated to go through its own environmental review process. In this way, the suit was only successful in its ability to table the use of the ordinance and delay further rezoning, but DTLA 2040 will bring the tool back in play. Nevertheless, the suit demonstrates the contentious debates surrounding the hybrid-industrial typology, the ways in which different stakeholders and different communities are likely to coopt the term to fit their own definitions of hybridity, compatibility, and appropriate aesthetics, and the challenges that the city faces in balancing these competing interests and land uses.

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Conclusion

Historically, land use planning has treated industrial land uses either ambivalently or antagonistically. Traditional zoning approaches have restricted, regulated, spatially isolated, and pushed this industrial land to the periphery of cities. But as cities begin to recognize the value of centrally located urban industrial land in its contribution to the regional economy, planners are grappling with the issue of how best to secure these viable but vulnerable sites of employment and production. Advanced technologies that are changing the nature of manufacturing and logistics present an exciting opportunity and potential solution: the industrial mixed-use zone. This emerging land use tool promises to do it all: secure industrial jobs, foster innovation and creativity, accommodate housing needs, promote dense in-fill development, create self-sustaining live/work districts, preserve industrial aesthetics, and deliver a lively and vibrant public realm. Los Angeles' proposed hybrid-industrial zone is the latest of these ambitious and idealized industrial mixed-use tools, and this thesis reveals, on the one hand, the genuine need for such a tool, but on the other, a set of trade-offs inherent in hybridity and the potential challenges and pitfalls of implementation.

Examining how this tool is defined, developed and deployed in Los Angeles,

specifically, is particularly valuable. Los Angeles' sprawling pattern of growth has left a deposit of industrial land at its center, a unique spatial condition unlike any contemporary American cities. And the decentralization of Los Angeles has allowed this land to evolve into a primary node of productive industrial activity in the largest manufacturing city in the country. But as the city is rediscovering its center and reorienting itself inward, the industrial patchwork of Downtown Los Angeles is under increasing risk of non-industrial redevelopment. Thus, how Los Angeles will reconcile these two seemingly opposed phenomena – the historic industrial stronghold versus the encroaching residential and commercial development – is at once an incredibly local issue, unique to the particular spatial conditions of the city, and an important national precedent for those cities grappling with issues of industrial land loss. The fact that Los Angeles is choosing the hybrid-industrial zone as a potential solution reaffirms the attractiveness of industrial mixing for its promise that cities need not compromise.

But as this thesis demonstrates, through an exploration of Los Angeles land use policies, the process tracing of the evolution of hybrid-industrial zoning, and a dissection of the hybrid-industrial ordinance text,

implementation of this tool is not so simple.

Findings

Los Angeles' industrial land use policy is rationalized as a means of preserving jobs, yet is not connected to economic development initiatives.

The Framework Element explicitly states that Los Angeles' industrial land use policy is to preserve these lands for retention and expansion of industrial uses that may provide job opportunities for residents. However, while land use planning is designated to the community plan updates, the city does not have a comprehensive economic development strategy geared toward industrial jobs. In fact, the City of Los Angeles has never had a comprehensive economic development strategy. But in 2017, the City of Los Angeles Economic and Workforce Development Department was tasked with developing the city's first formal Citywide Economic Development Strategy (CEDS) for long-term economic growth. With regards to securing industrial employment, CEDS, which has not yet been formally adopted, puts the onus back on land use planning, with the recommendation that the city "revisit and update industrial land use preservation policies."¹ As such, industrial employment straddles the realm of both planning and economic development, but neither the Department of City Planning nor the Economic Workforce Development Department are taking the lead on how explicitly to secure and promote these jobs at a city-wide scale.

Land use planning in Los Angeles is highly localized, which risks potentially undermining long-term goals of industrial land retention.

While the Framework Element serves as the guiding land use visioning document for the City of Los Angeles, the 35 community plans

hold the regulatory powers to designate land use and implement zoning. This structure favors neighborhood-planning over citywide or regional, and as such, invites local rather than regional attitudes toward industrial land uses. At the neighborhood scale, industrial land operations are far more likely to be considered an unwanted neighbor for their noxious sounds and smells, and a narrow-scope of planning may fail to recognize the role of industrial land in the larger ecosystem of production and logistics and its contribution to the regional economy.

Zoning in Los Angeles follows the market and the hybrid-industrial zone is a reactive measure.

Through cataloging the current development boom in Downtown Los Angeles and tracing the evolution of hybrid-industrial tool over time, this thesis reveals that that zoning in Los Angeles is reactive. This is not a particularly new finding. Historically, Los Angeles' rapid population growth and rushes of speculative real estate development has relegated city planning to an inferior role, in which it is unable to implement growth strategies that keep up with the pace of expansion and fails to check the aggressive boosterism of private development.² From the very beginning, zoning in Los Angeles has been a somewhat impotent tool. Fogelson writes that even as early as the 1930s, zoning in Los Angeles "far from guiding the expansion of the metropolis, merely sanctioned the preferences of private enterprise."³

Fogelson's declaration that zoning in Los Angeles is "a method of promoting private property interests through political influence" is a tendency illustrated in the process tracing of the hybrid-industrial zone.⁴ Early iterations of industrial mixed-use typologies all aimed to legitimize, legalize, and codify market-driven transitions away from industrial uses. The AIR ordinance sought to bring into conformity

the illegal residential community of the then-industrial Arts District; the ILUP Project only chose to focus on seven study areas that were already transitioning into non-industrial uses; the ILUP Project's four categories of policy directives were designed to preserve only areas with no market pressure but support development in transitioning areas; and DTLA 2040's proposed hybrid-industrial zone is slated for an area that, one could argue, has already significantly transitioned to non-industrial uses. Of course, applying these tools to highly vulnerable sites is a step in the right direction, but it also undermines the full scope of the protective intentions of these land use tools. By assigning the hybrid-industrial zone based on historic development, the DCP is deferring to the market to make land use decisions, which will inevitably price industrial land out.

The hybrid-industrial zone, while positioned as a tool to support industrial employment, in reality, is a mediated compromise across many stakeholders.

The hybrid-industrial zone's stated purpose is to preserve land for jobs and foster job creation. But dissecting the text of the hybrid-industrial zoning ordinance reveals many intentions beyond just job creation. The zone is designed to satisfy a number of different stakeholders and planning agendas, and at first glance, it grants every stakeholder a win. It gives private developers the green light for new construction of non-industrial buildings, it reserves spaces for productive uses for industrial businesses, it opens the door for new live/work units that can help meet the city's housing needs, and it delivers street and public realm improvements and protects industrial aesthetics to satisfy the needs of the existing community. Of course, inherent in a mixed-use district is a need to compromise across the needs of different landowners and operators, and in aiming to cater to developers and the artist community, the zone limits its powers in

securing industrial land for employment.

The hybrid-industrial zone promises more protection for industrial businesses in its use requirements, but leaves room for interpretation of what type of industrial business.

The hybrid-industrial zone is innovative in its use regulations that allow all M2 industrial uses, its requirements that space be included in new construction for arts and productive uses, and its development guidelines that ensure live/work units and these arts and productive spaces have enough square footage and ceiling height to foster productive activity. Unlike the industrial mixed-use zones of New York and Philadelphia, Los Angeles' zone requirement that these productive spaces be included in all new construction promises to be more effective in ensuring the district is truly mixed. However, the lack of definition of what defines an "arts and productive" use and the use limitations embedded in the form and street regulations suggest that the zone, while it allows all M2 uses, is designed for a particular kind of industrial operation. So while the hybrid-industrial zone may be successful in protecting against industrial displacement, it may still allow industrial gentrification, replacing textile warehouses, metal foundries, and cold storage facilities with a more polished, refined, consumer-oriented industrial business, such as breweries, distilleries and chocolate factories.

Industrial aesthetics are a key indicator of land use conversion.

The aesthetics of industrial buildings plays a key role in the industrial mixed-use district typology. This is evidenced by current trends in Los Angeles' real estate market, in which developers are adapting old factories and rebranding them for industrial loft living or creative office spaces, as well as the risk

assessment, in which the Arts District's building stock noticeably differentiates this district from the others in its attractiveness to private investment. Additionally, the debates surrounding the hybrid-industrial zone's building height and construction types demonstrate that both the city as well as residents were concerned with maintaining the overall character and aesthetic quality of the Arts District.

Perspectives of industrial stakeholders are noticeably absent.

Both the process tracing of industrial mixed-use planning and the textual analysis of the hybrid-industrial zoning ordinance reveal that the perspectives of industrial stakeholders are noticeably absent. For all of its use and form requirements, the ordinance's failure to include any street or sidewalk regulations to allow trucking, freight deliveries, loading and unloading of goods suggest that little consideration was given to the actual day-to-day operations of industrial businesses. While the city cited considerable input from the community in developing the hybrid-industrial tool, the critiques were largely coming from the residential community and not one perspective of an industrial business owner was cited.

Part of this thesis research included industrial business outreach, in which over one hundred industrial businesses located in the Arts District and Southern Industrial District were called and asked to participate in an online survey. Of the one hundred businesses contacted, only thirty agreed to participate, and only three completed the survey. The lack of response rate suggests the difficulty in engaging unwilling industrial businesses to participate in the planning process, and perhaps reflects the larger legacy of animosity between city planning and industrial businesses.

Recommendations

Given these findings, there are a number of considerations for the process of designing and implementing future industrial mixed-use zoning tools.

- Industrial mixed-use zones should consider requiring industrial space in new construction, either as a percent of gross square footage such as New York's Plaxall development or as a tiered ratio with residential units such as Los Angeles' hybrid-industrial zone. By requiring, not just permitting, a mixing of uses, this can ensure that the tool delivers on its goal of job-retention and does not just act as residential upzoning.
- Industrial mixed-use zones should be explicit in what types of industrial uses they permit and ensure that other code regulations – such as form, height, and design guidelines – do not preclude certain types of industrial operations. This can help avoid the industrial gentrification likely to accompany new residential development.
- Industrial mixed-use planning must employ innovative modes of outreach to industrial businesses to ensure their perspectives are included in the planning process.
- Industrial mixed-use planning should synchronize land use tools with economic development programs, such as job training assistance and business planning workshops, to help support the viability of these businesses in the face of neighborhood transition.
- Industrial mixed-use planning should incorporate financial modeling to ensure both affordability for industrial tenants as well as construction feasibility for private developers. This can reveal findings to be included in the zoning ordinance, such as residential unit sizes, minimum square footages of industrial space, height

restrictions, and incentives for industrial subsidies.

- When considering where to assign industrial mixed-use zones, planners should not just look backward at areas of highest transition, but use risk indicators to proactively anticipate where protective measures may be needed most.

These lessons learned from Los Angeles can point toward ways in which planners may strengthen the industrial mixed-use district's ability to successfully deliver on its promise to preserve industrial land for employment. As the industrial mixed-use zone becomes an increasingly popular choice among cities facing dwindling supplies of industrial land, the opportunities and challenges addressed in this thesis present important precedents to consider.

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