



Industrial Land Use Trends Report

Fairfax County, Virginia

Department of Planning and
Development

Report prepared by:

CLARION

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1: Project Overview

Background

The Fairfax County Department of Planning and Development has requested a review of industrial land use trends to determine the need for an amendment to the County's Comprehensive Policy Plan Land Use Element, as authorized by the Fairfax County Board of Supervisors. This report looks at industrial use trends, land supply, and best practices from other jurisdictions around the northeast and southeast, and elsewhere in the country, to inform potential updates to the Policy Plan.

About this Report

This report is the result of that research, and includes three sections and an appendix in addition to this project overview:

- **2: Industrial Land Use Trends.** This section provides an overview of national and regional trends for industrial development related to industrial users, space requirements, and anticipated demand over the next decade. A snapshot of industrial development characteristics in Fairfax County is also provided, along with a summary of the recent trends that led to this report.
- **3: Survey of Industrial Policies and Regulations.** This section summarizes the results of research conducted into industrial policies and regulations in other high growth counties (northeast and southeast); other formerly industrial locations (northeast and southeast); and additional examples with an industrial focus (western states). A summary of key themes found in the policies and regulations for each group of jurisdictions is provided, along with a summary of industrial policies and regulations by jurisdiction.
- **4: Recommendations.** This section outlines recommended updates to the Fairfax County Policy Plan and Zoning Ordinance in response to the industrial trends Fairfax County is experiencing and the results of research conducted into industrial policies and regulations in other jurisdictions.
- **Appendix: Current Industrial Policies and Regulations.** This section summarizes current policies and regulations in the Fairfax County Policy Plan and Zoning Ordinance relative to industrial development.

A list of sources and supporting material used to develop this report is attached.

2: Industrial Trends

Demand for Industrial Space/Primary Industries

Nationally

According to JLL's 10th Annual Industrial Tenant Demand Study, national demand for industrial space is up 30 percent year-over-year for 2022. Throughout 2022, 2,200 tenants were seeking 864 million square feet of space, an increase over the 2021 demand of 664 million square feet. In 2019, the total annual absorption of industrial space nationwide was 233.8 million square feet. While demand was steady pre-pandemic, the vast expansion of e-commerce beginning in 2020 has changed the industrial landscape. The increased reliance on e-commerce has driven a significant and (so far) sustained increase in demand by the warehouse and distribution sector, and has in turn spurred a significant increase in construction activity in an effort to meet the need for spaces of 100,000 square feet to 500,000 square feet. The need for larger structures is one factor driving construction; another is that the logistics operations that support distribution and fulfillment work best in modern warehouse spaces, of which the U.S. has relatively few. Newmark's 2022 trends report indicates that "more than 70% of existing U.S. industrial space was constructed before the 21st century, and a full third of the inventory is over 50 years old." These existing spaces are often poorly suited to accommodate the automated systems that increasingly feature in the operations of the industry.

If the pandemic sparked a permanent change in e-commerce and its supporting industries, it also revealed significant weaknesses in globe-spanning supply chains. Many manufacturers responded to these disruptions by deciding to pursue a shorter supply chain – in other words, by initiating a "reshoring" boom that is driving demand for manufacturing space. This trend, combined with the auto industry's recent expansion to meet electric vehicle (EV) and battery manufacturing needs, has elevated demand for manufacturing space to be the second most important driver of demand for industrial space nationwide.

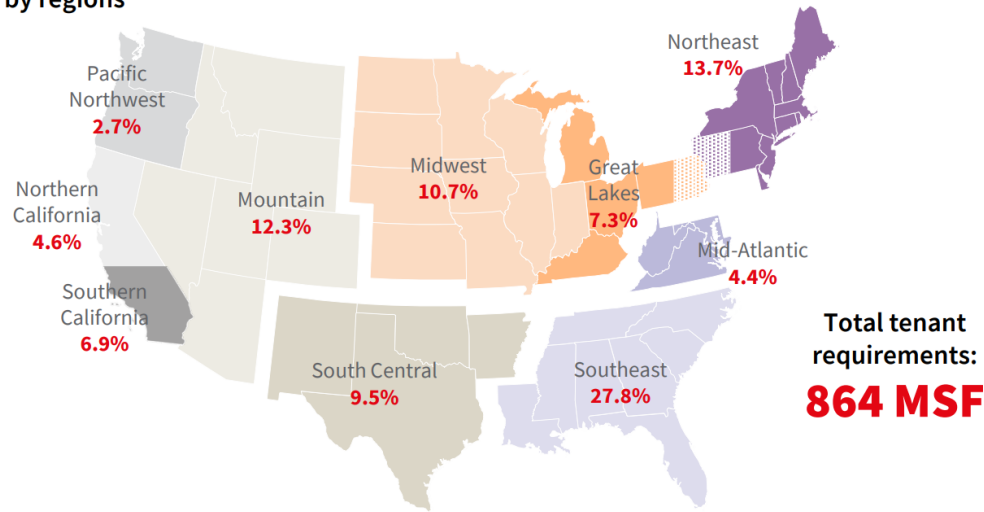
The primary industries seeking industrial space in the U.S. in 2023 include:

- **Warehouse & Distribution** (also referred to as Logistics and Parcel Delivery): Projected need of 194 million square feet in 2023, representing nearly one fourth (22%) of total demand for industrial space nationally
- **Auto Industry**: Demand up 156 percent since 2021
- **Construction, Machinery & Materials**: Demand up 41 percent, driven by the expanding development pipeline for both commercial and residential
- **Reshoring to address supply chain issues and backlogs at ports**: Ports in the Southeast saw an additional 240 million square feet in demand

The Mid-Atlantic accounted for 4.4 percent of the overall demand, which is the second lowest demand nationwide. Nevertheless, this still represents a 26 percent increase, and in line with national trends, Warehouse and Distribution is the primary driver of demand for space.

Figure 2-1: Nationwide Industrial Space Demand by Region

Demand by regions



Region	Total tenant demand (MSF)	% of U.S. total demand	% change, 2020 to 2021	Most active industry (not including undisclosed)
Pacific Northwest	23	2.7	25.6	Logistics & Parcel Delivery
Mid-Atlantic	38.4	4.4	26.1	Logistics & Parcel Delivery
Northern California	40.1	4.6	4.0	Traditional Retailer
Southern California	60	6.9	16.0	Logistics & Parcel Delivery
Great Lakes	62.8	7.3	11.6	Logistics & Parcel Delivery
South Central	82.5	9.5	16.5	Logistics & Parcel Delivery
Midwest	92.2	10.7	32.0	Logistics & Parcel Delivery
Mountain	106.6	12.3	58.4	Logistics & Parcel Delivery
Northeast	117.9	13.7	39.7	Traditional Retailer
Southeast	240.3	27.8	36.5	Logistics & Parcel Delivery
U.S. Total	863.7	100	26.6	Logistics & Parcel Delivery

Sources: JLL Research, U.S. Census Bureau

Looking ahead, the forecast may not be quite as robust. In August 2023, the Herndon-based NAIOP (Commercial Real Estate Development Association, formerly the National Association of Industrial and Office Parks) reported: “The industrial market remains relatively healthy, although not as strong as it was last year [2022]. After several quarters of demand for industrial space outstripping supply, the reverse has been true since the third quarter of 2022. Construction starts and transactions have slowed, reflecting higher interest rates, tighter lending standards and cooling demand. Supply and demand for industrial space appear to be converging toward a slower pace of growth that is more aligned with pre-pandemic trends.”

While some national trends, such as interest rates increases and concerns over a potential recession in 2024, apply in Northern Virginia as well as across the country, there are several factors that make the area unique.

Metro DC/Northern Virginia Region

WAREHOUSING AND DISTRIBUTION SPACE PRIMARY DRIVER OF INDUSTRIAL DEMAND

The need for Warehouse and Distribution space is the primary driver of industrial demand in the Metro DC/Northern Virginia region. Table 1 provides a comparison between submarkets in Fairfax County and other locations regarding square footage of existing Warehouse and Distribution space (industrial space for other uses – data centers, for instance – is not included in this inventory) and space under construction, along with available inventory, cost per square foot, and vacancy.

Table 1: Warehouse and Distribution Space: Inventory, Vacancy, Cost

Market Areas	Warehouse & Distribution Inventory (sq ft)	Available Inventory ³	Total Vacancy	Cost per sq ft	Under Construction
Overall Area					
Metro DC	96,064,256	9.4%	3.7%	\$13.64	3,925,922
Submarkets in Fairfax County					
Dulles South ¹	3,936,803	11.0%	4.4%	\$16.63	130,000
Greater Fairfax/Falls Church	1,577,175	6.3%	4.7%	\$17.02	0
Herndon/Reston	237,167	4.0%	2.8%	\$10.00	0
I-95 Corridor ²	14,654,625	10.1%	4.9%	\$15.44	113,490
Southeast Fairfax	9,008,136	8.6%	5.2%	\$14.10	0
Other Northern Virginia/Maryland					
Dulles/Manassas	25,835,180	7.0%	3.1%	\$17.06	590,993
Prince William West/Greater Manassas	9,223,063	8.0%	4.5%	\$17.91	460,993
Alexandria/Arlington	4,123,099	14.8%	4.6%	\$17.56	0
Prince Georges County MD	37,661,372	9.7%	2.7%	\$12.17	2,537,439
Montgomery County MD	7,965,249	7.7%	6.7%	\$17.44	0
Other Locations					
Eastern/Central PA	830,645,498	7.2%	3.7%	\$9.15	25,941,993
Charlotte	272,713,893	7.6%	3.7%	\$7.33	13,833,842
Atlanta	593,574,085	10.6%	5.2%	\$6.34	33,248,896
Dallas	784,890,878	Not avail.	8.2%	\$6.69	58,547,767
Chicago	1,307,851,323	7.1%	3.8%	\$7.05	26,104,640

Notes:

- 1: This submarket corresponds to areas included in the Dulles Suburban Center (Route 28 Corridor) Special Planning Area.
- 2: This submarket corresponds to the three industrial Special Planning Areas.
- 3: Whether on a lease, sublease or on sale, the available space is divided by the total inventory of occupied or unoccupied space. The difference between a vacancy rate and an availability rate is whether or not the property is vacant versus a property that is currently on the market for sublease.

Table 1: Warehouse and Distribution Space: Inventory, Vacancy, Cost

Market Areas	Warehouse & Distribution Inventory (sq ft)	Available Inventory ₃	Total Vacancy	Cost per sq ft	Under Construction
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Source:

JLL, Industrial Insight, Q2 2023

<https://www.us.jll.com/en/trends-and-insights/research/industrial-market-statistics-trends>

Individual reports for locations listed in this table downloaded from this landing site

Although Table 1 shows that the cost for industrial space in the Metro DC/Northern Virginia region is two times higher than the cost for industrial space in other areas, there is nevertheless low vacancy, and construction of additional space, both of which indicate demand.

However, according to a local JLL industrial land expert in the region, few of these distribution centers want to look at spaces less than 100,000 square feet, and many would prefer to lease or build spaces up to 500,000 square feet. They also have an additional land demand need for parking in greater quantities than other industrial uses. The result is that sites under seven acres are not competitive for new speculative development; at least seven acres is needed to build a 100,000 square foot fulfillment center with adequate area for parking, which will cover roughly 33 percent of the lot.

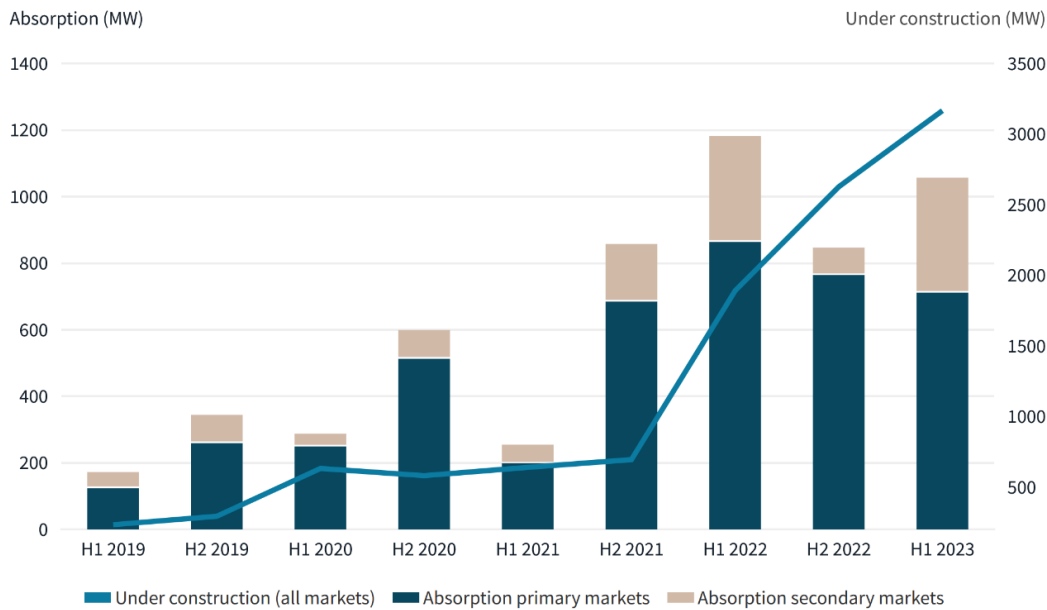
DATA CENTERS INCREASE DEMAND¹

Further, as the County is aware, there is additional pressure for large tracts of industrial land to accommodate data centers. While Northern Virginia is not the only location experiencing growth in demand for potential data center locations, the region is unique in the extent of existing data centers. Over the coming years, this source of demand is projected to increase, both nationally, and as long as large enough industrial tracts – vacant or to be redeveloped – remain available, in Northern Virginia.

JLL treats data centers separately from other industrial uses, and their projections are expressed in terms of megawatts – in other words, the amount of power capacity a site can provide – rather than square footage. There is, nevertheless, a correlation between the need for greater amounts of power and greater amounts of space, and this chart shows both increasing dramatically over the past four years.

¹ Clarion prepared a separate data center report for the County (completed in September 2023) which looks at the reasons for this concentration and offers recommendations for managing the demand.

United States data center absorption & construction



As artificial intelligence and reliance on cloud data services expand, so too will the need for space to accommodate this use. Northern Virginia already has the highest concentration of data centers in the nation, and even if the largest centers are concentrated in neighboring Loudoun and Prince William Counties, Fairfax County is nevertheless aware of the pressure for sites that can accommodate a further proliferation of data centers.

Like Warehouse and Distribution, the data center industry's preference is also to secure large sites that can accommodate facilities of at least 100,000 square feet-- and often much larger--with the result that data center demand for sites has eroded the land supply for other uses. This demand is combined with the fact that data centers typically can pay much higher prices than other industrial users--up to \$4 million per acre. Few other entities seeking industrial land area can afford costs this high. Thus, where data centers are permitted, and larger (6 to 12 acre) vacant tracts or redevelopment sites are available, they can outcompete any other use seeking to locate in an area.

Fairfax County

AREAS PLANNED FOR INDUSTRIAL USES

In 2023, Fairfax County has 3,712 total acres of land planned for industrial uses on the Comprehensive Plan map. Concentrations of industrial land are focused in three Special Planning Areas: Ravensworth, the I-95 Corridor, and Beltway South. There are additional concentrations of industrially planned land along the western end of the Dulles Toll Road, around Reston, and then south of Dulles, along Route 28, around Chantilly. Much of this second area on the western edge of the County is coincident with what is covered in the Comprehensive Plan as the Dulles Suburban Center (Route 28 Corridor) Special Planning Area. Finally, there is a scattering of land in the Tysons Urban Center area that is planned for industrial uses.

According to a local JLL industrial land expert in the region, despite comparatively high land prices, the County is still desirable for industrial development in two particular areas:

- **I-95 Corridor.** This corridor, which includes the County’s three industrial Special Planning Areas, is desirable for industrial tenants because it offers access to major transportation corridors like I-95/495/395 and access to much of the Metro DC area.
- **West Fairfax/Chantilly Submarkets.** These submarkets align with portions of the County’s Dulles Suburban Center, and are appealing because of their proximity to Dulles, and the “trifecta” of being wedged between affluent and rapidly growing Prince William and Loudoun Counties (new households that need and can afford lots of construction supplies and durable goods); major government contractor suppliers; the massive Dulles Discovery Center campus, and a concentration of mixed-use development near the Innovation Center Metrorail Station.

AREAS ZONED FOR INDUSTRIAL USES

Most of the 8,274 acres of land zoned for different types of industrial use in the County is developed. According to a report from the County’s Department of Management and Budget, as of January 2022, there are approximately 67 parcels of vacant land that are zoned for industrial in the County, totaling 250 acres. Table 2 provides a breakdown of parcels and acres by industrial zone district. The average size of the vacant industrial parcels (across the six industrial districts) is four acres with the largest being 21 acres.

Table 2: Vacant Land Zoned for Industrial

Zoning	Number of Parcels	Approximate Acreage
I-1, Industrial Institutional	1	12.91
I-3, Light Intensity Industrial	4	20.2
I-4, Medium Intensity Industrial	9	42.07
I-5, General Industrial	40	121.57
I-6, Heavy Industrial	13	53.25
Totals	67	250

Source: Fairfax County Department of Management and Budget, January 2022

Evolving Needs for Industrial

While it is true that the County’s industrial land inventory is not well-matched with the space-hungry demands of the primary industries seeking industrial space (large-scale warehouse and distribution facilities, and data centers), these industries are not the only drivers of demand for industrial space. There are many smaller, newer uses that are competing with “traditional” smaller scale industries such as contractor’s offices, landscaping firms, auto repair, HVAC installation companies, and other contractors for industrial land.

The national overview of industrial demand trends at the beginning of this report indicated that, after warehouse and distribution, the second largest driver of demand for industrial space is manufacturing firms. This trend also holds true for the metro DC region (not considering the unique data center demand in Northern Virginia). In many cases, manufacturing space demand is driven by emerging industries with different needs than traditional manufacturers.

Emerging Industries

Two prominent examples of emerging industries are high tech manufacturing, and micro-industry or the MAKER Movement. Many industries rely on high tech manufacturing as a component of their operations, including pharmaceuticals; medical device creators; aeronautics, space and defense concerns; and electronics and telecommunications firms. This type of industrial use is distinguished from traditional industrial uses by relying heavily on technology and automation to manage many aspects of production, being “clean,” i.e., having no discernible impacts that extend outside a building, and generating little traffic beyond what an office normally would.

The MAKER movement typically involves small-scale, artisanal creation of art or handicrafts, food, or other consumer products such as hand-crafted furniture. Subject to regulations requiring impacts to be contained within a structure, these are also “clean” uses. Occasionally, in areas where it is permitted, these operations have a public-facing component, such as a showroom, studio, or tasting room that the public may visit. In these cases, the use requires flex space, rather than exclusively industrial space.

The industries mentioned above may be competing for space with more traditional manufacturing operations, but they are not competing with the large-scale demands of data centers and distribution centers. Because they operate at a smaller scale, they may be well-matched for the inventory of industrial space that the County does have, either on vacant parcels, or through redevelopment opportunities. Either of the County’s concentrated industrial areas – along I-95 or in the Dulles Suburban Center area – may be a good fit for emerging manufacturing needs. In the Dulles Suburban Center area, they likely could fit within the mixed-use context the area seeks to cultivate, while additionally benefiting from synergies in the concentration of government offices and innovative, technology-driven firms in that area.

Traditional Heavy Industry

In urbanized or urbanizing areas, there is little new demand for space for heavy industry. These kinds of industries, with their potential for negative impacts and lack of compatibility with surrounding development, prefer large parcels of land in isolated areas, and proximity to the raw materials that they are processing. The County does have the transportation and power infrastructure to support such industries, but not the extent of isolated industrial land that these industries want, at prices that are competitive with other location options. Given the increasing density of surrounding development in the County, it is likely that any proposal to establish such a use that has to go through the Special Exception process would generate significant opposition from surrounding businesses and residents. Overall, the detriments likely outweigh the benefits to heavy industry seeking this type of land in the County.

Industrial Parks

Though many communities have begun to consider the creation of business parks, or isolated single-use office development, less desirable than in previous decades, industrial park areas are still useful and sought after properties. These sites offer the convenience of the building and site features needed by industrial uses being “built in” – adequate floor-to-ceiling height, open floorplates, and loading and delivery facilities. Industrial parks can be cheaper than single site development, because tenants benefit from economy of scale in shared features like sewers, lighting, and other infrastructure like street or rail connections to transportation networks outside the park. Depending on the similarity of tenants, there

may also be a synergistic effect from multiple related businesses or industries, where suppliers and buyers can be near one another. Finally, because industrial park uses are compatible with one another, and often governed through agreement to a set of covenants, conditions, and restrictions (CCRs), the risk of issues or conflicts with incongruent neighbors is reduced.

Though standalone industrial park space is still needed, development practice has evolved somewhat to include more than just industrial space in the developments. Tenants are interested in space where various functions and business units can be combined in a single building. The result is often referred to as industrial flex space, where the new construction accommodates a combination of office space, warehouse area, and occasionally retail space as well, all in one place. The County's current use permissions in industrial districts would permit this mix of uses, where "business service" and "restaurant" are allowed as an associated service use (A+), and "office" is permitted by right in all "I" districts (along with allowances for Religious Assembly, Child Care and Private Schools and other uses.).

Mixture of Uses

The County has experienced some pressure to allow a greater mixture of uses in industrial areas, and this is a common trend in other communities as well. In particular, lower land costs make industrial areas attractive for uses that require a larger footprint, such as religious assembly, specialized instruction centers, and private schools. While industrial flex development emphasizes the combination of space within a structure, there is also a demand for a combination of uses – office, industrial, and support services (i.e., childcare, retail services) – to be permitted in a defined geographic area, rather than just in a single structure. Because of the industrial component, there is typically still a need for good access to transportation routes, and the ability to be served by truck traffic. As a result, depending on the scale and intensity of the industrial component, such areas may be suited for a mix of commercial, industrial, and supporting uses, but incompatible with residential development.

However, light industrial areas that allow a mix of uses, have operations that are entirely contained within buildings, and do not generate significant truck traffic, may be suited for adjacent residential uses as well, particularly where Metro stations also exist in close proximity. This appears to be the mix of development that is proposed in the Special Planning Area for Dulles Suburban Center, and map searches indicate that this mix of uses already exists along the Dulles Toll Road, and along Route 28, where commercial and industrial uses front the road, but residential development backs up close behind it. This mixture of uses may be less appropriate for some of the industrial areas along the I-95 Corridor, such as the Newington industrial area. But the Springfield area shows a mix of uses in relatively close proximity, as does Lincolnia, with existing residential development not far from the concentration of industrial land.

Balancing Industrial Demand Against Housing Needs

There is also significant demand for more housing in the County, that is in some cases generating pressure and requests to convert industrially zoned areas to allow housing. This is a trend that is playing out in many high growth locations across the country. In the midst of a nationwide housing crisis, combined with inflationary pressures, decreasing affordability, and population growth, it can begin to seem urgent that every available acre of land be dedicated to housing development.

All of these pressures are present in Fairfax County, and compounded by the desirability of the area as a center of abundant employment with a high quality of life. If the cost of industrial land is less expensive

than land zoned for other uses like residential development, as is often the case, this heightens the pressure for conversion. This is particularly true for industrial areas that are proximate to walkable urban centers, services and amenities, and high-frequency transit. This pressure should not be interpreted as an indication of the lack of demand for that land to be used for industrial development.

In Fairfax County, there is comparatively little industrial land, and a lot of residential land. Starting from an already limited supply, it seems that supporting employment goals would indicate the need for conservation, rather than conversion, of what industrial land there is.

There are areas in the County where accommodating – or even encouraging - the conversion of industrial parcels may make sense. These opportunities are discussed in Section 6.

3: Survey of Industrial Policies and Regulations in Other Jurisdictions

Clarion reviewed adopted policies and regulations in a variety of other jurisdictions to identify the extent to which each entity addresses industrial trends and capacity. Results are organized into three groups:

- **High growth counties (Northeast and Southeast)** – this group includes counties that abut Fairfax County (Loudoun, Arlington, and Prince William counties in Virginia; and Howard County, Maryland; as well as other high growth metropolitan jurisdictions with similar characteristics, Henrico County/Richmond, Virginia, and Fulton County, Georgia (Atlanta Metro).
- **Other formerly industrial locations (Northeast and Southeast)** – this group includes jurisdictions in the northeast and southeast that have a strong history of industrial uses, but that have experienced shifts in industrial demand and have had to proactively reposition former industrial properties, including Pittsburgh, Pennsylvania; Paterson and Campden, New Jersey; Buffalo, New York; and Worcester, Massachusetts.
- **Additional examples with an industrial focus (Western States)** – this group includes jurisdictions familiar to Clarion that have taken proactive steps to protect or reposition industrial land in light of pressures for conversion to other uses, including Albuquerque, New Mexico; and Las Vegas and Reno, Nevada.

A summary of key themes for each group of jurisdictions is provided below, along with a summary of industrial policies and regulations for each jurisdiction.

High Growth Counties (Northeast, Mid-Atlantic, and Southeast)

Key Themes

High growth jurisdictions are addressing their own unique challenges through innovative goals and policies. In our review of planning documents, the following key themes emerged:

- While many places no longer depend on their industrial centers for their economic success, several plans acknowledge **retaining industrial land** is important to various extents to accommodate future job growth opportunities as is the case in Prince William, Howard, and Fulton counties.
- Growth pressures and the unavailability of developable land are forcing several places to prioritize **adaptive reuse and revitalization projects of vacant and underutilized land** such as the case in Prince William, Loudoun, and Howard Counties. Henrico, Howard, and Fulton county's plans target redeveloping industrial land specifically.
- Generally, **analyses of land capacity and industrial needs assessments were not common elements** in planning documents. Though it's dated, Arlington appeared to be the only jurisdiction to conduct an industrial land use assessment.

Prince William County, Virginia

COMPREHENSIVE PLAN – LAND USE CHAPTER (2022)

Industrial Trends/Land Capacity

The Comprehensive Plan does not include an analysis of industrial trends or the supply of industrial land.

Goals and Policies

Prince William County’s goals and policies are guided by smart growth principles and aim to improve services and infrastructure, expand housing options, and encourage mixed-use development to accommodate their growing population. Policies that specifically reference industrial uses include:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

LU 27: Promote adaptive reuse as part of the Comprehensive Plan’s goals to meet the housing needs, provide civic amenities, preserve historic structures, improve economic development, and provide resilience to neighborhoods (pg. 111).

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

LU12.3: Ensure that the County provides enough properly located lands dedicated for industrial uses exclusive of data centers (pg. 17).

Future Land Use Plan (Map and Land Use Categories)

The plan identifies introducing new industrial land use classifications for key corridor areas including an industrial classification that will allow a mix of light manufacturing and industrial as well as commercial, office and flex space.

Industrial (I): Provide areas for a range of industrial and employment uses which promote a diverse tax base, encourage economic vitality, and support at place employment. Retail/retail service uses may be located to support the needs of those employed within the greater industrial area. Within an industrial designated area, the more intense uses should be located in the core of the area and transition to less intense uses at the periphery. Based on respective use, Industrial T-4 should occur in areas with access to major roads rather than passing through tertiary or residential roads. Data centers and distribution and fulfillment centers are discouraged in Industrial T-2.

Industrial land use categories are tailored in each Small Area Plan:

Industrial (I), T-3: areas will complement existing concentrations of manufacturing and industrial uses, enabling the area to evolve as a major employment center for the County (Bethlehem Road Activity Center Land Use Plan).

Industrial (I), T-3 – Tech/Flex: areas will allow for and support a mix of light manufacturing, light industrial and commercial flex, start-up businesses, and office uses, while also accommodating existing and planned data center uses (Sudley Road Corridor Land Use Plan).

Other Specific Guidance

Bethlehem Road Activity Center Land Use Policy

BRLU 1: Diversify non-residential uses to complement existing industrial development in a manner that is compatible with existing residential uses. Potential non-residential uses may include research facilities, general office, data centers, light manufacturing, or other similar uses (pg. 47).

Sudley Road Corridor Land Use Policy

SRLU 1.5: Accommodate a range of light manufacturing, light industrial and commercial flex, start-up businesses, and office uses, as well as existing and planned data center uses, in designated technology flex areas adjacent to Interstate 66 (pg. 105).

Implementation Strategies

LU27.1: Incentivize building reuse at a neighborhood scale to encourage activation of a cohesive community (pg. 111).

LU27.2: Encourage adaptive reuse projects to provide space for a mix of uses (pg. 111).

LU27.3: Evaluate the Zoning Ordinance, Design and Construction Standards Manual, and site design requirements to determine if any should be modified to allow greater flexibility in the adaptive reuse of buildings (pg. 111).

LU27.4: Encourage adaptive reuse projects that provide more investment, development, and revitalization in areas and in structures that might otherwise remain vacant or underused (pg. 111).

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE (2005)

Industrial Zoning Districts

The Zoning Ordinance for Prince William contains the following three industrial districts:

M-1, Heavy Industrial District: implement the industrial employment land use classification of the Comprehensive Plan. The purpose of this district is to also promote employment opportunities and to enhance the tax base of Prince William County. It is designed to provide areas for and to encourage development of heavy and intensive industrial processing, manufacturing and storage with limited retail and service uses. Retail or residential and low intensity employment uses are generally incompatible with the nature of uses contemplated in the M-1 District.

M-2, Light Industrial District: implement the flexible use employment center land use classification of the Comprehensive Plan. It is also intended to implement the industrial employment center land use classification as a transition to the flexible use employment center land use classification. The purpose of this district is to also promote employment opportunities and to enhance the tax base of Prince William County. It is designed to provide areas for research and development centers, light

industrial manufacturing, warehousing, wholesaling and related office and institutional uses, and not for retail and service uses except in support of the uses primarily intended.

M/T, Industrial/Transportation District: implement the industrial employment land use classification of the Comprehensive Plan. The purpose of this district is to also promote employment opportunities and to enhance the tax base of Prince William County. It is designed to provide areas for and encourage development of heavy industrial uses, and in particular for including those which generate considerable truck and/or heavy equipment traffic, or which require access to more than one mode of transportation. Facilities involving specialized transportation and industrial equipment, together with related supporting services, should be located in the M/T District since, by their nature, such uses must be served by transportation facilities capable of handling the type and amount of traffic generated.

Allowed Uses

Residential uses are not permitted in any of the industrial districts as either a primary or secondary use. A mix of commercial and retail such as restaurants, retail stores, and indoor recreational facilities are permitted as secondary uses within each industrial district.

Use Standards

Use-specific standards apply to recycling collection points and self-storage centers which have size and location requirements.

Loudoun County, Virginia

LOUDOUN COUNTY GENERAL PLAN (2019)

Industrial Trends/Land Capacity

The Comprehensive Plan does not include an analysis of industrial trends or the supply of industrial land.

Goals and Policies

The General Plan outlines policies under five key elements including Land Use; Natural, Environmental, and Heritage Resources; Housing; Economic Development; and Fiscal Management and Public Infrastructure. Policies aimed at industrial uses include:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

IR Policy 1: Ensure reinvestment initiatives and redevelopment, infill development, and adaptive reuse projects will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities (pg. 2-25).

IR Policy 2: Recognize adaptive reuse of existing unused or underutilized buildings as an opportunity to establish or reinforce a community's identity and sense of place (pg. 2-25).

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

IR Policy 3: Promote redevelopment and infill projects that balance compatibility and integration with new housing choices and creative designs (pg. 2-25).

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Not applicable.

Future Land Use Plan (Place Types)

Loudoun designates Place Types for sub-geographies in the county in lieu of traditional land use categories. The General Plan contains Place Type maps for their four policy areas, Urban, Suburban, Transition, and Rural. Each policy area has specific policies, strategies and actions based on local needs. The Suburban Industrial/Mineral Extraction Place Type allows uses for heavy manufacturing, warehousing, research and development, data centers, with complimentary uses of retail and service commercial, flex space, and light production. Another Place Type allowing industrial uses includes the Transition Light Industrial Place Type, which allows uses such as light production, data centers, flex space and complementary uses of retail and service commercial and institutional uses.

Other Specific Guidance

Area Plans

Not applicable.

Implementation Strategies

1.1.A. Develop criteria to identify and prioritize areas for redevelopment, infill development, adaptive reuse, and reinvestment, with the Priority Commercial Redevelopment Areas Map serving as the source for initial areas of focus (pg. 7-7).

1.1.B. Create a common vision and objectives for areas identified for redevelopment, infill development, adaptive reuse, and reinvestment through a public process (pg. 7-7).

1.1.C. Address redevelopment, infill development, adaptive reuse, and reinvestment as part of community plans. Pay particular attention to a community's historic assets and function in areas with under recognized historic resources or limited historic resources protections, such as the legacy village cores of Ashburn, Arcola, and Old Sterling (see Legacy Village Cores Map) (pg. 7-7).

1.8.A Develop zoning regulations and design standards that discourage the displacement of legacy flex, industrial, and employment uses by new large-scale uses (pg. 7-9).

1.8.B. Develop zoning regulations and design standards that expand opportunities for small-scale manufacturing in place types allowing flex, light industrial, industrial, and employment uses (pg. 7-9).

1.8.C. Amend zoning use definitions in industrial, flex, and employment-centered zoning districts to accommodate makerspaces, emerging small-scale manufacturing sectors, and the marketing and retail of goods produced on-site (pg. 7-9).

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Zoning Districts

Loudoun County adopted an updated zoning ordinance in December 2023. The new zoning ordinance includes three industrial zoning districts:

IP – Industrial Park. The purpose of the Industrial Park (IP) Zoning District is to:

- Implement the Suburban Employment, Suburban Industrial/Mineral Extraction, Transition Light Industrial, Transition Industrial/Mineral Extraction, Leesburg JLMA Employment, and Joint Land Management Area (JLMA) - Leesburg Industrial/Mineral Extraction Place Types of the General Plan;
- Provide opportunities for a broad array of employment uses and opportunities for synergies among businesses;
- Offer prime locations for office, light production, flex space, and warehousing uses, including startups and established businesses, where uses do not generate excessive noise or air pollutants and ensure all outdoor storage is sited and screened to reduce visibility from roadways or adjacent properties;
- Support limited first floor retail or other accessory uses that serve predominant uses;
- Establish a development pattern where buildings are the predominant feature when viewed from roadways and adjacent properties and parking is screened from roads and adjacent properties; and
- Create transitions between IP Zoning District uses and other developments, particularly adjacent residential neighborhoods.

GI – General Industry. The purpose of the General Industry (GI) Zoning District is to:

- Implement the Suburban Industrial/Mineral Extraction, Transition Industrial/Mineral Extraction, and Joint Land Management Area (JLMA) - Leesburg Industrial/Mineral Extraction Place Types of the General Plan;
- Provide a location for industrial uses that are incompatible with residential uses due to the prevalence of outdoor storage and emissions of noise, odor, and vibrations to operate;
- Ensure compatibility and long term, economic viability of industrial uses and accessory uses through the use of screening and setbacks from road and adjacent residential uses;
- Provide for development with limited traffic and aesthetic impacts on surrounding properties and on public facilities and utilities; and
- Permit residential and other uses only to the extent that they may be compatible with general and intensive industrial uses.

MR-HI – Mineral Resource-Heavy Industrial. The purpose of the Mineral Resource – Heavy Industry (MR-HI) Zoning District is to:

- Implement the Suburban Industrial/Mineral Extraction, Transition Industrial/Mineral Extraction, and Joint Land Management Area (JLMA) - Leesburg Industrial/Mineral Extraction Place Types of the General Plan;
- Serve as an interim, long term Zoning District recognizing that areas devoted to resource extraction may and should ultimately be converted to other compatible and beneficial uses consistent with the General Plan;

3: Survey of Industrial Policies and Regulations in Other Jurisdictions High Growth Counties (Northeast, Mid-Atlantic, and Southeast)

- Protect the mineral resources, primarily diabase rock, of the County:
 - For possible future economic development;
 - To provide for diabase resource extraction operations at appropriate locations and under controlled conditions; and
 - To co-locate quarries and compatible heavy industrial uses.
- Provide a location for mineral extraction and intensive industrial uses that are incompatible with residential uses due to the prevalence of emissions of noise, odor, and vibrations to operate;
- Ensure compatibility and long term, commercial viability of mineral extraction and intensive industrial uses and accessory uses through the use of screening and setbacks from road and adjacent residential uses;
- Provide for development with limited traffic and aesthetic impacts on surrounding properties and public facilities and utilities; and
- Permit residential and other uses only to the extent that they may be compatible with mineral extraction and associated intensive industrial uses.

Allowed Uses

Residential uses permitted within the IP District and MR-HI District are limited to residences for caretakers or guards.

Use Standards

Maximum permitted steady state vibration levels are performance standards specific to uses in industrial areas. Generally, uses in all districts must comply with performance standards requiring light and glare standards, noise standards, and steep slope standards.

Arlington County, Virginia

GENERAL LAND USE PLAN (2020)

Industrial Trends/Land Capacity

The Comprehensive Plan does not include an analysis of industrial trends or the supply of industrial land.

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Not applicable.

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Not applicable.

Future Land Use Plan (Map and Land Use Categories)

The current land use map includes one industrial land use classification, Service Industry. While a purpose statement is unavailable, the Plan indicates typical uses in this category includes wholesale, storage, and light manufacturing uses, including those relating to building construction activity.

Other Specific Guidance

Four Mile Run Valley (4MRV) Area Plan (2018)

The 4MRV is the last remaining sizeable area dedicated to industrial uses in Arlington County. Historically, industrial uses clustered along the County's rail corridors but over time, they were replaced by higher-density residential and commercial uses. The Plan includes an assessment of the area's existing industrial and commercial uses and includes a framework for how 4MRV can support the county's key priorities in the short and long term. Two themes within the plan directly reference industrial uses:

- Maintain industrial character
- Maintain space for industrial businesses and county uses

Industrial land use trends between 1993-2015 for the county as a whole and the Four Mile Run Study Area are described on page 2.11. Notably, Arlington County had 1.7 million square feet of industrial or flex space in 1995. By 2010, supply decreased to a total of 1.5 million square feet. In 2015, the supply of industrial and flex space dropped again to 1.3 million square feet. Industrial space did not fluctuate much within the Four Mile Run Study Area in this time. Today, the 4MRV area represents 55 percent of Arlington's industrially zoned land.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

The General Land Use Plan references an Industrial Land Use and Zoning Study conducted by the county in 2000. At the time of the report, industrial land had declined since the 1950s and nearly half of industrial-zoned areas were transformed into high-density, mixed-use developments. The County found that while many industrial uses were no longer needed for their economic success, some retained value and should be accommodated for. These uses included warehousing, wholesale distribution, and research/development. Several strategies to retain existing industrial areas were described such as integrating industrial uses into nonindustrial zoning districts through special exception processes or implementing performance standards. A link to the report is [here](#).

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Zoning Districts

Three industrial districts exist in Arlington, CM – Limited Industrial, M-1 – Light Industrial, and M-2 – Service Industrial. M-1 and M-2 purpose statements are unavailable in the current ordinance.

CM District: Provides areas for light manufacturing, wholesale businesses and distribution centers and other uses inappropriate to residential or service business areas.

Allowed Uses

Permitted residential uses in these districts are limited to group living facilities such as group homes, dormitories, and fraternity and sorority houses – all requiring permit approval. Several retail, service, and commercial uses are allowed by right in each district including food establishments, office uses, and many retail sale facilities.

Use Standards

Use-specific standards apply to several industrial and non-industrial uses including building material sales yards, foundries, indoor-only uses, sign making shops, and vehicle storage lots and towing services (e.g., use must be conducted wholly within a building or fence requirements).

Henrico County / Richmond, Virginia

COMPREHENSIVE PLAN (2009)

Industrial Trends/Land Capacity

The Comprehensive Plan includes a demand analysis of the estimated nonresidential total demand in 2030 using a comparison of population and employment forecasts. Office use was estimated to have the highest demand and industrial uses had the lowest demand. Additionally, an analysis of the change in land use by type between 1990 and 2006 is included in the plan. Industrial land had a 60.25 percent change in this time, increasing from 2,514 acres to 4,028 acres.

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

- a. Encourage employment-generating uses to reuse or intensify existing land areas designated for Office/Service/Industrial uses, when appropriate (pg. 285).
- b. Encourage the rehabilitation and reuse of industrial properties (pg. 24).

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

- a. Encourage the private sector to provide certain specialized facilities that may be attractive to some industrial and economic development prospects (pg. 195).

Future Land Use Plan (Map and Land Use Categories)

Industrial uses are integrated in the Future Land Use Plan within the Office/Service/Industrial areas. Land use classifications for industrial uses include Light Industry (LI), Heavy Industry (HI), and Planned Industry (PI). Definitions of the land use categories are provided below.

Light Industry (LI) areas are intended for manufacturing, fabricating and warehousing establishments with the least potential for adverse impact on adjacent development. They include uses and provisions that mitigate noise, heavy truck traffic, fumes, vibration or other forms of pollution.

Planned Industry (PI) is applied to areas intended to accommodate a variety of industrial establishments, which employ high environmental quality standards and have minimal impacts on adjacent uses. They require large tracts of land because of their nature and function. They provide shared access, coordinated design and a planned layout.

Heavy Industry (HI) is applied to areas intended to accommodate manufacturing and fabricating establishments which are generally characterized as producing noise, vibration, heavy truck traffic, fumes and other impacts, which may be objectionable to adjacent uses.

Other Specific Guidance

Area Plans

Not applicable.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE (2010)

Industrial Zoning Districts

Industrial uses fall into three districts in Henrico County:

M-1 - Light Industrial District: Provides lands for a variety of commercial uses and manufacturing, fabricating, and warehousing activities that only produce minimal odors, noises, and similar adverse impacts on nearby lands. To ensure minimal adverse impacts, many industrial activities are only allowed if conducted within enclosed buildings.

M-2 – General Industrial District: Provides lands for a variety of commercial uses and manufacturing, fabricating, and warehousing activities that have the potential to produce low to moderate levels of odor, noise, and similar adverse impacts on nearby lands. To minimize adverse impacts on adjacent lands, many uses are allowed only if they are located a minimum distance from adjacent Residential zoning districts.

M-3 – Heavy Industrial District: Provides lands that accommodate intense industrial development that is important to the County's economy but may adversely impact surrounding lands. To minimize adverse impacts on nearby lands, many uses are allowed only if they are located a minimum distance from adjacent Residential zoning districts.

Allowed Uses

Residential uses are not permitted in industrial districts. Allowed uses include manufacturing, laboratories, warehouses, and recycling.

Use Standards

General use standards for industrial districts include uses must be located within a completely enclosed building except for parking, loading facilities, and outdoor storage areas and must not create any hazardous conditions on neighboring lands. Use-specific standards apply to several industrial uses including location requirements for extractive industries, screening requirements for outdoor storage of materials for service uses, and storage requirements for waste-related services.

Howard County, Maryland

PLANHOWARD 2030 COMPREHENSIVE PLAN (2012)

Industrial Trends/Land Capacity

The Comprehensive Plan includes an analysis of the change in land use in acreage between 1990 and 2006. Industrial land increased by 60.25 percent in this period, increasing from 2,514 acres to 4,028 acres.

Goals and Policies

PlanHoward addresses policies and implementing actions in three priority areas Environment, Economy, and Community. Policies related to industrial uses appear primarily in the Economy priority area.

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Not applicable.

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Policy 5.6: Plan for Class A office, industrial, and mixed-use redevelopment of commercial and industrial properties within the Snowden-GE area where appropriate (pg. 59).

Policy 10.2: Focus growth in Downtown Columbia, Route 1 and Route 40 Corridors, and some Columbia Village Centers, as well as some older commercial or industrial areas which have redevelopment potential (pg. 140).

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Policy 6.4.c.: Commercially and Industrially Zoned Properties: Establish policies to protect and promote commercially and industrially zoned land for future job and business growth opportunities (pg. 172).

Future Land Use Plan (Map and Land Use Categories)

Not applicable.

Other Specific Guidance

Area Plans

Not applicable.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

US 1 Corridor Redevelopment: A market-based analysis of the commercial and industrial conditions of the Route 1 Corridor described on page 57 of the plan revealed this area as a vital economic asset. The corridor has 30 percent of the County's jobs despite comprising only eight percent of the land area. While past efforts to encourage revitalization of old, underutilized properties were not fruitful, redevelopment efforts will continue to be necessary to accommodate future growth. Other counties provide more ideal conditions for office uses but the Corridor has several competitive advantages in sectors such as information technology, financial services, and cyber security support which can help grow Route 1 as a strong employment hub.

Case Studies

Not applicable.

ZONING ORDINANCE (2013)

Industrial Zoning Districts

There are two industrial districts in Howard County, M-1 – Manufacturing: Light, and M-2 – Manufacturing: Heavy.

M-1 – Manufacturing (Light) District : Permits a mix of manufacturing, warehousing and business uses with provisions for limited retail sales.

M-2 – Manufacturing (Heavy) District: Permits a mix of manufacturing, warehousing, industrial and business uses with provisions for limited retail sales.

Allowed Uses

Flex space, day treatment or care facilities, child day care centers, and carryout restaurants are a few uses permitted by right in the M-1 district. Primarily manufacturing-oriented uses are permitted by right in the M-2 district. Personal service establishments, service agencies, and retail establishments are allowed as accessory uses with size restrictions in both districts.

Use Standards

Use-specific standards apply to a couple non-industrial uses in industrial districts such as project size requirements for retail centers and location requirements for go-cart tracks.

Fulton County, Georgia (Atlanta Metro)

FULTON COUNTY 2035 COMPREHENSIVE PLAN (2016)

Industrial Trends/Land Capacity

Not applicable.

Goals and Policies

The Comprehensive Plan organizes goals and strategies into six elements Population, Land Use, Housing, Transportation, Environmental, and Community Facilities and Resources. Below are strategies specifically addressing industrial land:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Not applicable.

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

- a) Provide incentives for the redevelopment of underutilized commercial, office and industrial areas as identified in the Future Development Map (pg. 118).

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

- a) Adopt an industrial preservation policy (pg. 119).
- b) Review the zoning regulations for the M1A, M1, and M2 zoning districts to further maintain the integrity of all Industrial areas (pg. 128).

Future Land Use Plan (Map and Land Use Categories)

Industrial Marketplace: provide places within the industrial districts that serve the commercial and retail needs of the people who work in these areas. The Industrial Marketplace is further defined as an area that is roughly one-half mile in radius from major road intersections within the industrial areas.

Industrial: The purpose of the Industrial Zone Character Area is to preserve the integrity of industrial areas in Unincorporated South Fulton that accommodate the most intense industrial uses while limiting their impact on the surrounding neighborhoods. These areas have the highest intensity of industrial uses that require the most stringent regulations and site control. Most industrial uses require buffers and separation from incompatible uses.

Other Specific Guidance

Area Plans

The Fulton Industrial Community Improvement District (CID) completed a Master Plan for the Fulton Industrial Boulevard Corridor. The Corridor is a key industrial area for the County and was once a thriving industrial hub in the 1960s. However, the area's productivity declined when more nonresidential development grew along the boulevard when industrial demands changed. Concerned with the decline in industrial capacity, the County began a revitalization effort in 2010 to prevent the continued loss of industrial land and better integrate commercial and industrial developments.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE

Zoning Districts

Industrial uses fall into three districts in Fulton County:

3: Survey of Industrial Policies and Regulations in Other Jurisdictions Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

M-1A Industrial Park District: Provides land areas for the development of industrial parks which meet the needs for manufacturing, fabricating, processing, warehousing, distributing, research, office and related uses in an attractive environment.

M-1 Light Industrial District: Provides locations which meet the needs of processing, manufacturing, fabricating and warehousing, research and office uses, and related uses.

M-2 Heavy Industrial District: Provide locations for a full range of manufacturing, processing, extraction, terminal and warehousing uses, and closely related uses.

Allowed Uses

Allowed uses are not listed in the Code, only prohibited uses. Residential dwellings are prohibited in all districts.

Use Standards

Use-specific standards do not appear in the Fulton County Code of Ordinances.

Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

Key Themes

Formerly industrial jurisdictions are challenged with high vacancy rates and how to spur economic development into their former industrial areas. After review of their planning documents, the following themes emerged:

- Redevelopment of industrial land is **complicated by the presence of environmental contamination** as many of these places are amongst the oldest cities characterized as industrial hubs. Strategies for brownfield redevelopment specifically are prevalent in the plans for Camden, Buffalo, and Worcester.
- **High rates of vacant and underutilized land** from the decline of the industrial sector and subsequent decline in population drive many of the economic development and land use policies. Broadly, places are thinking creatively about incorporating modern, mixed-uses into adaptive reuse of vacant or underutilized industrial land.
- Retaining industrial land was not a prevalent goal for many jurisdictions except for Buffalo and Worcester.

Pittsburgh, Pennsylvania

COMPREHENSIVE PLAN (IN PROGRESS)

Pittsburgh recently announced plans to create its first ever comprehensive plan, *ForgingPGH*. Throughout the city's history, planning has happened at the neighborhood level. Several neighborhoods have their own plans that address local priorities and outline implementation strategies. There are few mentions of industrial uses in the neighborhood plans.

Industrial Trends/Land Capacity

Not applicable.

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Not applicable.

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Not applicable.

Future Land Use Plan (Map and Land Use Categories)

Not applicable.

Other Specific Guidance

Homewood Comprehensive Community Plan

Adaptive reuse of industrial sites was identified as a key business and innovation priority in the Homewood community. Homewood is targeting specific properties with former industrial uses for economic revitalization. One project converted a former industrial building into a space for economic opportunity for the neighborhood. The site was repurposed to not only provide space to local businesses, but to serve as an educational hub.

Hazelwood Comprehensive Community Plan

The Hazelwood community plan includes an analysis of developable land by land use type. General Industrial, Neighborhood Industrial and Urban Industrial are among the land use types with development potential within the neighborhood.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE

Pittsburgh has many more allowances for residential uses within industrial districts compared to the other communities. Industrial uses fall into three districts:

NDI - Neighborhood Industrial District: 1. Allows a broad range of industrial uses, subject to performance standards; 2. Accommodates other uses that are compatible with office, commercial and residential land uses; and 3. Encourages development patterns that include a mix of housing, employment and shopping opportunities.

GI - General Industrial District: 1. Accommodates a full range of industrial, manufacturing, warehouse, and similar uses which are incompatible with lower intensity land uses; 2. Preserves land for manufacturing uses to maintain the diversity of the City's economic base; 3. Allows limited commercial development to support industrial uses without competing for land value; and 4. Encourages appropriate multi-unit residential development in the adaptive reuse of older industrial buildings.

UI - Urban Industrial District: 1. Allows mid-sized to large industries with lower external impacts on surrounding properties and districts; 2. Provides a flexible district that addresses the growing need for easily adaptable and flexible spaces, including office parks, incubator spaces, high technology and service sector industries; 3. Allows multi-use buildings that permit assembly, inventory, sales, and business functions within the same space; 4. Encourages adaptive reuse of manufacturing buildings and allow the development of high density multi-unit residential buildings.

ALLOWED USES

NDI allows the most residential uses with single-unit detached, single-unit attached, two-unit dwellings, three-unit dwellings, and multi-unit dwellings all permitted by right. Assisted Living Class A, housing for the elderly (limited) and large personal care residences are permitted with an administrator exception. Assisted Living (Class B and C), community homes, housing for the elderly (general) and multi-suite residential (general) are permitted as special exceptions within the NDI district. Personal care residence (large) is the only residential use permitted in the GI district as a special exception. In the UI district, Assisted Living Class A and B and Multi-Residential (limited) are permitted by right. Multi-unit residential, Assisted Living Class C, Community Home, Housing for the Elderly (General) and Personal Care residence (large) are special exceptions in the UI district. Housing for the Elderly (Limited) and Multi-Suite Residential (General), and Personal Care Residence (Small) are permitted with an administrator exception.

Paterson, New Jersey

CITY OF PATERSON, NEW JERSEY MASTER PLAN (2014)

Industrial Trends/Land Capacity

Land use trends were analyzed between 2004 and 2012 and show minor changes for most land use classifications. Industrial land comprised 311 acres in 2004 and 311.50 acres in 2012 resulting in only a 0.5 change. Land uses with the greatest change include commercial and vacant land, changing by -68.10 and 106, respectively.

Goals and Policies

As the country's first planned industrial city, Paterson is challenged with infusing new economic opportunities into the city's deteriorated formerly industrial land and improving the condition of existing infrastructure. Many of the goals and objectives within the Master Plan aim to revitalize the city and make it more economically-, socially-, and environmentally-sustainable. Goals and objectives related to industrial uses include:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Land Use Goal 2. To address the problems associated with vacant or abandoned properties:

3: Survey of Industrial Policies and Regulations in Other Jurisdictions Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

Strategy c: Repurpose abandoned industrial facilities for modern uses (pg. 03-3).

Economic Development Goal 4. To promote the redevelopment of vacant/abandoned properties:

Strategy c: Promote the adaptive reuse of industrial buildings, either as housing or retrofitted for new industries.

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Housing Goal 3. To provide opportunities for the construction and/or rehabilitation of affordably priced market rate housing:

Strategy a: Consider conversion of vacant industrial buildings to residences (pg. 03-5).

Land Use Goal 1. To provide for an appropriate mix of land uses, balancing the needs for residential, commercial, and industrial lands, with needs for civic uses and open space & recreation:

Strategy c: Address obsolete industrial uses that border residential or commercial zones (pg. 03-3).

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Not applicable.

Future Land Use Plan (Map and Land Use Categories)

The Master Plan identifies one industrial land use category, Industrial. Purpose statements for land use categories are not included in the Plan.

Other Specific Guidance

Area Plans

Paterson has 16 redevelopment areas identified to require significant redevelopment and rehabilitation. Each redevelopment area has a land use plan and outlines key goals and implementation strategies. A few redevelopment areas and key goals include:

Area 11 Rehabilitation Plan (2009)

Area 11 encompasses 250 acres and consists of residential properties, industrial properties, office and medical uses and some retail uses clustered along Main Street. The rehabilitation plan is intended to activate the St. Joseph's Regional Medical Center as an economic development generator and create six zoning districts including an industrial transition zone. Key goals include:

- Develop infill housing in residential neighborhoods
- Rehabilitate and adaptively reuse historic industrial buildings as housing or commercial uses.

Fourth Ward Redevelopment Plan (2003)

The purpose of the Fourth Ward plan is to encourage capital investment, new housing, and business opportunities in the fourth ward located primarily in the center of the city. The Plan splits the area into six zoning districts, three designated as commercial/industrial districts and another as a light industrial transition district. Key goals in the Fourth Ward include:

- Acquire properties throughout the designated area and redevelop them with appropriate housing or commercial uses.

3: Survey of Industrial Policies and Regulations in Other Jurisdictions Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

- Enforce the recommended residential and commercial design standards.

Implementation Strategies

A list of more specific action strategies under each core topic including key agency/partners and a time range are provided on page 17-13. While few action strategies mention industrial land specifically, several directly reference redevelopment of vacant property.

Economic Development Recommended Action Strategies

- Provide incentives to utilize vacant space in downtown buildings
- Enhance the role of St. Joseph's Medical Center as an economic engine in the City
- Make productive use of vacant and abandoned properties

Housing Recommended Action Strategies

- Address vacant and abandoned properties and use as potential housing sites
- Acquire properties in redevelopment areas for housing development

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE (2016)

Paterson has two industrial districts:

I-1 Light Industrial District: The intent of the I-1 Light Industrial District is to provide for a wide variety of light manufacturing, fabricating, processing, wholesale, distribution, and warehousing uses in a setting conducive to public health, economic stability and growth, and protection from blight and nonindustrial encroachment. The regulations are designed to permit operations in a clean and quiet manner and to protect adjacent district uses and industries within the district. Further development of residences is prohibited in this district to protect homes from the adverse effects of industries and to conserve the supply of industrial land for industrial uses. Further, in order to avoid bringing the general public into the district, to protect commercial establishments from the adverse effects of industry and to conserve the supply of land for industrial uses, most commercial uses are prohibited from the I-1 District.

I-2 Heavy Industrial District: The intent of the I-2 Heavy Industrial District is to provide land for more intense types of industrial and manufacturing uses excluding those with nuisance characteristics. While the mapping of this district unavoidably includes some residential buildings, future construction of dwellings in such districts is prohibited in order to protect homes from the adverse effects of industries and to conserve the supply of industrial land for industrial uses. Further, in order to avoid bringing the general public into the district and in order to protect commercial

establishments from the adverse effects of industry, most commercial uses are prohibited from the I-2 District.

Camden, New Jersey

CITY OF CAMDEN MASTER PLAN (2009)

Industrial Trends/Land Capacity

Not applicable.

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Housing Plan Recommendation 2: Restructure the management of vacant and underutilized properties (pg. 10).

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Not applicable.

Land Use Plan (Map and Land Use Categories)

Light Industrial: Areas primarily designated for manufacturing, warehouse and distribution facilities, wholesale sales, fabricating, and handling of goods and products.

Port Related Industrial: Areas primarily designated for docks, wharves, piers, and related facilities, used in connection with the transfer, storage-in-transit, and incidental processing of cargo from or to waterborne craft, heavy industrial uses, manufacturing, and other uses permitted in the light industrial district.

Office Light Industrial: Areas primarily designated for offices, limited manufacturing and research, flexible high technology facilities, and laboratories.

Other Specific Guidance

Area Plans

Not applicable.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Districts

There are four industrial districts in Camden, LI-1 – Light Industrial, LI-2 – Light Industrial, GI-1 – General Industrial and GI-2 – General Industrial. Purpose statements for these districts are not provided on the online code.

Allowed Uses

All residential uses besides living quarters for caretakers or watchmen are prohibited in these districts. A few permitted uses include restaurants, professional offices, commercial recreation facilities, parks, community center buildings, and libraries.

Buffalo, New York

CITY OF BUFFALO LAND USE PLAN (2016)

Industrial Trends/Land Capacity

One of Buffalo's key priorities is to reclaim vacant buildings and land. The amount of vacant buildings and land grew when the city lost major employers with the decline of its manufacturing sector and households moved to the suburbs. To target adaptive reuse strategies, the City mapped the amount of vacant land in residential, commercial, and industrial districts. Residential land had the most vacant land with 1,260 acres and industrial had the lowest with 915 acres.

Goals and Policies

Buffalo's land use policies are targeted to three key objectives: 1) Grow the Economy, 2) Strengthen Neighborhoods, and 3) Repair the Environment. Example policies specific to industrial uses include:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

- a. Reinforce employment centers along the Belt Line by encouraging a mix of uses for underutilized structures (pg. 24).

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

- a. Prioritize strategic brownfield sites, and support their remediation and reclamation (pg. 24).

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

- A. Preserve industrial sites, particularly with rail or highway access; and increase the availability of reuse-ready structures and shovel-ready land (pg. 24).
- b. Support a working waterfront with industrial and marine commercial uses, while minimizing adverse impacts on public access and wildlife (pg. 22).

Land Use Plan (Map and Land Use Categories)

The Land Use Plan identifies one industrial category (Industrial), encompassing eight percent of the city. A purpose statement for this category does not appear in the Plan. Employment is a proposed land use category that would contain key employment areas, including strip retail, flex commercial, manufacturing and industrial zoning districts.

Other Specific Guidance

Area Plans

Buffalo has an abundance of vacant or underutilized industrial land given its history as a manufacturing hub on the east coast. A significant portion of this land is expensive to redevelop because of environmental contaminants and are considered to be brownfields. Under the New York State Department's Brownfield Opportunity Area (BOA) Program, Buffalo created three studies for the Tonawanda Street Corridor, Buffalo Harbor, and Buffalo River Corridor BOAs. The studies include study area trends, inventory of current land use, site profiles, and implementation strategies that include land use and zoning recommendations.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Real estate trends for the industrial market were analyzed within the three brownfield opportunity area (BOAs) plans.

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Districts

Industrial uses are separated into two districts in Buffalo:

D-IL - Light Industrial: The D-IL district addresses sites intended for low-impact and moderate-impact employment uses, which may benefit from close proximity to, but clear separation from, mixed-use residential neighborhoods, and are typically located adjacent to highway, rail, and water access points.

D-IH - Heavy Industrial: The D-IH district addresses intensive, high-impact employment uses, which are generally incompatible with mixed-use residential neighborhoods and typically benefit from isolated locations, often adjacent to highway, rail, and water access points.

Allowed Uses

Permitted residential uses within the D-IL and D-IH are limited to caretaker dwellings. Halfway houses are permitted within the D-IL district with a special use permit. A broad range of civic and retail and service uses are permitted by right within the D-IL district including public safety facilities, amusement facilities, drive-through facilities, restaurants, and general retail and service. The D-IH has far fewer uses permitted by right.

Worcester, Massachusetts

COMPREHENSIVE PLAN (IN PROGRESS)

Worcester is currently in the process of creating a new comprehensive plan, *Worcester Now*. While the whole draft plan is unavailable to view, draft recommendations are posted on the city's website. The last comprehensive plan was created in 1987. *Worcester Now* will integrate topic-specific planning efforts that

3: Survey of Industrial Policies and Regulations in Other Jurisdictions Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

have occurred over the decades, providing a comprehensive framework to guide growth for the next 30 years.

Industrial Trends/Land Capacity

Not applicable.

Goals and Policies

Worcester Now outlines goals under key topics such as housing, transportation and mobility, culture and creativity, and economic opportunity. Examples specific to industrial include:

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Goal 2.2. Brownfield Redevelopment: Partner to responsibly redevelop underutilized industrial areas and brownfields as centers of green economic activity and well-paying jobs. (pg. 11)

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Not applicable.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Goal 2: Welcome a balance of industries that provide living-wage jobs to all. 2.1. Commercial & Industrial land preservation: create and manage a 21st century industrial and commercial land preservation strategy based on market viability and future land use vision for Growth Areas. (pg. 11)

Future Land Use Plan (Map and Land Use Categories)

Not applicable.

Other Specific Guidance

Area Plans

Not applicable.

Implementation Strategies

Not applicable.

Needs Assessment or Other Market-Based Analysis

Not applicable.

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Districts

One industrial park district exists in Worcester, IP-0.33: Light Industrial. The purpose statement for this district is unavailable on the city's website. Worcester also has an overlay district that permits a range of uses:

Adaptive Reuse Overlay District (AROD). The purposes of the AROD are: 1. Provide for the coordinated and mixed development of residential, business, industrial, manufacturing, and institutional uses; 2. Encourage adaptive reuse of abandoned, vacant, or underutilized businesses or manufacturing buildings

3: Survey of Industrial Policies and Regulations in Other Jurisdictions

Other Formerly Industrial Locations (Northeast, Mid-Atlantic, and Southeast)

or structures; 3. Create major new mixed used areas in planned locations at appropriate densities, heights and mixtures of use; and 4. Encourage flexibility in architectural design, restoration and building bulk.

Allowed Uses

Permitted residential uses in the IP 0.33 district include family day care homes, group residences (general or limited) and temporary shelters requiring a special permit. Very few business uses are permitted by right in the IP 0.33 District, limited to credit unions with drive-throughs, radio/tv studios, research labs without manufacturing abilities, and wholesale business or storage within an enclosed structure.

Additional Examples: Western States

Key Themes

Many recent plans and codes for communities in western states have placed a strong emphasis on understanding regional demand for industrial and employment uses, establishing clear policy guidance to retain/expand those uses (or not), and adopting regulations that support those strategies. Often, these recommendations are informed by market-based land demand and capacity analyses.

Albuquerque/Bernalillo County, New Mexico

[COMPREHENSIVE PLAN \(2017\)](#)

Industrial Trends/Land Capacity

The Land Use Element of the Comprehensive Plan includes an analysis of vacant and undeveloped land and identifies Areas of Change and Areas of Consistency to help inform land use recommendations. The Economic Element notes, “Having an adequate inventory of land, buildings, and infrastructure is critical to support and attract new business investment across the region. In addition to encouraging business investment and growth, it is important to balance the supply and demand for non-residential development in different areas.”

Goals and Policies

Goal: Create Employment Centers that prioritize employment opportunities and foster synergy among businesses.

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Until 80 percent of the available land in Employment Centers has developed with uses associated with employment opportunities, discourage residential uses on the ground floor.

After employment has been established on 80 percent of the available land, encourage mixed-use development to introduce high-density residential uses that bring housing to jobs.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

Prioritize industrial employment in areas with good connectivity for freight routes.

Reassess zoning capacity every five years for at least 20 years of growth within Centers, Corridors, and City Areas of Change.

Future Land Use Plan (Map and Land Use Categories)

The Vision Map identifies a hierarchy of centers and corridors that are intended to accommodate higher intensity development. This hierarchy includes a number of Employment Centers:

Employment Centers are intended to remain predominately industrial, business, and retail centers.

Employment Centers tend to be auto-oriented and need to provide excellent access for trucks and connections for freight. For this reason, Employment Centers should be located near major intersections or along highways or major arterials. Additionally, because land uses are typically separated by parking

lots or arterial roads, street design should emphasize efficient movement of vehicles and pedestrian accommodation within business parks. Once Employment Centers are largely developed, it may be appropriate and beneficial to introduce mixed-use and/or higher-density residential development.

Other Specific Guidance

Area Plans

Albuquerque/Bernalillo County maintain an extensive library of sector plans that provide area-specific policy guidance.

Implementation Strategies

N/A

Needs Assessment or Other Market-Based Analysis

See above.

Case Studies

N/A

ZONING ORDINANCE

Industrial uses are designated to the following five districts in Albuquerque:

MX-H Mixed-use – High Intensity: The purpose of the MX-H zone district is to provide for large-scale destination retail and high-intensity commercial, residential, light industrial, and institutional uses, as well as high-density residential uses, particularly along Transit Corridors and in Urban Centers. The MX-H zone district is intended to allow higher-density infill development in appropriate locations.

NR-C Non-residential – Commercial: The purpose of the NR-C zone district is to accommodate medium-scale retail, office, commercial, and institutional uses, particularly where additional residential development is not appropriate or not desired because of a deficit of jobs or services in relation to housing units in the area. Primary land uses include a wide spectrum of retail and commercial uses intended to serve both neighborhood and area-wide needs, as well as some light industrial uses.

NR-BP Non-residential – Business Park: The purpose of the NR-BP zone district is to accommodate a wide range of non-residential uses in campus-like settings to buffer potential impacts on surrounding uses and adjacent areas. Allowable uses include a wide variety of office, commercial, research, industrial, distribution, showroom, processing, and institutional uses.

NR-LM Non-Residential – Light Manufacturing: The purpose of the NR-LM zone district is to accommodate moderate-intensity commercial, light assembly, fabrication, and manufacturing uses, while buffering adjacent lower-intensity, Residential and Mixed-use zone districts from the traffic, noise, and other impacts of those uses.

NR-GM Non-residential – General Manufacturing: The purpose of the NR-GM zone district is to accommodate a wide variety of industrial, manufacturing, and heavy commercial uses, particularly those with noise, glare, or heavy traffic impacts, in areas separated from Residential and Mixed-use areas and less intense, lighter impact businesses.

Allowed Uses

Residential uses such as townhouses, live-work, multi-family, and several group living facilities are permitted by right in the MX-H district. Residential uses are not permitted in the NR-C, NR-BP, NR-LM, or NR-GM; however, live-work dwellings are permitted as a conditional accessory use in both the NR-C and NR-BP districts. A mix of civic and institutional and commercial are permitted in each district.

Las Vegas, Nevada

2050 MASTER PLAN (2021)

The City of Las Vegas adopted a new Master Plan in 2021, replacing a 20-year old plan.

Industrial Trends/Land Capacity

The City retained a local economic consultant as part of the Master Plan process to evaluate trends and document capacity, that noted: “As large national retailers, corporate chains, and businesses have felt pressure from consumers and have made decisions to close “brick and mortar” locations as they adapt to rapidly changing economic conditions, commercial properties, shopping centers, and retailers have left a wide range of vacant spaces available.”

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

Ensure redevelopment and infill development are directed to appropriate locations within those place types once evaluated for compatibility and suitability to job creation. (3-41)

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

Direct appropriate defense, UAV, automation, and technology businesses requiring large footprints to the Congressionally designated job creation zone within the Nu Wav Kaiv area in northwestern Las Vegas as infrastructure is developed and extended to the area. (3-41)

Future Land Use Plan (Map and Land Use Categories)

The Future Land Use Plan identifies one Industrial land use category, but identifies a range of industrial, commercial, and mixed-use zone districts as compatible.

Other Specific Guidance

Area Plans

The Master Plan provides tailored land use recommendations by sub-area.

Implementation Strategies

Consider selective expansion of redevelopment areas consistent with Land Use goals and the 2050 General Plan to ensure redevelopment, small business development, and the ability to attract major large employers that are aligned with the Comprehensive Economic Development Strategy (CEDs). (3-42)

Needs Assessment or Other Market-Based Analysis

See above.

Case Studies

The Master Plan highlights a series of infill/redevelopment catalyst sites as case studies.

ZONING ORDINANCE

To support the implementation of the 2050 Master Plan, the City of Las Vegas initiated a project (with support from Clarion) to align and update portions of the Unified Development Ordinance (UDO) related to industrial uses and zoning districts. Although the primary focus of the project was the uses allowed in the C-M and M districts and the development standards related to those uses, Clarion also evaluated whether some uses currently allowed in only those districts have such minor impacts to neighboring areas that they should be permitted in other commercial districts, and what additional or different development standards should apply in those cases.

The goal of this effort was to ensure that (1) Las Vegas remains competitive in attracting and retaining industrial and commercial-industrial uses; (2) the City is not over-regulating those uses based on past assumptions about their impacts that are no longer accurate; (3) the regulations are tailored to the inventory of industrial lands available in the City, which are generally smaller and more embedded in surrounding development than those in surrounding Clark County; and (4) the actual likely impacts of those uses on surrounding areas are avoided or mitigated.

Recommendations addressed allowed uses, development standards, and a range of other considerations based on a review of industrial districts in comparable communities. Targeted updates to the UDC were adopted in July 2023.

Zoning Districts

Las Vegas has two industrial districts:

C-M – Commercial/Industrial: The C-M District is a general commercial and restricted industrial district designed to provide for a variety of compatible business, warehouse, wholesale, office and limited industrial uses. This district is intended to be located away from areas of low and medium density residential development. The C-M District is consistent with the Light Industry/Research category of the General Plan.

M - Industrial: The M District is intended to provide for heavy manufacturing industries in locations where they will be compatible with and not adversely impact adjacent land uses. This district is intended to be located away from all residential development. The M District is consistent with the Light Industry/Research category of the General Plan.

Allowed Uses

Residential uses are not permitted in either district. A mix of commercial, retail, and civic uses are permitted in both districts.

Reno, Nevada

REIMAGINE RENO MASTER PLAN (2018)

Industrial Trends/Land Capacity

As an initial step in the Master Plan update, the City retained an economic consultant to conduct a market-based needs assessment for residential and non-residential development. This information was

used to inform the development of a new Economic Element in the Master Plan, future growth scenarios, and ultimately, updates to the Future Land Use Map. One of the key objectives for this analysis was to help clarify the role of the remaining industrial land in the City versus that of industrial lands in other parts of the region—essentially, to what extent should the City seek to retain its remaining industrial lands, and for what purpose.

Goals and Policies

Conversion or Adaptive Reuse of Vacant or Underutilized Industrial Buildings

DTRC-ID.3: RELATIONSHIP OF USES. Provide flexibility for the adaptive reuse of existing industrial buildings and for the incorporation of high-density residential and live/work opportunities in the Innovation District in configurations. (This policy applies within one of several subdistricts in the larger Downtown area - a mixed-use designation.) (pg. 107)

Redevelopment of Industrial Buildings for Residential or Mixed-Use Development

See above.

Guidance Regarding the Retention of Industrial Land (or Compatibility with Industrial Land)

The economy element of the Master Plan (Citywide Policies | GP1: Resilient Local and Regional Economy) establishes a guidance for employment uses within the City of Reno that complement regional and state economic development priorities. Relevant goals and policies include:

1.2B: Modern Industrial Hub. Support the continued growth of the city’s logistics and manufacturing industries and leverage the region’s infrastructure and assets to broaden the economic base through attraction of advanced manufacturing employers and modern logistics operations.

1.2D: Employment Centers. Plan, invest in, promote, and incentivize the creation and improvement of cohesive employment areas with diverse functions (as defined by the Structure Plan), and clearly identify where specific employment uses are desired and where infrastructure, housing, services, and amenities that support businesses exist or are planned.

1.2E: Proactive Investment. Proactively invest in infrastructure and amenity projects, using the capital improvement plan, sewer capital fund, and other public funding and financing tools that will enhance the attractiveness of high priority employment areas in coordination with public and private partners, when possible.

1.2F: Encroachment. Protect industrial areas and employment centers from encroachment by potentially incompatible land uses or conversion to alternative uses.

EA-ILA.3: RESIDENTIAL COMPATIBILITY Concentrate taller buildings away from adjacent residences (stepping down building heights along shared property lines) and mitigate noise, odor, lighting, and other potential impacts so as to minimize conflicts. Where industrial/logistics areas abut unincorporated land that is planned for future residential, anticipate potential future impacts and take steps to mitigate them, such as through the incorporation of a buffer that is retained for open space.

Future Land Use Plan (Map and Land Use Categories)

Structure Plan Map

The Structure Plan map identifies generalized areas for different types of development. It is supported by a more detailed Future Land Use Map. The Structure Map includes three categories of employment areas:

Industrial/Logistics Areas. These areas are oriented towards industrial, manufacturing, and logistics uses. Uses include a mix of large footprint warehouse/flex space, manufacturing facilities, and smaller ancillary and supporting industrial, commercial, and office uses. Residential uses are generally not supported due to compatibility issues; however, access to housing options and services within close proximity of industrial/logistics areas plays an important role in supporting live-work opportunities for the local workforce and reducing the need for cross-town trips.

Innovation Areas. These areas support ongoing education, research, entrepreneurship, business incubators, and other endeavors that seek to turn knowledge into products, processes, and services. A range of academic/institutional uses, research facilities, new forms of workspace (e.g., co-working spaces, make spaces, etc.) as well as higher-density residential types (including student housing), and supporting office, retail, and other commercial uses are encouraged in innovation areas.

Airport Transportation Areas. This designation is intended to support a broad range of transportation, service, and employment uses that complement and are compatible with Reno/Tahoe Airport Authority's core mission of maintaining and expanding aviation services and facilities to meet regional demand. To protect the functions of existing and future airport operations, residential uses and other incompatible uses that could negatively impact safe aviation operations are not allowed. Areas directly adjacent to airport transportation areas (and some portions of RTAA properties) have the highest densities of manufacturing and distribution employment within the city.

Other Specific Guidance

Area Plans

Area-specific policies (design principles) are provided for each category of uses identified on the Structure Plan map. These principles were used to inform updates to the zoning regulations.

Implementation Strategies

The Master Plan includes numerous strategies to support the implementation of policies for the City's employment areas.

Needs Assessment or Other Market-Based Analysis

This work was completed in conjunction with the capacity analysis described above.

Case Studies

Not applicable.

ZONING ORDINANCE

Industrial Districts

Industrial uses are split into two industrial districts in Reno, I: Industrial and IC: Industrial Commercial.

I: Industrial: The I district is intended to accommodate intensive land uses that require mitigation of impacts, including the heaviest industrial uses. Sites are commonly comprised of large footprint buildings designed for warehousing, flex space, manufacturing, and supporting office uses. This district should be located in areas with access to air, roadway, and/or railway transportation systems. This zoning district should be separated from residential development and schools by natural and man-made buffers.

IC: Industrial Commercial: The IC district is intended to provide for a mix of industrial, research and development, and commercial uses. Sites are commonly comprised of moderate-footprint buildings (generally less than 500,000 square feet) designed for warehousing, flex space, manufacturing, and supporting office uses. This zoning district should be separate from residential development by natural and man-made buffers.

Allowed Uses

Residential uses are prohibited in both the I and IC districts. Several commercial uses are permitted including restaurants, call centers, offices, and general retail

4: Recommendations

General Recommendations

This section provides a summary of our general recommendations for Fairfax County regarding industrial land uses and recommendations for targeted updates to the County's Comprehensive Plan and Zoning Ordinance. These recommendations are based on our review of industrial trends nationally and within the Northern Virginia/Metro DC region, a survey of industrial policies and regulations in other jurisdictions, and our collective experience developing comprehensive plans and zoning codes for jurisdictions across the country. Not all of these recommendations will apply in all areas of Fairfax County. Circumstances will vary at the Special Planning Area and land unit level and recommendations should be tailored to the local context.

While recommendations specific to the Comprehensive Plan or Zoning Ordinance are provided in some instances, other recommendations apply more broadly to both policies and regulations. Generally, we recommend that a market-based capacity and needs assessment for industrial lands in the County be performed to help further inform the application of these recommendations and future updates to the County's Comprehensive Plan along with possible amendments to the Zoning Ordinance.

Retain existing industrial land in designated Industrial Areas to the extent practicable.

There is a limited supply of industrially zoned land in Fairfax County and much of the industrial land that is vacant or underutilized consists of small parcels. While these parcels generally cannot meet the demand for warehouse and distribution or data center space, there are other growing industries that could use such parcels, including high tech manufacturing and small-scale artisanal production. There may also be demand for these smaller parcels from limited-scale light industrial firms, such as HVAC contractors. These industries may be able to occupy some of the County's vacant parcels, or they may pursue opportunities for redeveloping parcels that are dilapidated, prime for revitalization, or underutilized. If the cost for doing so is favorable, industries seeking larger sites may also pursue opportunities for consolidation and redevelopment. Finally, the County may also consider expanding permissions to allow light industrial firms with limited needs for outdoor storage to expand into some commercial zones as well.

Regardless of the particular industry, trends indicate that there will be demand for the County's existing industrial land, and the County's 2017 Policy Plan identifies the need to maintain a balance of residential and non-residential uses (including industrial development). The Comprehensive Plan also identifies three areas of particular importance for Industrial Development: Beltway South, I-95 Corridor, and Ravensworth, which provides potential tenants or developers with some degree of assurance that industrial uses will be accommodated and that potential conflicts with their business operations will be minimized in these Special Planning Areas.

While there may be instances when the conversion of a parcel from industrial to residential makes sense, such requests should be evaluated with the long-term viability of adjacent industrial uses in mind, and the recognition that in an urbanized/urbanizing area such as Fairfax County, once industrial land is converted to other zoning or other uses, it can rarely be re-established as industrial land.

Potential Plan Amendment

Review and update policies for the Beltway South, I-95 Corridor, and Ravensworth Industrial Areas to discourage the conversion of industrial land for residential uses. Where exceptions may be applicable due to a site's access, proximity to residential uses, or other factors, address these possibilities at the Land Unit Level.

Review and consider updates to Special Planning Areas (outside of designated Industrial Areas) that have concentrations of industrial uses, to clarify if the intent is to maintain and preserve these concentrations, or to encourage them to convert to other uses.

This recommendation refers to the Tysons Urban Center, Dulles (Route 28 Corridor) Suburban Center, and the various Special Planning Areas along the Metro Orange Line and Silver Line/Dulles Toll Road.

While many of the County's industrial parcels are concentrated in Special Planning Areas such as the I-95 Corridor or in portions of the Dulles Suburban Center area, there are other industrial parcels scattered in various locations around the County. Many of these sites, in Tysons, Merrifield, Springfield, and other dispersed locations, appear to be surrounded by non-industrial land. Their zoning may be a reflection of how the parcels were being used at the time zoning was applied, but given their surroundings, this may be increasingly out of character with the kind of development that has occurred in or is planned for an area.

Tysons Urban Center

Heavier industrial zoning (I-5 and I-6) seems out of character with development in the Tysons area, designated as the only Urban Center in the County. Given the evolution of the Tysons area and recent planning updates that sought to reflect such changes in development focus, the remaining industrial parcels may be better employed for other uses more aligned with the residential and commercial character of the area. Rezoning requests in this area – and others where isolated industrial parcels are no longer aligned with nearby land uses – could be encouraged to bring these parcels into better alignment with their surroundings.

Dulles Suburban Center

The Special Planning Area for the Dulles (Route 28 Corridor) Suburban Center acknowledges that the area is “one of Fairfax County's largest employment areas,” which includes the Westfields Business Park. There is a long history of planning for the area, dating back to the 1950s, when land was “planned for employment or industrial use since the airport was envisioned...” Over time, more residential development has occurred in the area, producing a mix of uses with more intense commercial and industrial uses along the transportation corridors, and residential filling in other areas. The Comprehensive Plan acknowledges that as of 2015, “approximately 75 percent [of the area] was zoned for commercial or industrial use.” Even so, as of the most recent update in 2018, more emphasis is placed in a mix of uses than on maintaining this concentration of employment and industrial land. While Chantilly is included in the planning area, there is little to no mention of the concentration of industrial uses in that area, or recognition of its desirability as a location for industrial uses. Land Units H and I within the Dulles (Route 28 Corridor) Suburban Center are delineated on the Comprehensive Plan Map as Industrial; however, they are not distinguished as an Industrial Area on the Comprehensive Plan Special Planning Areas Map. Policies for both land units acknowledge the presence of industrial uses, but also encourage a mix of commercial and office uses. The preservation of industrial uses in this location is not identified as a

priority. Land Unit J in the Dulles (Route 28 Corridor) Suburban Center—just south of Land Units H and I—was recently replanned to encourage a mix of uses, and is designated as mixed uses on the Comprehensive Plan Map.

This creates confusion: should Land Units H and I be shown as an Industrial Area on the Comprehensive Plan Special Planning Areas Map to reflect the Comprehensive Plan Map and zoning, or is the objective for land use in this area to change over time, coming more into alignment with the suburban mixed-use vision of the plan? If so, that may represent a reduction of employment land -- or at least a change to lesser intensity employment uses -- in the area, and the plan should be explicit about that policy direction. We think it would be worthwhile to reconcile potential discrepancies between current use and future policy direction for the areas within this planning area -- including a more explicit explanation of plans and goals for development in and around Chantilly and Westfields. If there is debate about what the emphasis for land use should be, we suggest that, given the concentration of existing non-residential uses, and in recognition of the on-going need for non-residential support services for nearby Dulles airport, this is one of the areas where the County should strive in particular to maintain a supply of industrial land.

Orange Line and Silver Line Transit Station Areas

The same sort of discrepancy exists with these plan areas (Merrifield, Reston Town Center, Herndon, Wiehle-Reston East, and Innovation Center) and the existing zoning and land uses along the Metro Orange Line and Dulles Toll Road/Metro Silver Line corridors. Merrifield is generally located south of Interstate 66 (I-66), north of Woodburn Road, west of Holmes Run, and east of Long Branch Stream Valley and Prosperity Avenue and encompasses the Dunn Loring Merrifield Metrorail station. The area is zoned for office, retail, residential, and light industrial west of Interstate 495. The plans and maps emphasize mixed-use development. The Dulles Toll Road/Metro Silver Line corridor stretches from the County's western boundary, east along 267 for approximately 10 miles until the intersection with Hunter Mill Road, the majority of the zoning on the south side of 267 is industrial, alternated with Planned Development. The plans and maps for these areas, conversely, emphasize transit-oriented mixed use and residential development. Given the plan direction and the evolution of land use in this corridor, it may be another area where rezoning requests are viewed favorably. Incremental changes over time will likely bring this area into closer alignment with the Planning Area vision, with more transit-oriented mixed use, including residential development alongside office and institutional development, with some remaining industrial.

Potential Plan Amendment

- Review and update the portions of the Comprehensive Plan/Special Planning Areas that have concentrations of industrial uses/industrial zoning to clarify the future land use vision and policy guidance for each area.
- Review and update the Dulles Suburban Center, Merrifield, Reston Town Center, Herndon, Wiehle-Reston East, and Innovation Center portions of the Comprehensive Plan that have concentrations of industrial uses/industrial zoning that are desirable to retain.
- Clarify the future land use vision and policy guidance for each area to discourage conversion of industrial lands outside of defined transit station areas. This may be accomplished by designating portions of the areas that are predominantly industrial (and desirable to retain as industrial) as Industrial Areas on the Comprehensive Plan Special Planning Areas Map, as well as through the adoption of stronger policies regarding the importance protecting industrial land for applicable Land Units. Land Units H and I in the Dulles Suburban Center should be a priority.

Expand criteria for requests to replan industrial land for residential development.

Many of the Objectives and Policies in the Housing Element of the Comprehensive Plan focus on the provision and retention of affordable housing. While there is greater detail related to the general expansion of housing – not just affordable units – in the Appendices and Special Planning Areas, we do highlight the policy below, on account of its relevance to requests to replan industrial land to allow residential development.

Policy d. Do not approve residential rezoning applications above the low end of the Plan range, unless an appropriate commitment of land, dwelling units, and/or a cash contribution to the Housing Trust Fund is provided. For further guidance, see the Residential Development Criteria.

Potential Plan Amendment

This policy could be amended in two ways to ensure that when requests are made to replan existing industrial land for residential use, the Plan amendment nomination would be tied to commensurate community benefits being provided. First, nominations could be expected to meet the high end of the density range, rather than the low end. Second, nominations could be subject to additional criteria to be accepted for consideration. For example, a higher percentage of affordable units could be recommended, or affordable units could be recommended to reach a lower threshold of AMI. Additional criteria should also consider changes to tax revenue that would occur from the conversion of commercial or industrial to residential due to state code provisions.

5: Appendix: Current Industrial Policies and Regulations in Fairfax County

This section provides a brief summary of Fairfax County’s current policies and regulations for existing and future industrial development.

Fairfax County Policy Plan (2017 Edition)

Goals and Policies

The Preface to the 2017 Policy Plan establishes 18 goals to provide focus for the objectives and policies in other plan elements. Direct references to land use considerations for industrial development appear in four of the 18 goals:

Quality of Life. The primary goal of Fairfax County’s policies and priorities is to...achieve an outstanding quality of life through *a balance between access to convenient multi-modal transportation and residential, commercial, and industrial development.*

Land Use. Growth should take place in accordance with criteria and standards designed to *preserve, enhance, and protect an orderly and aesthetic mix of residential, commercial/industrial facilities, and open space* without compromising existing residential development.

Revitalization. Fairfax County should encourage and facilitate the revitalization of older commercial and residential areas...revitalization initiatives should encourage business development, promote public and private investment and reinvestment, and *seek to prevent or eliminate the negative effect of deteriorating commercial and industrial areas.*

Private Sector Facilities. Fairfax County should continue to *encourage the development of appropriately scaled and clustered commercial and industrial facilities* to meet the need for convenient access to goods and services and to employment opportunities.

Land Use Element

Objective 3: Fairfax County should maintain a supply of land sufficient to meet the need for housing, commercial, industrial, institutional/public services, and recreational and leisure activities to support the Comprehensive Plan.

Policy a. Conduct a comprehensive community needs assessment, at least once every five years, to determine future land requirements to meet adopted county goals.

Objective 11: Redevelopment of existing residential neighborhoods...

Policy b. Ensure that redevelopment of existing residential neighborhoods for commercial/industrial uses provides affordable dwelling units or a contribution to the Fairfax County Affordable Housing Trust Fund equal, at minimum, to the replacement value of all affordable units displaced.

Appendix 12: Guidelines for higher intensity within areas planned for industrial uses. Appendix 12 acknowledges the potential for changes in technology and market demand, and the need to provide more flexibility to allow certain uses, such as data centers and self-storage facilities, to be built at higher intensities within areas planned for industrial uses on the Comprehensive Land Use Plan Map. The appendix establishes performance criteria to guide the review of proposed uses, to address the

following potential impacts: traffic volumes; noise, light, and other environmental impacts; visual impacts (building design); lot size and parcel consolidation; and site-specific considerations related to circulation and access, parking, landscaping, and stormwater management. Opportunities for higher intensity uses are excluded in areas with a baseline Plan recommendation for industrial uses.

Appendix 13: Guidelines for commercial building repurposing. Appendix 13 establishes flexibility to accommodate the repurposing of older commercial, office, retail, or service buildings that have been vacant for an extended period, or are otherwise considered obsolete. Light industrial uses, such as industrial/flex or light manufacturing are identified as appropriate for the reuse of outmoded office or retail buildings in a number of locations, subject to performance standards. Standards are similar to those outlined in Appendix 12, but also address potential impacts to: schools, parks, and other public facilities; energy efficiency and green building practices; and historic preservation.

Economic Development Element

Objective 1: Provide an environment where businesses flourish and jobs are created.

Policy g. Plan for sufficient land suitable for economic development to be available in appropriate locations throughout Fairfax County.

Comprehensive Land Use Plan (Map and Land Use Categories)

The Comprehensive Land Use Plan includes one industrial land use category, which encompasses 3,012 acres or 1.53% of the total land area in Fairfax County. Definitions are not provided for the individual land use categories illustrated on the map; however, the Plan glossary provides the following guidance:

Industrial Uses: The types of uses intended for industrial areas are generally regulated more strictly due to their anticipated impacts to adjacent areas. This category is not appropriate for residential uses and limits future office uses to those which are ancillary to industrial use.

Special Planning Areas / Industrial Areas

The Comprehensive Land Use Plan provides more detailed policy guidance and land use recommendations for each of Fairfax County's 14 Planning Districts, as well as sub-geographies within each district. The Plan identifies three sub-geographies as priority locations to retain for industrial uses (Beltway South, Ravensworth, and the I-95 Corridor) and notes that office and commercial areas uses should generally be limited in designated Industrial Areas. In addition, large portions of the Dulles Suburban Center are designated for industrial uses. A brief summary of each area is provided below.

BELTWAY SOUTH INDUSTRIAL AREA

The majority of the Beltway South Industrial Area is located in the Annandale Planning District (with a small portion located in the Lincolnia Planning District). It includes a mix of industrial, office, and research and development facilities. Warehouse uses are prevalent, along with processing and manufacturing uses. Major objectives for the area are to:

- Ensure the compatibility of infill uses;
- Ensure appropriate transitions towards the periphery adjacent to existing residential development; and

- Monitor environmental quality and safety of specific industrial areas.

RAVENSWORTH INDUSTRIAL AREA

The Ravensworth Industrial Area is located in the Annandale Planning District, and is characterized by a mix of warehouse/distribution uses with some medium intensity offices. The area abuts established residential uses on three sides, and the Ravensworth Shopping Center. Major objectives for the area are to:

- Preserve the present community-serving, lower intensity industrial uses;
- Ensure the compatibility of infill uses within the Industrial Area; and
- Ensure appropriate transitions towards the periphery adjacent to existing residential development by providing buffering and screening greater than required in the Zoning Ordinance.

I-95 CORRIDOR INDUSTRIAL AREA

The I-95 Corridor Industrial Area is located in the Springfield Planning District, and is characterized by a predominance of industrial, warehouse, fuel storage, vehicle repair, wholesale and commercial retail, flex-space, and office uses. Major objectives for the area are to:

- Retain suitable locations for industrial uses;
- Redevelop the blighted industrial areas along Cinder Bed Road and the Long Branch of Accotink Creek north of Blacklick Road; and
- Protect environmental quality corridors and provide public trail access.

DULLES SUBURBAN CENTER

The Dulles Suburban Center abuts the eastern and southern boundary of Washington Dulles International Airport, and is one of Fairfax County's largest employment areas. The Center includes a mix of mid-rise office, industrial, and industrial/flex development that serves local and regional communities, as well as pockets of residential, mixed-use development, and public facilities. Industrial-related objectives for the area are to:

Objective 6. Provide flexibility for economic enterprises attracted to the Dulles Airport area by encouraging a mix of land uses compatible with and that bolster Dulles Airport operations and the existing industrial and office uses.

Objective 15. Support Dulles Airport operations and future expansion by ensuring land use compatibility and retention of industrial land uses within the Dulles Suburban Center.

Zoning Ordinance (2022)

Industrial Zoning Districts

The Fairfax County Zoning Ordinance includes six industrial zoning districts:

Industrial Institutional District (I-I). Provides for intense office and office-related uses in a campus-like or institutional setting. Uses are generally limited to office uses and supporting nonresidential uses with enhanced site layout and building design quality.

Low Intensity Industrial District (I-2). Provides areas for scientific research, development and training, offices, industrial flex, small-scale production, and manufacturing incidental and accessory to those types of uses. The I-2 District is designed to promote an industrial park atmosphere for the conduct of research-oriented activities and other similar uses. Development will incorporate enhanced building and site design, and performance standards in this district will ensure that development is compatible with surrounding uses.

Light Intensity Industrial District (I-3). Provides areas for scientific research, development and training, offices, light-intensity production of goods, and related supply and supporting nonresidential activities. This district is designed to provide for a broad spectrum of clean industries operating under enhanced performance standards.

Medium Intensity Industrial District (I-4). Provides for a wide range of industrial uses such as scientific research, development and training, offices, medium-intensity production of goods, and related supply and supporting nonresidential activities at a greater intensity of development than is allowed in the I-3 District.

General Industrial District (I-5). Provides for a wide range of industrial and industrially-oriented business activities. Uses must minimize noise, smoke, glare, and other environmental pollutants on the uses within the district and on neighboring areas. Other nonresidential uses generally provide services and supplies to industrial companies, engage in wholesale operations, and are associated with warehouse establishments.

Heavy Industrial District (I-6). Provides for heavy industrial activities. Uses and activities that may require noise, vibration, intensive traffic, and other environmental pollutants are tolerated and are subject to minimum performance standards. The I-6 District is intended for use by the largest manufacturing operations, heavy equipment, construction and fuel yards, major transportation terminals, and other basic industrial activities required in an urban economy.

PERMITTED USES

Permitted uses in the six industrial zoning districts vary by district, but generally include a mix of industrial; commercial (including office); and public, institutional, and community uses. Aside from a residence for a manager or employee, religious group living in conjunction with and contained within the same structure as a religious assembly use, and residence halls in conjunction with a private school, college, or university, residential uses are not permitted. Residence halls and religious group living are limited to the I-2, I-3, and I-4 districts. Uses in the Industrial Uses classification are primarily limited to industrial districts, but some are also allowed in certain commercial districts (e.g., goods distribution hub, craft beverage production establishment, and small-scale production establishment).

USE STANDARDS

Use-specific standards apply to most industrial uses. Standards also apply to some non-industrial uses in industrial districts (e.g., limitations on the size and location of restaurants or personal services in relation to primary uses).

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