

KCMO 2025 Zoning and Development Code Update

Best Practices

April 2025

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BACKGROUND

PROJECT PURPOSE

As Kansas City receives development proposals for some of the largest industrial buildings in its history, the City is proactively updating its zoning code to establish standards to regulate and mitigate these developments. The code update effort aims to create regulations for “large format uses” (LFUs) through a collaborative process that integrates input from developers, City staff, and the community, ensuring alignment and balance among all stakeholders. The initiative includes this *Best Practices Report* to outline strategies and policies tailored to Kansas City’s needs, an *Available Land Analysis* to identify potential sites for LFUs, and code amendments to establish new provisions for LFUs.

Through these anticipated code amendments, Kansas City will become a pioneer in formally defining “large format uses”. This effort will also create definitions for any other related uses or subcategories that may emerge during the process, such as data centers or varying building area thresholds for LFUs. Additionally, the code update will determine appropriate zoning districts for LFUs and introduce supplementary use regulations to promote high-quality development. These regulations will encourage environmental sustainability, architectural innovation, community context, and transportation network readiness. Together, these measures position Kansas City as a leader in modern, balanced urban development.

KC SPIRIT PLAYBOOK RECOMMENDATION SUMMARY

The KC Spirit Playbook (“Playbook”) is Kansas City’s comprehensive plan for the next 20 years, guiding decisions on development, investment, codes and standards, and much more for future generations. The KC Spirit Playbook Implementation Dashboard was analyzed to identify objectives, key concepts, community supported actions, and measures of success which support the large format use updated code regulations. This is a crucial process of the code update to align the zoning code with the newly adopted comprehensive plan, realizing the vision of the KC Spirit Playbook. Table 1 summarizes key areas of the KC Spirit Playbook that will be completed or supported by the large format use code update.

TABLE 1: KC SPIRIT PLAYBOOK OBJECTIVES IN SUPPORT OF LFUS

Objective	Key Concept	ID	Community Supported Actions
Development Patterns	Develop the tools needed to evaluate fiscal and environmental impacts of future development and infrastructure investment	DP-6	Assess the impacts of large format uses that consume substantial amounts of land and energy with a low density of employment. Identify criteria for appropriate location, development code considerations, and strategies to mitigate environmental impacts
Development Patterns	Develop the tools needed to evaluate fiscal and environmental impacts of future development and infrastructure investment	DP-4	Establish a procedure to conduct periodic reviews of city codes related to development (zoning and subdivision) to identify amendments that would promote the goals of this objective and the KC Spirit Playbook.
Development Patterns	Develop the tools needed to evaluate fiscal and environmental impacts of future development and infrastructure investment	DP-10	Explore development code amendments that ensure new development is in harmony with natural systems and sensitive habitats.
Quality Development	Ensure Quality Development by Updating the City's Development Form Guidelines and Adopting New Development Standards	QD-3	Adopt new development standards for all areas and establish a minimum level of design quality
Quality Development	Remove Barriers and Obstacles to Quality Development and Infill Development	QD-13	Periodically review the City's development and permitting processes. Implement changes needed to make the development and regulatory process efficient and clear and to minimize confusion or delays in the development process.
Movement of Goods	Develop Freight Routing and Investment Plan	MG-2	Promote truck routes through appropriate channels, including outreach to business groups, intermodal facilities, major operators and industrial/warehousing centers

CHARACTERISTICS OF EXISTING LARGE FORMAT USES

The project team collaborated with City staff to identify approved and completed developments that would qualify as large format uses for an analysis of patterns and characteristics. The 18 buildings listed in Table 2 below were selected as LFU case study buildings based on their land use (industrial) and the size of building (above 250,000 square feet). They are grouped by geography (North or South), then listed in order of largest building square footage to smallest. The selected projects are geographically diverse, ranging from developments in largely undeveloped areas near Kansas City International Airport to infill projects, such as the Blue River Commerce Center near 95th Street and Troost Avenue. Further analysis identified each building's zoning district, building area statistics, access to arterial and collector roads, proximity to incompatible uses, and patterns of architectural style and design.

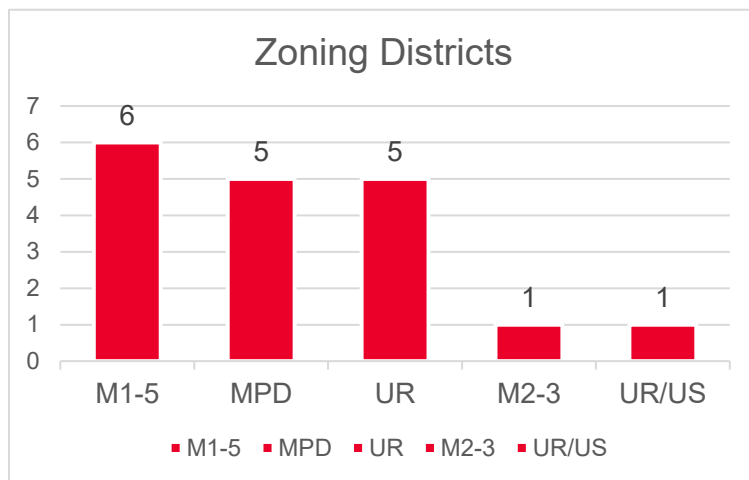
TABLE 2: KCMO LFU CASE STUDIES

Site Name	Address	Geography	Zoning	Use	Bldg Area (Sq. Ft.)
Meta Data Center - Kansas City (KCM)	801 NW 128th St	North	MPD	Data Center	1,880,642
Ace Hardware Distribution Center	13231 NW Roanridge Rd	North	MPD	Distribution Center	1,536,045
Grainger Distribution Center	11200 NE M 210 Hwy	North	M1-5	Distribution Center	1,313,698
CVS Health Distribution Center	10711 N Congress Ave	North	M2-3	Distribution Center	749,153
Hunt Midwest	9555 NE 48th St	North	UR/US	Flex Industrial	503,251
I-49 Industrial Bldg. 7	14901 Botts Rd	South	M1-5	Flex Industrial	935,653
Sioux Chief Manufacturing Facility	14940 Thunderbird Rd	South	M1-5	Industrial Center	574,950
3 Trails Industrial Center	8701 Elmwood Ave	South	MPD	Flex Industrial	502,857
Blue River Commerce Center Bldg III	1550 E 94th St	South	UR	Distribution Center	467,471
Blue River Commerce Center Bldg II	1300 E 94th St	South	UR	Distribution Center	441,473
Niagara Bottling LLC	4000 E 149th St	South	M1-5	Manufacturing	428,036
Blue River Commerce Center Bldg IV	1800 E 94th St	South	UR	Distribution Center	395,468
4001 E 149th St	4001 E 149th St	South	M1-5	Distribution Center	372,209
3 Trails Industrial Center	8700 Elmwood Ave	South	MPD	Flex Industrial	365,695
3 Trails Industrial Center	8750 Elmwood Ave	South	MPD	Flex Industrial	333,013
Centerpoint Intermodal	3500 E 149th St	South	M1-5	Flex Industrial	303,551
Blue River Commerce Center Bldg I	9311 Troost Ave 400	South	UR	Distribution Center	248,566
Blue River Commerce Center Bldg V	1301 E 94TH St	South	UR	Distribution Center	203,728

BUILDING SIZE CHARACTERISTICS

Average Bldg Size (Sq Ft)	Median Bldg Size (Sq Ft)	Largest EXISTING Bldg Size (Sq Ft)	Smallest Bldg Size (Sq Ft)
641,969.88	454,472.05	1,313,698 (Grainger Distribution Center)	203,728 (Blue River Bldg V, on site with 4 other larger buildings)

ZONING CHARACTERISTICS



LOCATION CHARACTERISTICS

- All case study LFUs have direct access to an arterial or a collector roadway and are near a highway interchange.
- All case study LFUs are within 500 feet of residential uses or other sensitive uses. Some case study LFUs are in closer proximity to parks.

ARCHITECTURE & SITE DESIGN

A majority of these buildings utilize tilt-up construction. Generally, buildings are surrounded by pavement including parking lots, drive aisles, and storage areas. Most sites are secured with fencing. Minimal landscaping is provided.

DEFINITIONS

New definitions should be developed for large format uses and data centers to clarify and regulate the evolving landscape. Definitions should be created according to size and impact (such as traffic impact, water and wastewater usage, noise, lighting, and olfactory impact), not just the internal operations.

LARGE FORMAT USE DEFINITIONS

- A definition establishing what constitutes a large format use is needed. The definition of a large format use will establish the following:
 - A minimum size – this could be the footprint area (88-810-630) or the floor area (88-810-618)
 - Uses that can qualify as a large format use

Kansas City is on the forefront of defining and regulating large format uses specifically, therefore there are not many communities with applicable definition. Table 3 provides examples of language used by other communities to define uses and sizes of industrial land uses.

TABLE 3: LFU DEFINITIONS FROM OTHER COMMUNITIES

Source	Definition
<u>Distribution Warehousing and Goods Movement Guidelines</u>	<i>Major Distribution center</i> – large-scale regional and/or interstate distribution facility having a minimum gross floor area from 500,000 to more than 1.5 million square feet.
<u>Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities</u>	<p>Warehouse/Logistics Use: A building or group of buildings on the same lot used for the indoor storage of goods, products and materials and/or receipt of bulk products and separation and distribution of those products to another Warehouse/Logistics Use or to individual end-user consumers. A Warehouse/ Logistics Use may include value-added services between a supplier and its customers such as breaking down of large orders from a single source into smaller orders (break-bulk functions), product mixing, sorting, packaging, cross-docking, order fulfillment, order returns, the consolidation of several orders into one large order for distribution to several recipients and/or vice versa but shall not include Retail or Manufacturing uses. Warehouse/Logistics Uses shall be classified as:</p> <ul style="list-style-type: none"> • Small Warehouse/Logistics Use: A Warehouse/Logistics Use that does not exceed 25,000 square feet of gross floor area per lot. • Large Warehouse/Logistics Use: A Warehouse/Logistics Use that exceeds 25,000 square feet of gross floor area per lot.

DATA CENTER DEFINITIONS

Data centers are not exclusively defined within the zoning code. Data centers are included within the Communications Service Establishments (88-805-04-G). This definition has not been amended since the code was initially adopted in 2011. Data centers have changed dramatically since this time. A standalone definition of data centers is warranted to better regulate data centers that qualify as large format uses.

88-805-04-G. COMMUNICATIONS SERVICE ESTABLISHMENTS

Broadcasting and other information relay services accomplished through use of electronic and telephonic mechanisms. Excludes services classified as "major utilities and services" and "minor utilities." Typical uses include recording studios, television and radio studios, telecommunication service centers, data centers, and telegraph service offices.

Title 46 Definition of Data Center:

"Facilities operated by a business engaged primarily in data processing, hosting, and related services with installed electrical equipment having the capacity to draw at least 50 MW of demand"

Table 4 outlines samples of data center definitions from other communities.

TABLE 4: DATA CENTER DEFINITIONS FROM OTHER COMMUNITIES

Municipality	Definition
Alpharetta, GA	Data Center. A building or complex of buildings in which a substantial portion of the gross square footage is dedicated to the housing of computer or data processing equipment or systems.
Loudoun County, VA	Data Center: An establishment engaging in the storage, management, processing, and/or transmission of digital data, and housing computer and/or network equipment, systems, servers, appliances and other associated components related to digital data operations.
Prince William County, VA	Data Center shall mean a use involving a building/premise in which the majority of the use is occupied by computers and/or telecommunications and related equipment, including supporting equipment, where information is processed, transferred and/or stored.
Fort Worth, TX	Real and personal property consisting of buildings or structures specifically designed or modified to house networked computers and data and transaction processing equipment and related infrastructure support equipment, including, without limitation, power and cooling equipment, used primarily to provide, as a service to persons other than the company operating the data center, data and transaction processing services, outsource information technology services and computer equipment colocation services, or, used primarily to provide, to a single user, including the user's affiliates, customers, lessees, vendors and other persons authorized by the user, data and transaction processing services.
Branson, MO	Data center means a facility whose primary service is data processing or data storage, and is used to house computer systems and associated components, such as central processing units, graphical processing units, neural networks, quantum bits, quantum processors, memory, data routing, data storage,

server farm, bitcoin mining, crypto processing, virtual private networks, virtual servers, artificial intelligence training or processing, image processing, cloud computing, email servicing, a telecom hotel, telehouse co-location, or any other term applicable to facilities which are used for such purposes shall be deemed to be a data center.

El Paso, TX

"Data processing center" means a facility where electronic data is processed by employees, including, without limitation, data entry, storage, conversion or analysis, subscription and credit card transaction processing.

"Data processing center (hyperscale)" or "data center (hyperscale)" means one or more data centers and/or other facilities used to house, and in which are operated, maintained and replaced from time to time, computer systems and associated components, such as telecommunications and storage systems, cooling systems, power supplies and systems for managing property performance (including generators and mechanical and electrical yards), and equipment used for the transformation, transmission, distribution and management of electricity (including private substations), internet-related equipment, data communications connections, private communication towers, environmental controls and security devices, structures and site features, as well as certain accessory uses or buildings located on the land and other related or associated uses, buildings or structures such as utility buildings; private utility facilities; office; buildings for support staff; warehousing for logistics, storage and/or other similar uses; cafeteria; guardhouse; diesel storage tanks; fuel storage for emergency generators; water storage tanks; security fencing; and other structures, improvements and appurtenances.

REQUIREMENTS

The following sections offer examples of use specific regulations from several other communities. It is intended to supply a variety of options, which upon review from the City, will begin the initial identification and creation of regulations best suited for large format uses in Kansas City.

ZONING LOCATIONS

It is recommended that large format uses shall only be permitted in the following districts:

- M1
- M2
- M3
- M4

Several case study large-format uses are located within Master Planned Development (MPD) and Urban Redevelopment (UR) zoning districts. These districts provide flexibility from conventional zoning standards and are established through a case-by-case review process. Amendments to the zoning code are not required to incorporate the new large-format use definition within these districts.

Further analysis and discussion should be undertaken to determine if LFUs are appropriate in other zones, such as B4.

DESIGN GUIDELINES

Design guidelines consist of the standards that shape the overall development, ensuring consistency and quality. The following sections provide examples from peer cities, organized by topic and source, to illustrate diverse approaches for regulating the appearance, functionality, and impact of new large-format developments.

ARCHITECTURAL DESIGN

The design of the building itself.

FAÇADE AND FORM

Summary:

- Ensure façades are visually engaging by incorporating articulation, architectural details, and creative design elements.
- Use a variety of materials, colors, and textures to avoid monotony and enhance visual interest.
- Treat all sides of the building with consistent design quality and attention to detail.
- Break up building mass with features like varied rooflines, recessed areas, and projections.
- Avoid blank, unarticulated surfaces and materials that detract from durability or aesthetic appeal.

Source: Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Developments

- Street facing facades should be articulated with some form of architectural element every 25 to 30 feet to maintain visual interest and pedestrian appeal. Creative and unique architectural elements are encouraged, including the following *[paraphrased]*:
 - Vertical and horizontal wall articulation, including architectural indentations and/projections, reveal patterns, changes in material, building pop-outs, columns, and recessed areas
 - Variations in color, depth, pattern, fenestration
 - Use of rhythmic bays, planar breaks, curtain walls, and window systems

RECOMMENDED



- ✓ Varied and articulated façade
- ✓ Architectural elements in scale with building massing

NOT RECOMMENDED



- ! Large monotonous wall and lack of building articulation

Source: Los Angeles Industrial Citywide Design Guidelines – Recommended vs. Non-Recommended Architectural Variation

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- Architectural details including, cornices, horizontal banding, articulated columns and vertical elements, variations in wall plane and roof features, articulated entrances, street level windows, awnings, and canopies.
- Artwork is encouraged on a portion of an unarticulated facade..
- All buildings are strongly encouraged to maximize daylighting opportunities with clerestory windows, skylights, and glazing

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Vary and articulate the building façade to add scale and avoid large monotonous walls
- Incorporate and alternate different textures, colors, materials, and distinctive architectural treatments that add visual interest while avoiding dull and repetitive façades
- Treat all façades of the building with equal architectural rigor, level of detail, and articulation.
- Integrate varied roof lines through the use of sloping roofs, modulated building heights, stepbacks, or innovative architectural solutions

- a** Wall plane and roof height variation at corner creates emphasis on building massing.
- b** Interior use emphasized through window, primary entry, and office space location adjacent to the street.
- c** Blank walls minimized through use of reveals, window openings, and varying colors.



Source: City of Hayward Industrial District Design Guidelines – Massing Example Diagram

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Source: Prince William County, VA – Zoning Code

- Principal building façades shall avoid the use of undifferentiated surfaces by including at least two of the following design elements:
 - change in building height;
 - building step-backs or recesses;
 - fenestration;
 - change in building material, pattern, texture, color; or
 - use of accent materials.

Source: Riverside, CA – Citywide Design Guidelines and Sign Guidelines

- Long, unarticulated façades should be avoided. Façades with varied front setbacks are strongly encouraged. Wall planes should not run in one continuous direction for more than 50 feet without an offset
- Design elements, which are discouraged and should be avoided include:
 - Highly reflective surfaces
 - Large, blank, unarticulated wall surfaces
 - Exposed, untreated precision block walls
 - Chain link fence, barbed wire
 - "Stuck on" mansard roofs on small portion of the roofline
 - Unarticulated building façades
 - Materials requiring high maintenance such as stained wood, shingles or metal siding
- Design elements, which are encouraged, include:
 - Articulation of building planes
 - Cornice moldings
 - Pop-outs



Treatment of this industrial building's well-articulated façade is encouraged.



This industrial building's blank, unarticulated façade is undesirable and strongly discouraged.

Source: Riverside Citywide Design Guidelines and Sign Guidelines – Architectural Variation

ENTRANCES

Summary:

- Clearly identify primary building entrances using architectural features like awnings, canopies, trellises, or distinctive colors and materials.
- Enhance entrance areas with unique treatments such as textured or colored paving, landscaping, and lighting.
- Position primary entrances to face streets and contribute to a pedestrian-friendly façade.
- Use design details, massing, and shading elements to emphasize entrances and create visual interest.

Source: City of Hayward, CA - Industrial District Design Guidelines

- Incorporate architectural features such as awnings, canopies, trellises, and/or other treatments such as vertical architectural features or unique building colors or materials to clearly identify primary building entries.
- Incorporate unique paving treatments, such as scored or colored concrete at primary building entries to enhance its appearance.

Source: Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Developments

- Primary building entrances should face streets and create a pedestrian scale to street facing facades.
- Primary entrances for each of the tenants within a development should be emphasized with architectural massing, lighting, landscaping, and design details that create texture, shade and shadow.



Changes in height and massing provide variation and articulation. Vertical building elements break up what may otherwise be horizontal architectural composition.

Source: City of Hayward Industrial District Design Guidelines – Entrance Example

MATERIALS

Summary:

- Use high-quality materials such as textured concrete, metal, brick, stone, glass, and composites.
- Avoid materials like common brick, concrete block, or corrugated metal as dominant elements.
- Incorporate accent colors and materials on architectural features like windows, doors, and entrances to add visual interest.
- Avoid highly reflective materials that can cause heat and glare impacts; instead, use materials that support cooling, such as reflective roofs or light paving.
- Ensure materials are consistent with the building's architectural style and are graffiti-resistant or easy to maintain.

Source: City of Hayward, CA - Industrial District Design Guidelines

- Utilize accent colors for trim, windows, doors, and other key architectural elements, such as primary building entries, to add visual interest to a building.
- Apply materials in a manner that corresponds to variation in building massing. Wrap outside corners to avoid a tacked-on appearance.

Source: Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Developments

- The following exterior building materials are permitted:
 - precast concrete (with at least a portion of the concrete being textured),
 - metal,
 - brick,
 - stone,
 - glass,
 - as well as composite materials such as aluminum/non-aluminum blend panels and fiber cement.
- The following exterior building materials are prohibited:
 - Common brick
 - Concrete block



Colors, materials, trim, windows, awning, and doors provide clear identification of building entry and reinforce building design.

Source: City of Hayward Industrial District Design Guidelines – Colors and Materials Variation

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- Split face block
- Cinderblock
- As well as corrugated metal as a predominant material
- Materials should be graffiti resistant or allow to be easily repainted
- Exterior material palette should be consistent with the architectural style of the building

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Apply changes in material purposefully and in a manner corresponding to variations in building mass.
- Avoid the use of highly reflective building materials and finishes that direct heat and glare onto nearby buildings
- Use white or reflective paint on rooftops and light paving materials or “green roofs” to reflect heat away from buildings and reduce the need for mechanical cooling

RECOMMENDED



✓
Material change
varies sense of
building mass

✓
Harmonious
detailing
consistent with
design style

NOT RECOMMENDED



!
Material change
accentuates
rather than
reduces sense of
building mass

!
Large light wall
surface will
reflect glare

Source: Los Angeles Industrial Citywide Design Guidelines – Recommended vs. Non-Recommended Materials

WALLS AND FENCES

Summary:

- Design walls and fences to blend with the site's architecture, using materials consistent with the main building.
- Break up long expanses of walls or fences with landscaping, pilasters, offsets, or changes in material, color, or texture to avoid monotony.
- Use decorative materials, such as masonry, stone, or precast concrete.
- Avoid materials like sheet metal or barbed wire.
- Incorporate landscaping alongside walls and fences to enhance visual continuity and soften their appearance.

Source: Riverside, CA – Citywide Design Guidelines and Sign Guidelines

- Where walls are used at property frontages, or screen walls are used to conceal storage, loading and equipment areas, they should be designed to blend with the site's architecture.
 - Architecturally treat both sides of all perimeter walls.
 - Use landscaping in combination with such walls whenever possible.
- Long expanses of fence or wall surfaces should be offset and architecturally designed to prevent monotony. Landscape pockets should be provided
- Permitted materials for walls shall be decorative masonry split face block, brick, natural stone, precast concrete panels, stuccoed walls or other unique wall materials or finishes that integrate well with on-site buildings, as determined on a case by case basis

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Long walls and fences should be broken up by landscaping, pilasters, offsets in the alignment of the wall or fence, and/or changes in material, color, or texture.
- Use decorative gates and fences in combination with landscaping to provide continuity at the street where openings occur due to driveways or other breaks in the sidewalk or building wall.
- Screen outdoor storage with building materials consistent with the architectural character of the main building. Avoid materials such as sheet metal and barbed wire.

RECOMMENDED



✓
Fence and gate made from attractive materials and offset from sidewalk

✓
Landscaping softens fence

NOT RECOMMENDED



!
Unscreened, sharpened pickets

!
Long blank wall

Source: Los Angeles Industrial Citywide Design Guidelines – Recommended vs. Non-Recommended Walls

SITE PLANNING

Summary:

- **Site Connectivity, Accessibility, and Amenities:**
 - Connect sites to surrounding sidewalks, trails, and transit stops to enhance area connectivity.
 - Provide clearly defined pedestrian pathways linking buildings, parking, and open spaces.
 - Incorporate shaded open spaces, courtyards, and recreational facilities that are accessible and usable for employees.
 - Establish or improve sidewalks in the right of way where the development is located.
- **Efficient and Safe Circulation:**
 - Separate auto movement from truck loading and parking areas to ensure safe and efficient circulation.
 - Minimize driveways and curb cuts by sharing access points with adjacent properties where feasible.
- **Building and Equipment Placement:**
 - Position primary buildings facing the roadway to create a strong street presence.
 - Maximize daylighting and ventilation opportunities.
 - Use design transitions like stepped-back upper floors and landscaping to harmonize with adjacent residential or commercial neighborhoods.
 - Locate noise, odor, and nuisance activities (e.g., loading docks and outdoor storage) away from residential areas and screen them with landscaping or architectural features.

Source: City of Hayward, CA - Industrial District Design Guidelines

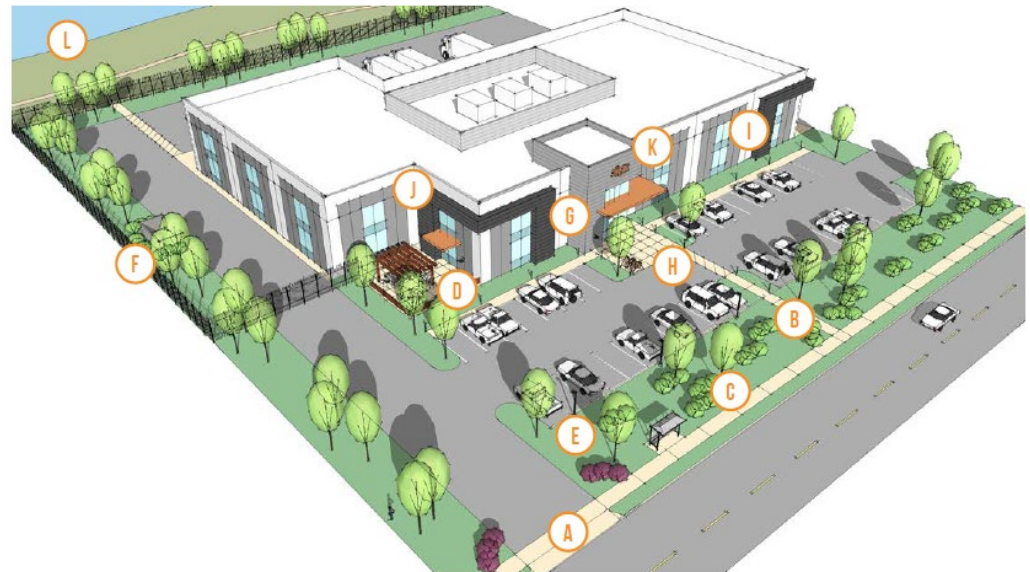
- Highlight site entrances through driveway entry treatments such as unique paving treatments, accent landscaping, and signage that inform visitors of its location and enhances the overall project design.
- Connect site to surrounding amenities such as sidewalks, trails, or other opportunities to enhance area connectivity.
- Locate outdoor storage, loading docks, semi-truck bays, semi-truck parking, and other nuisance activities on the side of a building not directly abutting a residential use.
- Provide easily identifiable pedestrian pathways that connect all buildings to parking areas, to the public sidewalk, trails, and trail access points, and to any open space areas or amenities, including transit stops.
- [provide employee amenities and open space within the development] Provide facilities such as walking paths, patios, barbecue areas, recreational facilities, or other such improvements that allow convenient use for outdoor enjoyment and/or recreation for employees.

Source: Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Developments

- Site ingress and egress points should be located in consideration of median openings and existing driveways on the opposite side of the roadway, and located far enough from intersections to not hinder the flow of traffic.
- When feasible, driveways should be shared between two adjoining properties to minimize the number of driveways and curb cuts along public streets.

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Create a strong street wall by locating building frontages at the front property line or at the minimum required setback. Where additional setback is necessary, activate the area with a courtyard or "outdoor room" adjacent to the street by incorporating outdoor dining, seating, or water features, for example.
- Situate buildings on the site so they are oriented to maximize daylighting opportunities and harvest natural light within interior work spaces. Also utilize opportunities to provide operable clerestory windows to allow for ventilation and indirect lighting.



SITE ELEMENTS

- A Site Planning
- B Pedestrian Connections
- C Landscaping, Walls, and Fencing
- D Employee Amenities and Open Space
- E Lighting
- F Utilitarian

BUILDING DESIGN

- G Massing and Articulation
- H Entries
- I Windows and Doors
- J Colors and Materials
- K Signage
- L Shoreline Development

Source: City of Hayward Industrial District Design Guidelines – Site Design Diagram

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- Large industrial buildings with multiple tenants should provide multiple numerous entries at multiple street frontages to improve site design flexibility and options for building location.
- Create height and visual transitions between industrial districts and adjacent commercial and residential neighborhoods. Stepping back upper floors of industrial structures to match those of adjacent commercial or residential structures, and plant trees, shrubs, and vines to screen outdoor storage and odor or noise-generating functions of industrial uses.
- For major industrial projects where a sidewalk does not currently exist, establish a new sidewalk along the length of the public street frontage.
- Create continuous and predominantly straight sidewalks and open space. Reconstruct abandoned driveways as sidewalks.
- Incorporate shaded open space, such as plazas, courtyards, pocket parks, and terraces, in new large-scale industrial developments. Design open areas to be easily accessible to employees.
- Screen any mechanical, electrical, or communications equipment, whether on the roof, side of building, or ground.
- Locate noise and odor-generating functions so as not to create a nuisance for nearby residents or adjacent neighbors.

Source: Riverside, CA – Citywide Design Guidelines and Sign Guidelines

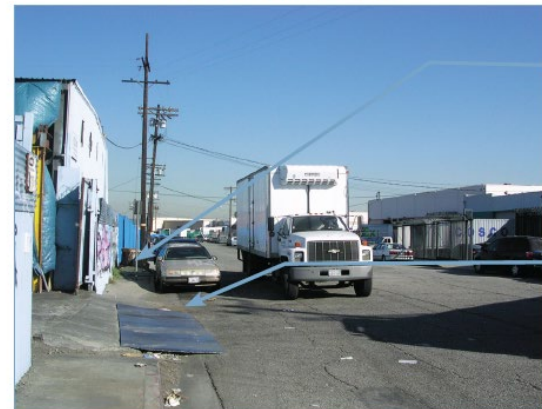
- Site circulation should be designed so that auto movement is separate from truck movement and loading to the degree possible.
- Separate circulation routes and parking areas.
- Vehicles should not be required to enter the public street in order to move from one area to another on the same site.

RECOMMENDED



✓
New sidewalk
along public
street frontage

NOT RECOMMENDED



! Sidewalk blocked

! Poor separation
from street traffic

Source: Los Angeles Industrial Citywide Design Guidelines - Recommended vs. Non-Recommended Pedestrian Circulation

PARKING AND LOADING

Summary:

- Place parking areas and loading docks at the rear or sides of buildings to avoid disrupting the streetscape.
- Separate loading areas and larger vehicles from pedestrian and public parking areas to ensure smooth circulation.
- Limit parking, driveways, and loading areas to no more than half of the site's total area.
- Provide designated bicycle parking facilities.

Source: Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Development

- Loading docks and service areas should be located interior to the property to avoid visibility from the street. When impractical, landscaping should be maximized to screen docks and service areas as much as possible.

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Place on-site parking to the side or rear of buildings so that parking does not dominate the streetscape. Adjoining properties should share access driveways to minimize the number of driveways along public streets.
- Ensure that loading areas do not interfere with on-site pedestrian and vehicular circulation by separating loading areas and larger commercial vehicles from areas that are used for public parking and public entrances.
- Dedicate no more than half of the site for vehicular purposes including parking areas, driveways, ramps, and loading areas.
- *All codes/guidelines require bicycle parking*

RECOMMENDED



- ✓ Public parking separated from loading area
- ✓ Loading area located to the side and rear of the building, away from the entrance

NOT RECOMMENDED



- ⚠ Loading located at the front of a building, dominating the streetscape and interfering with the pedestrian path

Source: Los Angeles Industrial Citywide Design Guidelines - Recommended vs. Non-Recommended Parking and Loading

LIGHTING

Summary:

- Use exterior lighting that complements the building's architectural style, materials, and colors.
- Shield lighting downward to minimize glare and prevent light spillover onto adjacent properties.
- Adjust fixture height to suit the setting, using lower heights near sensitive areas and pedestrian zones.

Source: City of Hayward, CA - Industrial District Design Guidelines

- Integrate exterior lighting that is architecturally compatible with the building style, materials, and colors.
- Design exterior lighting to be shielded downward to minimize direct off-site viewing and to ensure light does not overflow onto adjacent sites.
- Mount light fixtures at a height appropriate to the setting and project design. For example, use lower mounting heights for settings adjacent to sensitive land uses (residential, bay lands, or trails) and low, bollard-type fixtures within pedestrian areas.

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Utilize adequate, uniform, and glare-free lighting, such as dark-sky compliant fixtures, to avoid uneven light distribution, harsh shadows, and light spillage onto adjacent properties.
- Integrate solar powered lighting to increase energy efficiency



Light fixtures mounted at appropriate height for setting adjacent to building entry and shielded downward.

Source: City of Hayward Industrial District Design Guidelines – Lighting Example

SIGNS

Summary:

- Position primary business signage prominently near building entries for visibility from public spaces.
- Ensure signs complement architectural features and do not overshadow the building's design.
- Use directional signage to clearly guide users to key areas like loading zones and visitor parking.
- Include pedestrian-friendly signage and maps in large developments to aid navigation and highlight public amenities.

Source: City of Hayward, CA - Industrial District Design Guidelines

- Locate primary business signage prominently in relation to the primary building entry in order to be visible from the public right-of-way.
- Design directional signage to be coordinated and clearly direct users to appropriate areas of a site, such as loading and receiving areas or visitor parking.

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Locate signs where architectural features or details suggest a location, size, or shape for the sign. Place signs so they do not dominate or obscure the architectural elements of the building design.
- Include signage at a height and of a size that is visible to pedestrians and facilitates access to the building entrance.
- At large industrial developments, provide maps and signs in public spaces showing connections, destinations, and locations of public facilities such as nearby transit stops.

LANDSCAPING AND SCREENING

Summary:

- Use landscaping to enhance project design, providing attractive frontages, screening sensitive areas, framing entrances, and breaking up large wall planes.
- Use landscaping to screen parking, and mechanical, electrical, or communications equipment
- Design landscaping near adjacent open spaces and trails to balance screening industrial operations with maintaining visibility for safety.
- Incorporate sustainable practices, such as weather-based irrigation, stormwater capture, and permeable paving.
- Consider standardized buffer yards for all LFUs to screen sensitive uses.

Source: City of Hayward, CA - Industrial District Design Guidelines

- Use landscaping to complement and enhance the overall project design in order to provide an attractive frontage, screen or buffer adjacent sensitive land uses, frame building entrances or special design features, provide relief to continuous wall planes through use of trellises, green walls, and landscape frames, and to connect to adjacent development.
- Design landscaping adjacent to open space, trails, or trail access points to screen industrial development and operations but still maintain a sense of openness and visibility to allow for visual surveillance and enhance safety and security of users.

Source: Los Angeles, CA - Industrial Citywide Design Guidelines

- Design open areas to maintain a balance of landscaping and paved area.
- Facilitate sustainable water use by using automated, weather-based watering systems and drip irrigation to water landscaped areas.
- Facilitate stormwater capture, retention, and infiltration, and prevent runoff by using permeable or porous paving materials in lieu of concrete or asphalt. Collect, store, and reuse stormwater for landscape irrigation.

- a** Screening of industrial development maintained through appropriate spacing of trees.
- b** Trees trimmed and up kept to maintain screening but also to allow for visual surveillance on trail.
- c** Low shrubs maintain sense of openness and visibility to enhance safety.



Example landscaping adjacent to open space, trails, or trail access.

Source: City of Hayward Industrial District Design Guidelines – Landscaping Diagram

KCMO Zoning and Development Code Update **Best Practices**

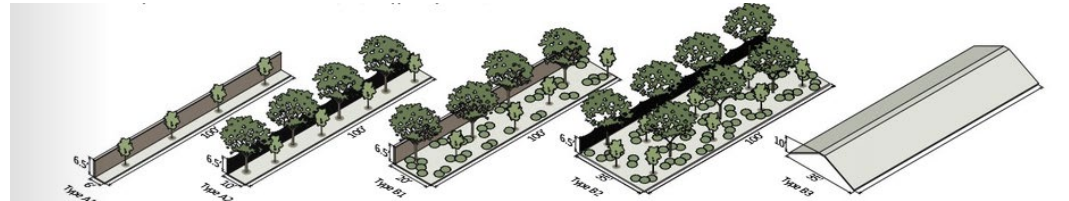
- In addition to street trees, provide canopy trees in planting areas for shade and energy efficiency, especially on south and southwest facing façades
- Use landscape features to screen any portion of a parking level or podium that is above grade.
- Screen any mechanical, electrical, or communications equipment, whether on the roof, side of building, or ground

Source: City of Raleigh, NC - Landscaping and Screening

- This Landscaping and Screening code defines different options for “transitional protective yards”
 - A Type B1 or B2 transitional protective yard (see Sec. 7.2.4.A.) must be established along all shared property lines, except for an adjacent warehouse and distribution use, heavy industrial use or waste-related service.
 - b. A Type C1 or C2 street protective yard (see Sec. 7.2.4.B.) must be established along all property lines abutting a public right-of-way.

Source: Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities

- Where the combined footprint of the principal structure or structures exceeds 250,000 square feet:
 - a. A minimum 300-foot buffer yard shall be provided along the entire length of any street frontage of any property upon which the facility is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park or public open space.
 - b. A minimum 50-foot buffer yard shall be provided along all other property lines.



	Type A1	Type A2	Type B1	Type B2	Type B3
Width (avg. min)	6'	10'	20'	35'	35'
Fence Height (min)	Not allowed	6.5'	Not allowed	6.5'	Not required
Wall Height (min)	6.5'	6.5'	6.5'	6.5'	Not required
Shade Trees (min per 100')	Not required	4	4	6	Not required
Understory Trees (min per 100')	4	4	4	6	Not required
Shrubs (min per 100')	Not required	Not required	40	60	Not required
Shrub Height (min)	n/a	n/a	3'	3'	Not required
Berm	Not allowed	Not allowed	A berm in accordance with Sec. 7.2.4.D.4. may be installed, unless otherwise required. The installation shall not alter the yard width, fence, wall, shade and understory tree requirements	A berm in accordance with Sec. 7.2.4.D.4. may be installed, unless otherwise required. The installation shall not alter the yard width, fence, wall, shade and understory tree requirements	A berm shall be installed in accordance with Sec. 7.2.4.D.4. except the minimum height of the berm shall be 10' measured perpendicular to the crown

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Source: City of Raleigh, NC Zoning Code (Landscaping and Screening) – Buffer Yard Types and Standards

NUISANCE CONTROL

Summary:

- **Noise:** Limit continuous and impulsive sound levels to prevent excessive noise disturbances beyond property boundaries.
- **Air Quality & Odor:** Restrict emissions of odors, smoke, vapors, and dust beyond the lot line to maintain air quality.
- **Lighting:** Shield and control outdoor lighting to prevent glare, nuisances, and excessive illumination on adjacent properties and streets and encourage the use of energy-efficient lighting, such as LED and low-voltage systems.

NOISE

Source: City of Scranton, PA – Supplementary Regulations

- No person shall operate or cause to be operated on public or private property any source of continuous sound (any sound which is static, fluctuating, or intermittent with a recurrence greater than one (1) time in any 15-second interval) in such a manner as to create a sound level which exceeds the limits set forth for the receiving land use group in the following table when measured at or within the property boundary of the receiving land use:
 - Sound Level Limits and Permitted Hours by Receiving Land Use Group: **industrial and infrastructure**
 - Hours and Days: **all times of day**
 - Maximum permitted sound level (dBA): 70
- For any source of sound which emits an impulsive sound (a sound of short duration, with an abrupt onset and rapid decay and an occurrence of not more than one (1) time in any 15-second interval), the sound level shall not exceed 20 dBA over the ambient sound level, regardless of time of day or night or receiving land use group.

PARTICULATE MATTER AND ODOR

Source: City of Scranton, PA – Supplementary Regulations

- No use shall generate odors, smoke, vapors, or gases above the odor perception threshold of an average person on private or public property beyond the lot lines of the use generating the odors.
- No use shall generate dust, dirt, smoke, vapors, or gases at any point for longer than five minutes in any hour of a visible color or shade darker than No. 3 on the Ringelmann Smoke Chart as distributed by the U.S. Department of the Interior, Bureau of Mines.

LIGHTING CONTROL

Source: City of Scranton, PA – Supplementary Regulations

- All uses shall direct, deflect, and shield lights and control the intensity of lights and illuminated signs to avoid nuisances and to prevent glare onto other properties and streets. Lights shall not shine directly into the normal line of sight of motorists.
- Low-voltage and light-emitting diode (LED) lighting systems are encouraged.
- All outdoor lighting shall be designed, installed, located, and maintained so that nuisance glare onto adjacent lots or streets shall be minimized and all direct illumination kept within the boundaries of the lot.

PROXIMITY TO SUPPORTING ROADWAYS

Considerations:

- Determine which LFU use types would typically have high commercial traffic and designate proximity requirements (data centers do not have much commercial traffic compared to distribution centers, so they would be subject to different proximity requirements)
- Identify which functional classes can support an increase of commercial traffic (arterials only? or collectors as well?)
- Restrict commercial traffic from locating on Parkways and Boulevards

Source: Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities, p. 16

- The use shall have direct access to an arterial road, defined as a street with an existing or proposed right of way width of 50 feet or more and a minimum average annual daily traffic rate of 5,000 vehicles per day.
[this is based on their Large Warehouse/Logistics Use defined as exceeding 25,000 square feet, so the AADT requirement may increase for KCMO since the building area range is will be much larger]

Source: Distribution Warehousing and Goods Movement Guidelines

- Zoning should exclude large warehouse development in areas lacking the appropriately scaled infrastructure, transportation systems, emergency, or other municipal services necessary to sustain the costs, and maintenance, or improvements that such projects will entail over their lifetime.
- In all cases, zoning should only permit major largescale facilities (above 500,000 square feet of impervious surface), where there is direct access to interstate and major highways (of adequate capacity) and/or freight rail lines, preferably from industrial zoning districts.

SEPARATION REQUIREMENTS AND BUFFERS

Considerations:

- Define an “incompatible use” for LFUs and identify which land uses would be classified as incompatible
- Define a distance requirement, or buffer, for LFUs from surrounding incompatible uses.
- Consider how and where measurements are made, different buffer distances for incompatible uses, and any tradeoffs involving fees, screening, or other regulations.

- **Incompatible Uses**

- **Identify use types** to be defined as incompatible (referred to in other communities as “sensitive uses” or “sensitive receptors”)
- Consider defining incompatible uses using the following Future Land Use classifications
 - All Residential
 - All Downtown
 - Institutional
 - Parks (using FLU and established Parks)
 - Open Space and Conservation

- **Distance requirements**

- A standardized buffer requirement on LFUs from surrounding incompatible uses is recommended in the code update.
- Based on the existing KCMO LFU case studies, all buildings comply with a 500-foot parameter buffer from incompatible uses with the exception of some buildings in closer proximity to parks.
- This buffer is measured from the *building*, not the parcel, which could translate to a regulation for **on-site buffers** – meaning the LFU parcel may not be within the buffer distance requirement, but the building itself is, therefore the development is compliant.

Source: Distribution Warehousing and Goods Movement Guidelines, p. 13

- Residential areas/neighborhoods, downtown commercial/retail areas and main streets, schools, daycare centers, places of worship, hospitals, overburdened communities, scenic corridors and historic districts, important public and civic outdoor spaces, and recreational facilities.

Source: Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities, p. 18

- Schools, preschools, daycare centers, in-home daycares, health facilities such as hospitals, long term care facilities, retirement and nursing homes, community centers, places of worship, parks (excluding trails), campgrounds, prisons, dormitories, and any residence where such residence is not located on a parcel with an existing industrial, commercial, or unpermitted use as determined by the zoning officer

ENVIRONMENTAL AND SUSTAINABILITY

The following list offers topics pertaining to environmental conservation, sustainability, and building design that should be considered for further research and integration within the large format use code update. These topics range from incentives to requirements and should be strategically selected to help create a more resilient and resource-conscious development.

INCENTIVES

- Permitting fee reduction
- Expedited permitting
- Tax exemption
- Subsidies
- *Dis-incentive* – establish impact fees for open space

STORMWATER MANAGEMENT

- May be a future consideration for an effort outside this one
- Site design considering stormwater flow/runoff
- Rain gardens, bioswales
- Break up parking lots with permeable surfaces

SOLAR

- Require solar panels, or buildings to be solar ready
- Define LFU building area thresholds and different requirements (percent of roof dedicated to solar panels; percent of solar powered operations)

Source: Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities, p. 23

- All building roofs shall be solar-ready, which includes designing and constructing buildings in a manner that facilitates and optimizes the installation of a rooftop solar photovoltaic (PV) system at some point after the building has been constructed.

KCMO Zoning and Development Code Update **Best Practices**

- Any portion of a building's rooftop that is not covered with solar panels or other utilities shall be constructed with light colored roofing material with a solar reflective index of not less than 78. This shall be the minimum solar reflective rating of the roof material for the life of the building.
- On buildings over 400,000 square feet, prior to issuance of a certificate of occupancy, the [MUNICIPALITY] shall ensure rooftop solar panels are installed and operated in such a manner that they will supply 100 percent of the power needed to operate all non-refrigerated portions of the facility, including the parking areas.

PERVIOUS SURFACES

- Define design and maintenance standards for pervious pavements (may be a future consideration for an effort outside this one)
- Consider a credit or incentive for developments incorporating pervious surfaces

OTHER STRATEGIES AND TECHNIQUES FOR ENERGY CONSERVATION AND ENVIRONMENTAL SUSTAINABILITY

- Whole building designs for light, ventilation, and energy conservation
- Tree protection
- Preservation of regulated stream buffers and riparian areas
- Management and measurement techniques

FUTURE CONSIDERATIONS

Future Considerations consist of efforts outside this project that the City should consider updating.

- Updates to the Stream Buffer Ordinance
- Update Sign Code Requirements for all industrial uses
- Revise Access Management Policy to reduce access points for large development sites
- Update Stormwater Management requirements potentially needed

SOURCES

Listed in order of reference

- Definitions
 - [Distribution Warehousing and Goods Movement Guidelines](#)
 - [Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities.](#)
 - [Alpharetta, GA Zoning Code](#)
 - [Loudoun County, VA Zoning Code](#)
 - [Prince William County, VA Zoning Code](#)
 - [Fort Worth, TX Zoning Code](#)
 - [Branson, MO Zoning Code](#)
 - [El Paso, TX Zoning Code](#)
- Design Guidelines
 - [Village of Lincolnshire, IL - Design Guidelines for Industrial/Warehouse Developments](#)
 - [Los Angeles, CA - Industrial Citywide Design Guidelines](#)
 - [Riverside, CA – Citywide Design Guidelines and Sign Guidelines](#)
 - [City of Hayward, CA - Industrial District Design Guidelines](#)
 - [City of Raleigh, NC Zoning Code \(Landscaping and Screening\)](#)
- Nuisance Control
 - [City of Scranton, PA Zoning Code \(Supplementary Regulations\)](#)
- Environmental and Sustainability
 - [Georgetown Climate Center – Green Infrastructure Toolkit](#)
 - [Montgomery County, PA – Renewable Energy: a series on alternative energy sources](#)
 - [US EPA – Smart Growth Guidelines for Sustainable Design & Development](#)
 - [US EPA – Sustainable Design and Green Building Toolkit for Local Governments](#)