APPENDIX C

Environmental Impact Report – Development and Operational Assumptions

Los Angeles County Commercial Cannabis Business Licensing Program

Environmental Impact Report (EIR) – Development and Operational Assumptions

The following provides a summary of commercial cannabis businesses' likely development and operational features given the regulations included in the Project, State licensing requirements, and actual practices of commercial cannabis businesses that are similar to the businesses that the Project would allow. Although it cannot be determined with certainty exactly where commercial cannabis businesses would be located, how they would be designed, and their specific operational parameters, certain, general conclusions can be derived based on the regulations that would apply and actual business practices that have occurred elsewhere, to date. Given its potential to result in the most severe environmental impacts, the following focuses on indoor cultivation license types; however, a summary of the key operational and design features other license types is provided as well.

EFFECT OF EXISTING AND PROPOSED REGULATIONS ON LICENSE TYPES

As described in Chapter 2, *Project Description* of the Program EIR, the Project would authorize certain cannabis uses in commercial, industrial, institutional, and mixed-use zones. The Project involves amendments to Title 8 and Title 22 of the Los Angeles County (County) Code (LACC) to specify the location and conditions under which certain commercial cannabis activities would be allowed.

Although the Project would allow the establishment of new uses, the Project would not expand, or otherwise relax existing limitations on, the types and amount of physical development that is currently allowed in the zones in which commercial cannabis business would be allowed. Instead, the Project includes additional requirements and limitations for commercial cannabis businesses which do not apply to other uses that are currently allowed in these zones.

For example, commercial cannabis businesses would be required to occupy only existing buildings that conform to the current, Title 22 zoning regulations of the LACC, and cannabis businesses would be subject to additional requirements involving signage, location in relation to sensitive receptors, and crime prevention.

Furthermore, the Project includes unique regulations that would apply to certain commercial cannabis uses that would further limit the scale of commercial cannabis development, as compared to physical development for other uses that are included in the zones in which commercial cannabis uses would be allowed. For example, the number of cannabis businesses would be subject to the following limitations, at least until the time at which the Board of Supervisors exercises its discretion to increase the number of businesses:

- Cultivation (indoor only) – 10 licenses
- Distribution – 10 licenses
- Manufacturing – 10 licenses, and maximum of 50% within the same General Plan Planning Area
- Testing – 10 licenses, and maximum of 50% within the same General Plan Planning Area
- Retail (Storefront and Non-Storefront) – 50 licenses; maximum of 75% within the same General Plan Planning Area; and equal distribution among the five Supervisorial Districts
- Microbusinesses – same limit as applicable license types (above)

LICENSE TYPES

INDOOR CULTIVATION

Assumptions

The Commercial Cannabis Business Licensing Program would limit cannabis cultivation canopy space to 22,000 square feet per lot. The following calculations assume that cannabis cultivation canopy areas are these maximum sizes to calculate the "worst case scenario" for resource consumption and waste disposal requirements. In addition to the area(s) dedicated for cultivation, an indoor cultivation operation likely would include space for the drying and curing of cannabis; trimming and packaging cannabis; supplies storage areas; office; and amenities for employees (e.g., breakroom and restrooms).

State Licensing/Regulatory Compliance Requirements

Water and Wastewater:

The Los Angeles Water Board regulates discharges from medium and large municipal separate storm sewer systems (MS4s) via Regional MS4 permits issued under the National

Pollutant Discharge Elimination System (NPDES) Program. These permits establish discharge prohibitions, effluent limitations, monitoring and reporting program requirements, and minimum control measures (SWRCB 2022). Cultivators would be required to comply with any waste discharge requirements that are applicable to their operation.

Energy:

Regulations and guidance on energy usage during indoor cannabis cultivation have been established through multiple channels, including CCR and DCC. CCR Title 4, Section 15011(a)(5) requires that indoor cultivators identify the power sources they plan to use when applying for a State license. Since 2022, all cultivation licensees authorized to engage in cannabis cultivation have been required to report total electricity use for each power source used to the DCC upon license renewal. In addition, since January 1, 2023, all holders of indoor cultivation license types have had to ensure that electrical power used for their cultivation meets the average electricity greenhouse gas emissions intensity required by their local utility provider (pursuant to the California Renewables Portfolio Standard Program in Division 1, Part 1, Chapter 2.3, Article 16 of the Public Utilities Code). If a licensed cultivator's average weighted greenhouse gas emission intensity, as calculated and reported upon license renewal, is greater than the local utility provider's greenhouse gas emission intensity, the licensee shall obtain carbon offsets to cover the excess in carbon emissions from the previous annual licensed period (DCC 2023; CCR Title 4, Section 16305).

Waste:

There are a variety of laws and regulations that govern the management and disposal of cannabis waste. The majority of these are found in CCR Title 4, Sections 15000 through 17905. Notable regulations include those described in Section 17223, *Waste Management*. This section establishes that all licensees shall dispose of all waste in accordance with the Public Resources Code (PRC) and any other applicable state and local laws and shall evaluate waste to determine if it should be designated and handled as a hazardous waste, as defined in Public Resources Code Section 40141. In addition, cannabis cultivation operations must establish and implement a cannabis waste management plan that describes the methods of cannabis waste disposal. Allowable methods include:

- On-site composting
- Collection and processing by a local agency, a waste hauler franchised or contracted by a local agency, or a permitted private waste hauler
- Self-hauling to a permitted:
    - Solid waste landfill
    - Composting facility or operation
    - In-vessel digestion facility or operation

  - Transferring/processing facility or operation
  - Chip and grind facility or operation
  - Recycling center (with certain conditions)
- Reintroduction into cultivation operations through on-premises organic waste recycling methods including, but not limited to, tilling directly into agricultural land and no-till farming

Given that the indoor cultivation sites would be located in urban areas and on lots that are relatively small (in comparison to agricultural properties), it is unlikely that cultivators would conduct on-site composting and instead would either rely on a hauler or self-haul cannabis organic waste to a disposal facility. Regardless of the hauling method, commercial businesses would be required to maintain all organic wastes in a secured waste receptable or secured area on the premises until the time of disposal.

Resource Consumption, Wastewater Disposal, and Hazardous Materials Involved with Indoor Cultivation

Water Usage:

The amount of water required for indoor cannabis cultivation varies depending on the method (e.g., hydroponic, pots/trays, or aeroponics), substrate, plant density and size, room temperature, humidity, light intensity, and facility components, among other factors (Douglas 2022; Cannabis Control Commission, Commonwealth of Massachusetts [Massachusetts CCC] N.d.). As previously discussed, some facilities have the capacity to set up recycling systems that clean and filter used water to be recycled back into irrigation, which can significantly reduce the amount of freshwater required.

The following quantities of water usage have been calculated as part of studies on indoor cultivation of cannabis[1]:

- 58.4 gallons per square foot per year (gal/sq ft/yr) (Massachusetts CCC N.d.)
- 89.5 gal/sq ft/yr (Douglas 2022)[2]
- 65.7 to 80.3 gal/sq ft/yr (Zheng and Yang 2021)
- **36.5 gal/sq ft/yr** (Milewide Nursery 2015)
- 61.55 gal/sq ft/yr (Mills 2012)
- **198 gal/sq ft/yr** (New Frontier Data et al. 2021)[3]

[1] Some of the cited studies used different units of measurement and have been converted to gallons/square foot/year for comparative purposes in this report.

[2] The report describes this estimate as a "safe estimate," since a crop will likely only require this much water under the most demanding circumstances.

[3] This report had the most robust dataset out of the studies cited in this report.

Using the lowest and highest quantities of water usage calculated from these studies, the range of annual water usage for the largest-sized indoor cannabis cultivation operations that would be allowed pursuant to the Commercial Cannabis Business Licensing Program would be as follows.

Estimated Annual Water Usage:

Single Operator: 803,000 – 4,356,000 gallons/year (or 2.46 – 13.37 acre-feet per year)

Wastewater Generation:

The amount of wastewater generated during indoor cannabis cultivation largely depends on the type of substrate being used, as well as any systems in place to recapture and recycle water (Douglas 2022). Depending on the system in place, this can be done through drainpipes and lines, ditches, dehumidifiers, or condensation recapture modules. Recapture methods can significantly reduce both the demand for irrigation water and wastewater generation; however, even with these methods in place, systems need to be flushed on occasion and new water introduced, especially in the event of pathogen outbreaks or the presence of high levels of salts or ions that could be detrimental to crop growth and development (Massachusetts CCC N.d.).

Despite several studies that have been conducted, currently there is a lack of quantitative information on wastewater generation for cannabis cultivation. This analysis relies upon guidance from cannabis cultivators on establishing an indoor cultivation operation, which states that growers using a run-to-waste system should anticipate wastewater generation to be between 10 and 15 percent of total water used (Douglas 2022). Using the lowest (36.5 gal/sq ft/yr) and highest (198 gal/sq ft/yr) quantities of water usage identified in the above section, this equates to **between 3.65 and 29.7 gal/sq ft/yr**.

Using this range, wastewater generation for the largest-sized indoor cannabis cultivation operations that would be allowed pursuant to the Commercial Cannabis Business Licensing Program would be as follows.

Annual Wastewater Generation:

Single Operator: 80,300 – 653,400 gallons/year

Energy Consumption:

A variety of factors contribute to energy use during indoor cannabis cultivation. The most significant contributor is the high-intensity lighting required for indoor production. Other factors include dehumidification (to remove water vapor and avoid mold formation), space heating or cooling, pre-heating of irrigation water, and ventilation and air-conditioning to remove waste heat (Mills 2012).

A study by Evan Mills (2012) developed a model that identified an electricity demand of 806.13 kilowatt-hours (kWh) per square foot of canopy per year and an electricity productivity of 6.074 kWh for each gram of cannabis yielded. Mills also identified an emissions factor of 4,612 grams of carbon dioxide (CO_2) per gram of cannabis. Mills noted, however, that the study's findings may not accurately represent energy use by the U.S. cannabis sector due to uncertainties in modeling approaches, the likelihood th at cannabis cultivation practices had become more efficient in recent years, and the influences of regional variations in climate, daylight, and other factors (Mills 2012).

A 2018 report by New Frontier Data, Scale Microgrid Solutions, and Resource Innovation Institute included an assessment of the current validity of the Mills report, which had long been a baseline for cannabis energy consumption studies. The 2018 report stated that since the Mills study's publication in 2012, the market has expanded dramatically, and the volume of growers has increased significantly to support demand. As legal production has scaled, growing techniques have evolved. New technologies and innovations (e.g., the accelerated adoption of LED lighting) are being developed to increase operational efficiency and to lower costs. The 2018 New Frontier Data Report built on Mills' work by providing a contemporary assessment of energy consumption in cannabis, while accounting for changes that have occurred in the cannabis industry since 2012. This study identified an average electricity intensity (i.e., electricity demand) of 262 kWh per square foot of canopy space, and an electricity productivity of 1.27 kWh per gram of cannabis. The study also measured added efficiencies from the use of LED lighting; indoor operations using typical high pressure sodium flowering lights showed an average electricity productivity of 0.6 grams per kWh, while indoor operations using LED lights showed an average of 1.4 grams per kWh. While this difference cannot be solely attributed to the use of LEDs, since cultivators who use LEDs are also likely more informed of other efficiency measures, it demonstrates the difference in cost and emissions across different operational components.

The study also found that the state within which the cultivation site is located has a strong impact on electricity intensity/productivity and carbon intensity. In this report, only 4 out of 34 indoor cultivation operations were from California. State-specific data for California identified an electricity intensity of **241 kWh per square foot of canopy space**, an electricity productivity of 1.47 kWh per gram of cannabis, and a carbon intensity of 544.31 grams of CO_2 per gram of cannabis (New Frontier Data et al. 2018).

Using the California energy usage estimates, energy usage for the largest-sized indoor cannabis cultivation operations that would be allowed pursuant to the Commercial Cannabis Business Licensing Program would be as follows.

Annual Electricity Consumption:

Single Operator: 5,302,000 kilowatt-hours/year

Solid Waste and Hazardous Materials:

There is a general lack of information (e.g., quantitative data) available regarding the amount of solid waste that the cannabis industry (including indoor cultivation) generates. However, information exists regarding the characteristics of the waste stream and typical disposal processes that are involved with cannabis cultivation.

The majority of cannabis waste developed from cultivation comes from: unused plant material (i.e., leaves, stems, and other parts of the plant that are not used for their cannabinoid content); trimming and pruning residue (removed during cultivation to enhance flower production); roots and soil (remnants from harvested plants); extracted biomass (residual plant material after extraction processes to isolate cannabinoids and terpenes); and unused/nonviable seeds. The disposal process for cannabis waste varies by jurisdiction and the associated environmental and regulatory setting. Generally, waste is segregated and categorized; rendered unusable to prevent diversion into illicit markets, typically through methods such as grinding or mixing with other materials; transported to processing facilities or designated disposal sites or facilities; and either placed in a landfill, composted, or incinerated (Easy Cannabis Waste N.d.).

For indoor cultivation facilities whose sole operation is cultivation, most waste is likely to be plant material, which is categorized as organic waste. If the waste is not deemed hazardous, it can be transported by local haulers or self-hauled to a fully permitted facility that recycles organic waste (CalRecycle 2022). However, indoor cannabis cultivation also involves the use, storage, transport, or discharge of hazardous materials, particularly with respect to the use of fungicides, insecticides, fertilizers, and other agricultural chemicals, the disposal of which must comply with federal, State, and local regulations. (See Section 3.4, *Hazards and Hazardous Materials*, of this EIR for a description of the regulations.)

DISTRIBUTION

Cannabis distribution includes the procurement, sale, and transport of cannabis and cannabis products between licensed cannabis businesses. A cannabis distributor also may provide ancillary storage of cannabis and cannabis products while in transport to the recipient.

Given that distribution only facilitates the transport and temporary storage of cannabis and/or cannabis products, it is unlikely that distribution activities would result in substantial water consumption, wastewater disposal, energy consumption, and/or solid waste disposal. Water consumption would be limited to potable water for employees'

consumption. Wastewater generation would be limited to employees' use of restroom facilities. Given that distribution would be limited to urbanized areas that have existing public services, existing public utilities would provide the incremental increases in potable water and wastewater treatment services to accommodate employees who are involved with distribution activities.

Energy consumption could involve electric or gas energy to illuminate, heat, and cool any buildings used to store cannabis, as well as fuel for vehicles involved in distribution activities. In general, cannabis and cannabis products must be stored in relatively cool, dry environments; however, the energy required to create such environments is similar to typical energy requirements for commercial, industrial, and institutional uses that currently are allowed in the zones in which distribution activities would occur. Furthermore, given the relatively small size and light weight of cannabis and cannabis products, many distributors rely upon vans rather than semitrucks to haul cannabis and cannabis products.

Finally, distributors may operate out of the same facilities that are used for other types of cannabis uses (e.g., indoor cultivation sites) or occupy a separate facility/location. Regardless of the location, distribution facilities are likely to have areas for (un)loading products; storage area(s) for securely storing cannabis and cannabis products; parking areas for transport vehicles; office; and amenities for employees (e.g., breakroom and restrooms).

MANUFACTURING – VOLATILE AND NON-VOLATILE

Cannabis product manufacturing is defined as production, preparation, propagation, or compounding of manufactured cannabis products directly or indirectly, by extraction methods, independently by means of chemical synthesis, or by a combination of extraction and chemical synthesis at a fixed location dedicated to packaging or repackaging cannabis. This process also can involve the transition of raw cannabis into other products, such as oil, rosin, hash, or tinctures, which are often used in other products, such as edibles, salves, and cosmetics.

Manufacturing can use intensive processes, such as closed system, super-critical carbon dioxide processes for hash production and heated hydraulic pressing for creating rosin, or less intensive methods, such as screen filtering for straining hash or soaking cannabis in alcohol to create tinctures. Extraction activities generally involve either solventless extraction or solvent-based extraction.

Solventless extraction involve activities such as dry-sieving, water extraction, and rosin press extraction. Solventless extractions methods remove cannabinoids using heat and pressure and are less common in commercial operations given that they are relatively time-consuming and labor-intensive (Lazarjani et al, 2021). Consequently, solventless

extraction methods are unlikely to be used (at least on a widescale) as part of commercial operations that the Project would allow.

In contrast, solvent-based extraction is more likely to occur given the relatively short time and less labor involved with it in comparison to solventless extraction. Solvent-based extraction processes use at least one of the following: low molecular mass organic solvents; vegetable fats (oils); and supercritical fluids (e.g., carbon dioxide) (Ibid). Typical solvents include ethanol, butane, propane, hexane, petroleum ether, methyl tertbutyl ether, diethyl ether, carbon dioxide, and lipids (e.g., olive oil).

Required manufacturing equipment varies depending on the specific processes to be implemented. Manufacturing can include machinery engineered specifically for extraction, such as closed loop CO_2 extraction machines, distillation machines, rosin presses, and chromatography machines, to simple household appliances, such as crockpots, ovens/stoves, and food processors or blenders. Additionally, manufacturers also use machinery to package products, such as capsule fillers. Following extraction, the products are then manufactured into tetrahydrocannabinol (THC)[4] concentrates, edibles, topical products, and cartridges for vape pens for distribution to consumers.

Manufactured cannabis products include:

- **Hash** – a product made from filtered cannabis plant matter. Methods of filtering can include screening with mesh, cold water filtration, and heat pressing to form rosin.
- **Tinctures** – a product made by dissolving cannabis in alcohol, such as ethanol or glycerin.
- **Infusions** – a product made using heat to infuse foods, oils, or liquids with cannabis.
- **Extractions** – a product made using solvents to dissolve THC from the cannabis plant matter. Processes can be volatile and potentially explosive, such as production of butane hash oil and high-pressure CO_2 extract, or non-volatile, such as the production of low-pressure CO_2 extract.

These products are created using a variety of manufacturing processes that range from low input/low risk to high input/high risk, as follows.

- **Infused Products** - Infuses raw cannabis flower/leaves or prepared concentrate into different media (e.g., oil, milk, butter, or other lipids) to make new products such as edibles like baked goods, tinctures, lotions, salves, soaps, and cartridges for vape pens.
- **Non-flammable Extraction** - Using cold water, ice, heat press, lipids (e.g., butter, milk, or oil) or other non-chemical extraction method to make bubble hash, kief, rosin, cannabis-infused lipid, or comparable materials. CO_2 extraction is used to make cannabis concentrates/oil (closed loop only) under pressure.

[4] The principal psychoactive constituent of cannabis. "Dronabinol" is the international nonproprietary name, or official generic name, used for pharmaceutical reference as an active ingredient.

- **Flammable Extraction** - Compressed and uncompressed liquid solvents using pentane, hexane, butane, propane, ethanol, or similar materials to make cannabis concentrates/oil (closed loop only); and post-extraction refinement that involves refining previously extracted cannabis concentrates through processes such as chromatography, to make distillates.

Commercial manufacturing process locations can vary in size and range from a 100 sf room to a 5,000 sf warehouse floor. Furthermore, given the variability in product concentrations and methodologies that may be used in manufacturing operations, the amount of water consumption involved in manufacturing processes cannot be estimated with certainty. For example, whereas use of petroleum ether or ethanol as solvents can involve the use of boiling water for extraction/separation processes, other solvents like olive oil do not require the use of boiling water for separation processes but may use water for initial extraction of cannabinoids (Ibid). Similarly, the amount of wastewater that is generated will vary depending on the specific manufacturing process that is used, and the amount of energy consumption that is required would depend on the specific extraction methodology and equipment that is used in the manufacturing process.

Finally, those who engage in manufacturing may operate out of the same facilities that are used for other types of cannabis uses (e.g., indoor cultivation sites) or occupy a separate facility/location. Regardless of the location, processing facilities are likely to have areas for processing equipment; storage area(s) for securely storing cannabis and cannabis products; storage areas for hazardous and other materials used in manufacturing processes; parking areas for transport vehicles; office; and amenities for employees (e.g., breakroom and restrooms).

TESTING

Quality control testing is conducted to ensure that products are safe for human consumption. Testing involves shipping a sample of cannabis product that is ready to be sold from the cultivator or manufacturer to the testing laboratory to conduct quality control testing pursuant to State law. Once approved, the cannabis product can be sold to consumers.

DCC adopted regulations implementing Business and Professions Code Section 26100(f)(2) pertaining to the establishment of a standard cannabinoids test method, including standardized operating procedures (SOPs) that all licensed testing laboratories in California must use. The SOPs include standard procedures and instructions for the determination of cannabinoids concentration for dried flower, including non-infused pre-rolls by High Performance Liquid Chromatography (HPLC). The HPLC process involves use of water, methanol, acetonitrile, and formic acid as reagents and requires use of the following specific technologies and equipment:

- HPLC equipment consisting of a column module, solvent delivery module, photodiode-array detection module and sampling module that can separate the cannabinoids of interest.
- Tissue homogenizer capable of grinding samples to less than 1 mm.
- Cryogenic grinder capable of grinding samples to less than 1 mm (DCC 2022).

Many licensed laboratories use testing methods that are similar to those that are required for the commercial cannabis industry and, consequently, are in possession of all relevant apparatus and materials necessary to comply with the State's testing criteria.

There are no minimum spatial or other design requirements that apply to testing laboratories. However, the design of laboratories typically involves consideration of the following:

- Use of equipment including bench space, fume hoods, and biosafety cabinets
- Minimum floor-to-floor and ceiling heights
- Column-free zones
- Lab modules and structural bays
- Areas for office space, cold storage, collaboration, restrooms, breakroom, and any other ancillary uses/activities
- Areas for the storage of hazardous materials and waste (Saggars and Paskanik, N.D.; ULP, 2025)

Given the similarities between non-cannabis and cannabis testing labs regarding the types of equipment and testing procedures that are conducted, it is possible that existing labs that currently do not test cannabis and cannabis products may expand their operations to do so. Alternatively, entirely new labs could be established to test cannabis and cannabis products. Those who possess a State testing license may not possess a license to conduct any other type of commercial cannabis activity; therefore, testing labs would not be combined with any of the other commercial cannabis activities that the Project would allow.

Testing labs would create water demand from the use of water as a reagent in testing processes, as well as water for employees' consumption and restrooms. In addition, testing labs would produce wastewater generation from testing processes and employees' use of restrooms. Energy consumption would result from lighting, heating, and use of equipment in testing laboratories. Finally, laboratories' operations would involve the storage, use, and handling of certain hazardous materials such as methanol and formic acid.

RETAIL – STOREFRONT AND NON-STOREFRONT

Cannabis retail businesses offer direct sales of cannabis and cannabis products to consumers. There are two primary types of cannabis retail businesses based on the activities performed and sales model, as follows:

- **Storefront retail**. Cannabis storefront retail is a "brick and mortar" or dispensary model, where customers visit the retailer to shop and purchase cannabis and cannabis products.
- **Non-storefront retail**. Cannabis non-storefront retail is a delivery-only model, where customers shop and order online or by phone and the cannabis or cannabis products are delivered by the retailer to the customer.

The floor plans and designs of storefront retail cannabis businesses vary based on the desired branding, customer experience, inventory management, presentation/display of products, etc., but most include the following general components: security check-in area near or at the public entrance; display area(s) for cannabis and cannabis products; locations and/or equipment for cashiers ("budtenders"); storage area(s) for products; restrooms; parking for employees and customers; (un)loading areas; employee/supplier entrance separate from the public entrance; and ancillary spaces for employees (e.g., breakroom and office).

Storefront retail establishments tend to fall within one of the following design typologies:

- **Bank.** As the name suggests, bank style layouts have a similar flow to a local bank, whereby products are located at stations with their own cash registers, and the customer selects products and their order is fulfilled on the spot by an employee.
- **Pharmacy.** The pharmacy style layout provides a similar customer experience to bank style layouts. In this design, the customers view products located in locked display cases and an employee meets them on the sales floor with a tablet or handheld device to fill a digital shopping cart for the customer. Once the customer is done shopping, the employee completes the sales transaction and the order is fulfilled in the secured back of house.
- **Open Retail.** The open retail layout involves the display of dummy products, or products that are locked in cases, so customers can fill their own digital shopping cart from a QR code or link on their phone as they browse. Employees will then check and enter the customer's order on the sales floor for it to be filled in the back of house. The guest checks out at a centralized pay station and receives their order.
- **Kiosk.** In the kiosk model, displays of products exist on the sales floor along with kiosks at which customers may place their orders. Once the order is placed, the customer works with an employee at a central terminal to complete the transaction and receive their product (Flowhub 2025, Shelter 2023).

Non-storefront retail cannabis establishments do not have the same space and design requirements as storefront retail cannabis establishments, given that they are not designed for the purpose of creating a specific onsite customer experience, branding, presentation/display of products, etc. Instead, facilities are designed solely for employees' use and typically include: storage area(s) for products; area(s) for assembling/packaging customer orders; restrooms; parking for employees; (un)loading areas; employee/supplier entrance(s); and ancillary spaces for employees (e.g., breakroom and office). As stated above for distribution, given the relatively small size and light weight of cannabis products, deliveries are typically conducted using standard automobiles or vans, rather than hauling trucks.

Cannabis retail businesses would generate water demand from employees' and, in the case of storefront retail, customers' consumption of potable water and use of restrooms. In addition, cannabis retail businesses would produce wastewater from the use of restrooms. Energy consumption would result from lighting, heating, and equipment usage (e.g., computer cash registers).

MICROBUSINESSES

The Project would allow cannabis microbusinesses that consist of at least three of the following small-scale cannabis activities at one location:

- Indoor cultivation with a maximum canopy size smaller than 10,000 sf
- Non-volatile manufacturing
- Distribution
- Storefront retail sales
- Non-storefront retail sales

Given the options of cannabis activities that can constitute a microbusinesses, the physical requirements for conducting microbusinesses can vary. However, it is likely that microbusinesses will involve the same types of spatial configurations, equipment, facilities, resource consumption, and waste generation as the corresponding uses described above—albeit at a smaller scale than would occur if any of the uses constituting the microbusiness were to be licensed as standalone uses (e.g., 10,000 sf of indoor cultivation canopy with a microbusiness license, rather than 22,000 of indoor cultivation canopy for an indoor cultivation license for a single operator).

References

California Code of Regulations (CCR), Title 4, Sections15000 through 17905. https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=ICB5239D0543B11ECAE2D000D3A7C4BC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

California Department of Cannabis Control (DCC). 2023. Guidance: Electricity Usage Reporting for Licensees. https://cannabis.ca.gov/wp-content/uploads/sites/2/2023/03/guidance_licensing_electricity-usage.pdf

----------June 17, 2022. Initial Statement of Reasons—Standard Cannabinoids Test Method. DCC Cannabinoids Test Method ISOR 2022-0603 CD

California Department of Fish and Wildlife (CDFW). N.d. Cannabis Program. https://wildlife.ca.gov/Conservation/Cannabis

----------2025. Cannabis Cultivation Permitting. https://wildlife.ca.gov/Conservation/Cannabis/Permitting

CalRecycle. 2022. Cannabis Waste Questions and Answers.

Cannabis Control Commission, Commonwealth of Massachusetts. N.d. Best Management Practices for Water Usage. https://masscannabiscontrol.com/efficiency-sustainability/water-usage

Douglas, Ryan. 2022. Ways to Calculate Water use and Transpiration Rates for Indoor Cannabis Cultivation. Greenhouse Grower. https://www.greenhousegrower.com/production/how-to-calculate-water-use-and-transpiration-rates-for-indoor-cannabis-cultivation/

Easy Cannabis Waste. N.D. Why Cannabis Plant Waste Matters More than you Think. https://www.easycannabiswaste.com/blog/why-cannabis-plant-waste-matters-more-than-you-think/

Flowhub. N.D. Dispensary Design: Which layout is right for your store? https://flowhub.com/dispensary-design

Lazarjani, Masoumeh Pourseyed, Owen Young, Lidya Kebede, and Ali Seyfoddin. July 19, 2021. "Processing and Extraction Methods of Medicinal Cannabis: A Narrative Review." *Journal of Cannabis Research*. 3:32.

Los Angeles County Code (LACC). 2025. Title 22 – Planning and Zoning. Mini TOC: Title 22 - PLANNING AND ZONING | Code of Ordinances | Los Angeles County, CA | Municode Library

Milewide Nursery. 2015. May 2015 Humboldt County Cannabis Water Use Study. https://humboldtgrower.wordpress.com/2015/05/07/may-2015-humboldt-county-cannabis-water-use-study/

Mills, Evan. 2012. The Carbon Footprint of Indoor Cannabis Production. Energy Policy. https://www.researchgate.net/publication/254408509_The_Carbon_Footprint_of_Indoor_Cannabis_Production

New Frontier Data, Resource Innovation Institute, and Berkley Cannabis Research Center. 2021. Cannabis H20: Water Use and Sustainability in Cultivation. https://f.hubspotusercontent10.net/hubfs/3324860/Reports/NFD-CannabisH2O.pdf

New Frontier Data, Scale Microgrid Solutions, and Resource Innovation Institute. 2018. The Cannabis Energy Report. https://resourceinnovation.org/wp-content/uploads/2018/11/The-Cannabis-Energy-Report.pdf

Saggars, Aaron, and Mark Paskanik. N.D. Laboratory Facility Requirements: A Key Decision-Making Guide. https://www.crbgroup.com/insights/laboratory-facility-requirements-a-key-decision-making-guide

Shelter Architecture + Interior Design. September 25, 2023. Cannabis Retail Building Typologies. https://shelterarchitecture.com/blog/cannabis-retail-building-typologies/

State Water Resources Control Board (SWRCB). 2019. Cannabis Cultivation Policy: Principles and Guidelines for Cannabis Cultivation. https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy/final_cannabis_policy_with_attach_a.pdf

----------2022. Regional Permit Program Page. https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/regional_permit.html

----------2023a. Order WQ 2023-0102-DWQ, General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities. https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2023/wqo2023-0102-dwq.pdf

----------2023b. Industrial Cannabis Cultivation Wastewater Characterization Study 2023. https://www.waterboards.ca.gov/lahontan/water_issues/programs/cannabis/doc/wastewater-characterization-summary.pdf

----------2024a. Water Boards Cannabis Cultivation Program. https://www.waterboards.ca.gov/water_issues/programs/cannabis/

----------2024b. General Water Quality Certification for Activities Complying with the Cannabis Cultivation Policy. https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/cannabis-general-wqc-2024.pdf

University Lab Partners (ULP). February 20, 2025. Key Considerations When Building Your Own Research Lab Space. https://www.universitylabpartners.org/blog/key-considerations-when-building-your-own-research-lab-space

Zheng, Zhonghua and Yang, Liangcheng. 2021. A narrative review on environmental impacts of cannabis cultivation. Journal of Cannabis Research. https://jcannabisresearch.biomedcentral.com/articles/10.1186/s42238-021-00090-0