From Seed to Sale

by

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Abstract

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The history of cultivating cannabis can be traced back to at least the 3rd millennium BCE, as evidence suggests it was consumed for psychoactive effects at least 2,500 years ago in the Pamir Mountains in central Asia. Viewed quite negative in recent centuries though, cannabis is currently illegal in most of the countries in the world, including the United States at the federal level.

Started as early as in the 1970s, cannabis was first legalized in few states in the US for medical use. Later, as more states adopted lenient policies on the substance, the voice for the decriminalization of recreational cannabis increased.

Now, as 12 states already legalized recreational cannabis and more than 30 states permit medical cannabis, the cannabis industry presents not only core business opportunities but also an arena for related building and facility design and development.

Excited about this landscape, this thesis aims to explore unique building prototypes for cannabis operators and examine innovative investment opportunities through real estate investment trust (REIT) in the cannabis industry.

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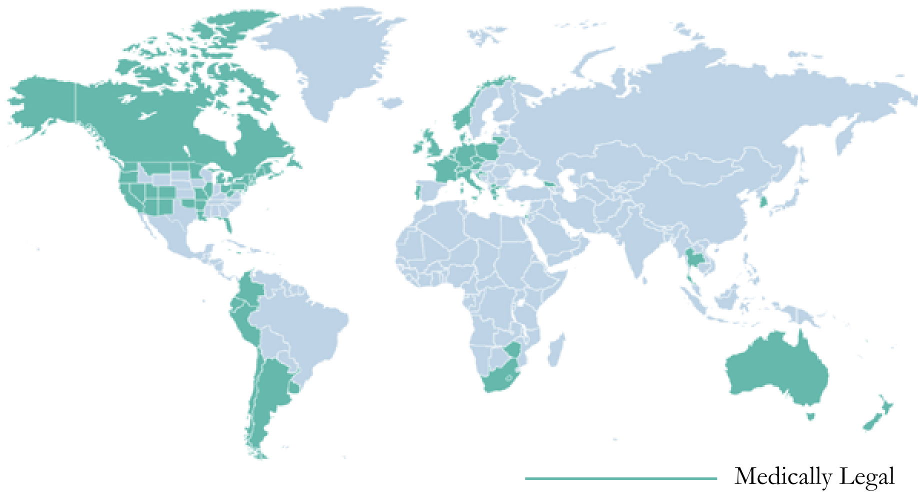
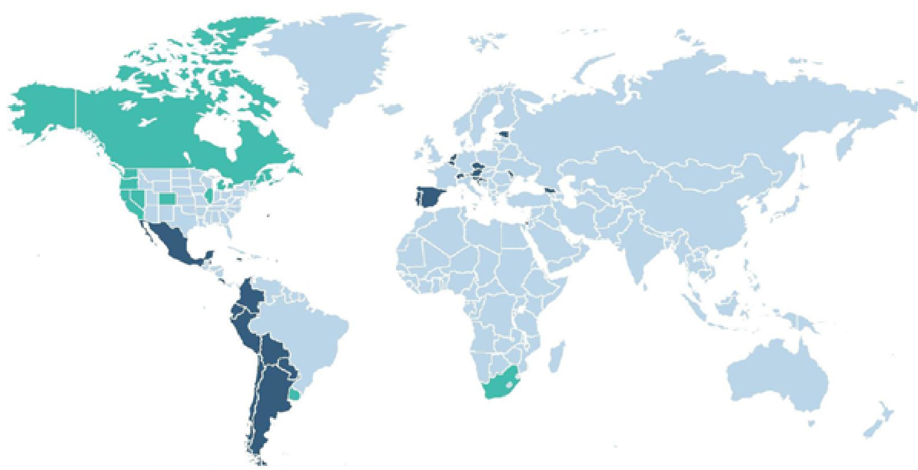
Chapter 1
Background

Cannabis Legality: *Worldwide*

For Medical Use



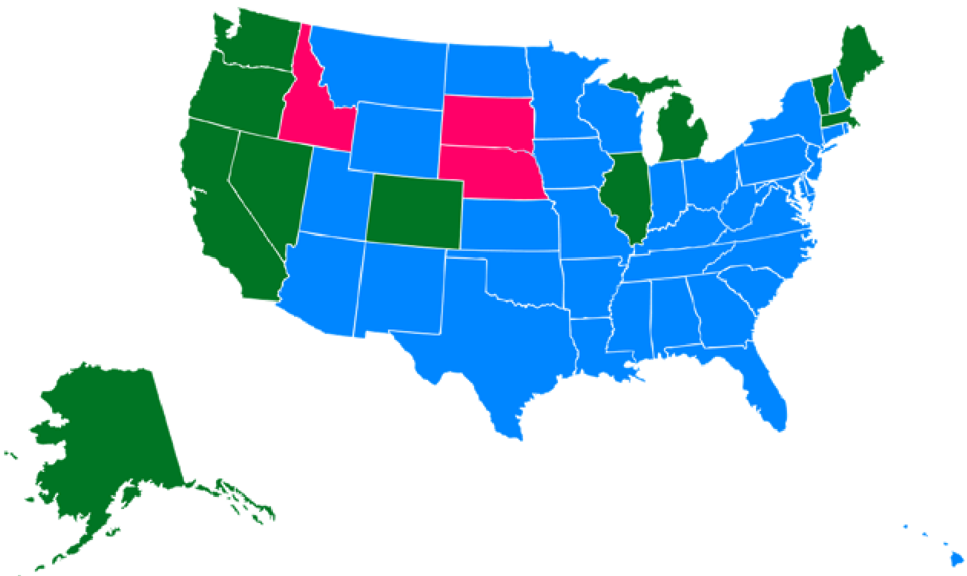
For Adult Use



Source: Wikipedia

By 2019, 40 countries have legalized medical cannabis more countries expected to legalize in the next 12 months. State governments are working hard on establishing education and access programs and research institutes, such as Massachusetts Institute of Technology (MIT), are conducting studies on the efficacy of cannabis as a medical product, which will only increase patient access in the long-term.

Cannabis Legality: *United States*



Fully legalized

Medically legal

Prohibited

Has it been decriminalized?

Is growing legal?

Is possession a felony under any conditions?

Prescriptions needed?

Is transportation legal?

Is THC limited?

Alabama

Alaska

Arizona

Arkansas

California

Colorado

Connecticut

Delaware

Florida

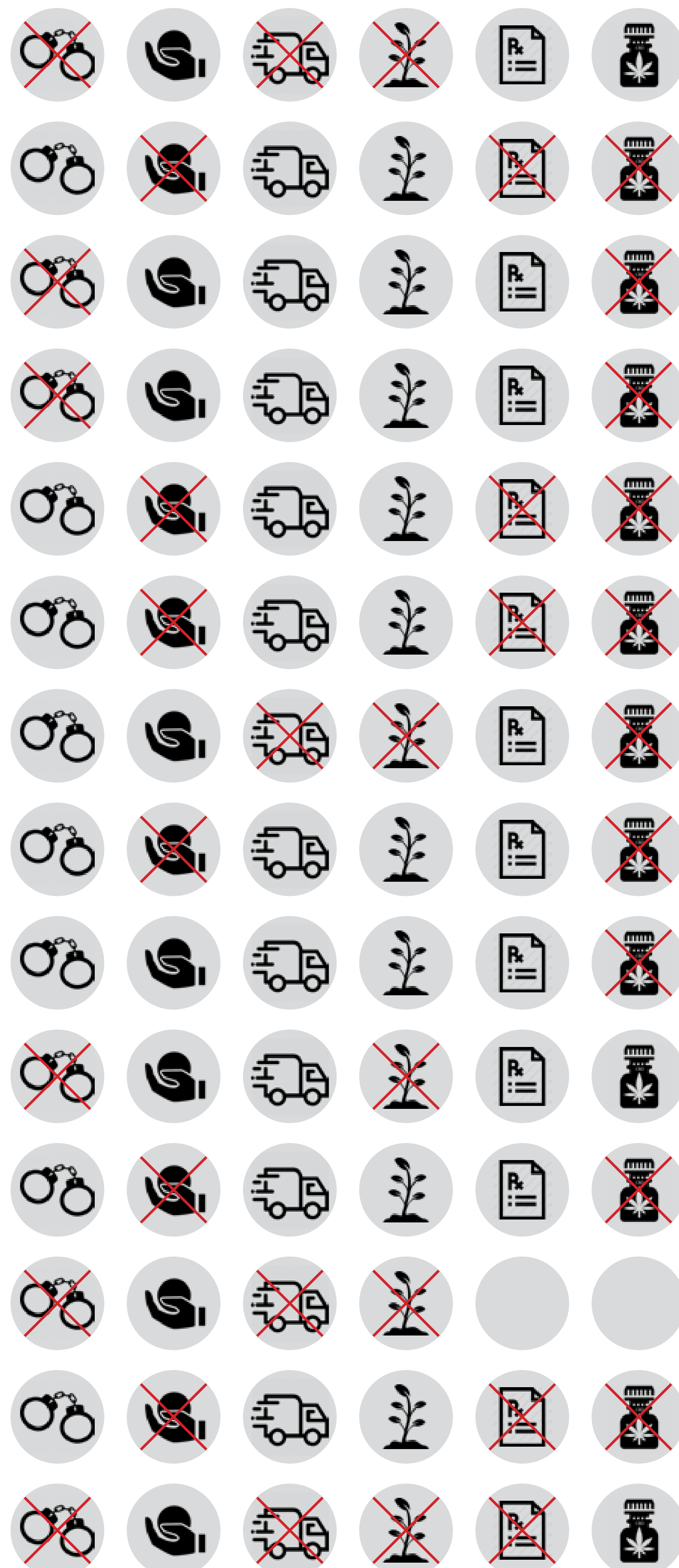
Georgia

Hawaii

Idaho

Illinois

Indiana



Iowa

Kansas

Kentucky

Louisiana

Maine

Maryland

Massachusetts

Michigan

Minnesota

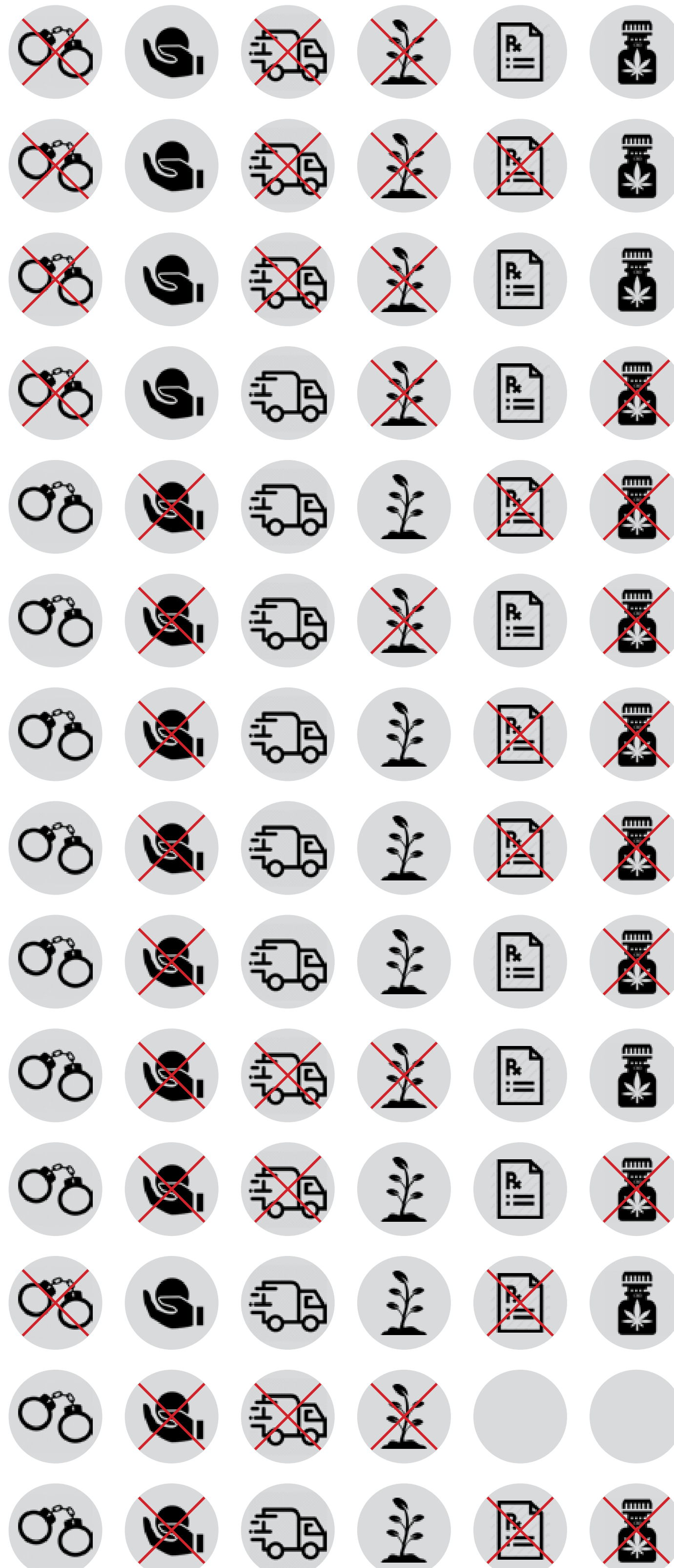
Mississippi

Missouri

Montana

Nebraska

Nevada



New Hampshire

New Jersey

New Mexico

New York

North Carolina

North Dakota

Ohio

Oklahoma

Oregon

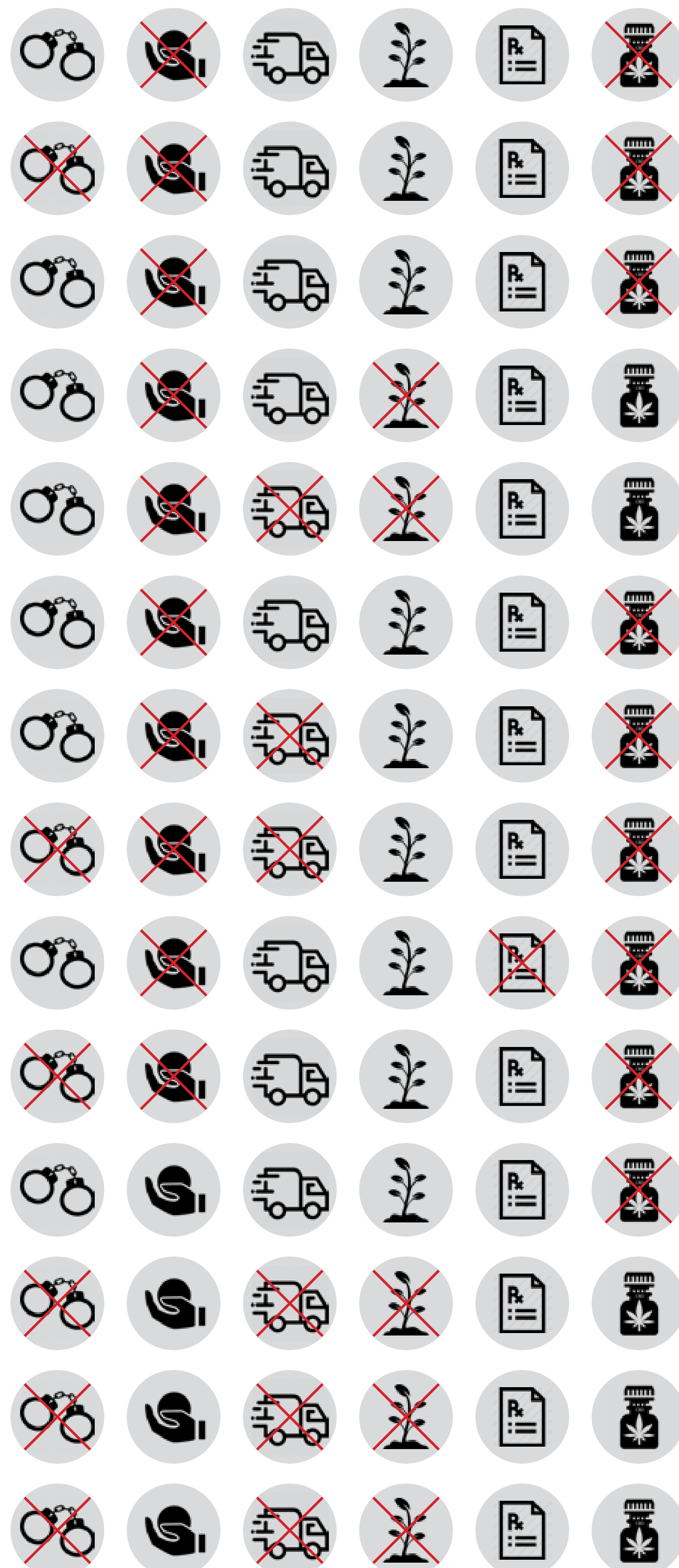
Pennsylvania

Rhode Island

South Carolina

South Dakota

Tennessee



Texas

Utah

Vermont

Virginia

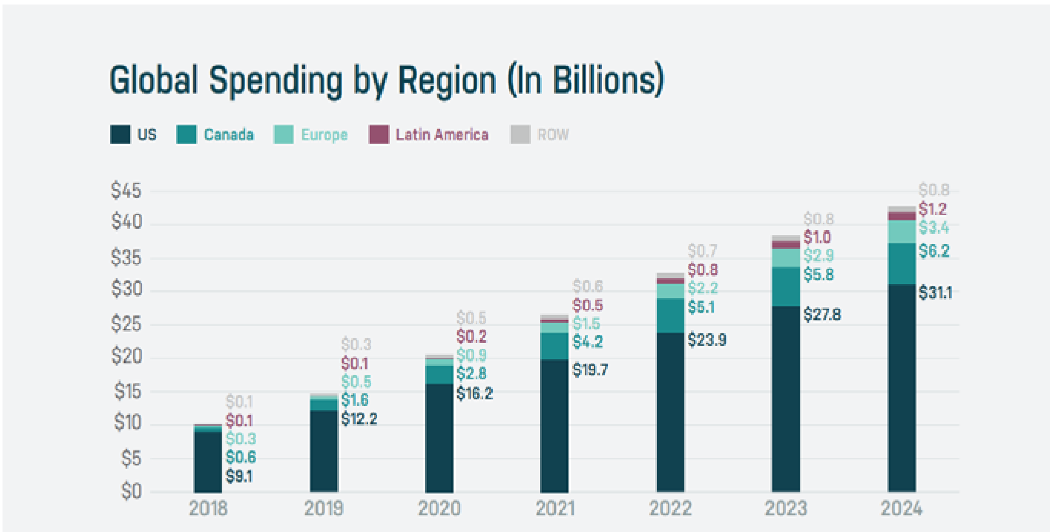
Washington

West Virginia

Wisconsin

Wyoming

Cannabis Economy Worldwide



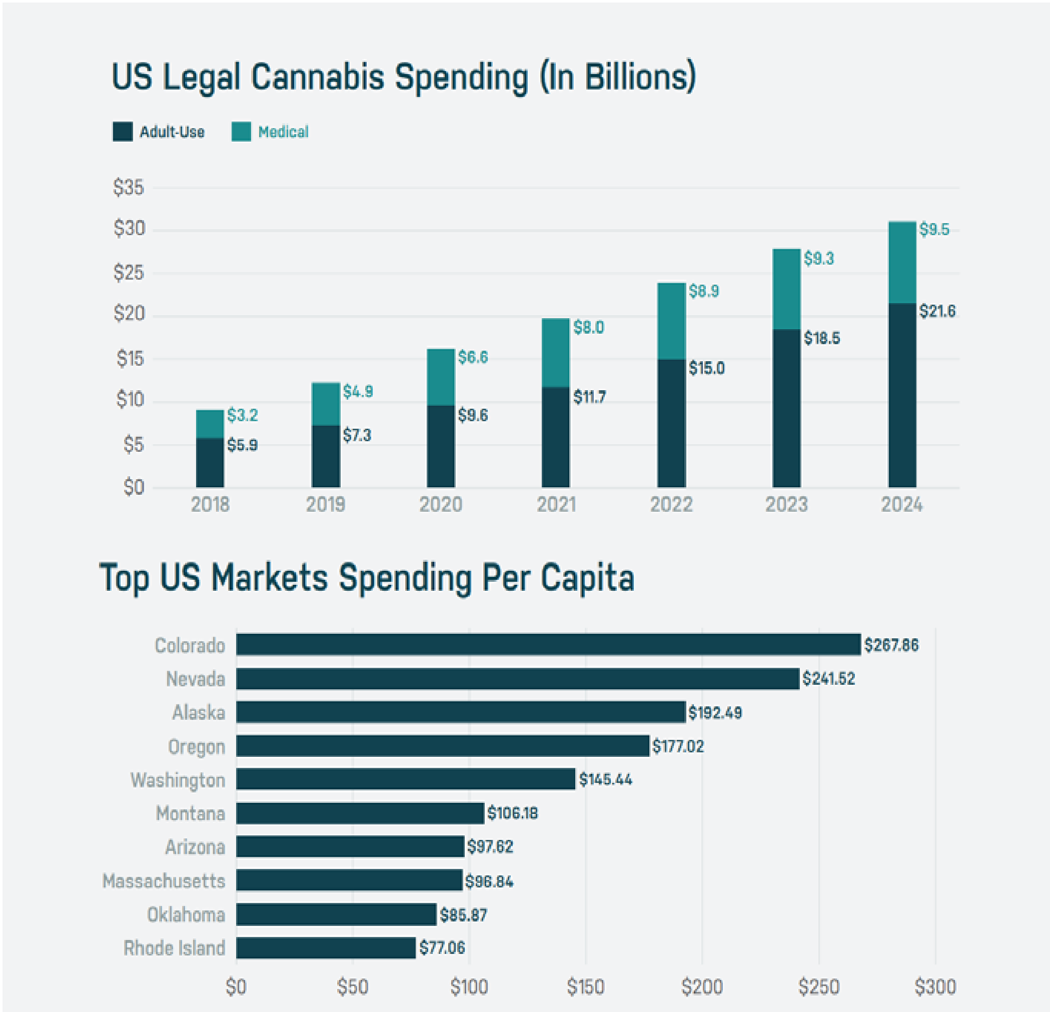
Source: Arcview Market Research/BDS Analytics

The global legal cannabis industry generated an estimated $14.9 billion in 2019, up 45.7% from 2018, which saw 17% growth to 10.2 billion.

A whole new route to legalization opened in Mexico when the country's supreme court ordered to legislative branch to approve, and therefore the executive branch to implement, adult-use legalization in 2018. Legislators bough themselves a six-month extension in November 2019. But judicially mandated legalization could present a whole new model from the traditional one in which voters have had to use the initiative process - or in more recent cases, political pressure - to force legislators to legalize.

If successful, the adult-use change in Mexico would make it co-leader with Germany's medical-only market in driving total legal market outside the US and Canada from $517 billion in 2018 to $5.4 billion in 2024.

Cannabis Economy United States



Source: Arcview Market Research/BDS Analytics

Last year was a mixed bag of results for the dozens of independent state markets that together constitute the world's largest legal cannabis market. Total legal spending on medical and adult-use cannabis in the U.S. reached an estimated $12.2 billion in 2019, an increase of 34% over 2018's total of $9.1 billion. While regulatory and legal issues hindered growth in the largest adult-use and medical-only markets in California and Florida, respectively, bustling activity in states from Illinois to Maryland, and even tiny Oklahoma, helped boost overall spending growth nationwide.

Legal adult-use spending in the U.S. grew to $7.3 billion in 2019, accounting for just under 60% of total cannabis spending. That is a slight decline from the peak of nearly 65% in 2018—while adult-use spending grew by more than 24% in 2019, existing and emerging state medical markets increased sales by 52% during the year. In 2019, the U.S. accounted for more than 82% of total worldwide legal cannabis spending—maintaining a lead that will lessen over the next five years but not by much, as additional legal cannabis markets around the globe emerge and flourish.

Total legal cannabis spending nationwide is forecast to increase by an additional 32% in 2020 to total nearly $16.2 billion. New adult-use markets in Illinois and Michigan will contribute just over $700 million in new spending growth in 2020. U.S. legal spending is forecast to reach $31.1 billion in 2024, rising at a compound annual growth rate (CAGR) of nearly 23% from $9.1 billion in 2018. In 2024, adult-use is expected to account for almost 70% of the national total. The U.S. will account for nearly 73% of total global legal cannabis spending that year.

Thoroughly understanding how cannabis is grown is critical to generating thoughtful production facility design solutions. The ultimate goal of this chapter is to know how to scale production from a single plant up to as many plants as possible, which matters to a medium or large commercial production site.

Before started: in-door of outdoor

Like other plants, cannabis can certainly be grown outside as it requires less up-front investment. However, this will result in leaving the plant at the mercy of environmental conditions and unpredictable nature for better or worse. With an indoor hydroponic production on the other hand, the grower can have full control of every factor that will impact the quality and size the of the harvest.

Chapter 2
Production

Cannabis Production

Step 1: which strains

Buds vary greatly in look, smell, and effects. But no matter which one to have, it is important to know that there are two basic types, classified by gender, male and female. Only female plants carry the buds and cannabinoids, but male plants are needed for breeding. Generally speaking, there are three types of strains: sativa, indica, and hybrid.

Sativa:
  Grow tall (esp in the flowering phase)
  Heat resistant
  Long buds
  Generate an easy, uplifting effect
Indica
  Grow short
  Cold resistant
  Dense buds
  Generate a calming, relaxing effect
Hybrid
  Mix of Sativa and Indica
  Small buds
  Short growth cycle (2-3 months)

Step 2: set up an indoor environment

As discussed in "before started", indoor growing has a much more advantages compared with an external one. Typically, there are six most important factors for setting up a successful grow room for cannabis plants: light, ventilation, watering system and humidity, temperature, nutrient delivery, and security.

(1) Light: lamps, reflector and wall color are the key components in the category. Plants need light to carry out photosynthesis. In the vegetative phase your plants will need 18 hours of light, 6 hours of darkness. In the flowering phase 12 hours of light and 12 hours of darkness.

LED or HPS/MH lighting are good for the indoor production. A 400-Watt for vegetative phase and a 600-Watt HPS lamp for flowering phase for every square meter will be a great start. Reflective walls are important to work with the lighting. White walls work best for reflecting light, whilst dark or black whiles will absorb the light.

(2) Ventilation & air circulation: air circulation and fresh air are important. All the out-going air will need to pass through a carbon filter. An air extractor will remove the heat for the lamps to keep the temperature stable as well as remove the odor of the plants.

During photosynthesis the plants take CO2 (carbon dioxide) and transform it into oxygen and sugars. The closed environment of a grow box will need a hole or entry point to supply fresh air and CO2 for the plants. Fans are important for consistent air circulation. This makes sure that temperature and CO2 will spread evenly throughout the room.

(3) Watering: the floor being waterproof is very critical, as water will inevitably run from the pots to the floor.
Humidity is also critical. The humidity level will directly affect the growth of the plants . Too much humidity will cause fungus and mold.
(4) Temperature: to maintain a stable temperature, an airflow system and a fan will help prevent overheating of the plants. Temperature is crucial for the photosynthesis of the plants and more over for the tasting for the results. Best temperature, according to the industry practice, is 77. Anything that is below 64 and above 86 is not wanted.

(5) Nutrient delivery: nutrients are vital for the health of the plants. Therefore, it is important to measure them on a regular basis and take com-

mensurable actions accordingly. It will be important to provide nitrogen, potassium, and phosphorus for the plants.

(6) Security: for obvious reasons. We don't want to see our fruits being stolen or exposed to unwanted targets.

Step 3: propagation - how to clone a weed plant or grow from seeds

The art of growing cannabis essentially involves two parts: replicating known genetics and creating new genetics.

Cloning cannabis: cut a part of the existing plant to create a clone. This process is called vegetative propagation. When exposed to right conditions the cuttings will develop new roots and grow into a new plant.

Growing from seeds: when the pollen of the male plant pollinates the female organs, it results seeds. A seed is an embryo and when it is placed in the environment with proper soil, temperature and humidity, it will prosper into a full-blown plant. Growing from seeds is interesting as it offers more variations when the grower mixes different male and female breeds. This could result in some surprisingly good new species.

Step 4: set up ventilation system for cannabis grow

Ventilation will allow the plants to be equipped with CO2 for growth as well as regulate the temperature of the grow room. It is directly impacting on plants quality therefore yields. To develop a successful ventilation system, growers usually will need the following key equipment.

Thermometer: the main source of heat will be lights. Fans and extractor fan system can make sure that the temperature stay stable throughout the entire area. Extractor fans will pull the hot air out of the room and pump in fresh and cool air. A fan within the room will regulate the airflow when growing indoors.

Since the hot air will rise to the top in the space, it will make more sense to place the extractor fans near the ceiling to distribute the warmth.

For a grow room, a rule of thumb is that there needs to be an exhaust fan for every foot of room. Besides, if the room is more hot or more humid, an exhaust fan with a higher cubic feet per minute performance will be more ideal. It is always easier to reduce the speed of the fan or turn it off when the capacity is too big.

Exhaust fans: with filters is extremely important. The filters will help control the smell of marijuana production. Therefore, a carbon filter eliminating the smell is crucial. The way it works is that a grow room will need an active or passive intake to move fresh air inside. These intakes are intractor fans. Passive intakes are basically holes. Creating a negative airflow within the space through the exhaust fan the hole will automatically suck in fresh air to balance the pressure.

Oscillating fans: to circulate the air in the room so that every plant in the hydroponic systems is reached. Oscillating fans can dry up the top part of your plants' container, therefore making them less attractive for fungus or pests to settle in. The artificial breeze they create will take away the moisture of the plant's transpiration as well as the humidity created by you watering the plants. This will significantly reduce the chances of your plants getting white powdery mildew, bud rot or mold. However, these fans cannot blow directly at the plants as they will damage the leaves.

Humidity: 85% when cloning, 65% in vegetative stage, 45% flowing
Step 5: set up lights

There are four types of lamps that are mainly used for growing cannabis:

- LED grow lights
- Fluorescent grow lights (T5 and CFL)
- Metal Halide grow lights

- High Pressure Sodium grow lights

(may unfold more about the lights in the future)

Step 6: set up water systems

The beauty of growing an indoor hydroponic grow system is that it gives you full control of the water supply as well as quality and most importantly the combination of nutrients in the water.

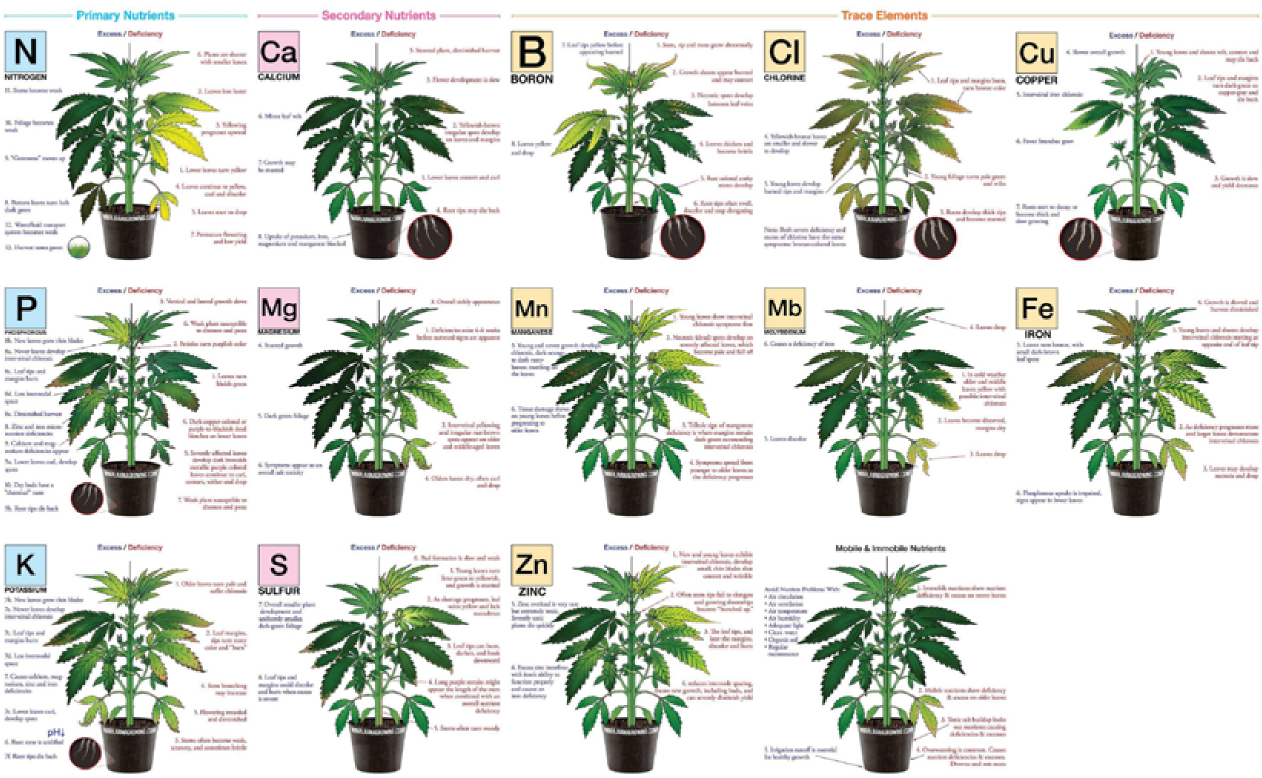
There are two ways of growing with water: growing within water (hydroponics) vs watering your plants.

Hydroponics is also called deep water culture (DPC). This method allows the grower to put plants in a well-oxygenated solution of water and nutrients instead of growing medium. An air pump will infuse the water with air so that the plants will not be drown. In comparison to growing in soil, plants grow extra fast in water. It should be noted that the system works best for large amounts of plants, thus perfect for commercial production.

Growing in water is tricky, and therefore there are few key points growers need to be aware:

- A power back-up is needed in case of electricity outage. Without the air pumps the plants might drown in the low-oxygen water
- A pH control as well as a PPM meter are needed. A pH between 5.5 and 7 is fine without need for adjustment for the growing environment
- Water temperature needs to be constantly monitored. It should not go over 68 since oxygen level will start to fall
- Monitor the root-related diseases for the plants. Remove and destroy sick plans immediately as it is contagious through water.

Cannabis Nutrient Deficiencies & Excesses



Source: Loudclouds.com

Step 7: nutrients

The only chance to grow without nutrients is in soil.

One key point to remember is that even though we are growing cannabis, the basic rules of gardening still apply – a marijuana plant is still like other plants. Therefore, three main nutrients are still very critical: nitrogen, phosphorus, and potassium. The ratio between the three elements 10-5-5, meaning 10% nitrogen, 5% phosphorus, and 5% potassium. Nitrogen fosters growth. Phosphorus encourages growth of roots and flowers. Potassium promotes growth of roots and photosynthesis. The basic rule is: keep potassium high and phosphorus medium to high throughout vegetative as well as the flowering phase. On the contrary, keep nitrogen high in vegetative phase and low for flowering phase. Secondary nutrients are sulfur, calcium, magnesium, trace minerals or micro nutrients. It is important to add these nutrients to the water if using hydroponics since they are normally provided only by the soil.

After preparing and going through the above steps, the cannabis will start to go through three major phases to become ripe.

Phase 1: vegetation

The vegging stage starts once the plants have developed enough of a root system to take in water without a humidity dome that was used for seeds or cuttings before.

Phase 2: flowering

When the plants switch from the vegetation to the flowering stage, the growth will eventually get slower. When the plants start to develop flowers (buds), it is the time to change light and nutrients. The entire flowering will be about 8 weeks and consists of the following stages: transition, first buds, growth of buds, buds ripen and harvest.

Phase 3: harvest

Harvesting will be about 8 to 10 weeks. Timing is essential during harvesting because it determines the cannabinoids levels in the buds. Depending on the goals growers have in mind for the yield (recreational, medical, subtle, strong), growers need to maximize the THC or CBD level. Harvesting too early means missing potency and yield. Harvesting too late might lead to a highly sedative product. When optimizing for marijuana with a high THC level, wait until the THC crystals in the resins on the buds have coated the buds in the latest phase of the flowering stage. But growers cannot wait too long, because the THC will start to degrade into CBN. CBD is mostly used for medical effects. Good news: CBD does not degrade over time. If you wait for the THC to degrade into CBN, you can get bigger benefits of CBD.

One last phase: dry and cure

Drying and curing your harvest will bring a ton of benefits, including improving taste, smoothing buds (less coughing), decreasing the chances of anxiety or paranoia, and reducing risk of mold.

Chapter 3
Case Studies

Planet 13 Las Vegas

Located at 2548 W Desert Inn Rd, Las Vegas, Planet 13 dispensary is a cannabis superstore and entertainment complex. The building is a simple box with a iconic planet at the entrance, which somehow reminds us of Newton's Cenotaph.

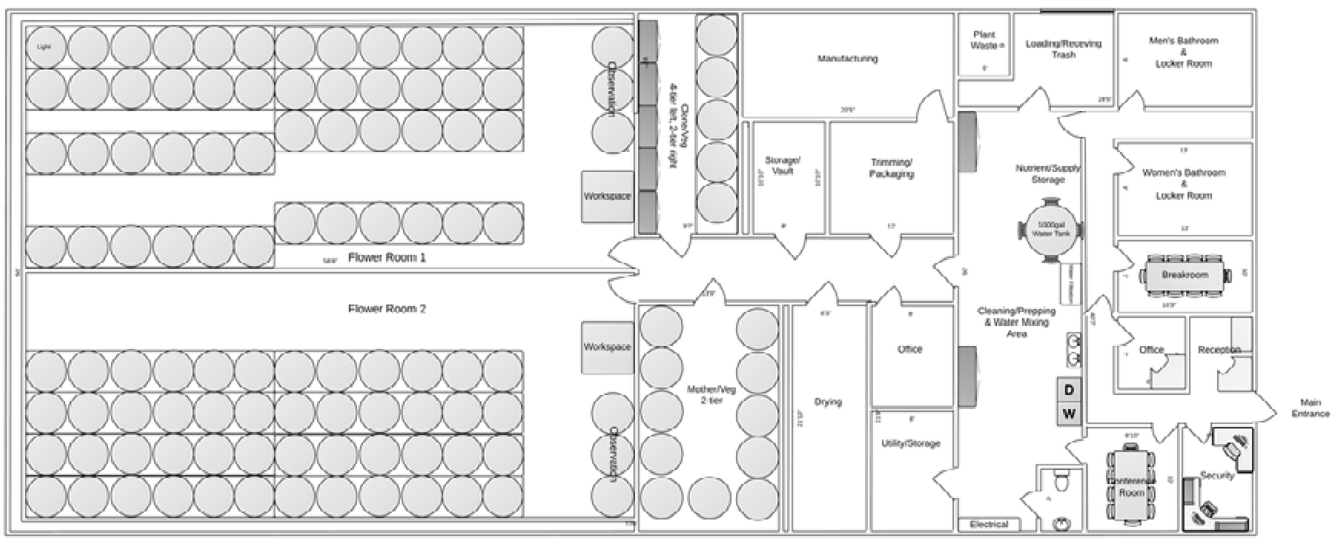
Of course, a cannabis store is in no comparison with the sophisticated Cenotaph for Newton, the unprecedented-ness of this cannabis store is still worth studying.

Due to the regulations, many states require cannabis business operators to manage their business vertically, meaning the operator needs to own and manage cultivation, production, and dispensary operations.

Cannabis operators in the past tended to assign and manage their business functions in designated locations for the cost-saving purpose. Thus, cultivation and production could take place in remote rural areas while dispensaries in urban/suburban areas in order to cut expense.

Often time, production and extraction facilities are put together. Once harvested and processed, the products will be shipped to cannabis stores located in more populous areas.

A Typical Cannabis Greenhouse



Cannabis Facility Floor Plan
by Jennifer Martin

Source: Planet 13

Klaro Cannabis Store
Vancouver, Canada

Planet 13 is an interesting case in that it presents this unprecedented business operations model that houses all their business functions at one single spot on the map.

Source: Planet 13

Planet 13 Production Facilities

Source: Planet 13

Planet 13 Production Facilities

The interesting things about the Planet 13 facility, in many ways, are 1) spatially speaking when multiple functions are gathered, not only it results in higher operations efficiency, but more importantly 2) the commingling creates a wholesome atmosphere which further can very likely result in a sort of culture and style, especially considering cannabis consumption is in fact a traditional, historically practiced societal behavior which we will unfold more in the next chapter. Moreover, 3) that functions being together while being open and visually available to the public, to business owners, is an ideal promotion and opportunity for further revenue collection.

In fact, Planet 13 superstore gives us a lot to reflect, based on our history with cannabis, and the current trend to project a space, an environment for the consumption of such substance.

In the superstore, visitors can easily observe the modern technologies used to cultivate, process, and deliver cannabis products. The experience of observation also resemble the experience of touring in a museum, a gallery, or a live show. That is the powerful part of this holistically planned and designed cannabis dispensary.

Planet 13 Retail Space

Source: Planet 13

Planet 13 Eatery

Source: Planet 13

Planet 13 Eatery

Casino Reinvention

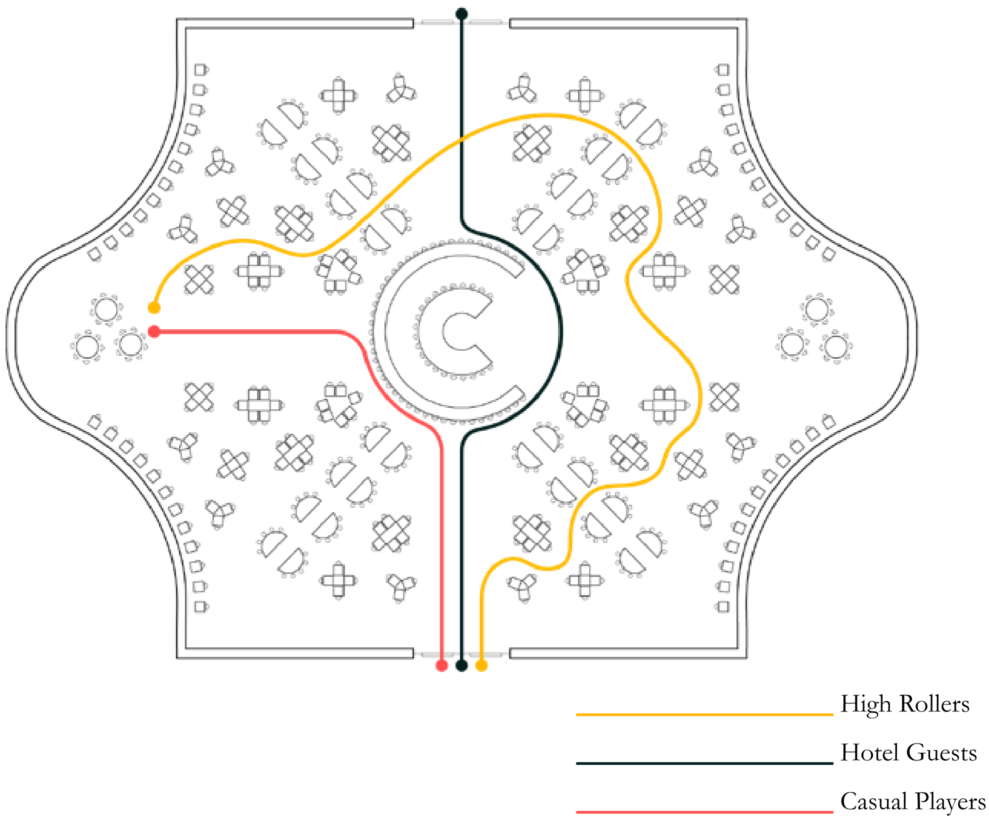
Roger Thomas – the head of design for Wynn Resorts. Received accolade in the field for reinventing the modern casino, creating lovely and relaxing spaces that encourage people to squander their cash.

Thomas was told to create a space for older male gamblers, and so he had filled the gaming area with overstuffed leather armchairs, heavy curtains, and dark mahogany paneling. According to Thomas, the space was very clubby – made for bourbon, testosterone, and cigars. The bespoken design, however, did not generate ideal returns. After some investigation, it became clear that the problem was a demographic one. Men weren't playing these games: women were.

So Thomas redesigned the room. He introduced natural light, threw out the old furniture, replacing it with a palette that he called "garden conservatory" – lime green, white leather, and gold, making it a place where ladies feel comfortable. More than that, bowls of floating orchids are set on tables, stone mosaics frame the walkway, the ceiling is a quilt of gold mirrors, and antique sculptures were worshiped in the room. Starting from there, the hotels under Wynn Las Vegas and the Wynn Macau also adopted the similar design strategies – creating uniqueness in a world of corporate.

Some argues that Thomas' reinventing of the modern casino is psychological. He created spaces allowing people to enjoy the act of losing money, and encouraging them to lose even more. Traditional casinos are designed with an intention to cut both physical and mental connections with the external. No time

Thomas' modern casino reinvention creates environments as adult playgrounds – for they provide an atmosphere where people are encouraged to seek pleasure. The power of the design is tremendous. As the casino data shows, gamblers stay longer, feel better, and bet more. They leave with big losses, but they are allured to return. It's a kind of anesthesia – distracting people from the pain of their inevitable losses – how similar is this with cannabis.



The casino has to “work” for all of these players so they don’t take their business elsewhere.

Designers map out the routes each of these customer types might take as they move through the floor – as the high-rollers walk toward the poker room, or as hotel guests make their way to the elevators.

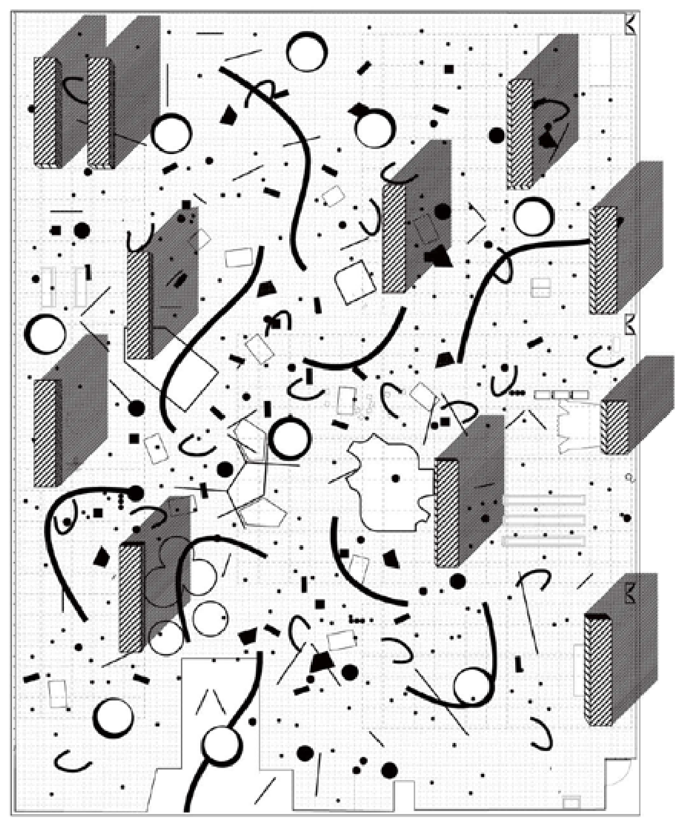
That map is then tweaked to create the maximum amount appeal for each customer. The hotel guests may encounter a variety of game types, showcasing what the casino has to offer, while the casual gamer off the street quickly encounters the flashiest slots without having to walk very far. This leads to the second major step of the layout process: How you design a floor that entices customers to keep venturing inward and away from the exit.

Inspirations for Modern Casino Design

High Ceiling

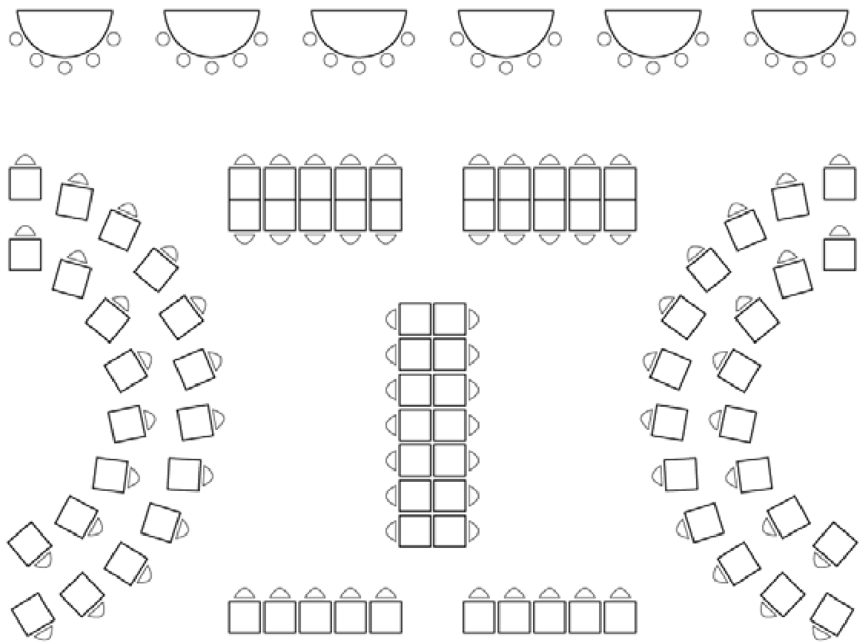
Sunlight

Impressive Art

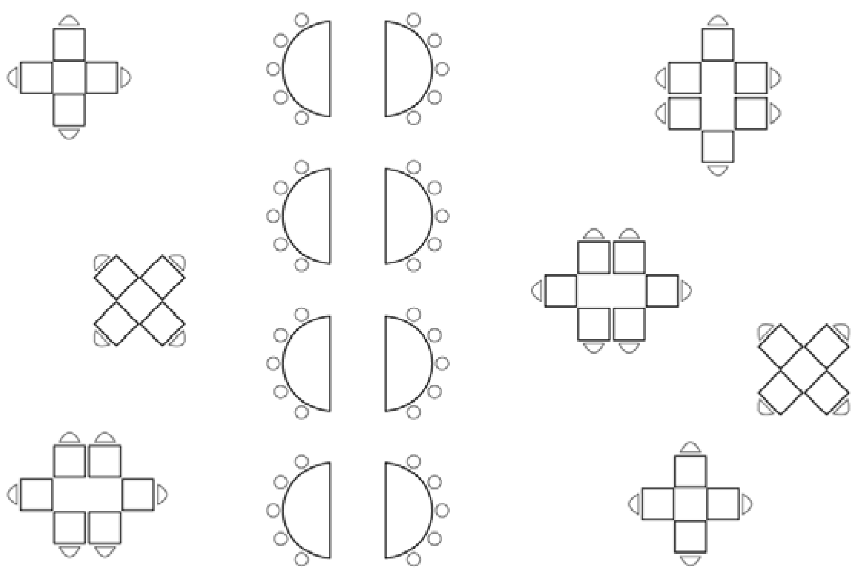


Free Playground

Maze:



Playground:



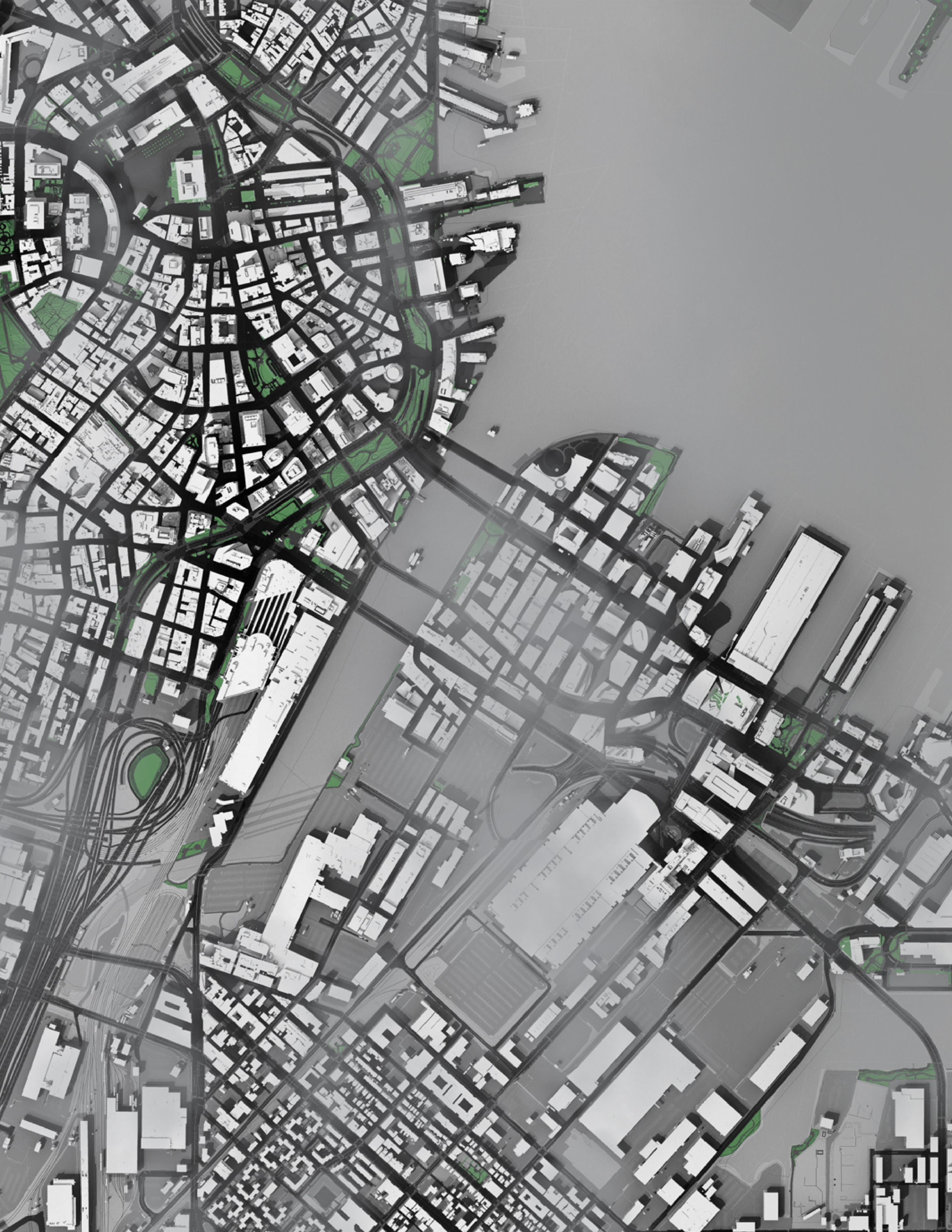
CHAPTER 4
SUPERSTORE DESIGN

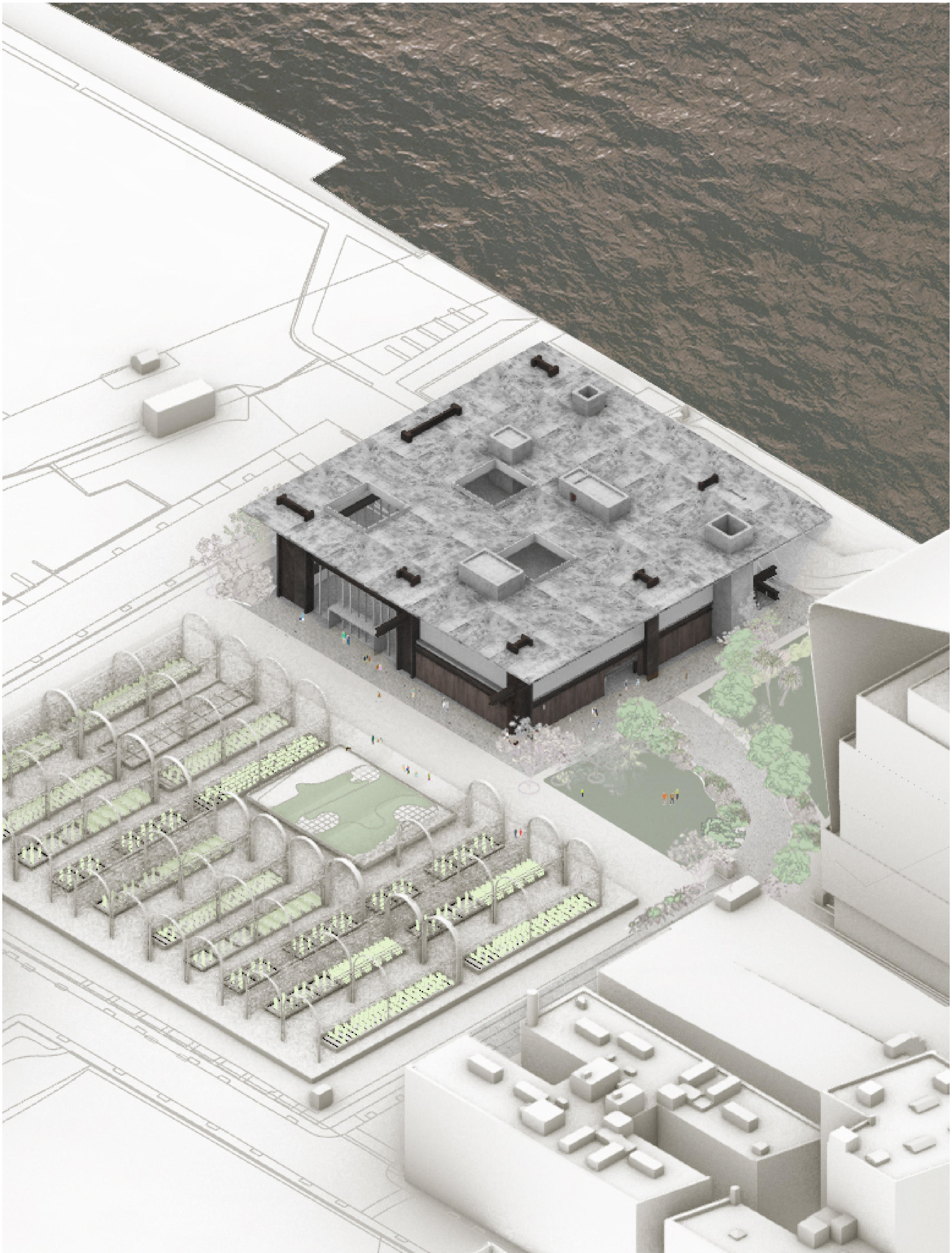
4.1 Site Analysis - Boston Seaport

The site is located in South Boston, conveniently connected to Boston Logan Airport, vibrant Seaport area, Cambridge's higher education institutions, and Boston's Financial District. They together well position the site for transportation, modern vibe, bio-related research, and capital markets, making it a prime location a cannabis superstore venture.

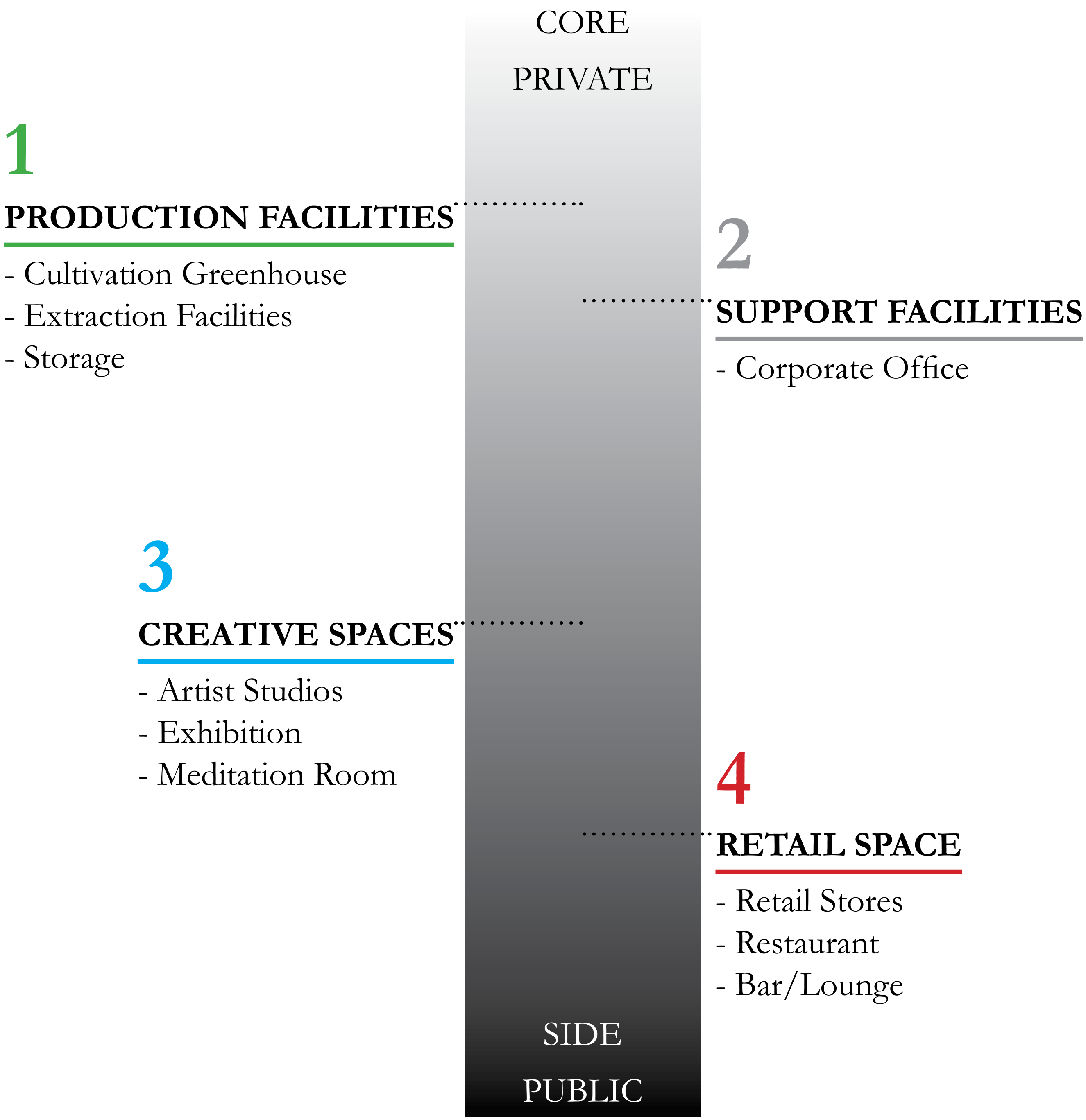
Boston and Boston Seaport District are ideal and attractive in that:

1. South Boston's population experienced a significant growth in the past decade
2. Boston is a strong hospitality market driven by a strong economy, convention schedule, historically constrained supply; Boston occupancy > 75%, ADR >$250 across all segments; Captive demand/customer base due to proximity to convention center and so many retail and commercial businesses nearby
3. Proximity to all traffic transportation means: airport, train station, and ferries
4. Proximity to biotech-related research institutes





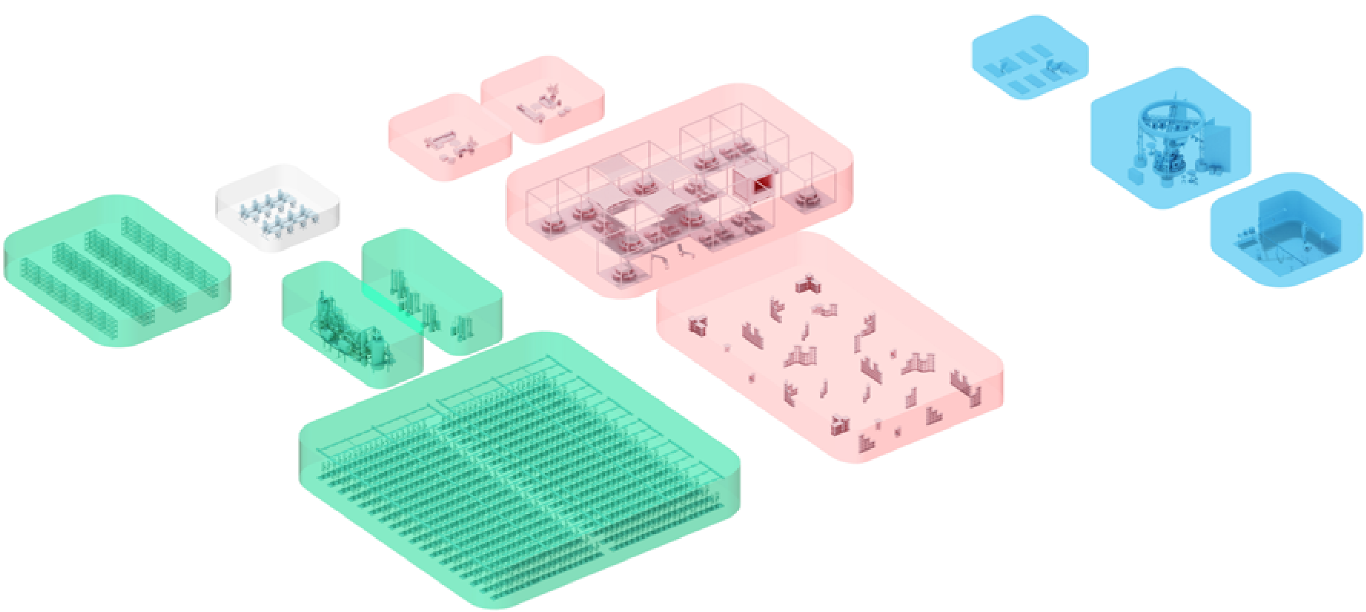
4.2 Programming Study



4.2 Programming Study

Learning from the existing cannabis superstore, Planet 13 in Las Vegas, as well as Wynn's modern casino prototype, the South Boston cannabis superstore proposes a programmatic setting flowing from core and private to side and public. Four major functions are introduced in the superstore:

1. Production:
Cannabis cultivation, processing and extraction, and storage. The core and private function of the entire superstore.
2. Supporting Facilities:
Hosting cannabis conferences.
3. Creative Spaces:
Attracting artists and hosting events and exhibitions. Cultivating good vibes.
4. Retail:
Selling both THC and CBD products, along with food and beverage services. Transition to the side and public.



4.2 Programming Study

Production Facilities

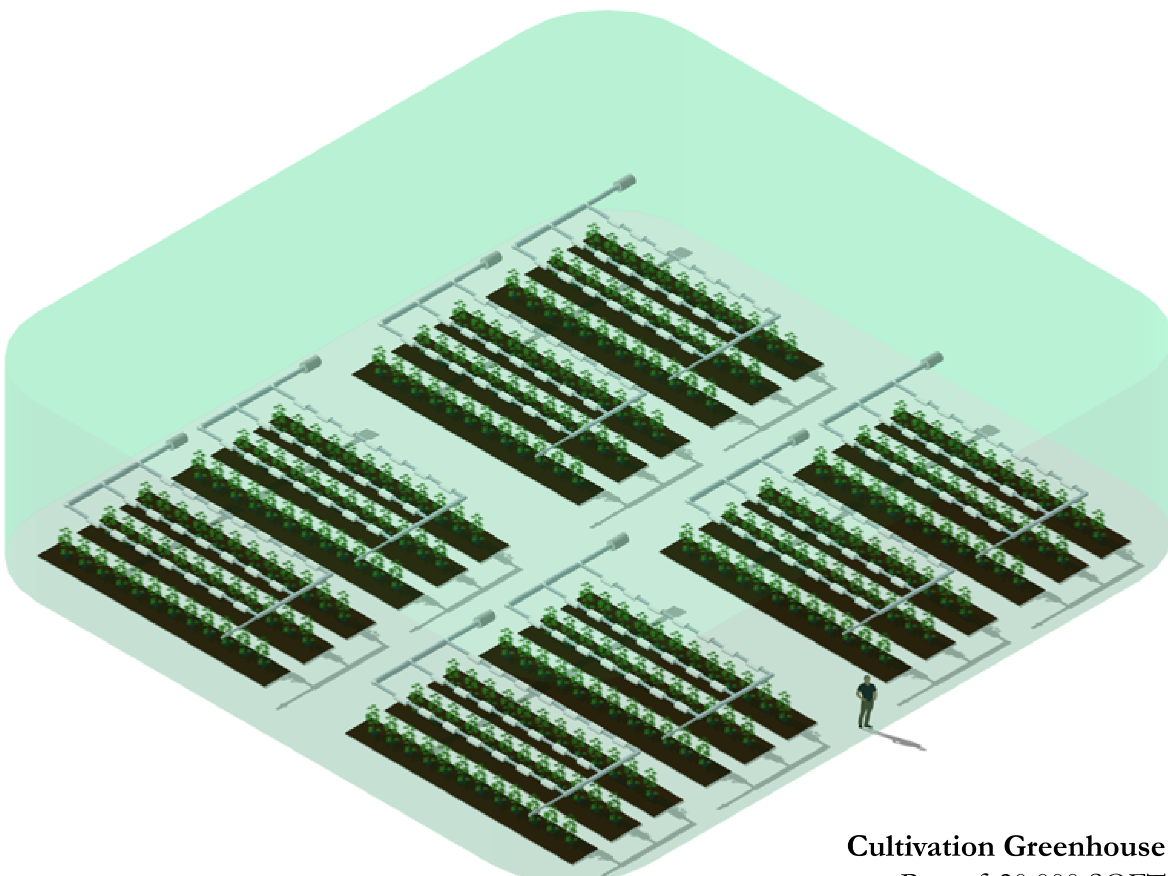
Production Program

Cultivation Greenhouse:
{20,000 SQFT}
Extraction Facilities:
{2,000 SQFT}
Harvested Storage:
{10,000 SQFT}
Office for Staff:
{300 SQFT}

Requirements
Daylight
Temperature & Humidity
Security (Controlled Access)
Ventilation
Nutrients

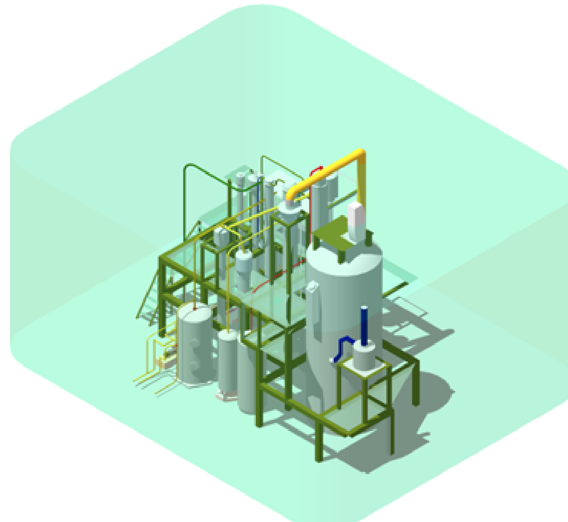
Adjacencies
Viewed by Visitors
Separate from Street

Activities
Cultivation, Production, Extraction, Storage

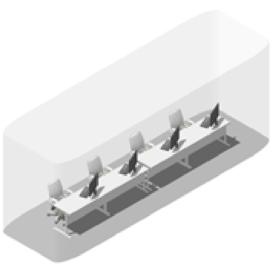


Cultivation Greenhouse
Part of 20,000 SQFT

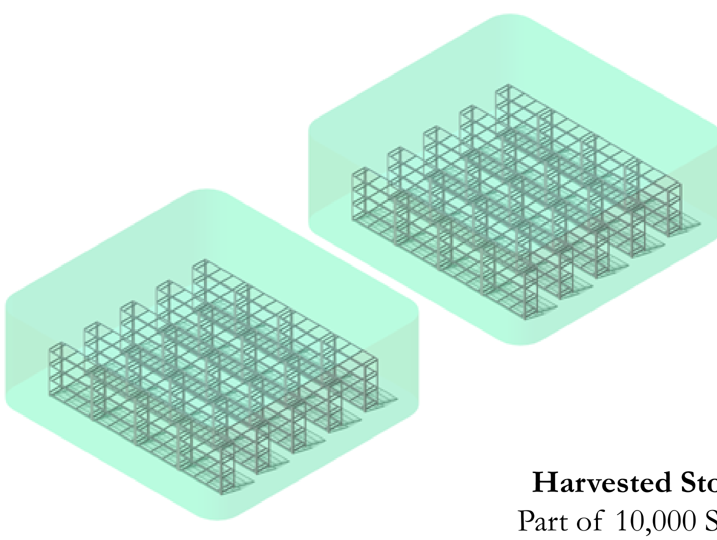
4.2 Programming Study



Extraction Facilities
2x 1,000 SQFT



Office
300 SQFT



Harvested Storage
Part of 10,000 SQFT

4.2 Programming Study

Retail Space

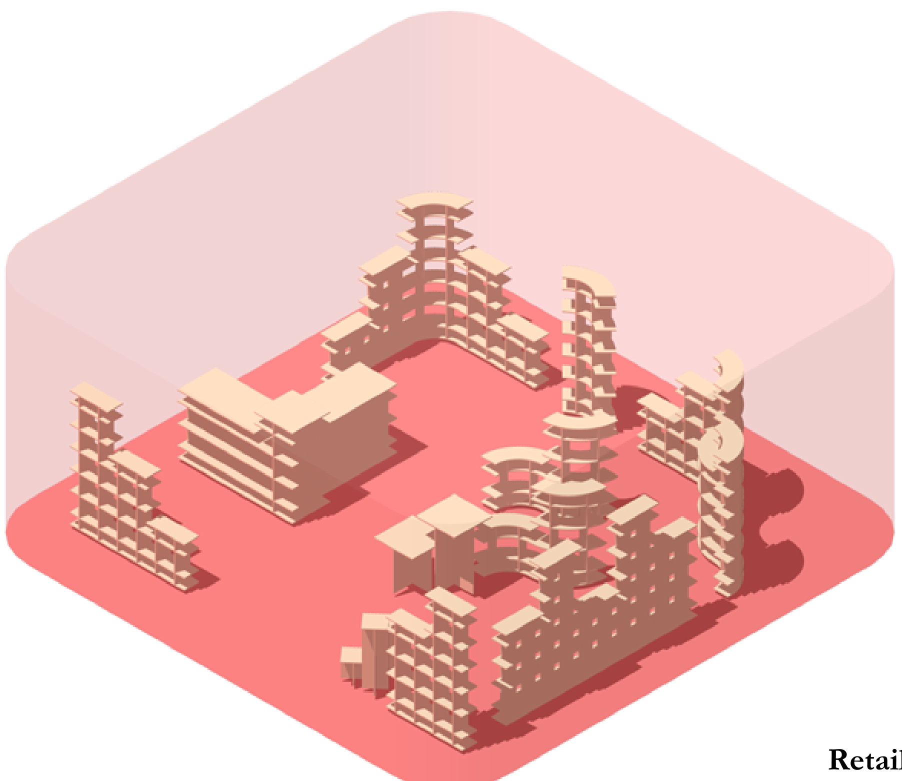
Retail Program

Retail Sales:
{20,000 SQFT}
Restaurant+Cafe:
{2,000 SQFT}
Bar & Lounge:
{1,000 SQFT}
Office for Staff:
{500 SQFT}

Requirements
Daylight
Temperature & Humidity
Security (Controlled Access)
Ventilation
Nutrients

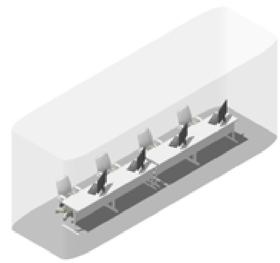
Adjacencies
Viewed by Visitors
Separate from Street

Activities
Cultivation, Production, Extraction, Storage

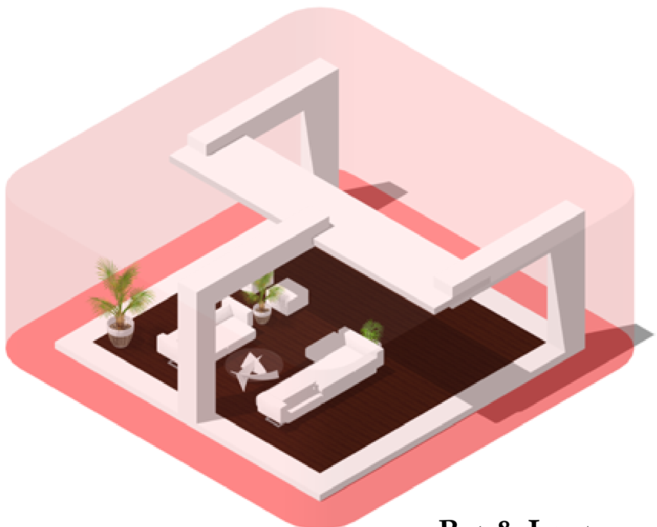


Retail Sales
20,000 SQFT

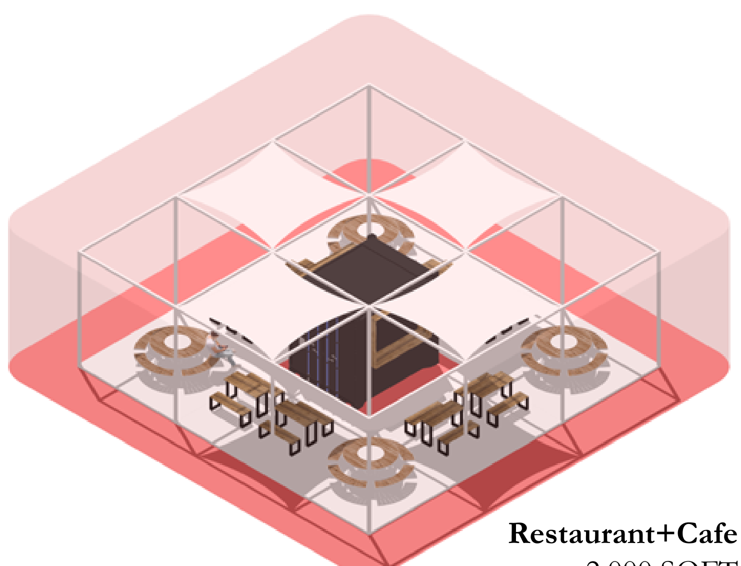
4.2 Programming Study



Office
500 SQFT



Bar & Lounge
1,000 SQFT



Restaurant+Cafe
2,000 SQFT

4.2 Programming Study

Creative Space

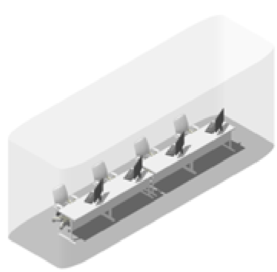
Creative Program

Artist Studios
8x {500 SQFT}
Exhibition:
{500 SQFT}
Meditation Room
{500 SQFT}
Office for Staff:
{200 SQFT}

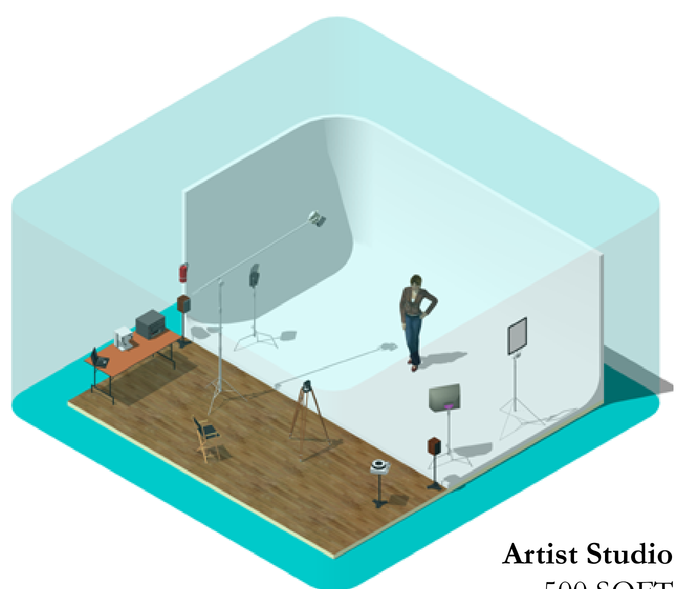
Requirements
Daylight
Acoustically Separated
Scent in the Air
Great View

Adjacencies
Separate from Street
Separate from Production Facility

Activities
Artist Studio (Photography, Painting, Writing, Drawing, Filming)
Exhibition (History)
Meditation Room (Focus)

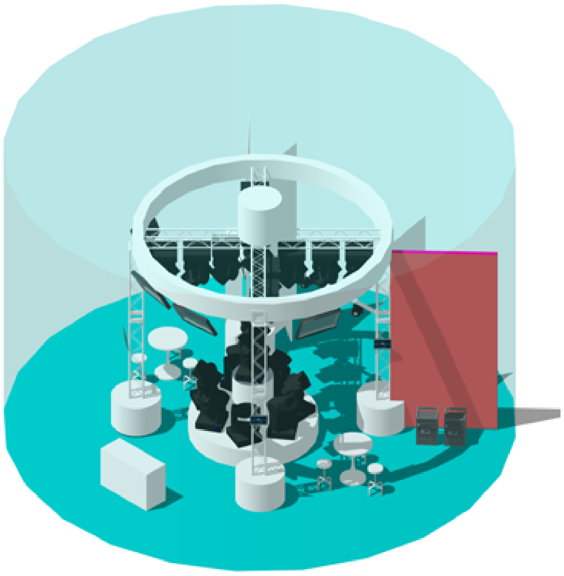


Office
200 SQFT

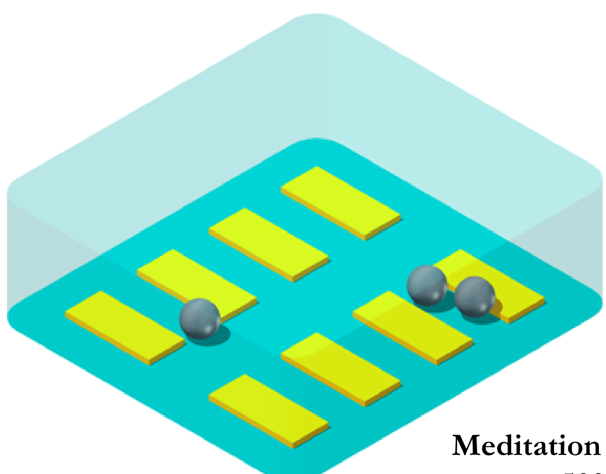


Artist Studio
500 SQFT

4.2 Programming Study



Exhibition
500 SQFT



Meditation Room
500 SQFT

4.2 Programming Study

Support Facilities

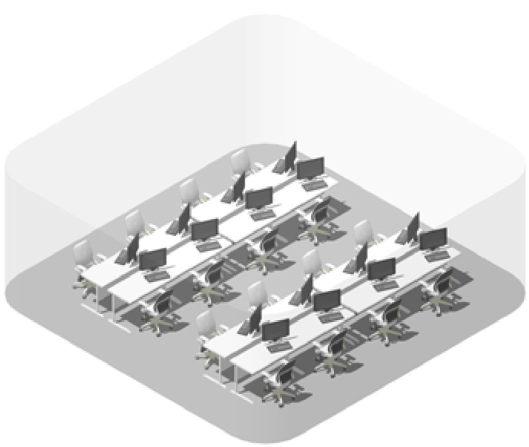
Support Program

Corporate Office
{3,000 SQFT}

Requirements
Projection Capabilities
Audio Capabilities
Flexible Furniture (Open Plan)
Daylight

Adjacencies
Adjacent to Reception
Adjacent to Kitchen
Adjacent to Storage Space
Near Exhibition

Activities
Core Organization Space



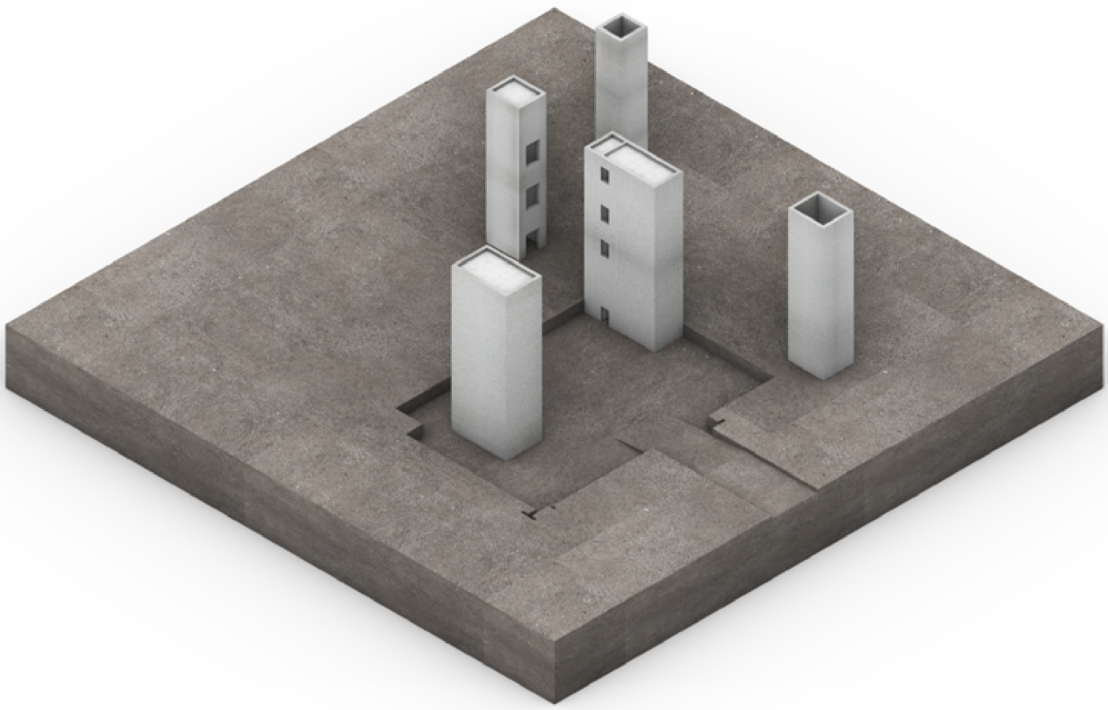
Corporate Office
3,000 SQFT

4.3 Structure

Original Site Condition

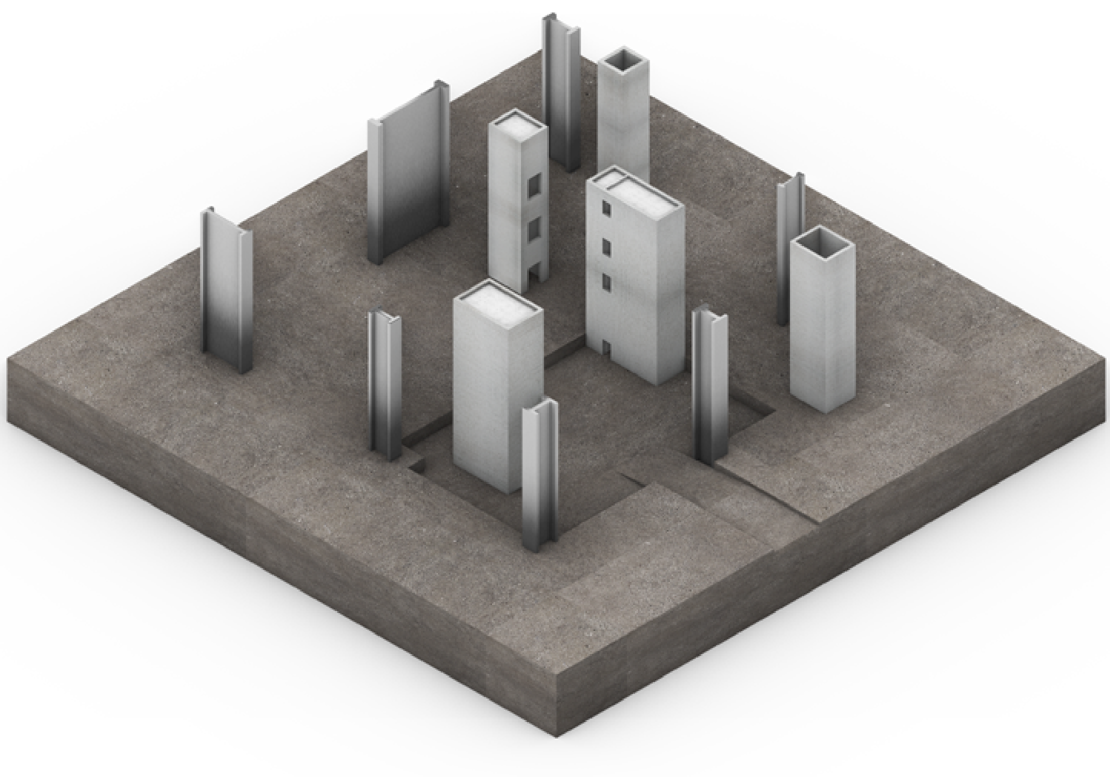
4.3 Structure

Site Development & Cores



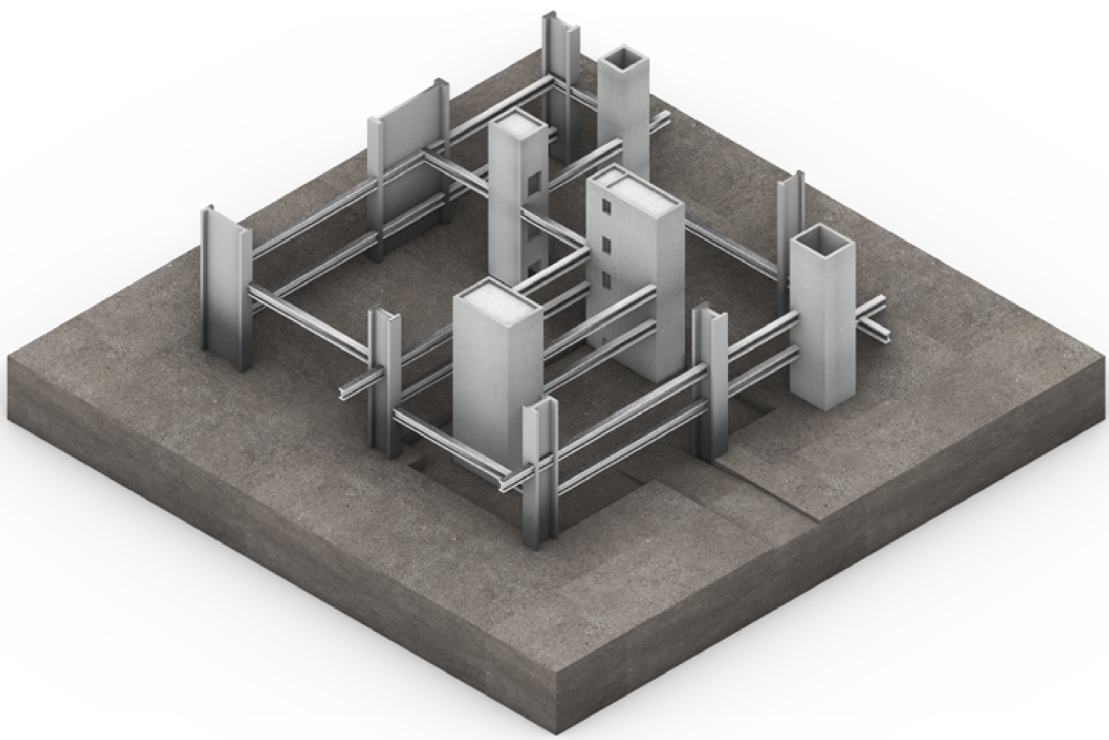
4.3 Structure

Vertical Steel Columns



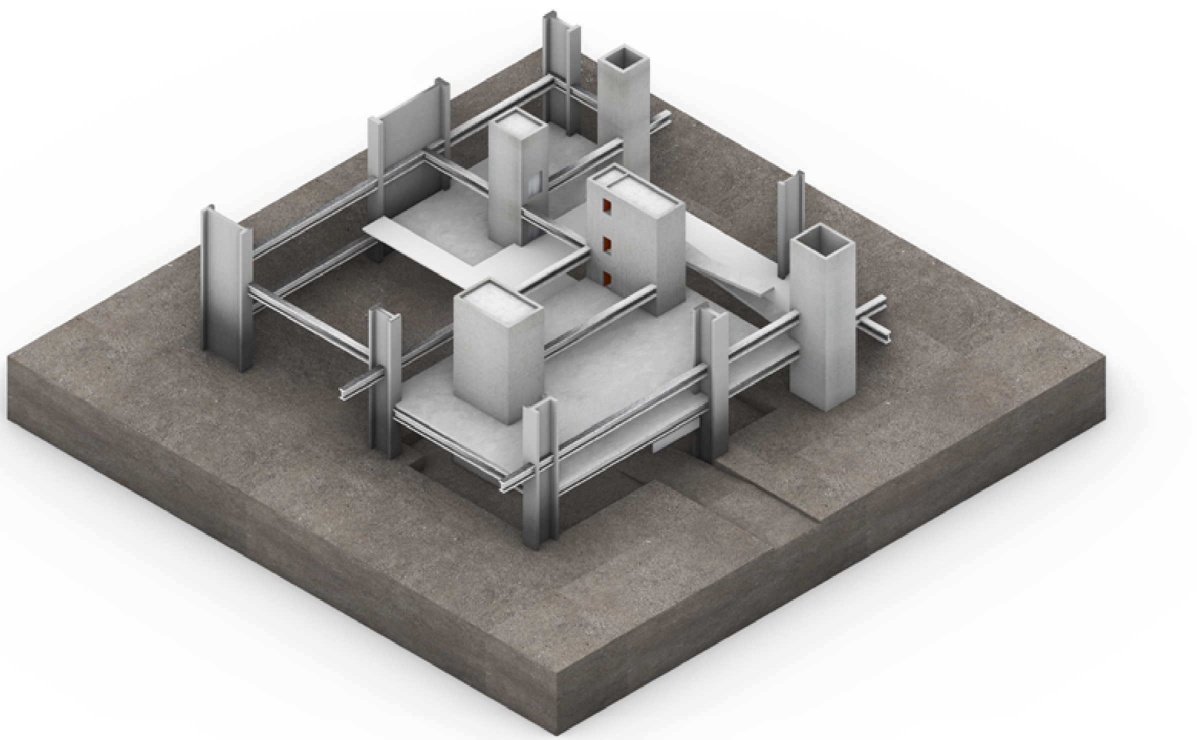
4.3 Structure

Beams - Structural Stabilization



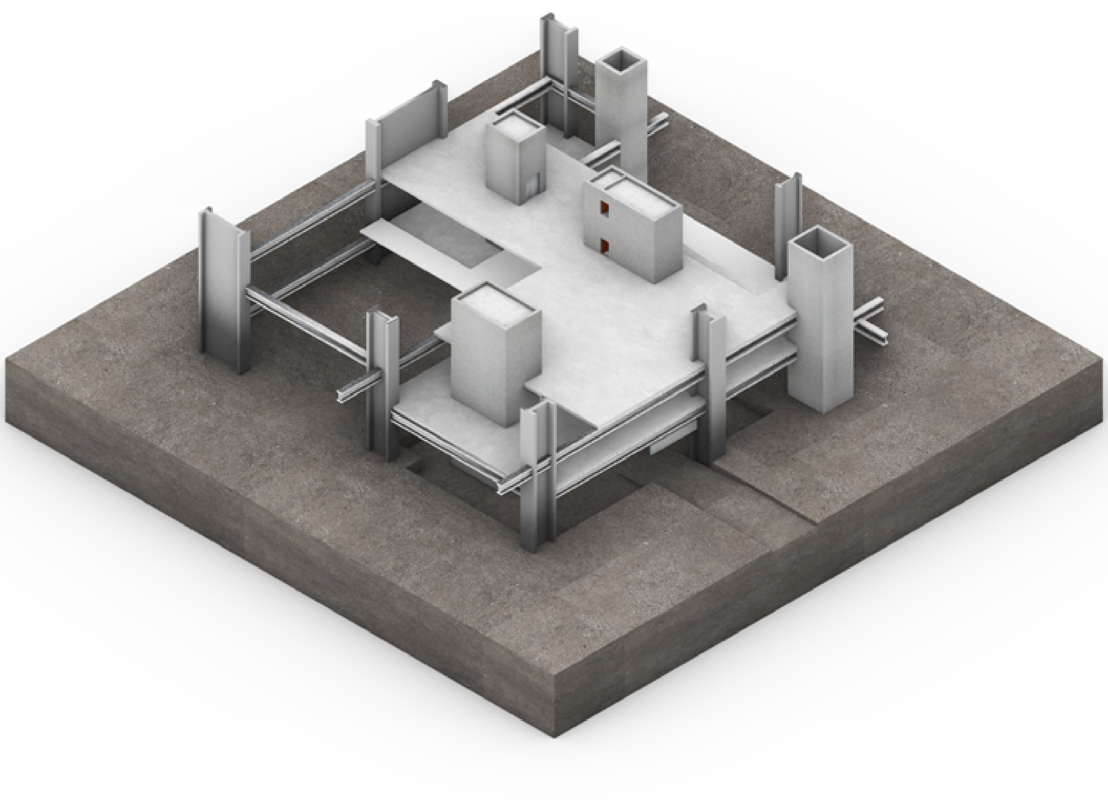
4.3 Structure

Constructing Floor Slabs



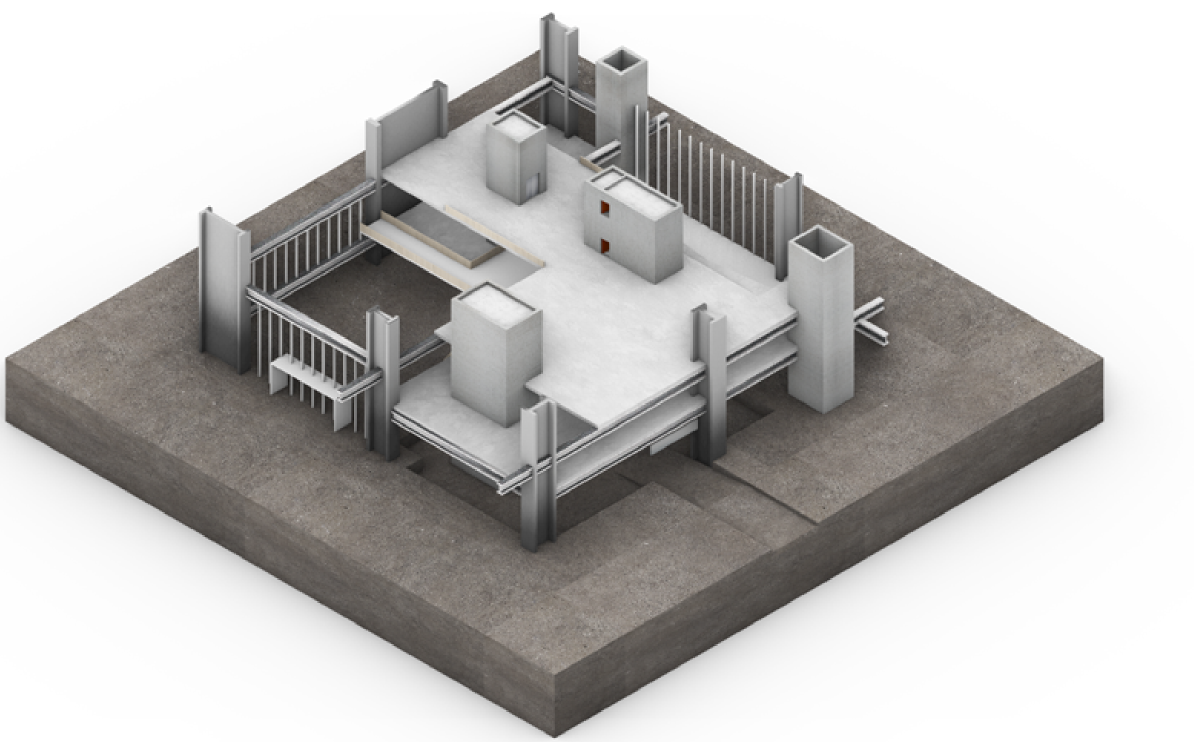
4.3 Structure

Constructing Floor Slabs



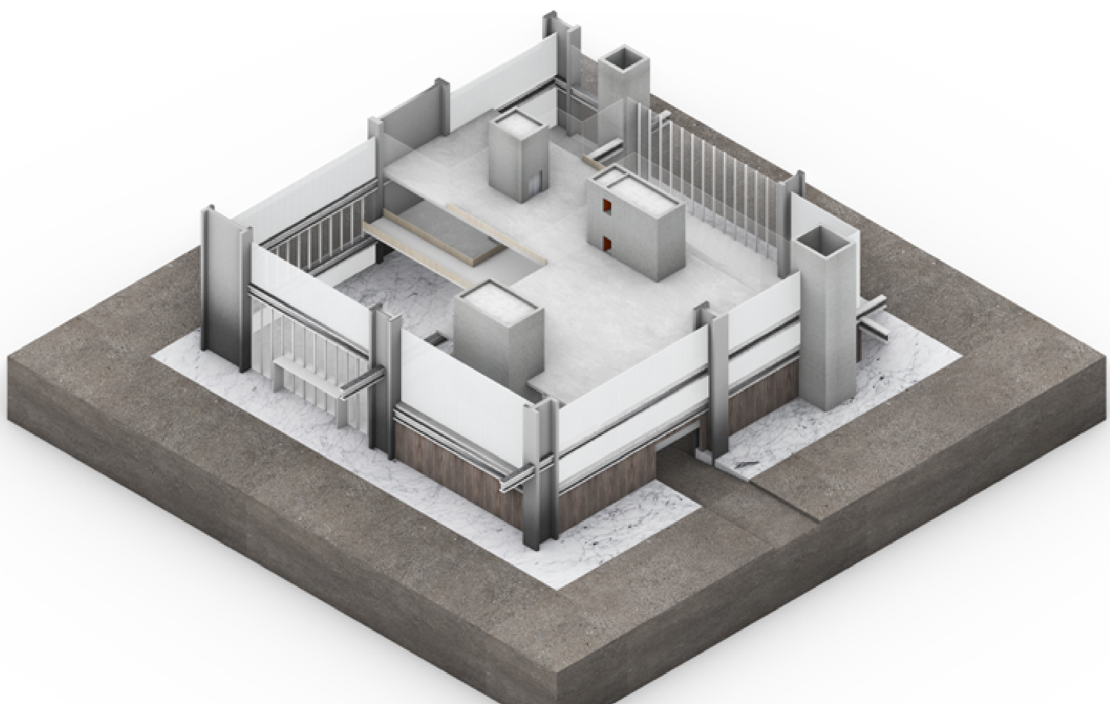
4.3 Structure

Facade Foundation



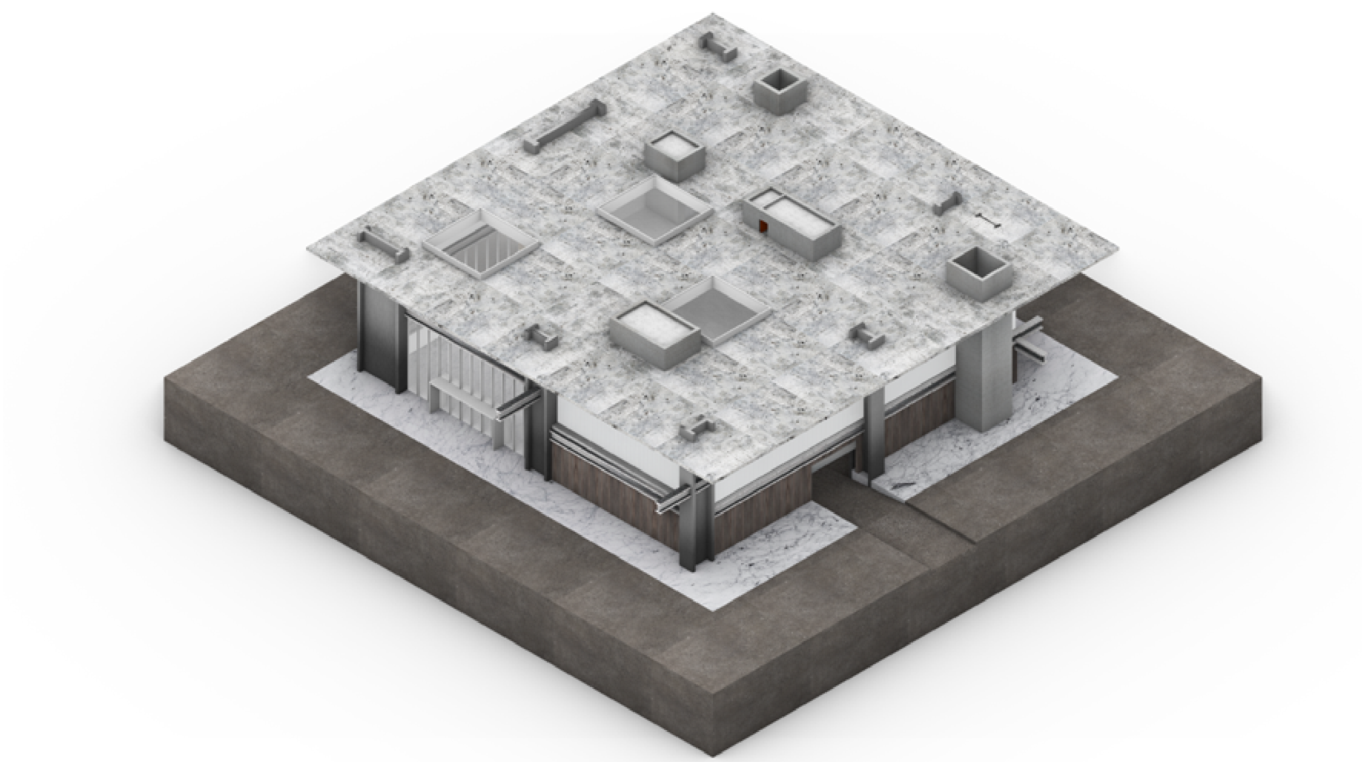
4.3 Structure

Facade Development



4.3 Structure

Capped



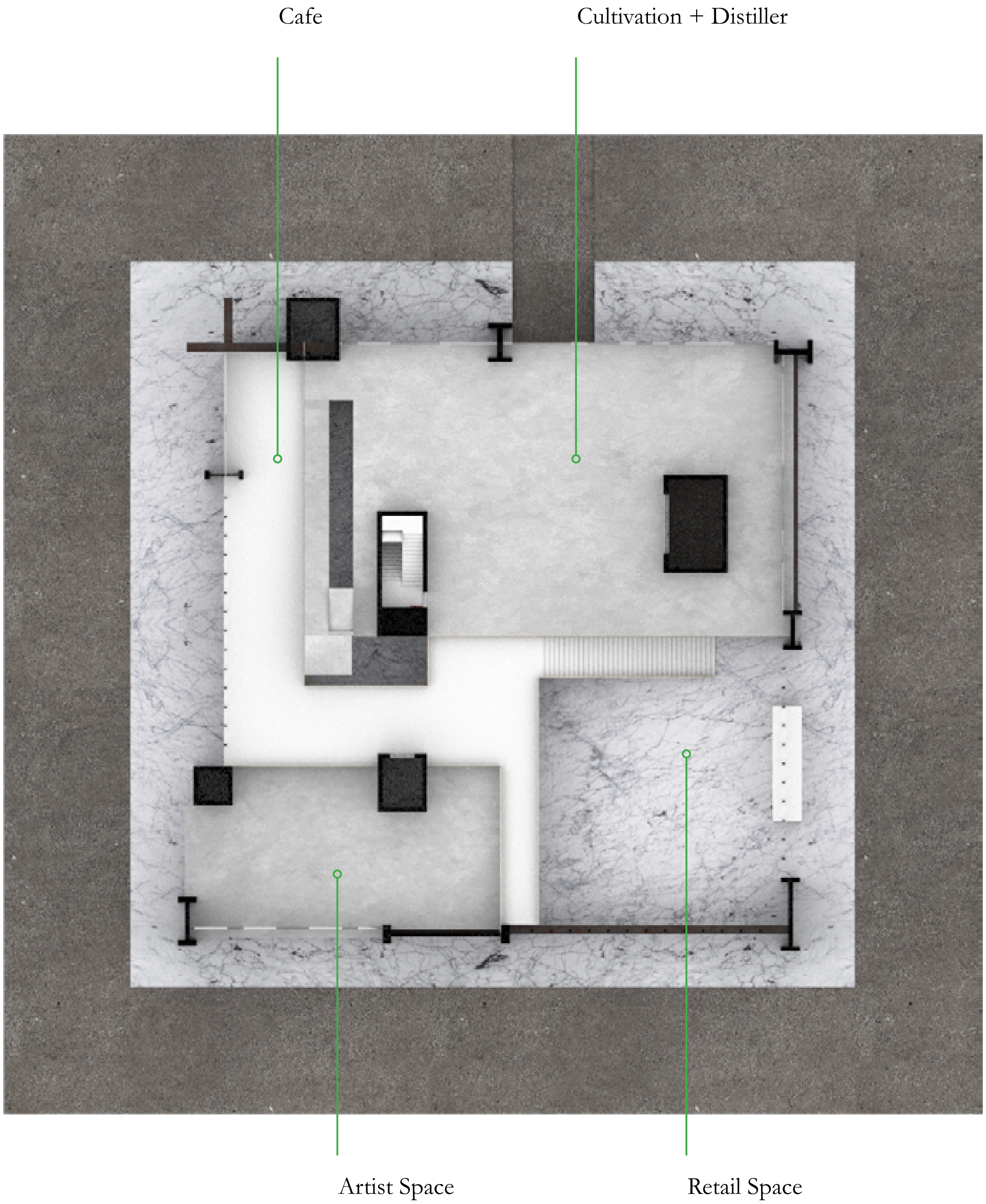
4.4 Plans

Architectural Plan - G

Retail, shops, vending machines
Storage, loading zone

4.4 Plans

Architectural Plan - F1



Cultivation, processing
Artist space
Cafe, open space

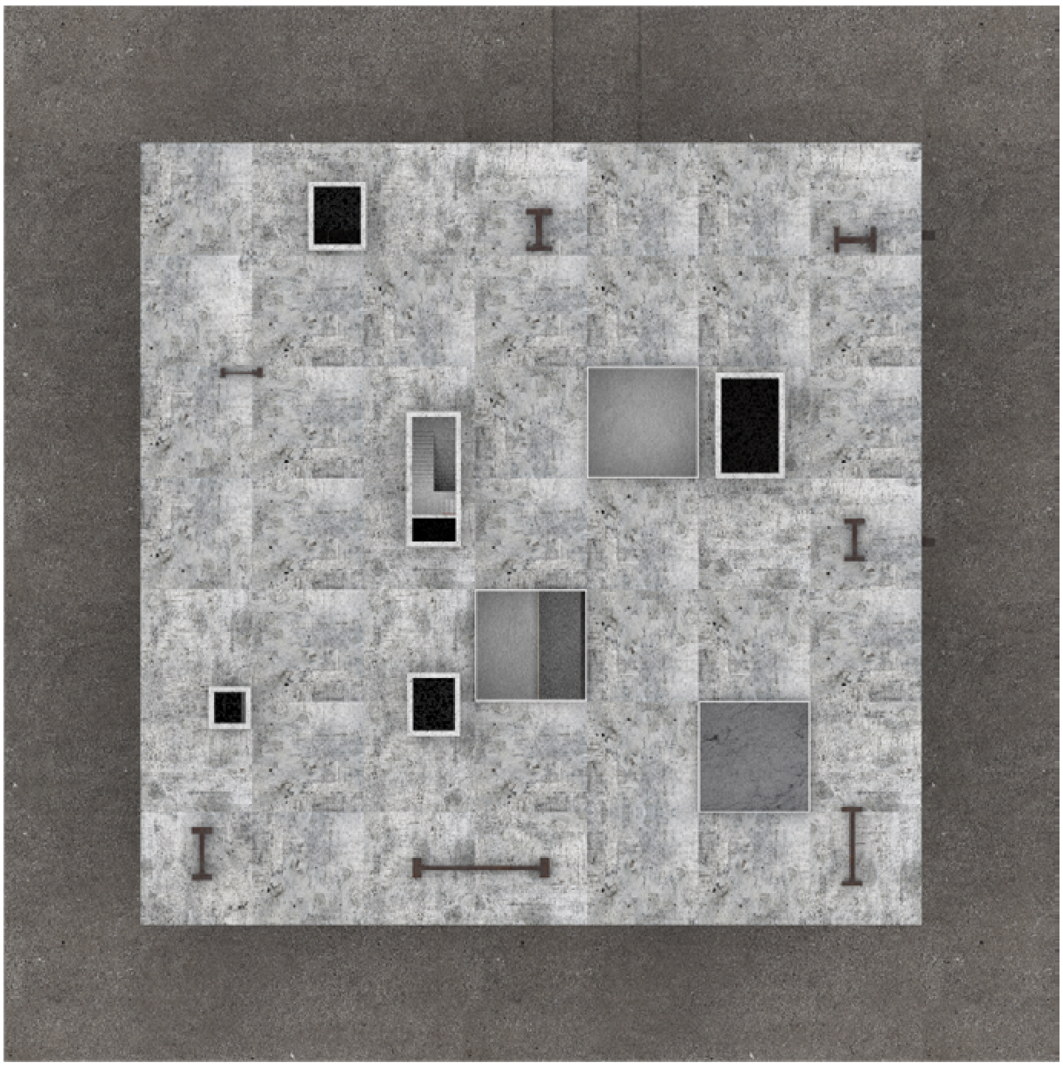
4.4 Plans

Architectural Plan - F2

Cultivation
Corporate office

4.4 Plans

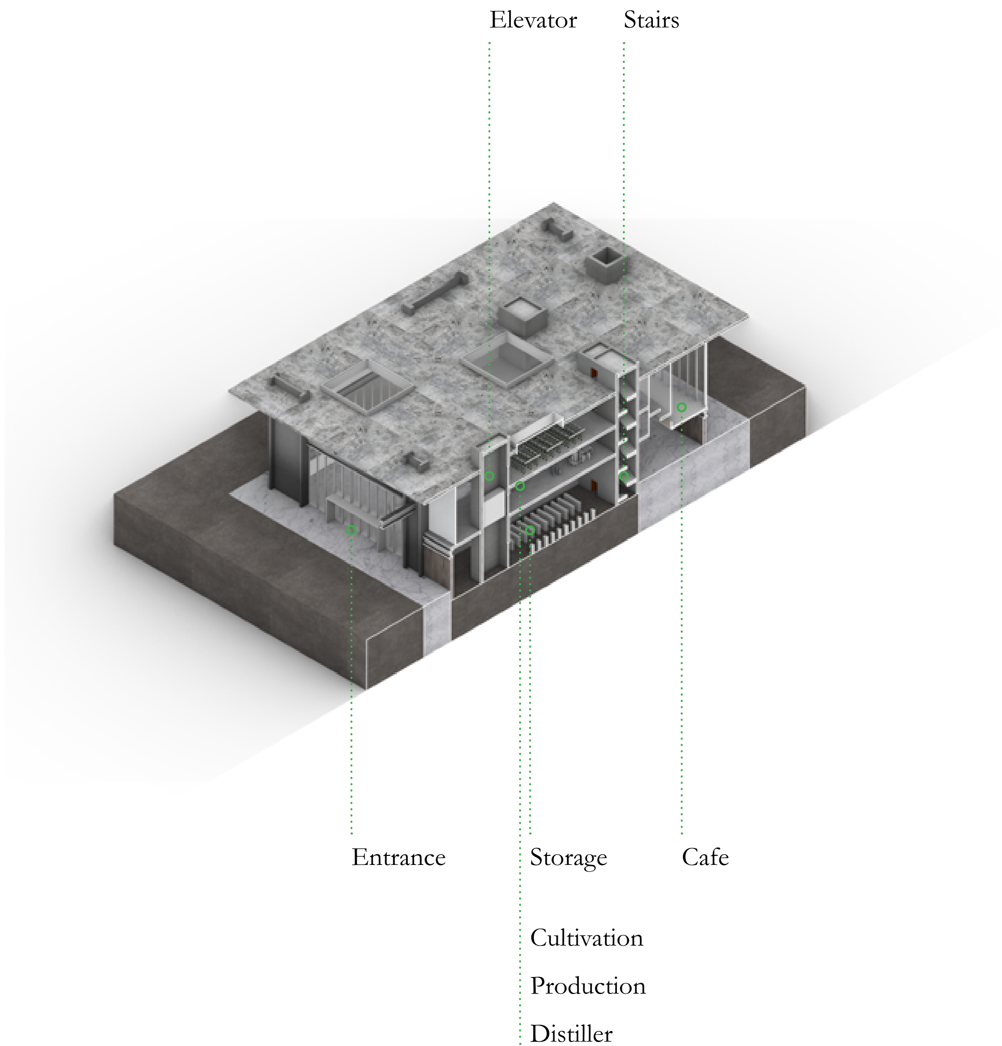
Architectural Plan - Roof



Rooftop

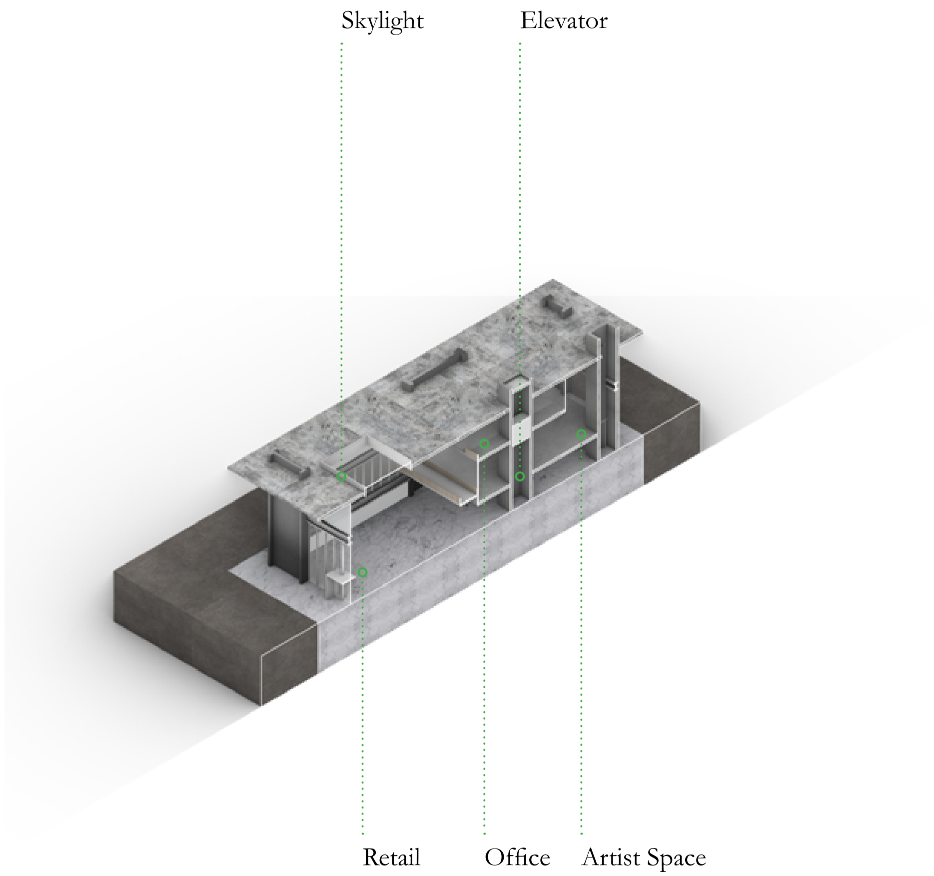
4.5 Sections

Architectural Section - A



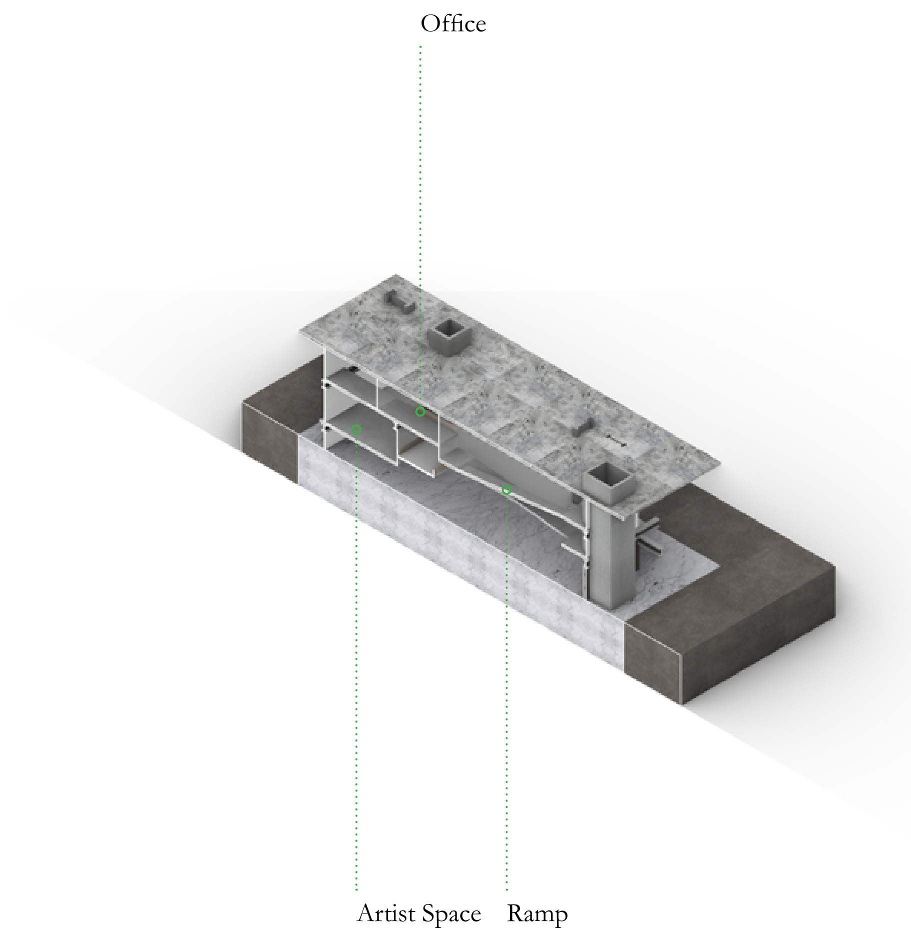
4.5 Sections

Architectural Section - B



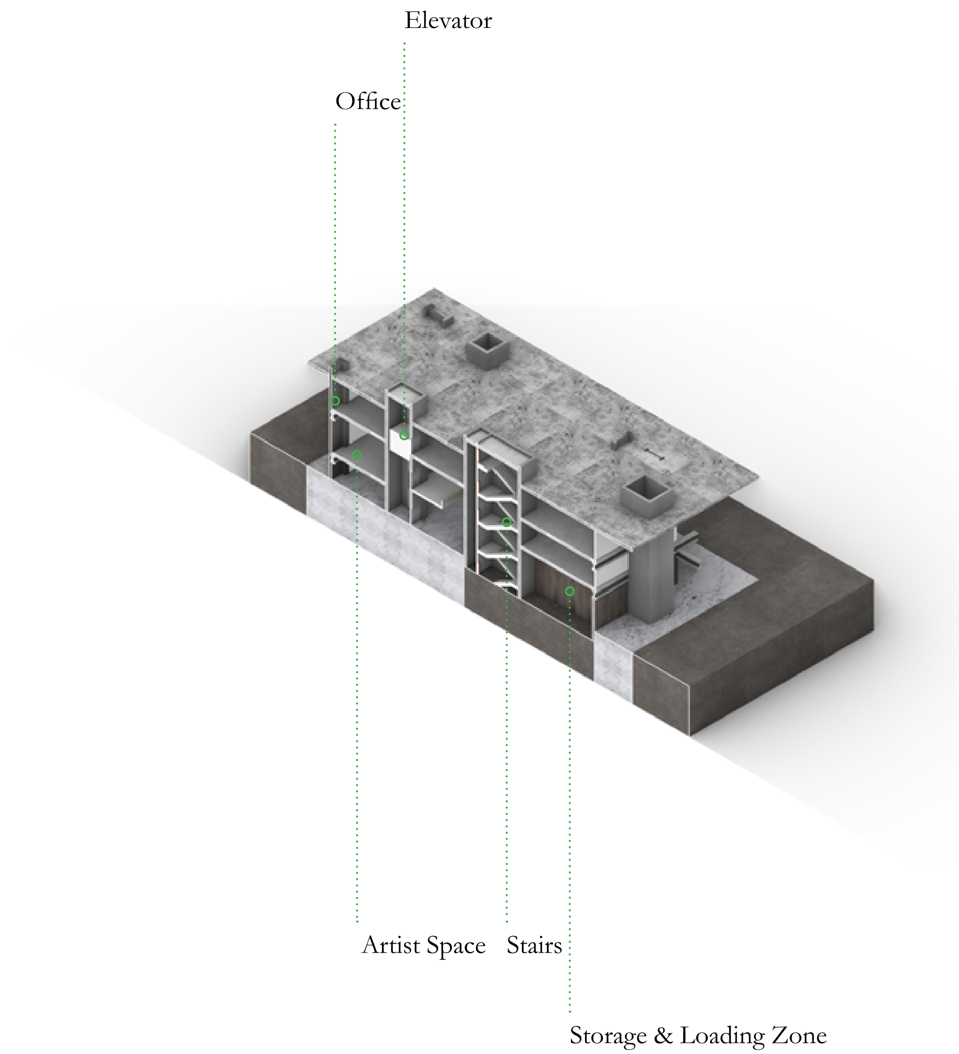
4.5 Sections

Architectural Section - C



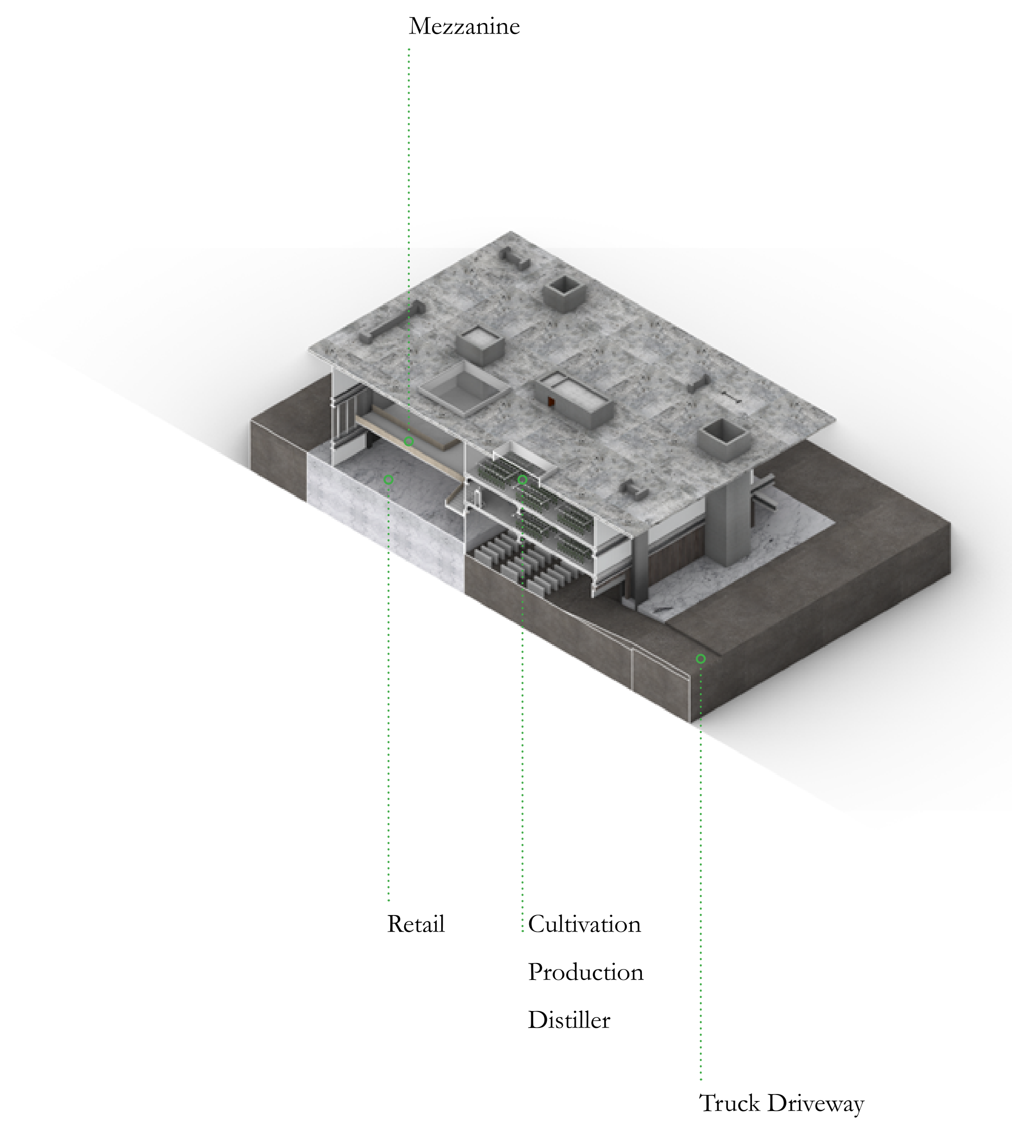
4.5 Sections

Architectural Section - D



4.5 Sections

Architectural Section - E



4.6 Renders

Interior Perspective - 1

Entrance

4.6 Renders

Interior Perspective - 2

Stairs - up to the mezzanine

4.6 Renders

Interior Perspective - 3

Lobby - viewing production

4.6 Renders

Interior Perspective - 4

Cafe & open space - viewing production

4.6 Renders

Interior Perspective - 5

Building corner

Chapter 5
Cannabis REITs

5.1 Research Question

Since the Controlled Substances Act of 1970 classified cannabis as a Schedule I drug, US federal law prohibits individuals to possess, use, buy, sell, or cultivate cannabis in all US jurisdictions. Despite this federal prohibition, some states established local laws to decriminalize cannabis. Starting from Oregon in 1973, cannabis is now legal for medical use in 33 states and for recreational use in 12 states.

The continuation of cannabis legalization has boosted the development of the controversial industry in the past few years, with its peak in the third quarter of 2018 when Canada became the first nation that legalized both medical and recreational cannabis, resulting in the soar of all cannabis stocks in a whim.

Yet as cannabis remains illegal in the US, cannabis growers here in the US still face multiple hurdles, such as financing, when it comes to their business. As banking remains largely unavailable, REITs have become an ideal financing alternative for cannabis growers.

In the public market, since cannabis is still federally illegal, cannabis companies cannot go public in the US. Therefore, most cannabis companies tend to go public in Canada. In 2019, cannabis stocks had a turbulent and worrisome fiscal year when most cannabis stocks tanked over 80%. Many cannabis companies are running out of cash.

This paper aims to give ample amount background information about both cannabis and REITs. Then, the paper will examine the following questions:

- How and why is REIT meaningful to both the cannabis industry in the current macro?

- Who are major the major players in the cannabis REITs universe and how are they unlocking value for investors. The paper will specifically look at Innovative Industrial Properties.
- Determine where in the near future we will see cannabis prosper and which REITs are best positioned for that yet to come rally.

5.2 Introduction to REITs

5.2.1 Definition and Characters

REITs, real estate investment trusts, in a nutshell are companies that finance or own incoming-generating real estate assets across a range of property sectors. Most REITs focus their research power, capital, and time on a specific real estate segment of the entire industry. Diversified and complex REITs may however tend to hold different types of real estate assets in their portfolios, which include commercial malls, data centers, healthcare facilities, hotels, infrastructure such as cell towers and energy pipelines, office buildings, residential apartments, and warehouses.

The business model of a REIT is straightforward: the REIT leases spaces and collects rents on the properties; the rental income will be distributed as dividends to shareholders.

Although the business model of a REIT is simple, the Internal Revenue Code requires a company to comply with certain provisions to qualify as a REIT. General requirements to qualify as a REIT requires an organization:

- Must be a corporation, trust, or association
- Must be managed by one or more trustees or directors
- Must have beneficial ownership (a) evidenced by transferable shares, or by transferable certificates of beneficial interests; and (b) held by 100 or more persons (not required after the first year)
- Must be neither a financial institution nor a subchapter L insurance company
- Cannot be closely held

Further, the gross income and diversification of investment requirements must be met and the organization must:

- Have been treated as a REIT for all tax years beginning after February 28, 1986, or
- Had, at the end of the tax year, no accumulated earnings and profits from any tax year that it was not a REIT
- For this purpose, distributions are treated as made from the earliest earnings and profits accumulated in any non-REIT tax year
- The organization must adopt a calendar tax year unless it first qualified for REIT status before October 5, 1976
- The deduction for dividends paid (excluding net capital gain dividends, if any) must equal or exceed:
  - 90% of the REIT's taxable income (excluding the deduction for dividends paid and any net capital gain); plus
  - 90% of the excess of the REIT's net income from foreclosure property over the tax imposed on that income by section 857(b)(4)(A); less
  - Any excess noncash income as determined under section 857(e)

5.2.2 Types of REITs

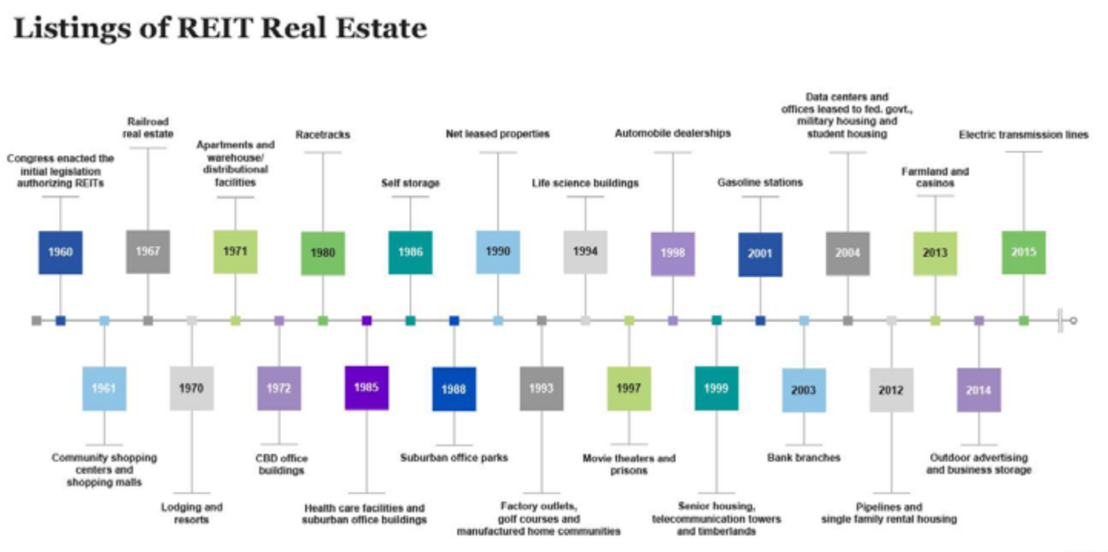
In the US, REITs are categorized by their business models as well as how their shares are bought and sold.

- By business models, there are three types of REITs: equity, mortgage, and hybrid. Equity REITs are the most common form in the industry.
  - An equity REIT typically buys, manages, upgrades, holds, and sells income-generating real estate assets. Their revenues mainly come from rents rather than disposition of purchased properties.
  - A mortgage REIT, typically known as mREIT, lends money to real estate owners and operators. Both mortgages or loans and mortgage-backed-securities (MBS) are means of the lending. For MBS, the revenues mainly come from the net interest margin – the spread between interest they earn on mortgage loans and the cost of funding these loans.
  - A hybrid REIT typically holds both physical property and mortgage loans.

Depends on how shares are bought and sold, REITs can be publicly traded, publicly non-traded, and private.

5.2.3 History of American REITs

US REITs were established by Congress in 1960 to give all investors, especially retail investors, access to income-producing real estate. Since then, the US REIT approach has flourished. By creating access for all investors to invest in commercial real estate, REITs have been favored by investors in the last few decades. The US REIT industry has grown to a $1 trillion equity market capitalization representing nearly $3 trillion in gross real estate assets with more than $2 trillion of the total from public listed and non-listed REITs and the reminder from privately held REITs.



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Source: Nareit

5.2.4 REIT Valuation

Although most REITs are publicly traded on exchanges, they do not resemble other publicly listed companies when it comes to estimating their values, as they do not use traditional metrics such as earnings-per-share (EPS) and price-to-earnings (P/E). Instead, REITs valuation uses price/funds-from-operations per share (P/FFO) and FFO-per-share.

Conventionally, pricing a given company's security requires one to model through the company's balance sheet, income statement, and cash flow statement. The key line items the investor cares about are revenue, cost of goods (COGs), operating expenses (include general and administrative, sales and marketing, research and development, and depreciation and amortization), interests, and tax. As the following equations illustrate:

$$\textit{Operating Income} = \textit{Revenue} - \textit{COGs} - \textit{Operating Expense}$$

$$\textit{Net income} = \textit{Operating Income} - \textit{Interests} - \textit{Tax} - \textit{Other Items}$$

Diving net income by total outstanding shares, the investor can compute the EPS of the company.

However, this traditional valuation process does not work for REITs mainly because depreciation and amortization are not expenses as property loses value infrequently and often appreciates. Therefore, it is often that the investor will judge a REIT by FFO, which excludes depreciation and amortization by adding it back to net income while subtracting the gains on the sales of depreciable property.

ABC REIT		FY 2019	FY 2018
REVENUES			
Rental income		1,800,000	1,790,000
Fee and asset management		15,000	9,500
	Total	1,815,000	1,799,500
EXPENSES			
Property and maintenance		500,000	480,000
RE taxes and insurance		200,000	180,000
Property management		68,000	72,000
Fee and asset management		7,500	7,500
Depreciation		450,000	420,000
General and administrative		38,000	45,000
Impairments		1,000	18,000
	Total	1,264,500	1,222,500
Operating income		550,500	577,000
Net income		520,000	420,000
Depreciation		450,000	420,000
Gains on property sales		-300,000	-100,000
Funds from operations (FFO)		670,000	740,000
Capital expenditures		150,000	120,000
Other amortizations		0	0
Adjusted FFO		520,000	620,000

In the above example, it appears that ABC REIT has a higher net income in FY2019 than in FY2018, based on the conventional valuation method. However, if we plug depreciation and deduct gains on property sales we find out that the FFO in FY 2019 is actually lower than FY2018.

Yet FFO is not perfect as it does not tell the investor anything about the capital expenditures and other kinds of cash flows (resembling to the cash flow statement for common securities). Therefore, adjusted FFO (AFFO) is introduced by removing all these noises to reflect the true residual cash flow left after all expenses and expenditures. Typically, AFFO is favored by professional analysts as it is more precise and it is a better indicator of the REIT's future capacity to pay dividends.

Knowing the above accounting knowledge is fundamentally important for the investor to read the quarterly and annual reports published by a REIT. However, pricing the value of a REIT requires the investor to be able to examine the growth in FFO and/or AFFO.

A precise prediction of the growth of FFO and AFFO requires the investor to examine the underlying prospects of the REIT and its sector. Indeed this further requires one's deep knowledge and rich sources in their interested companies and sectors at a broader and macro level, and it is beyond the scope of the thesis but prudent investors should consider in the following three layers:

On the building level:

- The quality of properties
- The frequency of tenant improvements
- Property locations/externalities/concentration risk

On the lease/rent level:

- The growth potential for rent
- The prospectus of occupancy rate
- Type of lease
- Lease maturity

On the economic level:

- Interest rate and credit spreads
- Unemployment rate

Similar to examining common stocks, the investor should also care about REITs multiples. In REIT valuation, the two important ratios are 1) Price/FFO and Price/AFFO and 2) FFO/AFFO per share.

The price refers to the market capitalization (market cap), which can be calculate by multiplying the number of outstanding shares to price per share. For example, the above company has 1,000,000 shares with each share priced at $10 will have a market cap of $10 million (usually no REITs will have a market cap this small).

Thus, for FY 2019, its price/FFO is:

$10,000,000 / $670,000 = 14.93x

Its AFFO is:

$10,000,000 / $520,000 = 19.23x

The way to interpret these multiples is to make peer comparisons within the same sector. Usually the investor should choose the one without very high multiples, as they tend to indicate that these securities are overvalued.

In addition to using multiples, there are other key valuation techniques:

- Dividends: since REITs are required by law to distribute 90% of their earnings to each shareholder, it may result in a light premium that would otherwise not be seen for stocks as investors are guaranteed a payout if the REIT is making money.
- Volatility: generally, REITs are considered defensive due to their low volatility, which results in higher valuation. Interestingly, as the unprecedented Covid19 unfolds, REITs appear to no longer possess such a feature recently due to widening credit spread and so much uncertainty on how much rent default and relief are happening and for how long both will last.

5.2.5 Pros and Cons of Investing in REITs

Like other asset classes, investing in REITs have both advantages and disadvantages.

On the bright side, REITs are liquid, making them easy to buy and sell as they are traded on public exchanges, which makes them more ideal than traditional mortar and brick real estate assets. REITs typically offer ideal risk-adjusted returns and stable cash flow, and therefore they are a good counterweight to equities and bonds in a portfolio for the diversification purpose. Since most REITs are traded on exchanges, they regularly publish quarterly and annual reports, making them more transparent for investors.

On the downside, REITs do not benefit investors in terms of capital appreciation. Since 90% of the total income must be paid to investors, REITs typically do not have enough powder to purchase new holdings, making them harder to exploit massive windfalls compared with typical real estate private equity funds. Another huge downside is that REITs are highly susceptible to the broader economic healthiness as their income rely on whether tenants are able to pay on time or whether mortgage can be paid on time. We already have seen the dramatic decline in many mortgage REITs valuation during the Covid 19. But this in fact, for sophisticated investors, is a good opportunity to take advantage of the super distressed REITs if investors believe that these REITs can manage to get through the turbulence.

5.3 How Are REITs Meaningful to Cannabis

5.3.1 Macro of Medical and Adult-Use Markets in the US

Similar to the fact that the prospectus of the residential real estate market is significantly determined by population growth, cannabis real estate market is directly subject to the market of cannabis consumption.

At a high level, in 2019, the legal cannabis industry was estimated at $13.6 billion, up 32% from $10.3 billion in 2018, in the US with 250,000 jobs created for the industry. Medical cannabis use is legal in 33 states while 12 states have already legalized recreational cannabis. According to Nielsen's report, *Brace for Impact: US CPG Cannabis Sales to Rise by the Billions*, the legal cannabis sales are set to surpass $40 billion by 2025. More than that, investment bank Cowen cannabis analyst Vivien Azer, too, indicates that the entire American cannabis industry can contribute $17.5 billion tax revenue by 2030.

When evaluating the prospectus of the cannabis industry, there are two metrics we care mostly: public's view on cannabis and recreational cannabis legalization roadmap.

According to a survey published by Pew Research Center in November 2019, two-thirds of Americans support marijuana legalization. The report shows that 91% of American adults say that cannabis should legal either for both medical and recreational purposes (59%) or just for medical purpose (32%). Nearly 80% democrats support legalization while 55% of republicans favor the bill. Views also vary significantly across generations as 76% of the millennial support legalization while only 35% of the silent support. Only about one-in-ten Americans oppose cannabis legalization for medial or recreational uses.

In terms of legalization in the whole nation, we should see more upsides in the near future due to the following reasons. First, at the federal level, the democrats are now the majority of the House, and they are more inclined to have reforms that are more favorable on cannabis. More at the federal level, cannabis legalization could see more upside as Joe Biden wants decimalization as well as having the criminal records of those convicted of possession of the drug expunged, and he is now ahead of Trump in popularity. Second, at the individual state level, more states will legalize recreational use too, including New York, New Jersey, and Connecticut. More local governments are inclined to support cannabis legalization due to the economic benefit brought by the cannabis business, ranging from cultivation to dispensary.

As more young people welcome cannabis legalization and more local governments want to generate extra tax revenue to finance various civil projects, the future of cannabis is bright. This in turn will drive up the demand for cannabis real estate, ranging from cultivation to R&D, from storage to dispensary.

Major Cannabis REITs

In 2019, there are 4000 dispensaries and retail outlets, 5000 wholesale cultivators, 2500 infused product manufacturers, and 150 testing labs and facilities. The entire industry is hugely undercapitalized with only few players.

5.3.2 REITs are a more attractive financing method for growers

Growing marijuana is expensive. Upfront hard assets investments are especially a big portion of the total investments. Outdoor and combination methods of cultivation tend to cost between $10 and $17 per square foot, and greenhouse grow setups average at $50 per square foot. Indoor cultivation setups are the most expensive to invest in, costing an average of $75 per square foot.

Indoor cultivation is significantly more expensive because the grower can artificially control every aspect of the growing environment. However, this requires expensive equipment such as lights, ventilators, and temperature control fit in an indoor space that is also likely be expensive to design and develop. Some states such as Connecticut and Illinois specifically mandate that indoor cultivation is the only legal method allowed. Many growers are confronted by such high upfront investments.

What makes it even harder for growers is that since cannabis remains illegal at the federal level, growers cannot use any banking services. As Federal Deposit Insurance Corporation (FDIC) does not insure a bank that takes on "existential" risks, which would include loans to companies in violation of federal law, banks do not work with cannabis growers so to avoid criminal liability for aiding and abetting activities still considered felonies under federal law. Therefore, acquiring ample funding in order to succeed is always challenging for cannabis operators.

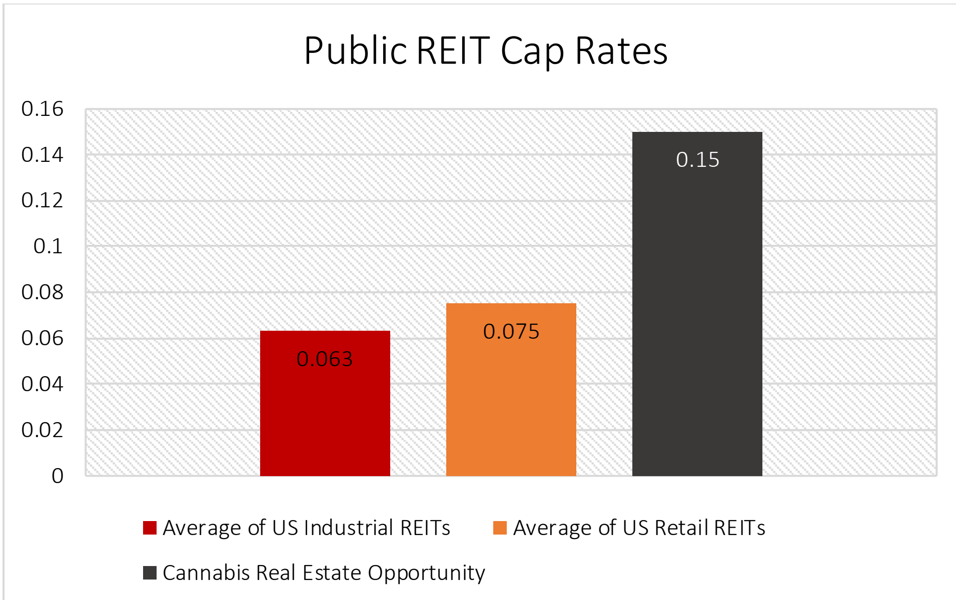
As a big portion of the capital expenditure, designing and developing growing facilities burn cash quickly. Therefore, two common ways for a cannabis grower to raise funds are to enter into sale-leasebacks or real estate capital expansion transactions with a REIT.

- In a sale-leaseback transaction, a cannabis company sells its real estate to a REIT and then immediately leases back the property at an agreed-upon rate. This provide immediate funding to the grower.
- In real estate expansion deals, mREITs and hybrid REITs lend money to the cannabis company seeking to buy or build out its real estate. The transaction is mutually beneficial as the REIT makes money from the loan interest and the cannabis company can affordably finance its expansion.

One big advantage of taking advantage of a REIT is the cost of the capital. Since growers cannot typically get loans from banks, private equity and wealthy individuals are the main sources for growers. These sources usually charge a very high cost of capital, which can be as high as almost 20%, according to the CEO of one of the biggest operators in Florida. The cost of capital offered by REITs, in many cases, is much more attractive than anything available on markets.

In addition, to many cannabis growers, managing a portfolio of real estate assets could be burdensome. Not only because real estate typically fall outside the core competency of operators, but the demand placed on cannabis real estate can be particularly difficult due to the unique zoning and land use issues. Having a REIT help with this matter to some extent alleviate some of the operational burdens for cannabis growers.

5.3.3 Cannabis REITs Cap Rate and Comp



5.4 Case Study: Innovative Industrial Properties

5.4.1 Overview

Innovative Industrial Properties, Inc (Ticker: IIPR) is a pioneer in REITs for the medical cannabis industry. Founded in December 2016, IIPR is the first publicly traded REIT on the New York Stock Exchange (NYSE), providing real estate capital for the medical cannabis industry.

IIPR is chosen for this case study because it is deemed as a successful REIT engaging the cannabis industry. It has multiple highlights including high cap rate due to cannabis legal status, triple-net on a high cap rate, strong spread between cap rate and cost of capital, and NYSE public market access. The case study will go through each of the strengths of IIPR through a typical equity research manner.

IIPR focuses on acquiring and leasing highly specialized industrial properties – medical cannabis real estate properties – to state-legal medical cannabis companies. IIPR currently owns 53 properties consists of roughly 3.8 million rentable sq. ft. in 15 US states leased to 20 licensed cannabis operators. The company has raised more than $1 billion in capital to be deployed using a triple net sale-leaseback model with annual rent escalations of 2.5-4%. IIPR has a yield of 13.2% (cap rate) while benefiting from a big spread between cap rate and cost of capital. Similar highly specialized industrial REITs have a cap rate ranging from 7% to 9%, which is the expected long-term cap rate for IIPR once cannabis become fully legal.

		Dividend		AFFO Payout		AFFO Growth	P/AFFO	
Names	Ticker	2019A	2020E	2019A	2020E	YoY	2019	2020
NNN REITs								
Realty Income Corp	O	3.7%	3.9%	83%	80%	7.0%	21.9x	20.5x
National Retail Properties Inc	NNN	3.8%	4.3%	73%	72%	4.10%	17.5x	16.8x
WP Carey Inc	WPC	5.2%	5.7%	92%	91%	2.90%	16.4x	16.0x
VEREIT Inc	VER	6.0%	8.0%	81%	85%	-4.60%	10.2x	10.7x
Spirit Realty Capital Inc	SRC	5.1%	6.5%	75%	81%	-6.90%	11.6x	12.4x
Group Average		4.5%	5.7%	81%	82%	0.70%	15.2x	14.9x
NNN Industrial REITs								
STAG Industrial Inc	STAG	4.5%	6.0%	87%	71%	23.80%	14.7x	11.9x
Lexington Realty Trust	LXP	4.6%	4.3%	56%	55%	3.80%	13.3x	12.8x
Industrial Logistics Properties Trust	ILPT	5.9%	7.6%	76%	73%	3.60%	10.0x	9.7x
Group Average		4.9%	5.8%	73%	66%	13.30%	13.9x	12.2x
Speciaty Single-Tenant								
EPR Properties	EPR	6.4%	13.8%	83%	86%	-2.90%	6.1x	6.3x
Getty Realty Corp	GTY	4.3%	6.2%	79%	81%	1.90%	13.3x	13.1x
MGM Growth Properties LLC	MGP	6.0%	8.3%	80%	80%	2.90%	9.9x	9.7x
Eastgroup Properties	EGP	2.2%	2.7%	59%	59%	4.40%	22.5x	21.5x
Group Average		4.1%	6.2%	75%	77%	1.60%	13.0x	12.6x

Source: Roth Capital Partners, Consensus

5.4.2 Powerful Business Strategy: Triple-Net + Sales-Leaseback Model

The recent accelerating legalization of cannabis in many US states has boosted the rapid growth in larger indoor and greenhouse cultivation facilities. Cannabis growers have been actively making efforts to expand their production and processing capacities to meet the growing market demand in the legalized states, which on the other hand is a highly capital-intensive business. As discussed in previous chapters, since cannabis remains federally illegal, cannabis companies do not have access to banks for traditional mortgage financing. Many cannabis operators have to rely on equity financing which can be very expensive. Many cannabis operators therefore decide to sell their real estate assets and lease them back directly to release capital and redeploy it into their operations. The recent capital crunch in the cannabis industry facilitates this sales-leaseback business model, through which IIPR is trying to build out a diversified portfolio of cannabis facilities across the country.

In a typical sales-leaseback deal, IIPR acquires a freestanding industrial or retail cannabis related property from a state-licensed medical cannabis operator. The property is then directly leased back to the seller for a long term ranging from 10 to 20 years with a NNN lease agreement. In a triple-N lease, the tenant is responsible for real estate tax, insurance, and maintenance, which makes it much easier to predict IIPR's income streams. The critical part of these triple-N leases is tenant credit quality as IIPR's income streams are dependent upon the tenant's ability to pay rent in a given duration of occupancy.

Due to the nature of cannabis-growing business, certain building and structural requirements, such as enhanced HVAC systems for climate control and specialize lighting systems will tend to result in higher tenant-improvement (TI). IIPR typically underwrites a precise capped cost for TI build out and reimburses tenants once a build out is complete.

Below is an example of IIPR's sale-leaseback terms:

Tenant Name: Ascend Wellness (MA)

Commencement Date	4/2/2020
Purchase Price	$26,800,000
TIs	$22,200,000
Total	**$49,000,000**
Monthly rent	$301,500
Management Fee	1.5%
Monthly mgmt fee	$4,523
Monthly Rent Total	$306,023
Initial Yield	13.7%
Annual Bump	3.00%
Lease Year	2
Next Year Rent	$310,545
Next Yr. Mgmt Fee	$4,658
Total Rent	$315,203
Next Year Yield	14.1%

Management Fee	1.5%
Lease Term	20 Years
Initial Yield	13.50%
Sq ft	199000

	TI Commencement and Annual Bump					
	Phase I	Phase 2	Phase 3	Year		
	7/1/2020	10/1/2020	1/1/2021	2	3	4
TI rent	$83,250	$166,500	$249,750	$257,243	$264,960	$272,909
mgmt fee	$1,249	$2,498	$3,746	$3,859	$3,974	$4,094
Total rent	$84,499	$168,998	$253,496	$261,101	$268,934	$277,002

Source: SEC Filing, IIPR Website March 2020

5.4.3 The IIPR Portfolio and Tenants

IIPR's portfolio consists of 20 different tenants. Most of these tenants are so-called stable large US multi-state operators (MSOs). The exhibit below illustrates IIPR's leases signed since 2016 through 1Q2020.

As of 04/02/20

State	Property	Lease Commencement	Lease Year	Initial Investment (M)	TI	Total Investment (M)	Yield Estimate	Initial Base Rent	Bumps	Escalated Base Rent	Mgnt Fee	Total FY20	Yield
NY	PharmaCann	12/19/2016	4	$30.0	-	$30.0	-	$319,580	4.0%	$359,484	$5,392	$470,353	18.8%
MD	Holistic Industries	5/26/2017	3	$15.0	$1.9	$16.9	-	$187,500	3.25%	$199,886	$3,392	$229,538	16.3%
NY	Vireo	10/23/2017	3	$6.4	-	$6.4	-	$80,000	3.5%	$85,698	$1,285	$86,983	16.3%
MN	Vireo - tranche 1	11/8/2017	3	$5.0	$1.0	$6.0	-	$75,000	3.5%	$80,342	$1,205	$81,547	16.3%
AZ	The Pharm - tranche 1	12/15/2017	3	$15.0	$3.0	$18.0	-	$210,000	3.25%	$223,872	$3,358	$227,230	15.1%
PA	Vireo	4/9/2018	2	$6.8	$2.8	$9.6	-	$120,000	3.50%	$124,200	$1,863	$126,063	15.8%
MA	PharmaCann - tranche 1	5/31/2018	2	$3.0	$15.5	$18.5	-	$223,542	3.25%	$230,807	$3,462	$234,269	15.2%
MA	Holistic Industries - tranche 1	7/12/2018	2	$12.8	-	$12.8	-	$159,375	3.25%	$164,555	$2,468	$167,023	15.7%
CO	The Green Solutions	10/30/2018	2	$11.3	-	$11.3	13.0%	$121,875	3.3%	$125,836	$1,888	$127,723	13.6%
IL	Ascend Wellness - tranche 1	12/21/2018	2	$19.0	$6.0	$25.0	13.5%	$281,250	3.25%	$290,391	$4,356	$294,746	14.1%
CA	Sacramento	2/8/2019	2	$6.7	$4.8	$11.5	13.0%	$124,150	3.25%	$128,185	$1,923	$130,108	13.6%
OH	PharmaCann	3/13/2019	2	$0.7	$19.3	$20.0	-	$220,833	3.25%	$228,010	$3,420	$231,431	13.9%
CA	Southern CA Portfolio	4/16/2019	1	$27.1	-	$27.1	13.0%	$293,551	3.25%	$293,551	$4,403	$297,954	13.2%
PA	Maitri Genetics	4/24/2019	1	$6.3	$10.0	$16.3	13.5%	$183,375	3.25%	$183,375	$2,751	$186,126	13.7%
OH	Vireo	5/14/2019	1	$1.0	$2.6	$3.6	13.0%	$39,195	3.25%	$39,195	$588	$39,783	13.2%
PA	Green Leaf Medical	5/20/2019	1	$13.0	-	$13.0	13.5%	$146,250	3.25%	$146,250	$2,194	$148,444	13.7%
MI	Emerald Growth	6/7/2019	1	$6.9	$3.1	$10.0	13.2%	$110,000	3.25%	$110,000	$1,650	$111,650	13.4%
MI	Ascend Wellness	7/2/2019	1	$4.8	$15.0	$19.8	13.5%	$222,188	3.25%	$222,188	$3,333	$225,520	13.7%
NV	Mjardin	7/12/2019	1	$3.8	$5.8	$9.6	13.5%	$108,000	3.25%	$108,000	$1,620	$109,620	13.7%
LA	DionyMed	7/23/2019	1	$13.0	$2.0	$13.0	14.0%	$0	3.25%	$0	$0	$0	0.0%
MA	Trulieve	7/26/2019	1	$3.5	$7.5	$11.0	-	$100,833	3.0%	$100,833	$1,513	$102,346	11.2%
MI	Green Peak	8/2/2019	1	$10.8	$5.0	$15.8	-	$210,657	3.5%	$210,657	$3,160	$213,817	16.2%
PA	PharmaCann	8/9/2019	1	$0.9	$25.1	$26.0	-	$260,000	2.5%	$260,000	$3,900	$263,900	12.2%
IL	Ascend Wellness - tranche 2	9/5/2019	1	-	$8.0	$8.0	13.5%	$90,000	3.25%	$90,000	$1,350	$91,350	13.7%
CA	Vertical	9/11/2019	1	$17.3	-	$17.3	13.5%	$194,625	3.0%	$194,625	$2,919	$197,544	13.7%
MA	Holistic Industries - tranche 2	9/15/2019	1	-	$2.0	$2.0	15.0%	$25,000	3.25%	$25,000	$375	$25,375	15.2%
MN	Vireo - tranche 2	9/15/2019	1	-	$2.6	$2.6	15.0%	$32,500	3.5%	$32,500	$488	$32,988	15.2%
AZ	The Pharm - Retail	9/19/2019	1	$2.5	-	$2.5	11.0%	$22,917	3.0%	$22,917	$344	$23,260	11.2%
MA	PharmaCann - tranche 2	9/24/2019	1	-	$8.0	$8.0	-	$96,667	3.25%	$96,667	$1,450	$98,117	14.7%
MI	LivWell	10/9/2019	1	$19.0	$23.0	$42.0	11.0%	$385,000	2.5%	$385,000	$5,775	$390,775	11.2%
MI	Green Peak - Retail	10/15/2019	1	$10.0	$1.2	$11.3	11.0%	$103,464	3.0%	$103,464	$1,552	$105,016	11.2%
IL	Cresco	10/22/2019	1	$32.8	$13.8	$46.6	11.0%	$426,708	3.0%	$426,708	$6,401	$433,109	11.2%
FL	Trulieve	10/23/2019	1	$17.0	-	$17.0	-	$155,833	3.0%	$155,833	$2,338	$158,171	11.2%
IL	Pharmacann	10/30/2019	1	$18.0	$7.0	$25.0	14.5%	$302,083	2.5%	$302,083	$4,531	$306,615	14.7%
IL	Grassroots	10/30/2019	1	$10.5	the	$14.8	13.0%	$160,333	3.0%	$160,333	$2,405	$162,738	13.2%
PA	Green Thumb	11/12/2019	1	$20.3	$19.3	$39.6	11.0%	$363,000	3.0%	$363,000	$5,445	$368,445	11.2%
PA	Grassroots	12/20/2019	1	$14.2	$10.9	$25.1	13.0%	$271,917	3.0%	$271,917	$4,079	$275,995	13.2%
ND	Grassroots	12/20/2019	1	$9.9	$2.3	$12.2	13.0%	$132,058	3.0%	$132,058	$1,981	$134,039	13.2%
PA	Vireo - tranche 2	1/14/2020	1	-	$4.5	$4.5	15.0%	$56,250	3.0%	$56,250	$844	$57,094	15.2%
VA	Green Leaf	1/15/2020	1	$11.7	$8.0	$19.8	14.0%	$230,417	3.0%	$230,417	$3,456	$233,873	14.2%
AZ	The Pharm - tranche 2	1/16/2020	1	-	$2.0	$2.0	14.0%	$23,333	3.5%	$23,333	$350	$23,683	14.2%
OH	Cresco	1/24/2020	1	$10.6	$1.9	$12.5	12.0%	$125,450	3.0%	$125,450	$1,882	$127,332	12.2%
CA	California - tranche 2	1/28/2020	1	-	$1.3	$1.3	13.0%	$13,542	3.0%	$13,542	$203	$13,745	13.2%
OH	Green Thumb	1/31/2020	1	$2.9	$4.3	$7.2	11.5%	$69,000	3.0%	$69,000	$1,035	$70,035	11.7%
PA	Maitri Genetics - tranche 2	2/19/2020	1	-	$6.0	$6.0	13.5%	$67,500	3.0%	$67,500	$1,013	$68,513	13.7%
MA	PharmaCann - tranche 3	2/24/2020	1	-	$4.0	$4.0	14.5%	$48,333	3.25%	$48,333	$725	$49,058	14.7%
CO	LivWell - Retail	2/28/2020	1	$3.3	$0.9	$4.2	11.5%	$39,771	3.0%	$39,771	$597	$40,367	11.7%
MD	Holistic - tranche 2	3/1/2020	1	-	$5.5	$5.5	12.5%	$57,292	3.25%	$57,292	$859	$58,151	12.7%
IL	Green Thumb	3/9/2020	1	$9.0	$41.0	$50.0	11.5%	$479,167	3.0%	$479,167	$7,188	$486,354	11.7%
FL	Parallel	3/11/2020	1	$35.3	$8.2	$43.5	13.0%	$471,250	3.0%	$471,250	$7,069	$478,319	13.2%
MA	Ascend Wellness	4/2/2020	1	$26.8	$22.2	$49.0	13.5%	$551,250	3.0%	$551,250	$8,269	$559,519	13.7%

Total Investment	$834.4
Total/month	$9,175,754
Total/quarter	$27,527,261
Annualized	$110,109,046
Wtd Avg Yield	13.2%

A key for IIPR to be continuously successful in strong NOI is a healthy tenants portfolio, in an industry where most operators are generally unprofitable. IIPR's ability to constantly acquire high quality assets and lease back to high credit tenants is important. Many operators have been suffering high cash burn in the past quarter and continue to burn cash in the next 90 days while their cash positions are at an alarming spot in relation to their cash burn. It is apparent that IIPR has taken advantage of that and already accelerated its pace to acquire more properties, as the exhibits below indicate.

2018 Deals - Quarterly Breakdown

Quarter	Price (M)
1Q18	$0.0
2Q18	$28.1
3Q18	$12.8
4Q18	$36.3
Total	**$77.1**

2019 Deals - Quarterly Breakdown

Quarter	Price (M)
1Q19	$31.5
2Q19	$70.0
3Q19	$135.6
4Q19	$233.5
Total	**$470.6**

In 1Q20, IIPR has closed the following deals:

Date	Seller	Sq Ft	Price ($M)	Reimbursement ($M)
01/27/20	Cresco Labs	50,000	10.6	1.9
02/03/20	GTII	N/A	2.9	4.3
03/09/20	GTII	N/A	9.0	41.0
03/11/20	Parallel	373,000	35.3	8.2

Measured by investment, IIPR's top five states are Illinois, Pennsylvania, Massachusetts, Michigan, and California, which in total consists of 70% of IIPR's total acquisition.

	State	Investment (M)	% of Total	Yield	Size (SF)	Buildings
1	Illinois	$169.4	20.3%	12.6%	521,000	6
2	Pennsylvania	$140.1	16.8%	12.8%	680,000	6
3	Massachusetts	$105.3	12.6%	14.1%	462,000	4
4	Michigan	$98.8	11.8%	12.7%	488,000	10
5	California	$70.1	8.4%	10.9%	259,000	10
6	Florida	$60.5	7.3%	12.6%	493,000	2
7	Ohio	$43.4	5.2%	12.8%	140,000	4
8	New York	$36.4	4.4%	18.4%	167,000	2
9	Arizona	$22.5	2.7%	14.6%	360,000	2
10	Maryland	$22.4	2.7%	15.4%	72,000	1
11	Virginia	$19.8	2.4%	14.2%	82,000	1
12	Colorado	$15.4	1.8%	13.1%	66,000	3
13	North Dakota	$12.2	1.5%	13.2%	33,000	1
14	Nevada	$9.6	1.2%	13.7%	43,000	1
15	Minnesota	$8.6	1.0%	16.0%	89,000	1
	Total	**$834.4**	**100.0%**		**3,955,000**	**54**

By using the yield on each property across all states and summing revenue in each state divided by total investment based on geographic location, yield of IIPR's properties in a given state can be calculated, as shown above. New York has the highest state-wide yield at 18.4% while that of California is only 10.9%.

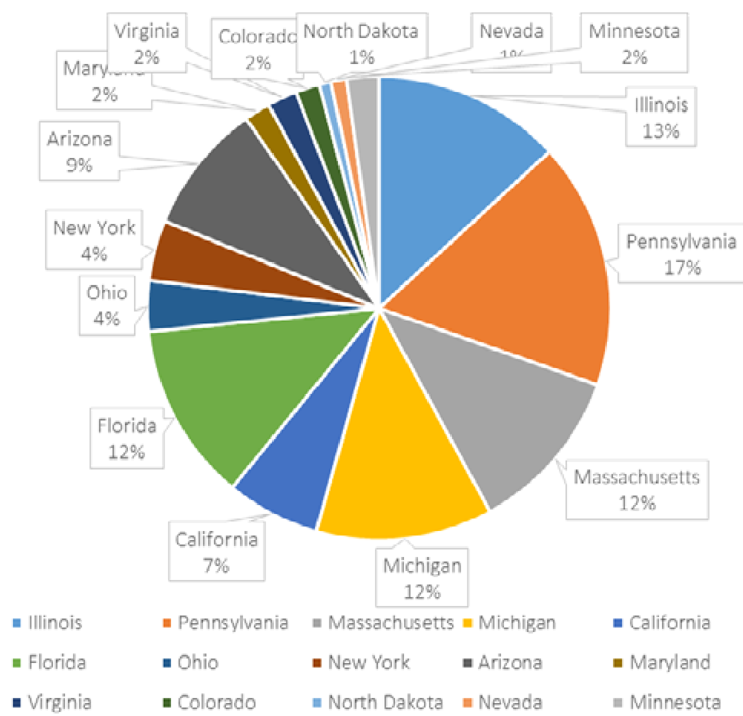
As of 4Q19						Tenant Pathway to Profitability			
Tenant	Leases	RSF	% of Total	Investment (M)	% of Total	CFP	PAE	PAE 2020	Unknown
PharmaCann	5	363,000	9.0%	$131.5	15.8%	Yes	-	-	-
Ascend Wellness	3	419,000	10.4%	$101.8	12.2%	-	Yes	-	-
Green Thumb	3	400,000	10.0%	$96.8	11.6%	-	Yes	-	-
Cresco	2	140,000	3.5%	$59.1	7.1%	-	Yes	-	-
Grassroots	3	225,000	5.6%	$52.1	6.2%	-	Yes	-	-
LivWell	3	164,000	4.1%	$46.2	5.5%	Yes	-	-	-
Parallel	1	373,000	9.3%	$43.5	5.2%	-	-	-	Yes
Holistic Industries	2	127,000	3.2%	$37.2	4.5%	Yes	-	-	-
Green Leaf Medical	2	348,000	8.7%	$32.8	3.9%	-	-	-	Yes
Vireo	4	229,000	5.7%	$32.7	3.9%	-	-	Yes	-
Trulieve	2	270,000	6.7%	$28.0	3.4%	Yes	-	-	-
California Portfolio (CA)	4	102,000	2.5%	$27.1	3.2%	-	-	-	Yes
Green Peak	7	140,000	3.5%	$27.1	3.2%	-	-	-	Yes
The Pharm	2	360,000	9.0%	$22.5	2.7%	-	-	-	Yes
Maitri Genetics	1	51,000	1.3%	$22.3	2.7%	-	-	-	Yes
Vertical (CA)	1	79,000	2.0%	$17.3	2.1%	-	-	-	Yes
DionyMed	1	35,000	0.9%	$13.0	1.6%	-	-	-	Yes
California (CA)	1	43,000	1.1%	$12.7	1.5%	-	-	-	Yes
The Green Solution	1	58,000	1.4%	$11.3	1.3%	-	-	Yes	
Emerald Growth	1	45,000	1.1%	$10.0	1.2%	-	-	-	Yes
Mjardin	1	43,000	1.1%	$9.6	1.2%	-	Yes	-	-
Total	**50**	**4,014,000**	**100.0%**	**$834.4**	**100.0%**	**29.1%**	**38.3%**	**5.3%**	**25.8%**

*DionyMed went into receivership in Oct. 2019 and defaulted on rent payments in 1Q20

Total Investment Either CFP or PAE **67.4%**

**CFP: Cash Flow Positive; PAE: Positive Adjusted EBITDA*

PhamaCann is the biggest tenant by investments and the company is already cash positive. The top five tenants by investments have all already either positive or adjusted EBITDA positive. This is critical as for many cannabis operators, burning cash is the number one killer of their business. Investors, from both public and private markets, care about the ability of making at least cash positive (not even EBITDA positive). For IIPR, this is critical as this directly relates to whether rents can be made on time in full. Out of 20 tenants, about 75% are large established MSOs while only 25% are smaller independent operators.



In terms of IIPR's footprint across states, Illinois is attracts the largest investment and has the second to the largest square footage in IIPR's portfolio. Other major states include Pennsylvania (18%), Florida (13%), Michigan (13%), Arizona (9%), and Massachusetts (7%).

IIPR continues to enjoy strong momentum in key US states (FL, IL, MI, OH, PA) where the cannabis markets are booming measured by growing number of patients and regulations.

5.4.4 IIPR Competitors

IIPR faces competition from various REIT private companies, such as Treehouse Real Estate Investment Trust and Green Acreage. However, since IIPR is the only publicly listed REIT company involving cannabis operators on the US exchange, this distinct advantage of raising capital still places IIPR in a much better position that other cannabis REITs. Although increasing competition, in theory, will certainly drive the cap rate down, private competitors will unlikely to accept a lower cap rate due to more expensive financing. Below are some of IIPR's notable competitors:

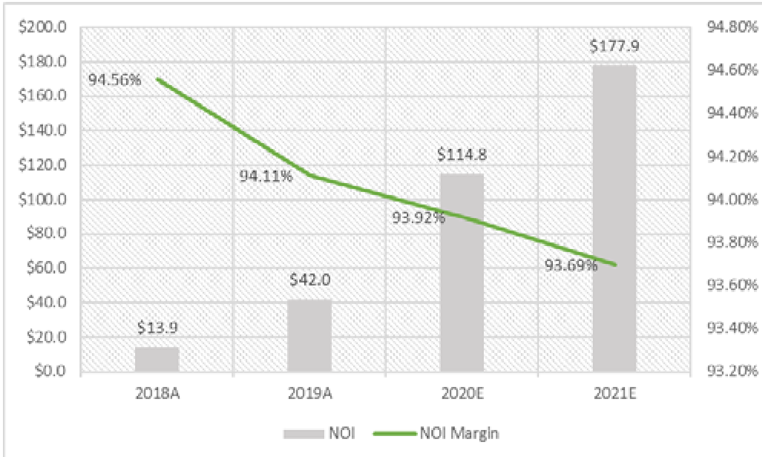
Treehouse Real Estate Investment Trust: externally managed real estate investment company focused on acquisition, ownership, and management of specialized retail and industrial properties. They work with experienced, state-licensed operators for both recreational and medical cannabis facilities. The company generally seeks 10 year lease with retail cap rate in the 9-13% range with annual escalators of 3%. Treehouse is generally focused on the retail side of the business as there is less risk to repurposing a retail location.

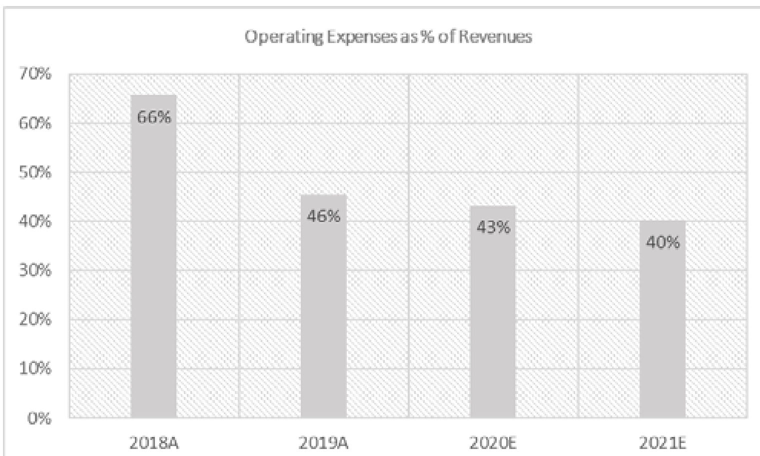
Green Acreage: has a strategic partnership with Acreage Holdings and is backed by a strong base of hedge funds, family offices and other investment groups. The company is focused on cultivation and is concentrating on limited license, high barrier markets such as FL, IL, MI, NJ, NY, and PA.

5.4.5 Financials

A quick summary to understand IIPR's financial performance: IIPR's portfolio consists of 53 assets with the weighted-average remaining lease length at 16 years and an average current yield of 13.2% on $780 million invested. Built upon that, there is also an on-average 3% rental bump plus 1.5% management fee tied to the current-year rental rate. IIPR's financial health depends upon tenants' solvency.

IIPR net rental revenue was $44.7 million, up 202% yoy in 2019, showing stronger growth compared with the $14.7 million and 130 % yoy in 2018. IIPR's AFFO per share grew 141% yoy in 2019 to $3.18. The company also paid a dividend of $2.83 per share in 2019, up 136% from the previous year. In 2019, IIPR paid a total dividend of $2.83 per share, up 136%. Rolling this momentum forward, IIPR is expected to have $5.66 AFFO per share with an annual dividend of $4.42 per share in 2020. IIPR is believed to be able to cover its dividend through AFFO in the near future because of the favorable cap rate. Meanwhile, the company is able to continue lowering down its operating expense as the core portfolio grows. The operating expense as a percentage of revenue dropped from 66% to 46% from 2018 to 2019, and the trend will remain, eventually go down to 40% by 2021.





Balance Sheet:

- As of 4Q19, IIPR had $82.2 million cash on its balance sheet and the company completed a $250 million capital raise by issuing common shares in January 2020. IIPR has already acquired around $776 million worth real estate assets on its book by 1Q20 and is projected to close another $200 million deals in 2020. To continue fuel its growth and acquisitions, the model assumes that IIPR will be issuing more shares worth $200 million in 2021. IIPR also has debt of $134 million tied to exchangeable senior notes of 3.75%.

ASSUMPTIONS	2018A	2019A					2020E					2021E				
$ in millions	Full Year	1QA	2QA	3QA	4QA	Full Year	1QA	2QE	3QE	4QE	Full Year	1QE	2QE	3QE	4QE	Full Year
Rental Revenue																
Occupany	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Expenses																
Property Expenses	2.8%	3.8%	4.1%	3.2%	2.2%	3.3%	2.9%	4.1%	3.2%	2.2%	3.1%	2.9%	4.1%	3.2%	2.2%	3.1%
Tenant Improvement	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NOI Margin	97.2%	96.2%	95.9%	96.8%	97.8%	96.7%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
G&A	43.5%	28.1%	30.1%	18.7%	17.8%	23.7%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
External Investments																
Building Acquisition Volume	77.1	31.5	70.0	135.6	150.0	387.1	155.1	100.0	50.0	50.0	355.1	50.0	50.0	50.0	50.0	200.0
Cap Rate	15.0%	13.4%	14.0%	13.4%	11.9%	12.9%	12.8%	12.5%	12.5%	12.5%	12.6%	11.5%	11.5%	11.5%	11.5%	11.5%
Balance Sheet Drivers																
Building Assets/TI		6.6	6.6	5.3	4.4		2.7	2.5	2.5	2.5		5.0	5.0	5.0	5.0	
Depreciation Duration		136	148	141	146		141	145	145	145		145	145	145	145	
Equity Raises	193.0	139.0	0.0	186.0	101.0	426.0	317.8				317.8	200.0				200.0
Total Debt	0.0	133.0	134.0	134.0	135.0	135.0	135.0	135.0	135.0	135.0	135.0	136.0	136.0	136.0	136.0	136.0
Payout Ratio	98.51%	83.20%	101.30%	74.06%	70.20%		78.82%	85.00%	85.00%	85.00%		85.00%	85.00%	85.00%	85.00%	
Shares Issued	3.0	2.1	0.0	1.5	0.5	4.0	3.8	0.0	0.0	0.0	3.8	3.5	0.0	0.0	0.0	

BALANCE SHEET	2018A	2019A				2020E				2021E			
$ in millions	4QA	1QA	2QA	3QA	4QA	1QA	2QE	3QE	4QE	1QE	2QE	3QE	4QE
Assets													
Land	20.5	22.6	28.5	38.0	48.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7
Buildings & Improvements	109.4	123.9	183.2	231.3	382.0	464.3	564.3	614.3	664.3	714.3	764.3	814.3	864.3
Tenant Improvements	14.7	18.8	27.6	43.4	87.3	174.0	225.7	245.7	265.7	142.9	152.9	162.9	172.9
Construction in Progress	6.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	150.9	165.9	239.4	312.6	518.0	690.0	841.7	911.7	981.7	908.8	968.8	1028.8	1088.8
Accumulated Depreciation	-3.6	-4.8	-6.4	-8.6	-12.2	-17.1	-22.9	-29.2	-36.0	-42.2	-48.9	-56.0	-63.5
Total Real Estate Assets	147.4	161.2	233.0	304.0	505.9	672.9	818.8	882.5	945.7	866.6	919.9	972.8	1025.3
Cash & Cash Equivalent	13.1	59.2	47.4	99.9	82.2	108.3	153.6	55.8	186.0	341.8	297.8	254.2	210.8
Restricted Cash	0.0	0.0	10.0	9.4	35.3	23.0							
Short Term Investments	120.4	197.7	138.7	208.8	119.6	272.9	124.8	183.3	4.3	99.4	94.1	89.0	84.0
Other Assets	0.6	2.3	1.6	1.0	2.9	3.3	-	-	-	-	-	-	-
Total Assets	281.5	420.4	430.7	623.1	745.9	1080.3	1097.2	1121.6	1136.0	1307.8	1311.8	1316.0	1320.2
Liabilities													
Accounts Payable & Accrued Expenses	4.4	4.4	12.4	13.7	28.4	42.5	55.1	60.0	64.9	34.9	37.3	39.8	42.2
Convertible Debt	0.0	133.2	133.7	134.2	134.7	135.2	135.2	135.2	135.2	135.2	135.2	135.2	135.2
Dividends Payable	3.8	4.8	6.2	9.2	13.0	17.4	16.8	21.3	25.8	27.5	29.2	30.9	32.7
Offering Cost Liability	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Rents Received in Advance & Deposits	9.0	9.7	12.2	16.2	20.6	25.2	30.0	45.0	50.0	50.0	50.0	50.0	50.0
Other													
Total Liabilities	17.2	152.0	164.5	173.3	197.8	221.5	238.2	262.6	277.0	248.8	252.9	257.1	261.2
Stockholders' Equity	264.3	268.4	266.2	449.8	548.0	859.0	859.0	859.0	859.0	1,059.0	1,059.0	1,059.0	1,059.0
Total Liabilities & Stockholders' Equity	281.5	420.4	430.7	623.1	745.9	1080.4	1097.2	1121.6	1136.0	1307.8	1311.8	1316.0	1320.2

INCOME STATEMENT	2018A	2019A					2020E					2021E				
$ in millions	Full Year	1QA	2QA	3QA	4QA	Full Year	1QA	2QE	3QE	4QE	Full Year	1QE	2QE	3QE	4QE	Full Year
FFO/Share	1.1	0.5	0.5	0.8	1.1	2.8	1.0	1.2	1.5	1.8	5.5	1.7	1.7	1.8	1.9	7.1
Rental Revenue	14.3	6.6	8.3	11.2	17.3	43.4	20.5	26.3	32.9	39.5	119.2	42.2	44.7	47.2	49.7	183.8
Tenant Expense Reimbursements	0.4	0.2	0.3	0.4	0.4	1.3	0.6	1.1	1.0	0.9	3.6	1.2	1.8	1.5	1.1	5.6
Total Property Revenues	**14.7**	**6.8**	**8.6**	**11.6**	**17.7**	**44.7**	**21.1**	**27.4**	**34.0**	**40.3**	**122.7**	**43.4**	**46.6**	**48.7**	**50.8**	**189.5**
Property Expenses	-0.4	-0.2	-0.3	-0.4	-0.4	-1.3	-0.6	-1.1	-1.0	-0.9	-3.6	-1.2	-1.8	-1.5	-1.1	-5.6
NOI (Rental Rev - Property Expenses)	**13.9**	**6.3**	**7.9**	**10.8**	**16.9**	**42.0**	**19.9**	**25.2**	**31.9**	**38.6**	**115.6**	**41.0**	**42.9**	**45.7**	**48.6**	**178.2**
G&A	-6.4	-1.9	-2.6	-2.2	-3.2	-9.8	-3.3	-5.5	-6.8	-8.1	-23.7	-8.7	-9.3	-9.7	-10.2	-37.9
D&A	-2.6	-1.2	-1.6	-2.2	-3.5	-8.6	-4.9	-5.8	-6.3	-6.8	-23.8	-6.3	-6.7	-7.1	-7.5	-27.6
Total Expenses	**-9.4**	**-3.4**	**-4.5**	**-4.7**	**-7.1**	**-19.7**	**-8.9**	**-12.3**	**-14.1**	**-15.7**	**-51.0**	**-16.2**	**-17.8**	**-18.3**	**-18.7**	**-71.1**
Income from Operations	**5.3**	**3.4**	**4.1**	**6.8**	**10.6**	**24.9**	**12.3**	**15.0**	**19.8**	**24.6**	**71.7**	**27.2**	**28.7**	**30.4**	**32.0**	**118.4**
Interest	0.0	-0.8	-1.8	-1.8	-1.8	-6.3	-1.8	-1.8	-1.8	-1.8	-7.2	-1.8	-1.8	-1.8	-1.8	-7.2
Other Income (Expense)	1.6	1.0	1.2	1.5	1.1	4.8	1.4	1.0	1.0	1.0	4.4	1.0	1.0	1.0	1.0	4.0
EBITDA	**4.3**	**2.4**	**1.8**	**4.3**	**6.4**	**14.9**	**7.0**	**8.4**	**12.7**	**17.1**	**45.2**	**20.2**	**21.3**	**22.5**	**23.7**	**87.6**
Preferred Stock Dividends	-1.4	-0.3	-0.3	-0.3	-0.3	-1.4	-0.3	-0.3	-0.3	-0.3	-1.2	-0.3	-0.3	-0.3	-0.3	-1.2
Net Income Available to Common	**5.5**	**3.3**	**3.1**	**6.2**	**9.6**	**22.1**	**11.6**	**13.9**	**18.7**	**23.5**	**67.7**	**26.1**	**27.6**	**29.3**	**30.9**	**114.0**
FFO RECONCILIATION																
Net Income Available to Common	5.5	3.3	3.1	6.2	9.6	22.1	11.6	13.9	18.7	23.5	67.7	26.1	27.6	29.3	30.9	114.0
Real Estate D&A	2.6	1.2	1.6	2.2	3.5	8.6	4.9	5.8	6.3	6.8	23.8	6.3	6.7	7.1	7.5	27.6
Funds from Operations (FFO)	**8.1**	**4.5**	**4.7**	**8.4**	**13.1**	**30.7**	**16.5**	**19.7**	**25.0**	**30.3**	**91.5**	**32.4**	**34.3**	**36.4**	**38.4**	**141.5**
Stock-Based Compensation	1.5	0.6	0.6	0.7	0.7	2.5	0.7	0.7	0.7	0.7	2.6	0.7	0.7	0.7	0.7	2.6
Non-Cash Interest Expense	0.0	0.2	0.5	0.5	0.5	1.7	0.5	0.5	0.5	0.5	2.0	0.5	0.5	0.5	0.5	2.0
AFFO	**9.6**	**5.3**	**5.8**	**9.5**	**14.3**	**34.9**	**17.6**	**20.9**	**26.2**	**31.5**	**96.1**	**33.5**	**35.5**	**37.5**	**39.6**	**146.1**
Outstanding Common Shares	7.3	9.8	9.8	11.1	12.0		15.8	17.0	17.0	17.0		20.5	20.5	20.5	20.5	
Weighted Avg. Outstanding Shares	7.3	9.8	9.8	11.1	12.0	10.7	15.8	17.0	17.0	17.0	16.7	18.8	20.5	20.5	20.5	20.1
FFO/Share	**1.11**	**0.46**	**0.48**	**0.76**	**1.09**	**2.79**	**1.04**	**1.16**	**1.47**	**1.78**	**5.46**	**1.73**	**1.67**	**1.77**	**1.87**	**7.05**
AFFO/Share	**1.32**	**0.54**	**0.59**	**0.86**	**1.19**	**3.18**	**1.12**	**1.23**	**1.54**	**1.85**	**5.73**	**1.79**	**1.73**	**1.83**	**1.93**	**7.28**
Dividend/Share	**1.20**	**0.45**	**0.60**	**0.78**	**1.00**	**2.83**	**1.00**	**0.99**	**1.25**	**1.52**	**4.75**	**1.47**	**1.42**	**1.51**	**1.59**	**5.99**
Margin Analysis																
NOI/Total Revenues	94.6%	92.8%	92.2%	93.8%	95.8%	94.1%	94.3%	92.2%	93.8%	95.8%	94.2%	94.3%	92.2%	93.8%	95.8%	94.1%
G&A/Total Revenues	43.5%	28.1%	30.1%	18.7%	17.8%	22.0%	15.8%	20.0%	20.0%	20.0%	19.3%	20.0%	20.0%	20.0%	20.0%	20.0%
EBITDA/Total Revenues	29.3%	35.5%	20.9%	37.2%	36.0%	33.3%	33.1%	30.7%	37.5%	42.3%	36.8%	46.4%	45.7%	46.2%	46.7%	46.3%
FFO/Total Revenues	55.1%	66.2%	54.4%	72.7%	74.2%	68.8%	78.0%	72.1%	73.7%	75.2%	74.5%	74.6%	73.7%	74.7%	75.7%	74.7%
FAD/Total Revenues	65.3%	77.5%	67.3%	82.6%	80.7%	78.1%	83.5%	76.3%	77.0%	78.0%	78.3%	77.3%	76.2%	77.0%	78.0%	77.1%
FAD/FFO	118.5%	117.1%	123.6%	113.6%	108.8%	113.6%	107.0%	105.8%	104.6%	103.8%	105.0%	103.5%	103.3%	103.2%	103.0%	103.2%

CASH FLOW STATEMENT	2018A	2019A					2020E					2021E				
$ in millions	Full Year	1QA	2QA	3QA	4QA	Full Year	1QA	2QE	3QE	4QE	Full Year	1QE	2QE	3QE	4QE	Full Year
CF from Operaring Activities																
Net Income	7.0	3.6	3.4	6.5	9.9	23.5	11.6	13.9	18.7	23.5	67.7	26.1	27.6	29.3	30.9	114.0
D&A	2.6	1.2	1.6	2.2	3.5	8.6	4.9	5.8	6.3	6.8	23.8	6.3	6.7	7.1	7.5	27.6
Stock-Based Compensation	1.5	0.6	0.6	0.7	0.7	2.5	0.8	0.8	0.8	0.8	3.2	0.9	0.9	0.9	0.9	3.6
Amortization of Discounts on STI	-1.0	0.7	-2.6	-1.0	-0.9	-3.7	-1.0									
Amortization of Debt Discounts	0.0	0.2	0.5	0.5	0.5	1.7	0.5									
Other Assets, net	-0.2	0.0	0.0	0.0	-0.6	-0.6										
Accounts Payable & Accrued Expense	0.9	-0.7	2.3	-2.5	2.4	1.4	-2.0									
Rents in Advance and Deposits	4.9	0.6	2.6	4.0	4.4	11.6	4.6									
Net CF from Operating Activities	**15.7**	**6.2**	**8.4**	**10.3**	**19.9**	**44.9**	**19.4**	**20.5**	**25.8**	**31.1**	**94.7**	**33.3**	**35.2**	**37.3**	**39.3**	**145.1**
CF from Investing Activities																
Real Estate Acquisitions	-57.5	-7.4	-54.8	-45.5	-152.2	-259.9	-72.5	-100.0	-50.0	-50.0	-272.5	-50.0	-50.0	-50.0	-50.0	-200.0
TI Reimbursements	-22.3	-6.8	-13.0	-23.9	-40.9	-84.7	-82.7									
Total Real Estate Related	-79.8	-14.2	-67.8	-69.4	-193.1	-344.6	-155.1	-100.0	-50.0	-50.0	-355.1	-50.0	-50.0	-50.0	-50.0	-200.0
Deposits in Escrow for Acquisitions	0.0	-1.6	0.9	0.3	-0.2	-0.7	-0.8									
Purchases of Short-Term Investments	-185.0	-118.5	1.6	-132.1	-6.7	-255.7	-254.8	3.0	-100.0	-13.0	-364.8					
Maturities of Short-Term Investments	65.5	40.5	60.0	63.0	96.8	260.3	102.5	115.8	47.7	187.8	453.8					
Net CF from Investing Activities	**-199.3**	**-93.8**	**-5.4**	**-138.2**	**-103.2**	**-340.7**	**-308.3**	**18.8**	**-102.3**	**124.8**	**-183.5**	**-50.0**	**-50.0**	**-50.0**	**-50.0**	**-200.0**
CF from Financing Activities																
Issuance of Common Shares	193.2	0.0	0.0	185.7	100.6	286.3	317.8				317.8	200.0				200.0
Issuance of Debt	0.0	138.5	0.0	0.0	0.0	138.5										
Dividends Paid to Shareholders	-8.0	-3.8	-4.8	-6.2	-9.2	-23.9	-13.0	-16.8	-21.3	-25.8	-76.8	-27.5	-29.2	-30.9	-32.7	-120.3
Tax Paid Related Net Share Settlement	-0.4	-0.9	0.0	0.0	0.0	-0.9	-2.2									
Net CF from Financing Activities	**184.9**	**133.85**	**-4.75**	**179.46**	**91.40**	**399.96**	**302.70**	**-16.76**	**-21.27**	**-25.76**	**241.08**	**172.46**	**-29.18**	**-30.93**	**-32.67**	**79.68**
Net CF	1.3	46.3	-1.7	51.6	8.0	104.2	13.8	22.5	-97.7	130.2	152.3	155.8	-44.0	-43.6	-43.3	24.8
Balance at Beginning of Period	11.8	13.1	59.3	57.6	109.2	13.1	117.3	131.1	153.6	55.8	117.3	186.0	341.8	297.8	254.2	269.6
Balance at End of Period	**13.1**	**59.3**	**57.6**	**109.2**	**117.3**	**117.3**	**131.1**	**153.6**	**55.8**	**186.0**	**269.6**	**341.8**	**297.8**	**254.2**	**210.8**	**294.4**

5.4.6 Valuation

IIPR shares, compared with large specialty REIT peers (NNN and O – average 14.9x FY2020 P/AFFO), currently trade at around 14.2x FY2020 P/AFFO estimate. This represents a 3.91% discount to the NAV estimate. Given IIPR's rapid growth and its specialty in cannabis real estate assets, it is reasonable to apply a premium multiple 22.0x FY2020 P/AFFO per share, as suggested by that of 2019. Together with an estimated AFFO/Share of $5.73 in 2020, it implies that the target stock price will be around $126.06.

Ann. NOI 2020E ($M)	$115.6
Cap Rate	7.5%
Real Estate Value ($M)	1541.339
Debt ($M)	$135.0
Other Liabilities ($M)	$85.1
Preferred Equity ($M)	$14.0
Equity ($M)	$1,307.2
Shares Outstanding (M)	17.00
NAV/Share ($M)	**$76.9**
Last Price (05/12/20)	$74.0
Premium	**3.91%**

Multiples	2019A	2020E
P/FFO	24.9x	14.9x
P/AFFO	21.9x	14.2x

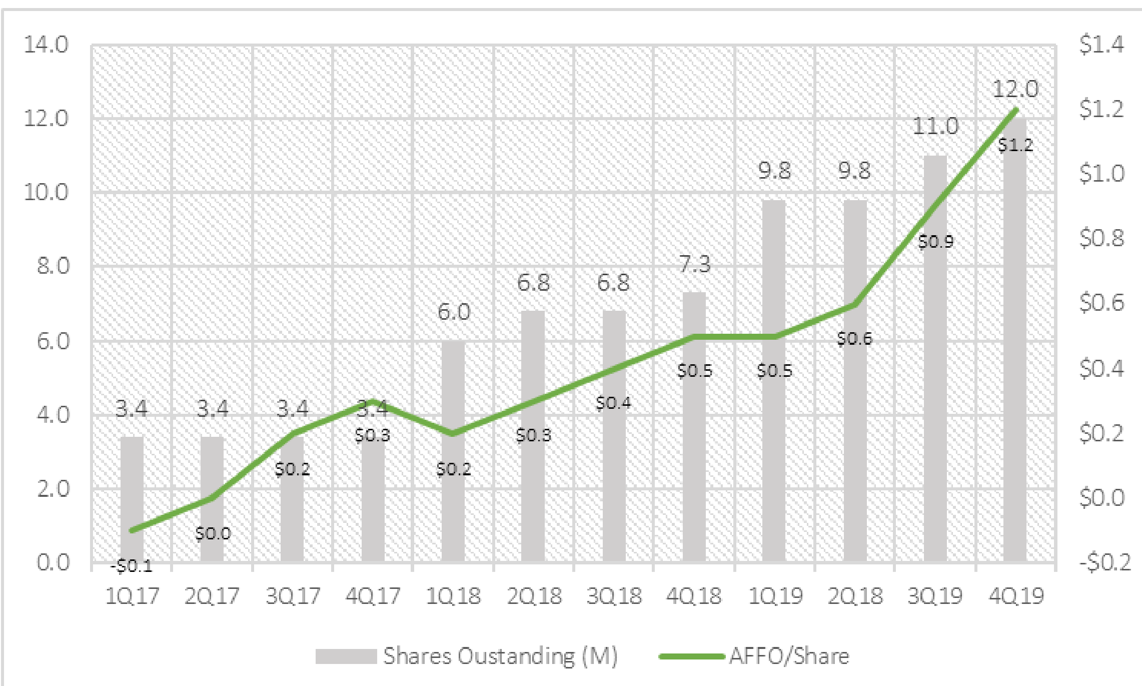
Revenue ($M)	2019A	2020E	2021E
Q1	$6.8	$21.1	$43.4
Q2	$8.6	$27.4	$46.6
Q3	$11.6	$34.0	$48.7
Q4	$17.7	$40.3	$50.8
FY	$44.7	$122.7	$189.5

AFFO/Share	2019A	2020E	2021E
Q1	$0.5	$1.1	$1.8
Q2	$0.6	$1.2	$1.7
Q3	$0.9	$1.5	$1.8
Q4	$1.2	$1.9	$1.9
FY	$3.2	$5.7	$7.3

5.4.7 Capital Financing

Since its IPO, IIPR has completed seven raises through both equity and debt markets, and raised in total more than $840 million capital to fuel its acquisitions and fast growth. In FY2020, IIPR has already raised about $250 million equity money. IIPR is projected to have $238 million cash

Date	Method	Amount Raised	Shares Issued	Purchase Price	Interest Rate
12/05/16	Equity	$67,000,000	3,350,000	$20.00	
10/11/17	Preferred Convert	$15,000,000	600,000	$25.00	9%
01/18/18	Equity	$72,800,000	2,800,000	$26.00	
10/03/18	Equity	$104,000,000	2,600,000	$40.00	
02/15/19	Senior Exchangeable	$143,750,000	-	-	4%
07/12/19	Equity	$188,400,000	1,495,000	$126.00	
01/28/20	Equity	$250,000,000	3,412,969	$73.25	



5.4.8 Unique Time: IIPR amid Covid19

It is important to note that while this thesis is in progress, the impact of Covid-19 is tremendous on not only the healthcare system but also economy, real estate market included. REITs as a traditionally defensive asset class is not spared either. Mortgage REITs have been hitting hard, wiping out 70-80% of their market value. Cannabis REITs also have taken a hit – many of them are cut half but have recovered since then.

As for a REIT, the most important question to ask is whether it can collect and will continue to collect rent from its tenants regardless of the economic and political uncertainties. As for IIPR, the question unfolds as:

(1) Can IIPR's tenants continue to sell medical cannabis when the economy is plunging? (Evercore ISI forecasts US real GDP -50% in 2Q, -5% in 3Q, +5% in 4Q with unemployment rate over 20%)
(2) As a result of (1), capital market will tighten up and the duration will be unknown. Can IIPR's tenants survive the imminent capital crunch?
(3) As a result of (1) and (2), can IIPR's tenants continue to pay rent without disruption?

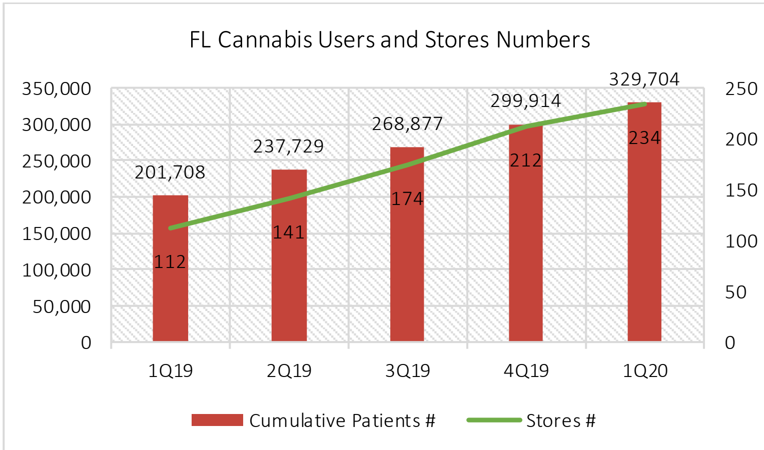
The short answers to these questions are (1) Yes, (2) Most likely, and (3) Yes, as Covid-19 does not have material impacts on medical cannabis supply chain in the US.

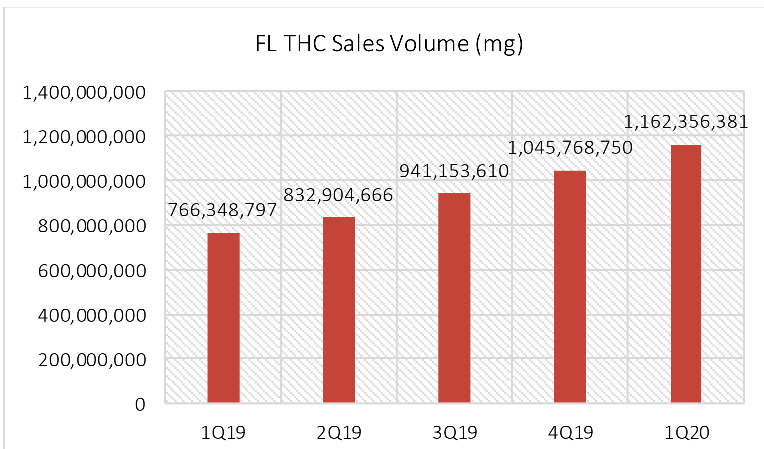
While automotive, airlines, cruise, and travel industry taking significant hits on their supply chains due to Covid-19 pandemic, there has not been material adverse impact on the cannabis industry due to the industry is largely vertically integrated. In contrast to a horizontal integrated system where operators can engage in any or all cannabis business activities, a vertically integrated business model requires all product grown, processed, distributed and sold within individual states. States require vertically integrated systems include: Connecticut, Delaware, Florida, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Rhode Island, and Vermont. This "shop local" ecosystem significantly reduces the exposure to the disruption of supply chains. Meanwhile, since most cannabis cultivation and production facilities are located in rural areas far away from densely populated areas, the risk of quarantine and business suspension is therefore much lower.

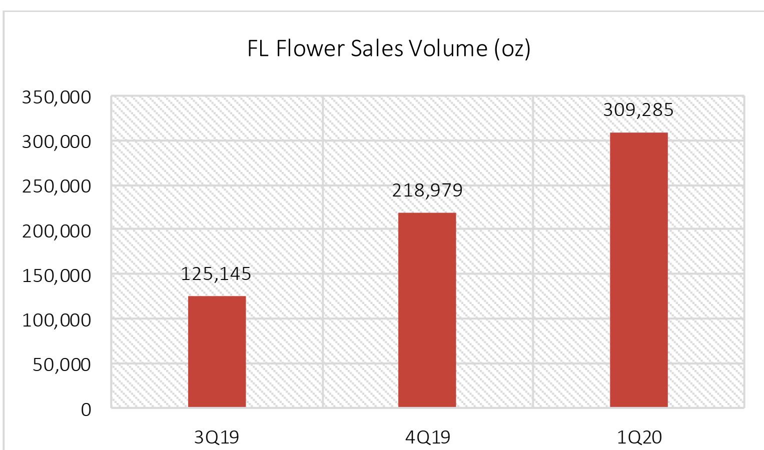
Second, retail dispensaries remain open. While many states declare emergency and shut off most retail business, medical cannabis dispensaries, thanks to its pharmaceutical identity, are considered essential business and remain open. Many cannabis operators actively take actions to reduce patient exposure with increased deliver services, scheduled patient access, and curbside pick. According to a survey conducted by BTIG, a capital market company, 32 of 34 of the medical cannabis dispensaries in New York State are still open and 30 stores provide delivery services

Third, cannabis products sales remain strong and undisrupted, as illustrated by the following state market data. By examining states (FL, MA, IL and IL) where IIPR has significant exposures, it is surprising to find out that these markets remain strong amid pandemic. Sales are generally up 10% in these states.

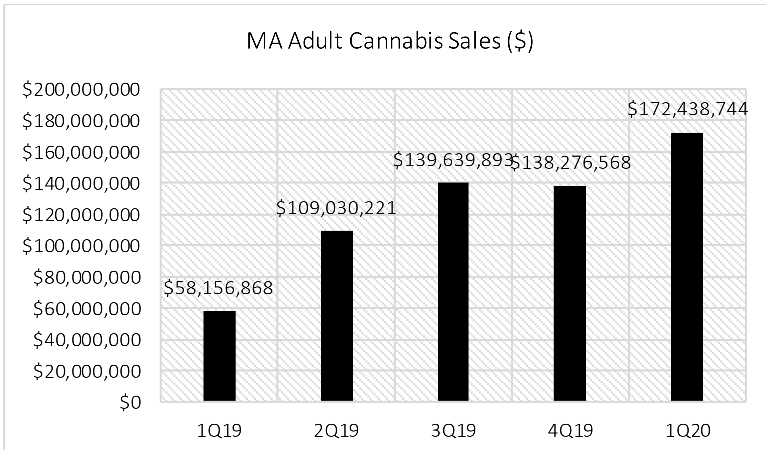
In Florida, patients and stores numbers continued to grow sequentially from 4Q19 to 1Q20. Patients number up from 299,914 to 329,704 by the end of 1Q20. Meanwhile, cannabis products sales picked up. Both THC and dry flower sales volume witnessed significant growth. THC sales volume up 11% while dry flower volume up 42%.



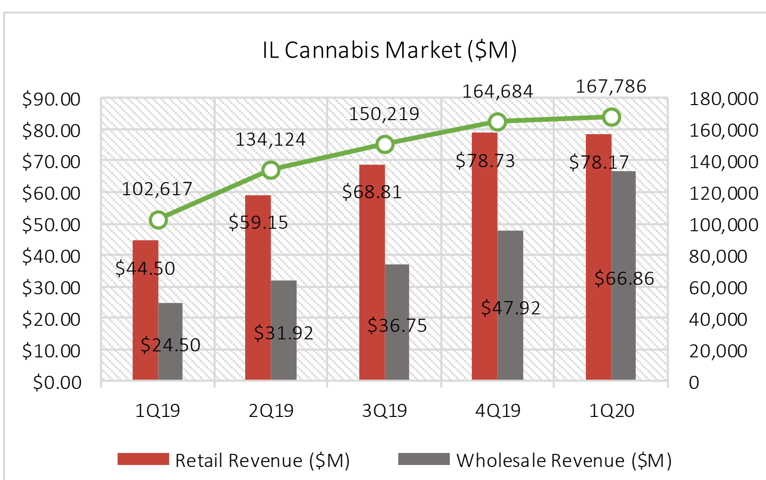




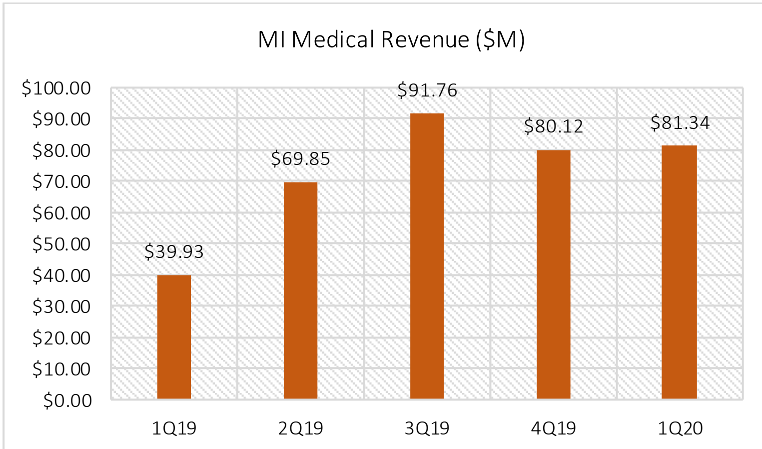
Massachusetts market also demonstrate strong growth in 1Q20. Adult cannabis sales in dollars were up from $138 million in 4Q19 to $172 million in 1Q20, implying a 24.6% quarter-over-quarter increase.



Affected by the newly legalized recreational cannabis market, Illinois medical cannabis market saw mixed results in 1Q20. Unique patients number grew slightly from 164,684 to 167,786. Retail sales slightly decreased. On the other hand, wholesales grew significantly from $47.92 in 4Q19 to $66.86 in 1Q20.



Michigan is another market where IIPR owns and manages properties. The medical market grew slightly from 4Q19 to 1Q20.



Bottom line is that while many other sectors are hit hard by the pandemic, its lockdown and foreseeable tighten economic conditions, cannabis industry remain mostly intact and even witnesses growth and momentum. As demand remains and keeps picking up, cannabis operators will have the capacity to continue bringing in cash. Therefore, IIPR's rent roll remains healthy as its tenants are solvent and operating.

5.4.9 Conclusion

IIPR, the only cannabis REIT publicly traded in the US, is a powerful business within an exciting industry that investors might find it to be an once-in-a-century opportunity. The high cap rate due to current legal conditions, the triple-N model and a strong spread between cap rate and cost of capital make IIPR an ideal investment. As cannabis sales remains robust during Covid19, IIPR bears no material damage and is believed to continue flourish.

5.5 Other Risks

One of the largest risks IIPR faces is cannabis legalization at the federal level as it will significantly offset IIPR's current strong spread between its cost of capital and its cap rate. Once cannabis is legalized at the state level, cannabis business operators will be able to obtain capital from more efficient banking options. Although it seems that cannabis legalization is unlikely to materialize in the imminent 3-5 years, and IIPR's direct sales-leaseback model can still function well, investors should remain cautious. As if legalization occurs, IIPR's cap rate will drop to that of its industrial property peer, which is about 7% - 9%. This will significantly wipe out the current strong spread between its cap rate and its cost of capital. In addition to that, it is also a big question on whether IIPR will be able to renew leases with existing tenants after cannabis full legalization.

IIPR's solution to this is by locking its tenants to 15 to 20-year terms. By doing so, IIPR will not have to directly face the issue mentioned above.

Beside, another critical hurdle is many states allow localities to prohibit cannabis business, even when cannabis is legal at the state level. For example, California Supreme Court allows many cities to ban medical cannabis dispensaries. Moreover, even if the locality allows cannabis business to operate legally, zoning might be another hurdle. Localities take various zoning measurements when it comes to deal with cannabis business. Therefore, an infused product facility may be restricted to light manufacturing zones. Sensitive use setbacks also present big challenges to cannabis operators. For example, California state law prohibits licensed premises to operate within 600 feet from any K-12 school, daycares, and youth centers. It is also unclear in the scenario if there is already a cannabis dispensary but a daycare center plans to open, what will happen to the cannabis dispensary too.

5.6 The Future of Cannabis REITs

Looking forward, as more states go for cannabis legalization, the industry will grow much bigger. The newly established business will still need funding from various sources. Cannabis REITs will not only continue to serve as a good path for core cannabis businesses to acquire operating capital, but also give investors a way to participate this once-in-a-century industry opportunity.

The End

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