



**A SNAPSHOT OF DEMAND FOR  
ADULT-USE CANNABIS IN ILLINOIS**

FREEDMAN & KOSKI

# A SNAPSHOT OF DEMAND FOR ADULT-USE CANNABIS IN ILLINOIS

## WRITTEN BY:



**JOHN HUDAK, PH.D.**

Senior Policy Advisor of Freedman & Koski, Inc.



**ANDREW FREEDMAN**

Senior Director and Co-Founder of Freedman & Koski, Inc. Former Director of Marijuana Coordination for Governor Hickenlooper



**LEWIS KOSKI, MBA**

Senior Director and Co-Founder of Freedman & Koski, Inc. Former Director of the Colorado Marijuana Enforcement Division.

*This independent project was funded by Senator Heather Steans and Representative Kelly Cassidy*

TABLE OF CONENTS

Executive Summary ..... 4

Estimating Demand and Tax Revenue for  
Adult Use Cannabis in Illinois ..... 6

Conclusion ..... 25

# A SNAPSHOT OF DEMAND FOR ADULT-USE CANNABIS IN ILLINOIS

## EXECUTIVE SUMMARY

This study offers insight into what a legal, adult-use cannabis system may look like in the state of Illinois. The goal in any legal system should be to provide safe, regulated, consistent cannabis to consumers, while effecting greater social justice, displacing illegal markets, decreasing problems related to substance abuse, and maintaining public safety.

This analysis makes specific recommendations about a prospective legal cannabis system in Illinois, suggests policy alternatives, advises on practices to be avoided, and highlights regulatory goals that must be achieved in order to meet public expectations. The highlights of this report include several top-line takeaways:

- Demand is likely to be between approximately 350,000 lbs-550,000 lbs. of dried cannabis per year for a fully mature market in which consumers are broadly aware of the program and the manner in which legal cannabis can be purchased and suppliers are sufficiently able to meet that demand. The range accounts for varying assumptions for consumption rates for residents and out-of-state visitors as well as other caveats.
- Illinois can expect the existing medical cannabis market to have the capacity to supply between 35 percent and 54 percent of the mature, adult-use market, subject to the caveats and assumptions listed in this report.

- The state should expect initial demand in the adult-use cannabis market to be significantly lower than the demand of a fully mature market, as consumers, businesses, communities, employers, and others adjust to a new policy reality. Such ramp up of demand has been seen in previously legalizing states.
- The state should expect initial market dynamics to keep prices above criminal market pricing, and subsequently some consumers will prefer the criminal market. In the longer term, but still within the first few years, initial regulatory costs will decrease; economies of scale will push prices down; and the regulated market will capture or displace the criminal market. These market dynamics should be taken into account when considering tax rates and limitations on product variety.
- If existing medical cannabis companies are used as the first entrants into the adult-use cannabis industry, the state must be sensitive to those companies' continued role as meeting the needs of medical cannabis patients and the expected growth in the medical program.
- All states that have legalized adult-use cannabis have also had legacy systems for medical cannabis in place. Successful programs have been opened by incorporating as many of the stakeholders from the legacy programs as possible, while not sacrificing the broader goals of legalization.



## **ESTIMATING DEMAND AND TAX REVENUE FOR ADULT USE CANNABIS IN ILLINOIS**

Approximating demand for cannabis is a complex and challenging process. The current market for recreational cannabis in Illinois is illicit, and individuals are less than willing to be forthcoming about their use of an illicit substance. As such, it is difficult to assess how many Illinois residents will seek out the substance. This section will break down and detail some of the major hurdles in offering a cannabis market snapshot for post-legalization Illinois.

### **CHALLENGES TO A MARKET SNAPSHOT FOR CANNABIS**

Because adult-use cannabis is currently illegal in Illinois, understanding the size of the prospective market is challenging. Changes in markets (prices, supply, quality, accessibility, etc.) can have dramatic effects on consumer behavior. Under the current proposal in Illinois, not only would consumers have the choice between using or not using cannabis, but cannabis users have alternatives: purchasing from a legal, commercial market; homegrowing cannabis; or continuing to buy from the criminal market. Those choices are influenced by consumer preference ex ante as well as the dynamics of the market as it matures.

One way to understand consumer taste for cannabis involves surveys. One of the most relied upon surveys of drug use in the United States is the National Survey on Drug Use and Health (NSDUH). NSDUH is produced by the US government's Substance Abuse and Mental Health Administration and surveys thousands of Americans about their use of a variety of legal and illegal substances. While the survey results are useful, it is not surprising that challenges exist with regard to respondents' honesty, especially regarding the use of illegal drugs.

Another way to understand Illinois' demand for cannabis could be to look at the existing medical cannabis market that has been functional for a few years. The medical cannabis system in Illinois has been operational for several years, is subject to significant regulations, and operates via cultivations and dispensaries that serve qualifying patients. The challenge here, however, is that cannabis consumers in an adult-use market can differ dramatically from medical cannabis patients—both in terms of purpose and quantity consumed. At the same time, the medical cannabis market is relatively small (just over 50,000 registered patients) and nowhere near approximates the broader demand for cannabis in the state.

In addition, under a legal cannabis regime, visitors are able to purchase cannabis, as well. Some of those visitors will consume the product while in Illinois; others will remove that product from the state (in violation of laws in multiple jurisdictions). Estimating how many visitors will purchase cannabis, how much they will purchase, and how often they purchase depends heavily on who visits the state. In addition, the opening of a new cannabis market can induce cannabis-specific tourism—that is, individuals visiting the state for the primary purpose of purchasing cannabis.

Demand from the legal, regulated, commercial market will also depend on individuals' proximity to and the accessibility of dispensaries. Illinois is a large state with significant swaths of rural, conservative counties. Historically in other legal states, those counties are most likely to opt out of cannabis legalization—choose to prohibit cannabis cultivation facilities and/or dispensaries. In that context, consumers have the

choice among traveling to a dispensary, homegrowing cannabis, or purchasing from the criminal market. The same is true for visitors to Illinois. Although approximately half of all Illinois tourists visit Chicago—a city that will have a significant number of dispensaries, the remaining half of the 114 million people who visit the state annually will visit other areas that may or may not have access to the legal market.<sup>1</sup>

In other states where researchers have estimated demand, prices, economic activity, and tax revenue, those researchers have relied on original survey data in an effort to understand more clearly consumer demand, taste, and behavior. Such data are not available in a significant way for Illinois, further hindering an accurate assessment. In addition, the legalization of cannabis will encourage some people who may not otherwise have consumed to begin doing so. For other casual users, they may increase their use under a legal regime for a variety of reasons.

Beyond consumer access to cannabis, the types of products they seek to consume can have significant market effects. As legal cannabis markets mature, consumers are exposed to a variety of different products including edibles, vapes, concentrates, tinctures, and other products. In legal states, there has been a steady shift away from the traditional (flower) and toward newer products. Because of price differences and the differences in inputs (flower and trim) required to produce the ultimate consumer good, such behaviors can affect wholesale product sold, revenue generated, and tax revenue collected.

Finally, price will be largely dependent on both supply and demand. States that have already legalized have had varying experiences with supply. States like Oregon have faced the challenges of dramatic oversupply, encouraged by too many licensees producing far too much product for the market. This has led to significant drops in prices that have caused challenges for businesses' ability to operate and incentivized out-of-state diversion that has been documented as far away as the East Coast. Other states like Colorado and Nevada, after overcoming the expected, initial supply shortages

---

<sup>1</sup> See <https://media.enjoyillinois.com/press-releases/illinois-tourism-announces-record-growth/> and <https://www.choosechicago.com/media/news/post/mayor-emanuel-announces-a-record-57-6-million-visitors-to-chicago-in-2018/>

have stabilized, as licensees are opting not to maximize their approved canopy space (size of cultivation space/number of plants allowed) to produce close to what the market demands. Choices made by Illinois regulators will have significant effects on price and revenue, and until such choices are made, revenue estimates will be challenging to estimate.

Despite, these many challenges, it is possible to identify some of the contours of a legal cannabis market in Illinois based on state demographics, what we know about cannabis use in the state, and the experience of legalization in other states.

### **A BRIEF NOTE ON A CHANGING MEDICAL CANNABIS MARKET**

This analysis focuses largely on a snapshot of the prospective adult-use market in Illinois. However, as a state with a relatively new medical cannabis market, it should also experience medical market growth over the coming years for a variety of reasons. First, like any system, the early years of a medical cannabis system encounters a lack of public knowledge and understanding of the system. There is a limited understanding a) that medical cannabis is even legal, b) about which conditions qualify for medical cannabis, c) about the processes by which a patient can register, d) regarding the efficacy of medical cannabis for one's condition, and e) as to how to find a doctor who will recommend medical cannabis. Each of these limits the size of the system. As public information increases, more people will access it. Such growth has been apparent already in Illinois' system. Between January 2017 and December 2018, the number of registered, qualified patients rose from 15,900 to 52,365, and the number of unique patients served rose from 10,175 to 29,954.<sup>2</sup>

Second, when a state approves adult-use cannabis, it can reduce taboos about the product and help legitimize cannabis more generally in the population. This legitimization can motivate prospective medical cannabis patients (people with qualifying conditions who have not sought to access the program) to begin the process of becoming a qualified patient. Such increases were seen in Colorado in the early days of adult-use legalization.

---

2 <https://www2.illinois.gov/sites/mcpp/Pages/Updates.aspx>

Third, the state's passage of the Alternatives to Opioids Act of 2018 and the 2017 approval of PTSD as a qualifying condition (a condition affecting approximately eight percent of the population) can expand eligibility and access to the medical cannabis market. The Alternatives to Opioids Act offers medical cannabis as an alternative for those individuals who are not registered medical cannabis patients to have temporary access to medical cannabis as an alternative to opioid use. This could have a meaningful effect in a state that does not have chronic/intractable pain as an explicit qualifying condition.<sup>3</sup>

Approximately 10-20 percent of the U.S. population experiences chronic pain,<sup>4</sup> and in 2015, about 1 in 3 Americans were prescribed opioids for an acute or chronic condition.<sup>5</sup> A non-trivial number of chronic pain patients are already able to access the Illinois medical cannabis program because their conditions already qualify and are among the most common for which opioids are prescribed, including HIV/AIDS, cancer, spinal cord injuries, rheumatoid arthritis, severe fibromyalgia, CRPS, and others. However, there are many conditions not listed that involve chronic pain and for which opioids are often part of treatment. What's more, the Illinois system—like many medical cannabis systems in the U.S. focus on chronic conditions when determining eligibility for medical cannabis.

However, opioids are frequently prescribed for acute or temporary illness or injury—recovery from surgery, a broken bone, a joint injury, etc. In those cases, individuals would have a type of pain for which opioids can be used effectively; yet, they would be ineligible to access the traditional medical cannabis program. Sadly, individuals using opioids for short periods of time can develop dependence and the Alternatives to Opioids Act seeks to provide a different option. Those individuals could access medical cannabis as an alternative to using opioids during their recovery. Challenges would exist for temporary patients to find a doctor willing to recommend them to the program, particularly if a surgeon or emergency department doctor is the prescribing physician for opioids.

---

<sup>3</sup> A case is currently percolating through the Illinois courts that seeks to force the Department of Health to list “intractable pain” as a qualifying condition. The patient bringing the case won an initial judgment in Cook County court, but the case has since been appealed by the state and awaits future adjudication. The case is titled, *Mednick v. Illinois Department of Health*.

<sup>4</sup> <https://nccih.nih.gov/news/press/08112015>

<sup>5</sup> <https://www.nbcnews.com/storyline/americas-heroin-epidemic/one-three-americans-took-prescription-opioid-painkillers-2015-survey-says-n788246>

One's recovery from surgery or an acute injury could also limit one's ambulatory ability to seek out another doctor willing to recommend entry into the Opioid Alternative Pilot Program. However, the program dramatically increases the number of potential patients who could be eligible—even in the short term—for medical cannabis and has the potential to impact the demand for medical cannabis in time. Currently, no state has implemented a program similar to the Illinois Opioids Alternative Pilot Program and understanding the types of patients willing to access it, the duration for which they will access it, the quantity they will consume, and the willingness of physicians to participate in the program, is quite challenging. As the program is implemented and expands, data will help inform those critical details.

### A CANNABIS MARKET SNAPSHOT

One approach to estimating how much cannabis might be sold in Illinois once the market has stabilized involves looking at the amount of cannabis sold in other states and adjusting for population differences and usage rates. Take Colorado, for example. Colorado legalized cannabis for adult use in 2012 and began commercial sales in January 2014. The market has largely stabilized in terms of prices and production, though growth remains fairly solid. According to the state's Marijuana Enforcement Division's 2017 annual report, Colorado, in 2017, produced 612,333 lbs. of cannabis for the adult-use market (and another 386,689 lbs. for the medical market).<sup>6</sup> That figure for adult use does not well reflect what should be expected in Illinois for multiple reasons.

First, Colorado is a much smaller state—with only 43.3 percent of the population of Illinois. Adjusting for population alone, would bring Illinois' production level to 1,414,163 lbs. However, Colorado and Illinois have dramatically different usage rates. Second, according to the NSDUH, 17.12 percent of Colorado residents reported using in the last month (a rate that has been above the national average since before legalization was approved). Meanwhile, only 8.06 percent of Illinois residents reported using cannabis in the last month.<sup>7</sup> Adjusting for those differential usage rates, Illinois' production level would

<sup>6</sup> This is marijuana product of which a large portion was sold as whole flower cannabis and the remainder was processed into other products (i.e., concentrates, edibles, tinctures, etc.)

<sup>7</sup> Data for both Colorado and Illinois is based on the 2015 National Survey on Drug Use and Health, available here: <https://www.samhsa.gov/data/sites/default/files/NSDUHsaeShortTermCHG2015/NSDUHsaeShortTermCHG2015.htm>

be 666,071 lbs. Third, Illinois has dramatically higher levels of tourism than does Colorado—38 percent more. Given the estimates from the Colorado Department of Revenue suggest that visitors to the state account for 19 percent (116,343 lbs) of the cannabis supplied to the market and assuming that visitors' usage rates approximate the national average (7.6 percent) rather than the Colorado average, additional adjustments can be made to account for Illinois' expanded tourism, by increasing the amount produced for tourists by 38 percent. That would place Illinois' pre-population- and use-adjusted production at 656,543 lbs. When that figure is adjusted for population and use differentials, the expected production would be 714,161 lbs.

This figure represents a snapshot of what Illinois consumers might need grown, based on the supply of cannabis. However, that assumes that underlying factors affecting the Colorado market would also similarly affect the Illinois market. What's more, Colorado has seen growth in the market year-over-year, and while such a figure may look more like Illinois a few years after commercial sales begin, the early years of legalization are difficult to estimate based on the possibly wild fluctuations in supply, prices, costs, and regulatory uncertainty.

Estimating price from a supply-side estimation is also difficult because that raw product can be sold as flower or it can be used to produce concentrates, edibles, tinctures or other products. Each of those products and even products within the same category require varying levels of raw material, making it impossible to have a clean equation to translate raw material into dollars.

One insight into understanding revenue would come from building an understanding of the base of users, the expected amount they would use on average, and the base price of product. From there, you can begin to estimate possible revenue. This functions as a demand-side approach to evaluating the market. Let's look at some basic data that we know about Illinois:

The Census Bureau estimates that in 2016, there were 12,802,000 residents in Illinois, of who 9,386,000 were over the age of 21. Per the NSDUH, 8.06 percent of Illinois residents reported using cannabis in the last month. In 2017, the Illinois Office of Tourism reported 114 million visitors to Illinois,<sup>8</sup> and

---

<sup>8</sup> <https://media.enjoyillinois.com/press-releases/illinois-tourism-announces-record-growth/>

a 2016 report shows that Illinois visitors stay for an average of 2.55 days.<sup>9</sup> In 2013 (the most recently available data), the Department of Commerce reported that approximately 195,000 individuals worked in Illinois and commuted from another state<sup>10</sup>. From this, we can also add a few assumptions. First, we assume that there is an underreporting in cannabis use. To overcome this, scholars often use a correction of 1.25 percent), suggesting that 25 percent of cannabis users do not report use in a survey.<sup>11</sup> Next, research from Colorado and Washington suggest the average cannabis user consumer 5 ounces of cannabis per year, while NSDUH suggests the number is 7.9 ounces per year, offering a range of possible usage (see the NY State Demand study, 2018).<sup>12</sup> Finally, other research in this area has assumed that visitors to a state use at the national average and that cannabis-using visitors consume the equivalent of 1 gram of cannabis per stay-day<sup>13</sup>.

**This gives us the skeleton to produce a market snapshot for Illinois.**

- 9,386,000 Illinois residents aged 21 and up who use at a rate of 8.06 percent would mean a resident base of consumers of 756,512. Adjusting for underreporting (1.25) gives us **945,640 consumers**.
- 114 million visitors, using at the national average rate of 7.6 percent would mean a **visitor user base of 8,664,000, when adjusted for underreporting is 10,830,000**.
- 10,830,000 visitor users who stay an average of 2.55 days means there are **27,616,500 visitor user-days**.
- 195,000 out of state individuals employed in Illinois, using at the national average rate of 7.6 percent would mean **employee visitors who use equals approximately 14,820, when adjusted for underreporting is 18,525**.

<sup>9</sup> <https://www.enjoyillinois.com/assets/Illinois-and-Chicago-2016-Leisure-Visitor-Profile.pdf>

<sup>10</sup> [http://www.ides.illinois.gov/LMI/Pages/Commuting\\_Patterns.aspx](http://www.ides.illinois.gov/LMI/Pages/Commuting_Patterns.aspx)

<sup>11</sup> [https://www.rand.org/pubs/research\\_reports/RR466.html](https://www.rand.org/pubs/research_reports/RR466.html)

<sup>12</sup> See the New York State Demand Study, available here: [https://www.health.ny.gov/regulations/regulated\\_marijuana/docs/marijuana\\_legalization\\_impact\\_assessment.pdf](https://www.health.ny.gov/regulations/regulated_marijuana/docs/marijuana_legalization_impact_assessment.pdf)

<sup>13</sup> See "Market Size and Demand for Marijuana in Colorado: A 2017 Update" by the Marijuana Policy Group, page 13. Available here: <https://www.colorado.gov/pacific/sites/default/files/MED%20Demand%20and%20Market%20%20Study%20%20082018.pdf>

➤ Using the assumption that 1 gram of cannabis is used per visitor user day would mean **27,616,500 grams**—974143 ounces or 60,833 lbs.

The 5-ounce and 7.9-ounce per year estimates provide a range for the rest of the user base. Relying on the 5-ounce estimate, 945,640 in-state residents would use a total of 4,728,200 ounces. While 18,525 employee visitors would use a total of 92,625 ounces. Combining the two figures produces a subtotal of 4,820,825 ounces or 301,302 lbs. Adding that to the visitor consumption (60,833 lbs.) produces a total of 352,135 lbs.

Relying on the 7.9-ounce estimate, 945,640 in-state residents would use a total of 7,470,556 ounces. While 18,525 employee visitors would use a total of 146,348 ounces. Combining the two figures produces a subtotal of 7,616,904 ounces or 476,057 lbs. Adding that to the visitor consumption (60,833 lbs.) produces a total of 536,890 lbs.

This creates a significant range of 352,135-536,890 lbs. Once again, applying prices to these numbers are difficult because pounds or equivalent can group flower with other products, and those products vary in price.

DEMAND FOR CANNABIS IN  
COLORADO AND ILLINOIS

|                             | Colorado<br>(2017) | Illinois      |
|-----------------------------|--------------------|---------------|
| Population (2016)           | 5,540,545          | 12,801,539    |
| Past Month Use (2014-15)    | 17.12%             | 8.06%         |
| Tourists (2017)             | 82.4 Million       | 114 Million   |
| Adult-Use Cannabis Consumed | 612,333 Lbs.       | 714,161 Lbs.* |

*\* Adjusted for differences in population, usage rates, and tourism.*

However, if one applies the market rates for cannabis to this, we can get a snapshot of the possible revenue that could be produced from sales in the recreational cannabis market. In the medical cannabis market, price approximates about \$300 per ounce sold. This would produce a revenue range—based on the above figures of \$1,690,248,000-\$2,577,072,000, if all cannabis consumers chose to procure cannabis from the commercial market and the price remained steady. As discussed further below, these two assumptions are not a given.

If those figures are accurate, it could mean significant tax revenue for the state. Given that recreational cannabis is taxed at 26.25 percent, the tax revenue range annually from the excise and sales taxes would be \$443,690,100-\$676,481,400 annually, again, if all cannabis consumers purchased from the legal market.

There are a few important caveats to these estimates, however. The figures assume that the market is fully mature, and that people are using it in stable numbers. In every market that has come online, there has been a steady windup before supply met demand and consumers made the full transition from the illicit market to the legal market. In addition, those figures include the demand for cannabis by individuals who will ultimately grow at home and consume their own cannabis. In some states, this is a non-trivial part of the cannabis economy. This figure also excludes the individuals who will not make the transition from the illicit market to the legal market. No legal system will fully displace the criminal market, and for a variety of reasons (familiarity, lack of access, lack of trust in government, price, etc.) individuals may opt to stay in the illicit market.

While the above figures with regard of economic revenue generated may be conservative if ounce equivalents retail for higher prices than ounces of whole flower and because those figures exclude the 7 percent Cannabis Cultivation Privilege Tax on wholesale cannabis, there are also many forces that would put downward pressure on those revenue—and ultimately tax—figures. In addition to homegrowers and individuals opting to remain in the illegal market, as the industry matures and new cultivators and dispensaries are

up and running, it will put natural downward pressure on the price of cannabis. For example, in Colorado, most cannabis does not retail near the \$300/ounce that cannabis retails for in Illinois. However, in the earlier days of the Colorado system, prices were that high (or higher).

Another pressure that could affect the revenue generated from the Illinois adult-use cannabis market involves the impact from cannabis legalization in Michigan. Michigan legalized recreational cannabis in Nov. 2018, and if Illinois legalizes, the two systems will be functioning simultaneously. Michigan has opted to have some of the lowest recreational cannabis taxes in the United States. Michigan has a lower sales tax compared to Illinois (6 percent) and has opted to employ a lower cannabis excise tax (10 percent). This will mean that cannabis prices in Michigan will be significantly lower than they will be in Illinois. While traveling to Michigan for cannabis will not be convenient or even preferable for residents of Illinois, some will still use Michigan as a substitute, given its proximity to the state's major population center, the number of Illinois residents with family or friends in Michigan, and the competition that would be created in neighboring states like Indiana.

Given the lack of a physical border and the sheer size of the state of Illinois, extending away from Michigan, it will serve as a limited competitor—nothing like competition that can occur between Washington and Oregon. However, the taxation levels in Illinois and the future base prices of cannabis are an important consideration for state policy makers. Because the displacement of the criminal market is a goal of this legislative proposal, the system in Illinois must be responsive not only to the market forces in nearby states, but also by the criminal market forces within the state. Taxation, fees, the number of licensees, and canopy space cannot be so restrictive so as to drive prices up in ways that dis-incentivize individuals from transitioning to the legal market. Nor should those policy choices be so permissive that they drive prices down so low that it makes it difficult for businesses to remain solvent.

When looking to predict how much tax revenue might be generate in the early years of legalization in Illinois, Colorado may be a good guide stick. Like Illinois, Colorado had an existing medical cannabis market that had privilege in producing adult-use cannabis in the early months of the program. Colorado averages slightly more the double the

usage rates, but has slightly less than half the population, offsetting those differences fairly effectively. (In fact, Illinois' usage rates are about 47 percent that of Colorado's, while Colorado's population is more than 43 percent that of Illinois'.) While Colorado's initial tax rates were slightly higher than those in Illinois and the tourist population in Illinois is higher than that of Colorado's one can assume that economic activity around cannabis will be similar in the early days of legalization, if slightly higher in Illinois. Perhaps offering a 10-15 percent bump in revenue over Colorado in each year post-legalization would be an effective guide on which to base tax revenue projections. Other states, such as Washington, do not compare as meaningfully in terms of offsetting differences between use and population size, taxation rates, and homegrows (they are illegal for recreational purposes in Washington).

Ultimately, recreational cannabis can be a meaningful source of tax revenue for the state of Illinois. However, the system should not be viewed as a means of solving the state's serious budget woes. Even if the above estimate of \$440 million dollars in tax revenue were accurate, it would be the equivalent of less one percent of the state's budget.

### **THE CAPACITY OF THE EXISTING MEDICAL MARKET TO SERVE AN ADULT-USE MARKET**

In an adult-use system, one common way to allow the market to be operational early on is to allow the existing medical cannabis system to serve the market initially. The capacity of the medical system to serve the adult-use market depends on a variety of public and private choices as well as levels of demand. This section examines how much of the adult-use market could be served by the existing medical cannabis system.

Before jumping into the figures, it is important to begin with a few critical caveats. First, we will engage with the second set of demand figures used in the snapshot above to assess the size of the adult use market. All of the existing caveats applicable to those figures carry over into this analysis, as well. Second, those figures are an assessment of mature, adult-use demand. In the earliest days of the adult-use market, some portion of Illinois residents, tourists, and visitors to the state will likely be unaware, unfamiliar with, and/or lack trust in

the system. Prices, which are determined largely by market forces and regulatory decisions, will influence demand at all times—and have significant effects in the earliest days of legalization. And without original survey research on consumer preferences, it is hard to know what portion of the market would serve itself via homegrows. Third, some medical cannabis companies may opt not to enter the adult-use market or struggle to begin operations at the beginning of legalization because they will face challenges getting all of the required approvals like local licensing or environmental reviews. Throughout this analysis of available cultivation space, we assume that all medical companies will also produce for adult-use. Every company that chooses not to enter the market will influence these estimates. Fourth, choices over how much of the adult-use market will be served by the medical market is, in large part, a policy choice that must be weighed carefully. Balancing between having sufficient product in the early days of legalization with the ability of future, non-pre-existing medical cannabis companies to enter the market will be important, and that decision will come with significant political implications. Fifth, it is important to recognize that the medical cannabis market in Illinois is still growing at a significant pace, year-over-year, and it should be expected to do so for several years to come. The use of cultivation space to serve the adult-use market at scale could come at a cost to companies' ability to serve the medical market, if such considerations are not taken into account. The medical cannabis community is vocal, and in other states where that lobby believed the adult-use system was negatively affecting the medical system, political controversies have developed.

To understand the capacity of the existing medical market to serve the adult-use market, we begin by examining a mature cannabis market: Colorado. In 2017, according to the state's latest market demand report,<sup>14</sup> Colorado produced 751,244 pound-equivalent of cannabis.<sup>15</sup> That product was harvested from a system that averaged 997,805 plants being cultivated at a given time. Those figures offer us an average plants-per-pound equivalent figure of 1.33—that is, you need 1.33 approved plants to produce a pound equivalent.

---

<sup>14</sup> Orens, Adam, et al. 2018. "Market Size and Demand for Marijuana in Colorado 2017 Market Update." Available here: <https://www.colorado.gov/pacific/sites/default/files/MED%20Demand%20and%20Market%20%20Study%20%20082018.pdf>

<sup>15</sup> Orens et al defines a flower equivalent as "a measure...that converts non-flower consumption or production into weight-based units of flower." A pound equivalent would be a one pound unit of that measure.

Above, we noted that a fully mature market in Illinois could be expected to demand between 352,135 and 536,890 lbs. of cannabis. If we assume those numbers reflect the pound equivalents that people will consume in the market, we can continue the analysis as such.<sup>16</sup> Using the plants-per-pound equivalent figure (1.33) we can convert this product demanded range into a range of plants needed to meet such demand. Given those figures, the adult-use market would need cultivators to be approved to have between 468,340 and 714,063 plants at a given time to serve that demand.

The next step in the analysis is to understand the space needed to grow that many plants. Cultivation operations can vary from place to place and company to company, but we have existing data from the Illinois Department of Agriculture on both the number of plants being grown at a given point (In December 2018 it was 106,407) and the square feet of cultivation space being used (259,762 square feet). These figures offer us the average cultivation space needed per plant: 2.44 square feet per plant.<sup>17</sup>

### THE SPACE TO SERVE THE ILLINOIS CANNABIS MARKET

|                       | Lower Estimate |      | Upper Estimate |
|-----------------------|----------------|------|----------------|
| Pounds of Cannabis    | 352,135        |      | 536,890        |
| Plants Per Pound      |                | 1.33 |                |
| Plants Needed         | 468,340        |      | 714,063        |
| Square Feet Per Plant |                | 2.44 |                |
| Square Feet Needed    | 1,142,750      |      | 1,742,314      |

<sup>16</sup> It is important to note that the actual pound equivalents individuals will consume will depend significantly on consumer tastes, the types of products available, and changes in consumer preferences. Without original data on Illinois consumer preferences, it is impossible to understand those preferences. The figures we use assume average use in ounces, typically drawn from whole flower cannabis, as we do not have good estimates of non-flower consumption from consumers in non-legal states like Illinois.

<sup>17</sup> This figure could change as different companies enter the space, the purpose of this specific analysis is to evaluate the capacity of the existing medical market to serve the adult-use market, so using the data from existing medical producers to estimate necessary cultivation space is appropriate.

Next, we can use the per-plant cultivation space to assess how much space, across facilities, would be necessary to accommodate that number of plants. In order to grow between 468,340 and 714,063 plants, Illinois cultivators would need between 1,142,750 and 1,742,314 square feet of cultivation space. Based on data from the Department of Agriculture, we know there are three types of cultivation space: space currently used, space currently unused, and additional space that has been approved or is under construction (heretofore called “space approved”). Illinois’ medical cannabis cultivators currently use 259,762 square feet of space—space that cannot be diverted to use for adult-use cannabis without negatively impacting the ability of the state to meet medical patients’ needs. 166,632 square feet of space is currently unused. And the state has 447,295 square feet of space approved that is still under development.

### ILLINOIS MEDICAL CANNABIS CULTIVATION SPACE\*

| Type Of Space                 | Area (Sq. ft.) |
|-------------------------------|----------------|
| Currently in Use              | 259,762        |
| Currently Unused              | 166,632        |
| Approved / Under Construction | 447,295        |

*\* As of December 2018.*

Based on the range of space needed to serve the medical market, the unused space could serve 9.6-14.6 percent of the adult-use market. If medical cannabis firms were able to build out half of the approved space by Day 1, that space and the unused space would supply 22.4 to 34.2 percent of the mature adult-use market. The unused and approved space (once fully built out and operational) could serve 35.2 to 53.7 percent of the adult-use market.

## EXISTING CAPACITY TO SUPPLY THE MATURE ADULT-USE CANNABIS MARKET

|  | Lower<br>Estimate | Upper<br>Estimate |
|--|-------------------|-------------------|
| Unused Space                               | 9.6%              | 14.6%             |
| Unused Space and<br>50% of Approved Space  | 22.4%             | 34.2%             |
| Unused Space and<br>100% of Approved Space | 35.2%             | 53.7%             |

*\* Each cell indicates the percentage of demand  
that can be met by a given type of space, for each estimate*

Once again, those figures are based on a fully mature cannabis market. Based on sales figures from legal states, we know that cannabis market demand increases over time. Those sales figures at the outset of legalization are smaller than the mature market because of consumers' unfamiliarity with the system, a limited number of store fronts, diminished supply, higher prices, etc. Based on Colorado Marijuana Enforcement Division annual reports, sales of whole flower cannabis increased by 177 percent from 2014-2015, by 64 percent from 2015-2016, and by 36 percent from 2016-2017. Sales of edibles increased by 85 percent from 2014-2015, by 37 percent from 2015-2016 and by 28 percent from 2016-2017. Illinois, like other states, should expect significant market growth over time, as well.

## GROWTH IN SALES IN COLORADO'S ADULT-USE CANNABIS MARKET, 2014-2017

|           | Flower | Edibles |
|-----------|--------|---------|
| 2014-2015 | 177%   | 85%     |
| 2015-2016 | 64%    | 37%     |
| 2016-2017 | 36%    | 29%     |

Thus, there remains a set of policy choices around how much of the mature market figures should be anticipated on the first day of legalization and how much of the mature market does the state ultimately want the existing medical firms to capture. If on Day 1 you want to serve 50 percent of the mature market, you would need 234,170-357,032 plants, requiring 571,375-871,158 square feet. If you want to serve two-thirds of the mature market on Day 1, you would need 311,914-475,566 plants, requiring 761,070-1,160,381 square feet. If you wanted to serve 75 percent of the mature market on Day 1, you would need 351,255-535,547 plants, requiring 857,062-1,306,734 square feet. The chart below shows what percentage of each space estimate can be served by the existing medical market.

EXISTING CAPACITY TO SUPPLY THE  
MATURE ADULT-USE CANNABIS MARKET, BY  
PERCENTAGE OF MARKET

|                | Lower Estimate | Upper Estimate |
|----------------|----------------|----------------|
| 33% of Market  | 161%           | 106%           |
| 50% of Market  | 107%           | 70%            |
| 67% of Market  | 81%            | 53%            |
| 75% of Market  | 72%            | 47%            |
| 100% of Market | 54%            | 35%            |

*\* Each cell indicates the percentage of demand that can be met by a given type of space, for each estimate. (Values over 100% indicate that existing unused and approved space is more than needed to meet demand)*

For context, states do not initially, on day one of legalization, hit the supply and demand levels of a mature, established market. On day one of a commercial market opening, consumers’ skepticism about legality, limited information about how the legal system operates, lack of access to storefronts in their home communities, and other reasons hold demand levels below what they would be in a mature market. At the same time, a limited number of suppliers, limited product, challenges in licensing and zoning approvals, a reduced number of storefronts, and other challenges can limit the availability of product coming to market. Each of these forces combine to ensure that the early days of a commercial, adult-use cannabis market will not see the same sales levels as the mature market.

As the figure on page 21 shows, adult-use sales for both edibles and flower grew dramatically in the early years of legalization, with the rate of growth dropping with each successive year. The market in Colorado has largely stabilized, with more lower levels of growth year-over-year. If one considers the Colorado market in 2018 to be stable and mature, we can compare what percentage of that mature market was served in the early years. In 2014 (the first year of commercialization in Colorado), tax and fee revenue was 25.4 percent of the 2018 levels. In 2015, tax and fee revenue was about half (48.9 percent) the 2018 level.<sup>18</sup> Similarly, commercial sales also grew dramatically year-over-year in Colorado. Cannabis sales in 2014 were 44.2 percent of the state's 2018 sales. Sales in 2015 were 64.4 percent of the state's 2018 sales.<sup>19</sup>

One final point on these figures: they use existing square footage, without accounting for the growth of the medical cannabis market. In Illinois between December 2016 and December 2017, the number of approved medical cannabis patients increased 102 percent and the number of patients served increased nearly 89 percent. Between December 2017 and December 2018, the number of approved patients and patients served increased 75 percent and 64 percent, respectively. One should assume that the medical cannabis market will need an additional 100,000-200,000 additional square feet of cultivation space over the next two years, if the medical program continues to expand significantly (and that number will increase more sharply if the medical program sees more explosive growth).

---

<sup>18</sup> Data are based on both medical and adult-use tax collection from 2014-2018, available here: <https://www.colorado.gov/pacific/revenue/colorado-marijuana-tax-data>.

<sup>19</sup> Data are based on both medical and adult-use sales from 2014-2018, available here: <https://www.colorado.gov/pacific/revenue/colorado-marijuana-tax-data>.



## CONCLUSION

As Illinois considers the legalization of adult-use cannabis, it faces a series of public policy choices regarding the manner in which a legal system will meet the expectations of the public and the demand of the consumer base. The presence of a regulated, functional medical cannabis system is an important first step toward fostering an adult-use regulatory regime and commercializing an adult-use market that can serve a consumer base composed of Illinois residents, tourists, business travelers, and commuters.

This report provides a snapshot of the prospective, mature cannabis market in Illinois based on demographic and economic forces in the state, an understanding of existing usage levels, the prevalence of tourism, and existing market forces in states that have already reformed their cannabis laws. Legislative and regulatory decisions will impact the market through prices, product availability, constraints on producers, and a host of other forces; yet, at the same time, an understanding of the size of the prospective market in Illinois should also inform policy makers as they work toward crafting legalization policy.

Ultimately, the medical cannabis market is well-served structurally and functionally to provide an initial base for an adult-use market. A regulated system with state-sanctioned cultivation facilities, testing

laboratories, and dispensaries provides an ideal framework for growing, processing and dispensing state-legal cannabis. At the same time, the report highlights that legal cannabis systems ramp up in both production and demand during the early years of legalization, prior to the market becoming mature. This report highlights that process and offers insight into the varying capacity of the existing medical market to meet a range of prospective demand levels in the early years of legalization.

Systems that either dramatically fall short of demand or that oversupply the market create public policy challenges. Avoiding both is an important expectation from the public, from producers, and from public health and public safety officials. This report offers a range of policy choices to help assist and inform state officials who are charged with designing and implementing an effective, legal, adult-use system.

A subsequent extended draft of this document will provide a more extensive discussion of specific policy issues that states face during the implementation of an adult-use cannabis system. These recommendations will offer state officials additional sets of policy choices regarding a host of topics that must be considered when crafting and executing adult-use cannabis reform.



**FREEDMAN & KOSKI, INC. WORKS WITH GOVERNMENT, RESEARCH INSTITUTIONS,  
COMMUNITIES AND PRIVATE BUSINESSES TO GET CANNABIS LEGALIZATION RIGHT.**

**FOR MORE INFORMATION, PLEASE VISIT OUR WEBSITE AT  
[WWW.FREEDMANKOSKI.COM](http://WWW.FREEDMANKOSKI.COM).**

**FREEDMAN & KOSKI**

**[info@FreedmanKoski.com](mailto:info@FreedmanKoski.com)**

**[FreedmanKoski.com](http://FreedmanKoski.com)**

**[@FreedmanKoski](https://twitter.com/FreedmanKoski)**