Summary

Although a recent survey of all 34 commercial producers suggests that a maximum of 3,100 mature plants per producer is sufficient to meet New Mexico's *current* demand for medical cannabis, recent statutory and regulatory changes are expected to increase potential demand by an estimated 21.1 million grams annually. These changes, combined with anticipated growth in program enrollment, will increase the necessary plant count to 5,000 mature plants per producer by 2022.

With the enactment of the Erin and Lynn Compassionate Use Act the Legislature intended to ensure patients access to medical cannabis from legal sources; but ensuring access requires more than simply decriminalizing production and possession for licensees and cardholders. Medical cannabis is not accessible if it is not affordable and licensed producers cannot crowd-out illicit sellers if they cannot compete effectively on price. By keeping prices in the regulated market well above competitive levels, restrictive commercial producer grow limits subvert legislative intent by depriving patients of access and fueling growth of the illicit market.

Data from regulated markets in other states show per capita consumption climbing as markets grow and mature. In contrast, data from the DOH indicates a downward trend in consumption per qualified patient. Declining purchases from regulated suppliers point to increasing reliance on the illicit market by qualified patients.

Because they are largely unregulated, personal production licensees (PPLs) constitute a far greater diversion risk than commercial producers. By further loosening the already lax regulatory constraints on personal production, provisions of SB 406 exacerbate the risk of diversion and increase the disparity in access between qualified patients who hold PPLs and patients who obtain their cannabis solely from commercial producers. Under the provisions of SB 406, a single PPL could produce upwards of 20 pounds of useable cannabis each year. Commercial producers, in contrast, are permitted to produce a combined maximum of roughly 1.1 pounds per patient per year (an average of .03 pounds per patient per commercial producer) under the 450 plant limit and 6.2 pounds per patient per year (an average of .18 pounds per patient per commercial producer) under the 2,500 plant limit.

If commercial producers and the qualified patients they serve were subject to the same cultivation constraints as personal production licensees, the maximum plant count would be 10,000 per commercial producer.

In light of these considerations, we encourage the Department to adopt medical cannabis production limits consistent with the following best practices, each of which is described in more detail in the body of this memo.

1. **Grow limits should apply to mature plants only**
2. **Grow limits should not constitute binding production constraints on responsible growers.** Capping cultivation does little to prevent diversion and artificially inflates the price patients must pay, driving patients to the illicit market and allowing inefficient producers to remain profitable.
3. **Grow limits should be part of a tiered licensure structure that imposes higher licensure fees on larger producers and allows for stacking of top tier licenses.**
4. **Grow limits should be based on plant count rather than canopy** Neither canopy nor plant count is particularly effective for ensuring that commercial producers produce no more or less than is necessary to meet patient demand. That said, plant count is the method to which commercial producers are accustomed and the majority of medical cannabis producers (53%) surveyed preferred plant count.

5. **Grow limits should equalize access for PPL holders and patients who buy exclusively through dispensaries.**
   Plant count limits should enable commercial producers to produce at least the same amount of cannabis per qualified patient as PPL holders are permitted to produce for themselves.
6. **Grow limits should be based on patient need and should therefore be a function of the number of qualified patients.**
   Maximum plant counts should be indexed to program enrollment

I. Demand

Recent statutory and regulatory changes along with anticipated growth in MCP enrollment are expected to significantly increase medical cannabis demand in New Mexico. SB 406, signed into law by Governor Lujan-Grisham in April 2019, and the anticipated addition of opioid use disorder to the list of MCP qualifying conditions will add *the equivalent of* 22,913 qualifying patients to the MCP, increasing potential demand for medical cannabis by approximately 21.1 million grams annually.

Demand for medical cannabis already greatly exceeds supply. Table 1 shows the estimation of demand and surplus demand (demand in excess of supply) under current law and after full implementation of SB 406 and the addition of opioid use disorder as a qualifying condition. Total demand, assuming 70,600 qualified patients, each entitled to an "adequate supply" of 920 grams of medical cannabis annually, is 65 million grams (143,195 lbs) under current law and 86 million grams (189,668 lbs) after full implementation of recent and anticipated statutory and regulatory changes. Surplus demand, which is total demand minus production by PPLs and commercial producers, is 48 million grams currently and 67.5 million grams after statutory and regulatory changes are fully enacted.

Table 1 Demand Estimation		
	Current	New Laws
Patients (12/18)	70,600	93,513
Grams/Year/Patient (Max)	920	920
Total Demand (G)	**64,952,000**	**86,031,960**
- PPL Production (G)	(5,287,093)	(7,003,002)
commercial producer Demand (G)	59,664,907	79,028,958
- commercial producer Production (12/18)	-11,516,132	-11,516,132
Surplus commercial producer Demand (G)	**48,148,775**	**67,512,826**

Assuming an average of four harvests per year and that each plant harvested yields 20 ounces of useable cannabis, implementation of the new laws will increase the number of plants necessary to meet current demand from 114,556 to 151,735.

Why current purchases are a poor measure of patient demand

State statute requires that the MCP ensure that qualified patients have uninterrupted access to a supply of legally produced medication adequate to meet their individual healthcare needs. Access is a function of numerous factors, not least among them price. Price is determined, in large part, by supply. When demand exceeds supply, prices rise.

In a period during which prices have fallen, sometimes quite dramatically, in many medical cannabis states, cannabis prices in New Mexico have actually risen. Advocates for restrictive grow limits point to the fact that many MCP patients do not purchase the full 230 gram 90-day maximum as evidence that demand is being met by current supply; but this assessment ignores the reality that, at over $10/gram a three month "adequate" supply of medical cannabis costs $2,300, or almost $10,000 annually, far more than most New Mexicans, particularly those who are sick and/or disabled can possibly afford.

Ruling in Sena v. Gallagher, Judge David K. Thompson affirmed the existence of "'pent-up' demand from patients who are not enrolled in the program precisely because they do not have access to medicine," further noting that, because it is not evident in the legal marketplace, "this demand is essentially silent."

A recent survey of commercial producers suggests that a maximum plant count of 3,100 per commercial producer would be sufficient to meet New Mexico's *current* demand for medical cannabis. However, recent policy changes and 47 percent annual growth in program enrollment are expected to increase that number to at least 5,000 mature plants by 2022.

A. Policy Changes Expected to Impact Demand

This section describes in more detail recent and anticipated statutory and regulatory changes that are likely to impact medical cannabis demand.

SB 406, Effective June 14, 2019

SB 406 makes a number of changes to the MCP that improve patient access and further normalize the medical use of cannabis, including:

- Removing barriers to access by allowing 3-year recertification and telehealth evaluations
- Increasing access to the MCP by residents of other states
- Making higher potency products available to patients
- Allowing use of medical cannabis in schools and by patients under state supervision

Several provisions of the new law, most notably those that increase access to the New Mexico MCP by residents of other states, are expected to increase medical cannabis demand by 19.7 million grams annually.

a) Residents of Other States

(1) Reciprocity

Reciprocity will allow patients registered with medical cannabis programs in other jurisdictions to participate in New Mexico's MCP. The law defines "reciprocal participant" as "an individual who holds proof of authorization to participate in the medical cannabis program of another state of the United States, the District of Columbia, a territory or commonwealth of the United States or a New Mexico Indian nation, tribe or pueblo." Unlike some of the 20 other medical cannabis reciprocity states, New Mexico does not require reciprocity applicants to have a New Mexico qualifying condition.

Each year, New Mexico receives over 9 million overnight visits from residents of other states with medical cannabis programs. If just one half of one percent (.05%) of these visitors request reciprocity, New Mexico's medical cannabis customer base will increase by almost 47,000 patients.[1] If each reciprocity patient purchases one ounce, annual demand will increase by an addition 1.3 million grams.

Medical cannabis authorizations issued by tribal governments are another potential source of reciprocity applicants.

(2) State Residency Requirements for MCP Participation

[1] Hawaii established reciprocity in 2018. Unlike New Mexico, Hawaii requires reciprocity applicants to have one of the state's 14 qualifying conditions. Hawaii, which receives about 6 million visitors from the U.S. mainland annually, anticipates 5,000 mature plants reciprocity applications in the first year. See https://mjbizdaily.com/severe-pain-common-mmj-ailment-hawaii

The new definition of qualified patient as "a person who has been diagnosed by a practitioner as having a debilitating medical condition and has received written certification and a registry identification card pursuant to the Lynn and Erin Compassionate Use Act"[2] eliminates the requirement that MCP applicants be New Mexico residents and could thereby open the door to residents of other states becoming MCP cardholders. Other provisions of the new legislation, including three-year cards and telehealth certifications, will further facilitate access to New Mexico's MCP by out-of-state patients.

Four of New Mexico's five border states have their own medical cannabis programs. The exception, Texas, is home to over 26 million people, roughly two million of whom live within 2 hours of the New Mexico border.[3] If one percent of Texans living in close proximity to the New Mexico border enroll in the MCP, the program will add 20,000 patients and demand will increase by 18.4 million grams annually.[4]

b) Authorization and Access

SB 406 increases access for qualifying patients by decreasing the frequency with which patients must recertify and allowing for evaluation via telehealth. Three-year recertification will help to ensure continuous enrollment with less attrition. Telemedicine certification[5] will also increase ease of access and, in conjunction with changes to residency requirements, will facilitate access to the MCP by patients who reside outside New Mexico.

c) Normalization

SB 406 further normalizes the medical use of cannabis in New Mexico by affirming that "A qualified patient's use of cannabis pursuant to the Lynn and Erin Compassionate Use Act shall be considered the equivalent of the use of any other medication under the supervision of a physician."

Other provisions of the law, including permitting the use of medical cannabis in schools, providing protections for medical cannabis use at work and by individuals under state supervision, and amendments to the Anatomical Gift Act and the Family Services Act all affirm state support for medical cannabis use by qualified patients. The impact of these provisions on medical cannabis demand is hard to predict for a variety of reasons including differing interpretations of the state supervision language and school district discretion in allowing medical cannabis use by students. It seems reasonable to expect that evidence of greater acceptance of medical cannabis by the state will ultimately encourage more patients to obtain cannabis cards and thereby increase demand.

d) Potency

SB 406 prohibits the DOH from regulating the THC concentration in cannabis products. Under prior DOH rule, commercial producers were prohibited from selling concentrated cannabis products over 70 percent THC unless the purchaser had a medical exception from the DOH. Production of higher THC products will require more plant material, but the impact this provision will have on demand is highly uncertain and not expected to be large.

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[2] Section 26-2B-3 (v) NMSA 1978

[3] Technically, Texas has a medical cannabis program, but it is extremely limited. The state's Compassionate Use Act, implemented in early 2016 and run by the Texas Department of Public Safety, allows patients with intractable epilepsy and a doctor's recommendation to obtain low-THC cannabis oil. No other cannabis products or conditions are permitted

[4] The average penetration rate across all medical cannabis states is about 1.1%. As of March 2019, roughly 3.3% of New Mexico's population participated in the MCP.

[5] Telehealth is permitted after an initial in-person visit

Opioid Use Disorder

The Medical Cannabis Advisory Board approved the addition of opioid use disorder as an MCP-qualifying condition on March 29, 2019. DOH Secretary Kunkel is expected to accept the Board's recommendation.[6]

Precise estimates of the prevalence of opioid use disorder in New Mexico are hard to come by. The 2016-2017 National Survey on Drug Use and Health estimated that 9,000 New Mexicans ages 12 and older experience "pain-reliever use disorder" and another 55,000 mature plants experience "illicit drug use disorder."[7, 8] A recent Milliman study estimated that in 2015 about 15,000 insured New Mexicans actively experienced diagnosed opioid abuse, dependence, or poisoning.[9] The actual number of New Mexicans who could qualify for the MCP on the basis of opioid use disorder is likely much higher because not all New Mexicans have health insurance and not all cases of opioid use disorder are diagnosed. On the other hand, some of the patients who would qualify for the MCP due to opioid misuse may already be enrolled in the MCP due to chronic pain or other qualifying conditions. These contravening factors make it difficult to predict the impact of adding opioid use disorder to the list of qualifying conditions. Nonetheless, the impact is likely to be significant: If ten percent of insured New Mexicans with diagnosed opioid use disorder enrolled, the MCP would add 1,500 new qualifying patients and demand would increase by 1.4 million grams annually.[10]

II. Evidence of a Thriving Illicit Market

States establish medical cannabis programs to help ensure that qualified patients can access the medicine they need without turning to illicit sellers; but ensuring access requires more than simply decriminalizing production and possession for licensees and cardholders. Medical cannabis is not accessible if it is not affordable and licensed producers cannot crowd-out illicit sellers if they cannot compete effectively on price. By keeping prices in the regulated market well above competitive levels, restrictive commercial producer grow limits fuel growth of the illicit market.

MCP policies contribute to both demand and supply in the illicit cannabis market. While overly stringent grow limits keep dispensary prices too high for many patients, lax regulation of PPLs fosters the flow of New Mexico homegrown into illicit supply channels. Qualified patients priced out of the legal market are turning to illicit sellers, some of whom hold PPLs, to obtain their medicine.

This contention is supported by rich anecdotal evidence and by data published in DOH patient and producer reports. These data illustrate trends not evident in state cannabis markets where regulated production by properly licensed producers has been allowed to fluctuate in response to patient demand.

As of March 2019, just over 7,500 qualified patients held personal production licenses. The percentage of PPLs who are actively growing cannabis appears to have risen in recent years. Half of PPL holders surveyed in 2013 and three-quarters of those surveyed in 2019 said they were using their PPL to grow cannabis.

[6] "Medical Cannabis Advisory Board Approves Petition to Add Opioid Use Disorder as Qualifying Condition for the Medical Cannabis Program." https://nmhealth.org/news/information/2019/3/?view=752
[7] "Illicit Drug Use" includes the misuse of prescription psychotherapeutics or the use of cannabis, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine
[8] https://www.samhsa.gov/data/report/2016-2017-nsduh-state-specific-tables
[9] http://www.milliman.com/uploadedFiles/insight/2018/Opioid_Use_Disorder_Prevalence.pdf
[10] Three states – Pennsylvania, New York, and New Jersey - currently include opioid use disorder as a qualifying condition for their medical cannabis programs. These provisions have not been in effect long enough to discern their effects on program enrollment.

While regulated cannabis prices in other states such as Colorado, Oregon, Washington, and Arizona have declined, sometimes quite dramatically, as programs have grown,[11] New Mexico cannabis prices have actually increased from an average of $9.56/gram in the first quarter of 2018 to $10.16/gram in the fourth quarter.[12]

Data from the DOH indicates a downward trend in consumption per qualified patient. Declining purchases from regulated suppliers point to increasing reliance on the illicit market by qualified patients.

While producers in other states grapple with mounting surpluses, New Mexico commercial producer inventories are declining. Commercial producers reported 1.1 million grams of flower and bud in stock as of December 31, 2018, 35 percent less than the 1.7 million grams of inventory one year earlier. Because the decline in inventory coincided with a near doubling of MCP enrollment, per capita inventory fell 57 percent, from 37 grams per patient at the end of 2017 to 16 grams per patient in December 2018.

Data from regulated markets in other states show per capita consumption climbing as markets grow and mature.[13, 14] In contrast, data from the DOH indicates a downward trend in consumption per qualified patient. Declining purchases from regulated suppliers point to increasing reliance on the illicit market by qualified patients.

III. Adequate Supply and PPL Parity

By further loosening the lax regulatory constraints on personal production, provisions of SB 406 exacerbate the disparity in access between qualified patients who hold PPLs and patients who obtain their cannabis solely from commercial producers. SB 406 authorizes personal production licensees to be in possession of their entire harvest, even if that amount exceeds the current "adequate supply" limit of 8 ounces per 3-month period.[15]

> Section 26-2B-4 NMSA 1978 (being Laws 2007, Chapter 210, Section 4) is amended to read:
> "26-2B-4. EXEMPTION FROM CRIMINAL AND CIVIL PENALTIES FOR THE MEDICAL USE OF CANNABIS. --
> A. A qualified patient or a qualified patient's primary caregiver shall not be subject to arrest, prosecution or penalty in any manner for the possession of or the medical use of cannabis if the quantity of cannabis does not exceed an adequate supply; ***provided that a qualified patient or the qualified patient's primary caregiver may possess that qualified patient's harvest of cannabis"***

PPL holders are allowed to possess up to four mature cannabis plants at any one time. If each plant yields 20 ounces of useable cannabis, a single harvest could easily yield five pounds. With four harvests annually, a single PPL could produce 20 pounds of useable cannabis each year. commercial producers, in contrast, are permitted to produce a *combined* maximum of roughly 1.1 pounds per patient per year (an average of .03 pounds per patient per commercial producer) under the 450 plant limit and 6.2 pounds per patient per year (an average of .18 pounds per patient per commercial producer) under the 2,500 plant limit.

[11] BDS Analytics' Cannabis Retail Price Index (CPI) & Cannabis Consumer Sales Report - February, 2019. Retrieved from: https://bdsanalytics.com/wp-content/uploads/2019/04/CPI-Template-Feb19.pdf
[12] New Mexico Department of Health Quarterly commercial producer Reports. Retrieved from: https://nmhealth.org/about/mcp/svcs/pdb/
[13] Colizzi, M. and Bhattacharyya, S. (2018) Cannabis use and the development of tolerance: a systematic review of human evidence, Neuroscience & Biobehavioral Reviews, Volume 93 Pages 1-25, https://doi.org/10.1016/j.neubiorev.2018.07.014.
[14] Twenty-four percent of respondents to DOH's March 2019 MCP patient survey said that tolerance had caused them to increase their consumption of cannabis over time.
[15] 7.34.3.9 NMAC

If commercial producers and the qualified patients they serve were subject constraints equivalent to that of PPL holders, the maximum commercial producer plant count would be 10,000 after implementation of SB 406 and the addition of opioid use disorder to the list of MCP qualifying conditions.

IV. Production Quotas

Grow limits may be a useful basis for a system of tiered licensure, but when production limits impose binding production constraints on responsible growers they do more harm than good. Although some states like Michigan and Hawaii use plant count or canopy size as the basis for tiered licensure fees, most medical cannabis states do not place an absolute cap on production.

There are strong economic rationales for not placing quotas on medical cannabis production, especially when licenses are capped. Limits on plant count or canopy size may give the impression that the state is preventing over-supply, but, in reality, capping cultivation does little to prevent diversion and artificially inflates price patients must pay, driving patients to the illicit markets and allowing inefficient producers to remain profitable.

Making growing area or plant count a binding constraint on production encourages producers to make adaptations to maximize yield per square foot. These adaptations can drive up production costs and push producers to cultivate only the highest yielding strains resulting in less variety for consumers.[16]

Production limits attempt to minimize diversion by ensuring that legal production does not exceed the amount that can be sold in legal markets. Although this logic may work for more conventional pharmaceuticals, grow limits are not effective compliance mechanisms for cannabis because neither canopy size nor plant count are reliable predictors of statewide yield. Numerous factors including type of grow, number of harvests, height of canopy, strains cultivated, and random factors such as crop failure impact yield. A 1,000 square foot outdoor canopy could yield 80 pounds of useable cannabis annually while an otherwise identical indoor grow with 5 harvests per year could easily yield 400 pounds per year.

In large, vigorous, and appropriately regulated legal markets intense competition results in lower prices. As has been the case in other states, allowing commercial producers to produce enough cannabis to meet patient demand will likely result in lower prices. Falling prices will narrow profit margins for some producers, forcing them to become more efficient or exit the market. The role of regulation is not to protect inefficient producers from the rigors of a competitive marketplace.

Finally, stifling production by licensed producers does not prevent cannabis market concentration, rather it shifts that concentration and attendant market power into the illicit market. New Mexico could more effectively combat excessive market concentration by reducing the significant barriers to entry created by high up-front licensure fees.

Production Limit Recommendations

If production limits are implemented, adherence to the following six guidelines is recommended:

1. **Grow limits should apply to mature plants only**

[16] How to Regulate Cannabis A Practical Guide. Transform Drug Policy Foundation May 2014. https://www.unodc.org/documents/ungass2016/Contributions/Civil/Transform-Drug-Policy-Foundation/How-to-Regulate-Cannabis-Guide.pdf

2. Grow limits should not constitute binding production constraints on responsible growers.
3. Grow limits should be part of a tiered licensure structure that imposes higher licensure fees on larger producers and allows for stacking of top tier licenses.
   The production tiers presented in Table 2 are similar to those implemented in Michigan. Licensure fees increase with plant count. Tier 3 licensees who wish to operate larger grows can purchase and stack multiple tier 3 licenses, each of which authorize the grower to grow up to 3,000 cannabis plants in a single location. The licensure tiers proposed in Table 2 also align with the production strata evident in producer responses to the question about optimal plant count posed on the 2019 survey.

Table 2 Tiered Licensure with Stacking			
Tier	Maximum Mature Plants	Annual Fee	Stackable?
1	500	$5,000	No
2	1,500	$15,000	No
3	3,000	$30,000	Yes

4. Grow limits should be based on plant count rather than canopy
   As noted earlier, neither method is particularly effective for ensuring that commercial producers produce no more or less than is necessary to meet patient demand. That said, plant count is the method to which commercial producers are accustomed and the majority of medical cannabis producers (53%) surveyed preferred plant count.
5. Grow limits should equalize access for PPL holders and patients who buy exclusively through dispensaries.
   Plant count limits should enable commercial producers to produce at least the same amount of cannabis per qualified patient as PPL holders are permitted to produce for themselves
6. Grow limits should be based on patient need and therefore be a function of the number of qualified patients.
   Maximum plant counts should be reassessed bi-annually and indexed to program enrollment