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GROUP

Los Angeles County
Cannabis Tax Considerations

Prepared for Los Angeles County
Chief Executive Office

FINAL REPORT
MAY 1, 2018

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Prepared for
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Executive Summary

The Los Angeles County (LAC) Office of Cannabis Management (OCM) retained the Marijuana Policy Group (MPG) to conduct 5-year projections of the size of the regulated cannabis market and potential tax revenues in Los Angeles County. Key findings include:

Cannabis Market Size & Demand

- In *unincorporated* areas of LAC, estimated cannabis sales in the regulated market are $120 million in 2019 and $211 million in 2023, based on OCM's proposed license allocations.
- *Countywide*, estimated cannabis sales in the regulated market are $1.5 billion in 2019 and $2.6 billion in 2023.
- Initial year estimates of sales in the LAC regulated cannabis market are based on the demand and market size factors obtained from federal surveys, and adjustments for the elasticity of demand in response to proposed tax rates.
- Regulated sales are expected to grow quickly in the initial 5-year period as the illicit market is absorbed into the regulated market. Sales growth will slow after absorption is complete.

Determining an Appropriate Tax Rate

- For *unincorporated* areas, MPG suggests tax rates should be roughly consistent with high-population incorporated areas, such as LA City, to discourage store clustering near municipal and unincorporated borders.
- For a *countywide* tax, MPG suggests the "optimal" retail tax rate for revenue generation is between 0.5 percent and 1.0 percent for adult-use cannabis, and between 0.25 percent and 0.5 percent for medical cannabis.
- Higher tax rates would push the total effective tax rate above 50 percent (when combined with state taxes), which would discourage consumers from purchasing cannabis in the regulated market, resulting in an overall reduction in tax revenues.

Potential Tax Revenues

- Potential cannabis tax revenues from *unincorporated* taxes are $10.1 million in 2019 and $19.7 million in 2023, based on a proposed tax rate of 10.0 percent on adult-use retail, 5.0 percent on medical retail, and 2.0 percent on cultivation, manufacturing and distribution.

Figure 1 Cannabis Projected Sales and Tax Revenue

	2019	2020	2021	2022	2023
Unincorporated Area Taxes ($M)					
Adult Use Retail (10%)	$7.75	$10.26	$12.78	$15.27	$17.68
Medical Retail (5%)	2.11	2.03	1.93	1.83	1.71
Cultivation (2%)	0.11	0.14	0.13	0.13	0.13
Processing (2%)	0.04	0.05	0.05	0.05	0.05
Distribution (2%)	0.09	0.11	0.11	0.11	0.10
Total	**$10.10**	**$12.59**	**$15.00**	**$17.39**	**$19.67**
Countywide Taxes ($M) (Includes Uninc Areas)					
Adult Use Retail (0.5%)	$4.71	$6.24	$7.78	$9.29	$10.76
Medical Retail (0.25%)	1.32	1.27	1.21	1.15	1.07
Cultivation (0.5%)	0.78	0.97	0.93	0.91	0.88
Processing (0.5%)	0.51	0.64	0.61	0.59	0.58
Distribution (0.5%)	0.83	1.03	0.99	0.96	0.94
Total	**$8.15**	**$10.15**	**$11.52**	**$12.90**	**$14.23**
Total Tax Revenue	**$18.25**	**$22.74**	**$26.52**	**$30.29**	**$33.90**
Adjusted Regulated Sales - Uninc. Capture ($M)					
Adult-Use	$77.5	$102.6	$127.8	$152.7	$176.8
Medical	$42.2	$40.5	$38.7	$36.6	$34.2
Total	**$119.7**	**$143.1**	**$166.5**	**$189.3**	**$211.0**
Adjusted Regulated Sales - Countywide ($M)					
Adult-Use	$942.7	$1,248.4	$1,555.0	$1,857.9	$2,151.6
Medical	$529.8	$509.2	$485.7	$459.3	$429.7
Total	**$1,472.5**	**$1,757.6**	**$2,040.7**	**$2,317.2**	**$2,581.3**

- Potential cannabis tax revenues from *countywide* taxes in are $8.2 million in 2019 and $14.2 million in 2023, based on a proposed tax rate of 0.5 percent on adult-use retail, 0.25 percent on medical retail, and 0.5 percent on cultivation, manufacturing and distribution.
- Total potential cannabis tax revenues are $18.3 million in 2019 and $33.9 million in 2023.

Projection Factors and Assumptions
- The five-year demand projections consider population growth, cannabis use prevalence growth, increased regulated market capture and price trends based on observed data from Colorado and Washington; and official state studies on the California cannabis market.
- The projections assume LAC, the state, and municipalities will efficiently issue cannabis licenses, and that regulated products are accessible and priced competitively with the illicit market (before tax).
- A slower licensing process, less product availability and higher prices may slow these projections from being realized, as consumers may be incentivized to remain with current unregulated suppliers.
- All cannabis retail – storefront or delivery – is treated equally in this analysis. Tax revenue accrues only to jurisdictions that allow businesses to locate within their borders.

Additional Findings
- There are currently 0.48 retail outlets proposed per 10,000 population in LAC. This is similar to Seattle, WA but a relatively light footprint when compared to Denver, CO and Portland, OR.
- Most population centers, including LA City, Long Beach and LA County, have- or will soon implement cannabis regulations and tax policies, which indicates that these projections should hold if modest amounts of new licenses are added.
- Large amounts of new retail licenses added near existing unincorporated locations may alter these projections.
- Cultivation and manufacturing operations usually locate where input costs are low, and rural areas outside LAC may have less expensive offerings.
- If outside regions become more attractive than LAC, then annual non-retail tax revenue will decline more quickly than retail revenues, as non-retail cannabis businesses can locate elsewhere in the state and transport their products to urban markets relatively easily.

ANALYSIS OF RESULTS

This report is organized in two sections: an analysis of results, and an appendix that provides more detailed calculations and discussion of methodology.

The tax projections contained herein are based on a quantification of annual cannabis usage (demand) among:

- LAC residents
- Daily commuters; and
- Domestic and international visitors.

These projections rely on the assumptions that:

- Historical market growth rates follow observed trends in Colorado and Washington;
- LAC, the state, and municipalities will efficiently issue business licenses; and
- Regulated products are accessible and priced competitively with the illicit market (before tax).

A slower licensing process, less product availability and higher prices may slow these projections from being realized, as consumers may be incentivized to remain with current unregulated suppliers.

- **Demand.** Utilizing marijuana use prevalence data from the National Survey on Drug Use and Health (NSDUH), MPG estimates the 2018 total number of past-month and past-year marijuana users among LAC residents and regular commuters aged 21 and over (2.2 million). Figure 1 provides resident, commuter and visitor cannabis consumers and demand. LAC demand is expected to be approximately 224 metric tons this year. For additional detail on LAC demand please see the attached Map 1 on p. 7 and Appendix Figures 1 through 4.

Figure 1.
Cannabis Demand
in Los Angeles County, 2018

Note:

Numbers may not add due to rounding.

Includes resident, visitor and commuter demand. See appendix for detailed calculations.

Source:

Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. American Community Survey, U.S. Census Bureau. California Department of Finance 2018 Demographic Forecasts. State of California Employment Development Department.

Demand Source	Past Year/Month Adult Consumers	Annual Demand (Metric Tons)
Los Angeles County		
Supervisorial District 1	380,075	35.9
Supervisorial District 2	485,042	47.1
Supervisorial District 3	486,925	44.4
Supervisorial District 4	396,277	38.2
Supervisorial District 5	395,323	36.4
Net 'Commuter' Demand	55,133	5.3
Total Resident Demand	**2,198,775**	**207.4**
Visitor Demand **(Domestic and International)**		**17.0**
Total Demand (Metric Tons)		**224.4**

- **Market size.** Tax projections are also based on the share of the market captured in regulated medical and adult-use retail outlets; and the price of regulated cannabis products. Market capture and pricing information shown in Figure 2 is obtained from observed data in the Colorado and California markets.

Figure 2.
Cannabis Market Size
in Los Angeles County, 2018

Note:

Numbers may not add due to rounding.

Includes resident, visitor and commuter demand. See appendix for detailed calculations.

Source:

MPG, LLC from observed Colorado and Washington data.

| Metric	2019 Estimate
Total Demand (MT)	**224.4**
Total Regulated Market Capture	61.9%
Unregulated Market Capture	38.1%
Regulated Market Demand (MT)	
Adult-Use (30.4%)	68.1
Medical (31.5%)	70.7
Total	**138.8**
Price/gram ($)	
Adult-Use	$15.57
Medical	$8.44
Los Angeles County Market Size ($ Million)	
Adult-Use	$1,060.8
Medical	$596.1
Total	**$1,656.9**

Total regulated market size in LAC in 2019 is estimated at about $1.66 billion, assuming the regulated market captures about 60 percent of demand in 2019. Appendix Figures 4 and 5 provide additional detail. Price differences between adult use and medical cannabis is widely observed in other states. It is primarily due to the customer purchasing products in larger quantities, and competition to lock in customers to member pricing plans.

- **Retail tax projection.** Retail tax projections in Figure 3 on the following page are based on a countywide tax rate of 0.5 percent on adult use and 0.25 percent on medical purchases and 10 percent on adult use and 5 percent additional tax on purchases in the unincorporated area.

Initial year estimates of sales in the LAC regulated cannabis market are based on the demand and market size factors presented above, adjusted for the elasticity of demand and tax rates, and an even allocation of sales among retail licenses (487 retail licenses countywide). Unincorporated LAC would capture 8 percent of the market in this scenario.

The five-year projection considers population growth, cannabis use prevalence growth, increased regulated market capture and price decline based on official sources and observed data from Colorado and Washington.

Figure 3.
Los Angeles County Retail Cannabis Sales, 5-year Projection ($ Million) - Baseline
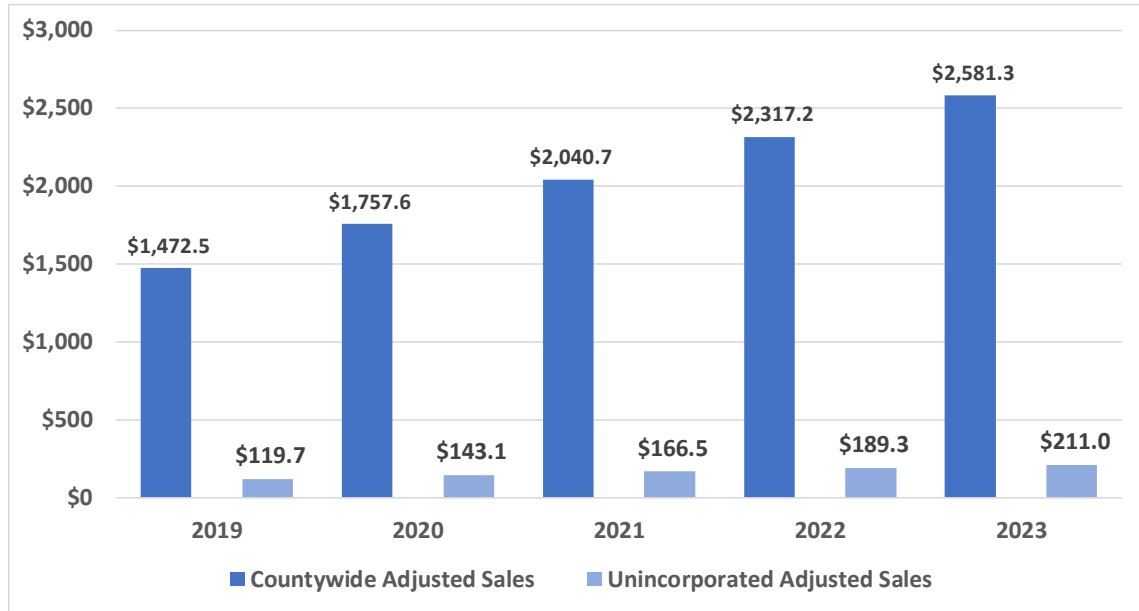
Source: MPG LLC.

Figure 4.
Los Angeles County Retail Cannabis Tax 5-year Projection ($ Million) - Baseline
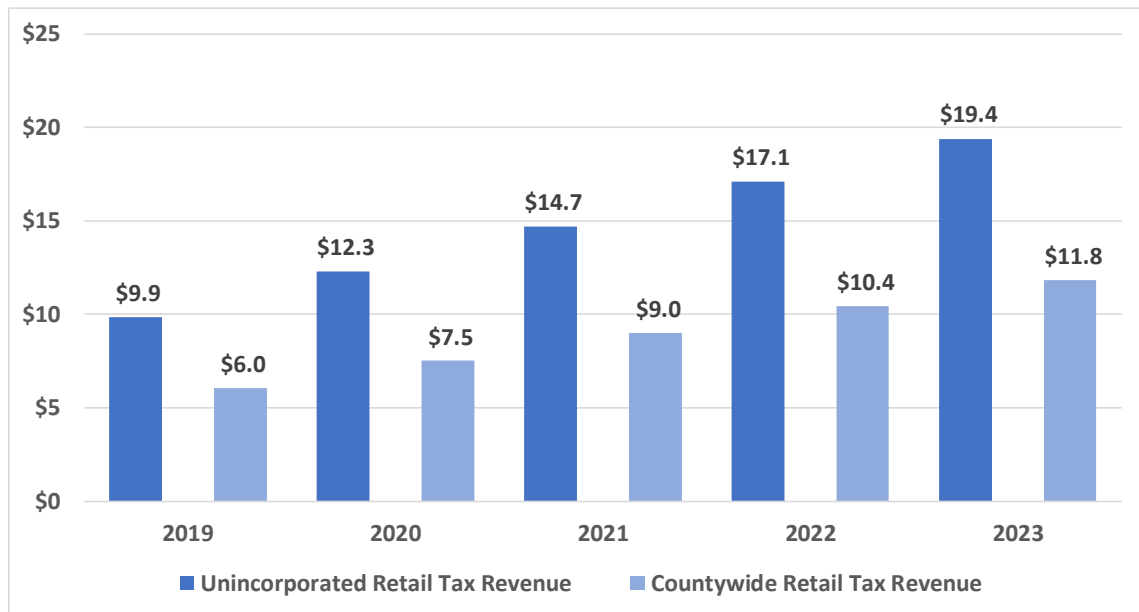
Source: MPG LLC.

Regulated sales are expected to grow quickly in the initial 5-year period as the illicit market is absorbed into the regulated market. LAC can expect total regulated sales of $1.5 billion after adjusting for the elasticity of demand and tax rates; about $120 million in sales in the unincorporated area and about $16 million in cannabis retail tax. About $10 million of this

revenue would come from the 10 percent unincorporated retail tax. This figure would grow to $31 million in 2023, assuming LAC maintains its market share. Appendix figures 7-11 show tax projections under two alternate scenarios: (1) where LAC market share is diluted due to additional licenses issued in municipalities; and (2) where LAC retailers secure a larger market share due to locational and other factors.

- **Non-retail taxes.** Non-retail business taxes on gross receipts are a common form of business tax. LAC currently charges gross receipts taxes on businesses located in the unincorporated county. It is a relatively minor source of county revenue compared to property, sales and use taxes. LAC is evaluating a 2.0 percent unincorporated-only gross receipts tax and a 0.5 percent rate on business located county wide. Businesses located in the unincorporated area will pay a gross rate of 2.5 percent.

**Figure 5.
Potential
Gross Receipts Tax –
Los Angeles County, 2019**

Note:

Numbers may not add due to rounding.

Source:

MPG, LLC,
State of California SRIA documents.

Tax Type	Unincorporated Tax Revenue (2.0%)	Countywide Tax Revenue (0.5%)
Cultivation Tax	$ 111,937	$ 780,000
Manufacturing Tax	$ 40,052	$ 511,667
Distribution Tax	$ 91,875	$ 828,500
Total Tax Revenue	**$ 243,865**	**$ 2,120,167**
Grand Total		**$ 2,364,032**

Non-retail taxes are proposed on intermediate cannabis industries such as cultivation, manufacturing and distribution. LAC is a consumer center, but its share of these intermediate industries is unknown and will remain in formation stages for 2-3 years.

MPG estimated the statewide market size for cultivation, manufacturing and distribution using several state-required regulatory economic impact documents (SRIAs) and direct research. MPG allocated a portion of the statewide cultivation, distribution and manufacturing economic activity to LAC and further to the unincorporated county.

MPG market size estimates of the state and LAC indicate LAC will capture 32 percent of retail sales and a similar distribution figure. State SRIA studies indicate LAC is home to 5 percent of current statewide cultivation activity and 7 percent of manufacturing activity. MPG estimates these rates will modestly increase to 10 percent. Under this scenario LAC would generate about $2.4 million in gross receipts revenue. A high-end estimate, based on LAC producing as much as consumption (32 percent capture of cultivation) would yield about $7 million in taxes. Please see the Appendix (p. 23) for a detailed description of the calculations.

Unlike retailers, manufacturers, cultivators and distributors are free to locate operations where conditions are financially advantageous within California. Cultivators will choose to locate where there is inexpensive land, industrial space, water and electricity, and LAC will be at a disadvantage compared to less-expensive, more rural areas. Manufacturers generally prefer to be near the suppliers of "feedstock" (plant material). Logically, these operators would prefer to co-locate facilities to minimize transport/storage complications.

Cannabis businesses and retail sales by jurisdiction. Tax projections are further informed by the number of retail licenses (storefront and delivery) that are issued by LAC and cities. Figure 6 below shows the types of cannabis businesses allowed in LAC communities. Please see attached Map 2 and Appendix Figure 6 for detail on cities allowing cannabis retail and delivery. Commercial cannabis is not currently allowed in unincorporated LAC, this study uses a scenario, based on OCM draft policies to estimate potential tax revenues if draft policy is adopted.

Figure 6.
Cannabis Business Locations,
Los Angeles County, 2018

Note:

* Non-retail includes cultivation, manufacturing, processing and distribution.
** Malibu permits medical retail/delivery only and no other commercial operations.

Source:

MPG, LLC from LAC and city sources.

Retail and Non-retail* Adult-use and Medical	Retail and Non-retail Medical	Non-retail
Culver City	Bellflower	Baldwin Park
Long Beach	Huntington Park	Bell
Los Angeles	Malibu**	Carson
Maywood	Santa Monica	Cudahy
Unincorp. LAC		El Monte
West Hollywood		Lancaster
		Lynwood

There are 498 retail licenses expected in LAC as of March 2018. Most licenses (487) will be available in jurisdictions that permit adult-use and medical cannabis, with 40 expected to be in unincorporated areas per OCM draft policy. MPG allocated equal sales to each retail license regardless of location; or whether it is a physical store or delivery service.

Many factors will contribute to retailer and delivery service success, including location, branding and pricing. It is unknown whether physical locations or delivery services will capture more market share. Retail sales volume is shifting towards e-commerce in general and cannabis retailing is subject to the same trends and consumer preferences as other consumer goods.

- **County tax rate options.** Choosing low tax rates, represented as rate R1 in the figure below, will encourage more legal sales, but will yield less revenues. High rates increase revenues – up to point R2 – but rates too high will encourage illegal sales, leading to less revenues.

Figure 7.
Revenues versus Total
Tax Rate in Los Angeles County
(Exposition Only)
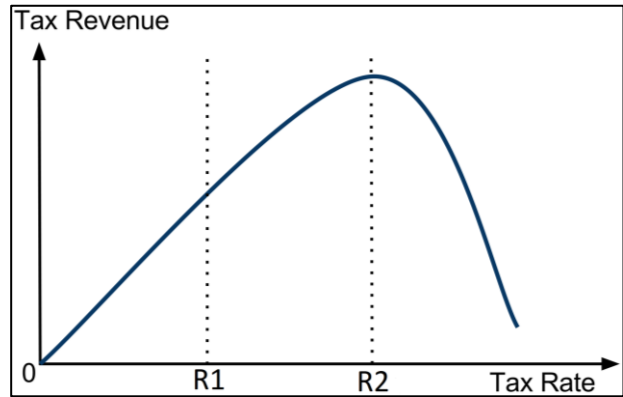
The optimal choice must strike a balance between revenue goals, legal market sales goals and other objectives like community public health. LAC has some choice of tax rate, but the choice is encumbered by several other taxing entities. Aggregate tax rates are 38.7 percent for adult use, and 23.95 percent for medical. However, since two taxes are excise taxes, the effective rate is 40.55 percent and 25.8 percent, due to compounding tax effect between the wholesale and retail levels.

Figure 8 shows cannabis tax rates in western states with adult use and medical markets.

Figure 8.
Cannabis Tax Rate Comparison

| Comparison - Existing Tax Rates for Cannabis					
Los Angeles, CA	**Adult-Use**	**Medical**	**Denver, CO**	**Adult-Use**	**Medical**
Cultivation State Excise / Production Tax	3.70%	3.70%	Excise / Production Tax	15.00%	0.00%
Distribution State Excise Tax	15.00%	15.00%	State Sales Tax	0.00%	2.90%
General Sales Tax	9.50%	0.00%	State Cannabis Sales Tax	15.00%	0.00%
LA City/Uninc. County Cannabis Tax	10.00%	5.00%	Local Cann Sales Tax	3.50%	3.50%
LA County MJ Sales Tax	0.50%	0.25%	Local Sales Tax	3.65%	3.65%
Total Tax	**38.70%**	**23.95%**	**Total Tax**	**37.15%**	**10.05%**
Effective Tax Rate	**40.55%**	**25.80%**	**Effective Tax Rate**	**44.65%**	**10.05%**
Seattle, WA	**Adult-Use**	**Medical**	**Las Vegas, NV**	**Adult-Use**	**Medical**
Retail Sales Tax	10.10%	0.00%	Production Tax	15.00%	15.00%
Special Cannabis Sales Tax	37.00%	37.00%	State Retail Cannabis Tax	10.00%	0.00%
			State/County Sales Tax	8.25%	3.55%
Total Tax	**47.10%**	**37.00%**	**Total Tax**	**33.25%**	**3.55%**
Effective Tax Rate	**47.10%**	**37.00%**	**Effective Tax Rate**	**40.75%**	**11.05%**
Portland, Oregon	**Adult-Use**	**Medical**	**Alaska**	**Adult-Use**	**Medical**
State Canabis Tax Rate	17.00%	0%			
Local Cannabis Tax Rate	3.00%	0%	Special Cannabis Sales Tax	$50/oz	0%
Total Tax	**20.00%**	**0.00%**	**Total Tax**	**20.00%**	**0%**
Effective Tax Rate	**20.00%**	**0.00%**	**Effective Tax Rate**	**20.00%**	**0%**

Note: Numbers may not add due to rounding.
Effective tax rate is slightly higher in some states due to wholesale level compounding taxes.
Source: MPG LLC from public sources.

Based on MPG tax revenue estimates, tax yields will fail to materialize, and consumers will avoid the regulated market if the aggregate tax rate is near or above 50 percent in LAC. At high rates, consumers will increasingly choose outlets from lower tax cities within California, or they will revert to underground outlets. This is a lesson learned from Washington State in 2014. At that time, Washington regulators were advised to apply three 25 percent tax rates along different points of production, leading to an effective tax rate of 90 percent. Adult use sales did not show sustained growth until the tax rate was below 50 percent.

Based on current tax rates within California and Los Angeles area municipalities, the feasible county rate options for incorporated areas in LAC are between 0 percent and 4.5 percent. In unincorporated areas, rate options are between 0 percent and 14.5 percent. Higher tax rates would push the effective tax rate above 50 percent and incentivize purchases outside the regulated market. MPG suggests a tax-rate regime that will ensure rates are roughly consistent between high-population incorporated areas, such as LA City, and unincorporated areas to discourage store clustering near municipal/unincorporated borders.

At current proposed rates, the Net Present Value (NPV)[1] of tax revenues between 2019-2023 will be $103 million, assuming a discount rate of 5 percent. If tax rates are increased from 0.5 percent, then revenues increase. At a 1.0 percent rate, total NPV revenues are just below $120 million. However, as rates continue to increase, demand shrinks as consumers find alternate, untaxed sources, and revenues ultimately decline. At a 4.25 percent tax rate, NPV falls as low as $40 million.

Figure 8.
2019-2023 Tax Revenue Net Present Value by Tax Rate - $ Million
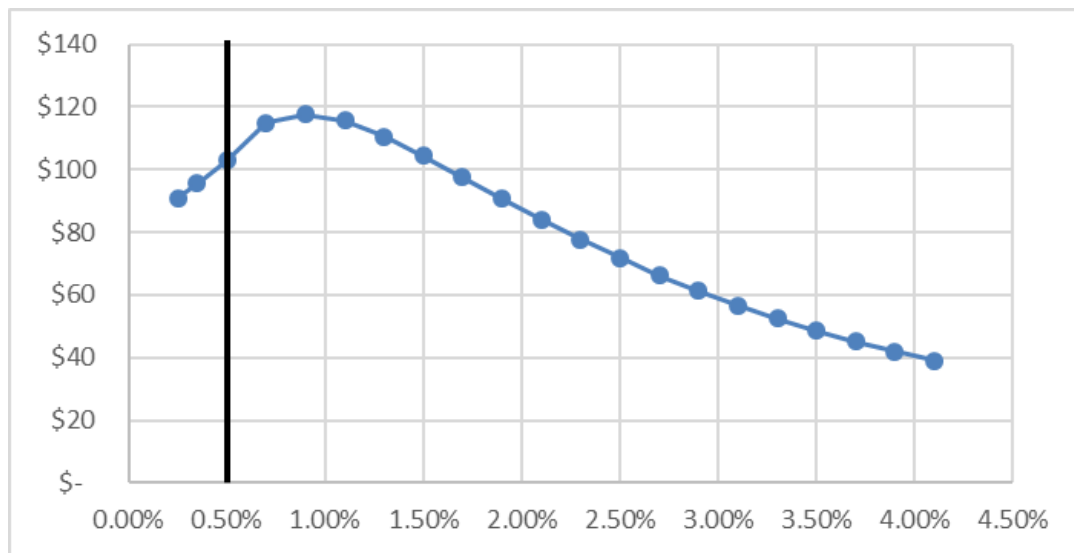
Source: MPG LLC.

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[1] Net present value is used to compare future revenue streams over time. NPV is a means to convert a series of future revenues into a single number that represents the value in current dollars, for instance, 5-year revenues at 0.5 percent tax rate are worth $103 million today, and 5-year revenues at a 1 percent tax rate are worth $120 million today.

To summarize, the "feasible" rate is between 0 percent and 4.5 percent, but currently, the "optimal" rate for revenue generation in LAC is between 0.5 percent and 1.0 percent for recreational cannabis, and 0.25 percent and 0.5 percent for medical. LAC is expected to apply an extra 10 percent for adult use and 5 percent for medical in unincorporated areas.

- **Licensing.** There are 9 incorporated cities and the unincorporated area that will be allowing regulated cannabis retail activity (adult use and medical). About 52.4 percent of the LAC population that will have access to marijuana retail operations in their community. There are 498 retail licenses expected in LAC (medical only and dual) under currently stated retail license limits in areas that have opted to allow cannabis retail establishments. Figure 9 shows a comparison of retail outlet density in four urban counties that have adult-use and medical cannabis.

Figure 9.
Retail Licenses per 10,000 Population, County Comparison

Note: Numbers may not add due to rounding.
Source:
MPG, LLC from public sources.

County	Total Licensed Adult Use Retail Outlets	Population	Population per Store	Outlets per 10,000 population	Allow delivery
Denver County, CO	203	682,545	3,362	2.97	N
King County, WA (Seattle)	113	2,079,550	18,403	0.54	N
Multnomah, OR (Portland)	155	790,294	5,099	1.96	Y
LA County, CA *(proposed)*	487	10,241,278	21,029	0.48	Y

As shown above, the proposed retail footprint in LAC is 0.48 retail outlets per 10,000 population. This is a relatively light footprint when compared to Denver, CO and Portland, OR areas. The data indicate that jurisdictions in LAC will have capacity to add more retail locations without overly diluting the market. As observed in Colorado and Washington, the illicit market is reduced when cannabis users have convenient access to products, and a competitive market places downward pressure on pricing.

LAC should monitor the amount of retail licenses in the incorporated and unincorporated areas going forward to allow for adequate access, but not to oversupply the market and risk failing retail outlets. The data above show that LAC will likely be able to add more retail locations beyond the initial 487 countywide and 40 in unincorporated areas.

A short supply of retail licenses could slow sales absorption into the regulated market, as witnessed in Washington in 2014-2015. In Washington, retail licenses were allocated via lottery and many winners did not open facilities directly, but held them for sale in a secondary market, slowing retail facility opening across the state. This led to high prices, long lines and consumer avoidance of the regulated market. LAC and municipalities should monitor the market going forward to potentially add licenses as needed.

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Map 1.
Cannabis Consumers by
Supervisorial District

Source:

MPG, LLC, NSDUH, Los Angeles County.

Total Past-Year & Past-Month Cannabis Consumers

- > 450,000 – 490,000
- > 390,000 – 450,000
- 380,000 – 390,000
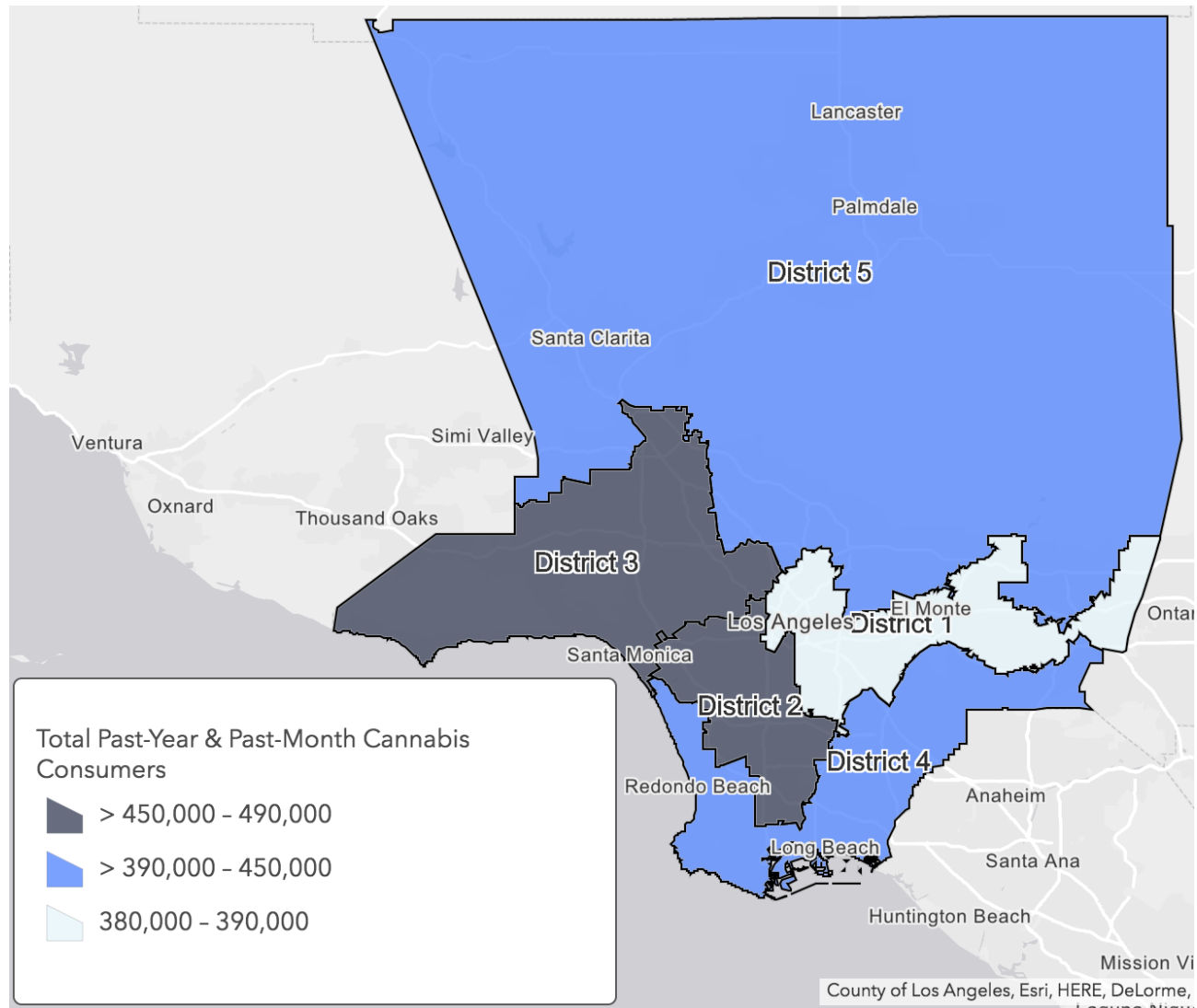
**Map 2.
Cannabis Retail
Outlet Location by
Jurisdiction**

Note:
Map show whether municipalities allow cannabis retail outlets to locate their operations in their community. Certain cities, like Santa Clarita, Avalon, Beverly Hills and other municipalities allow deliveries to be completed in their city only. See Appendix Figure 5 for a complete list.

Source:
MPG, LLC, Los Angeles County.
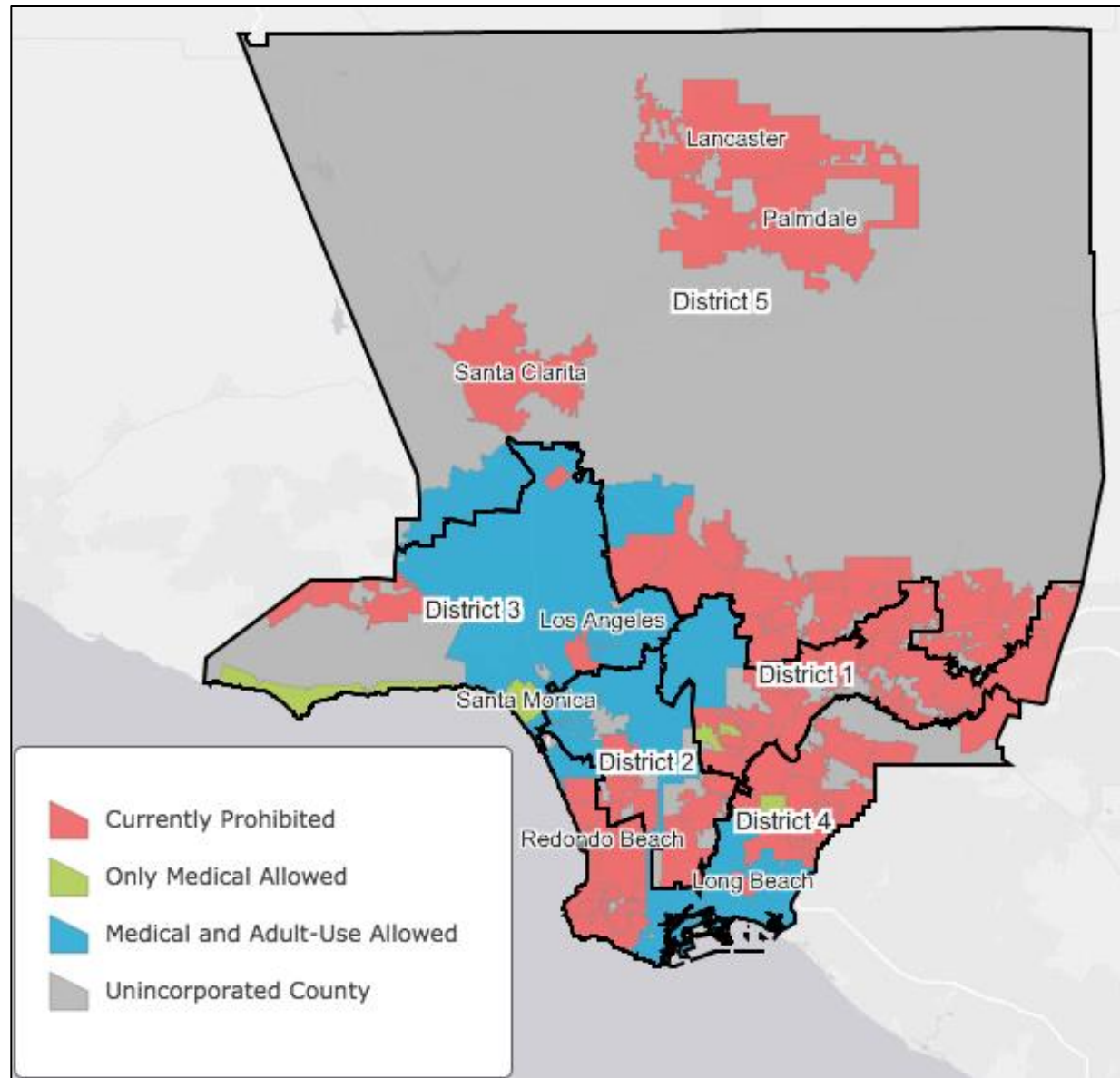
Appendix
Los Angeles County Tax Considerations

This appendix contains detailed information and calculations that support market size, demand and tax projections in the attached report.

Demand by Supervisorial District

The following figures break down total resident demand by the five supervisorial districts within the county. MPG utilized local-level information from the NSDUH to provide detailed Los Angeles County cannabis prevalence use figures across each supervisorial district. MPG also used census-tract data from the American Community Survey (ACS) to quantify age 21+ population by supervisorial district. These figures below display that in each supervisorial district, about 15 percent of total cannabis users consume cannabis 21+ days each month, and account for roughly 85 percent of total demand.

Appendix Figure 1A.
Adult Marijuana Users and Total Demand among LAC Supervisorial District 1, 2019

Frequency of Use	Percent of Past Month Users	Adult MJ Users	Average Annual Use Davs	Average Daily Consumption	Annual Demand	Share of Los Angeles County	
Days/Mo.			Days/Year	Grams	Metric Tons	Users	Demand
<1		231,971	6	0.30	0.4	61.0%	1.2%
1-5	36.6%	55,271	36	0.67	1.3	14.5%	3.7%
6-10	8.5%	12,836	96	0.67	0.8	3.4%	2.3%
11-15	7.3%	11,024	156	0.67	1.1	2.9%	3.2%
16-20	7.3%	11,024	216	0.67	1.6	2.9%	4.4%
21-25	7.3%	10,523	276	1.60	4.6	2.8%	12.9%
26-31	32.9%	47,426	342	1.60	26.0	12.5%	72.3%
Total:	100.0%	380,075	-	-	**35.9**	100%	100%

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update.".

The incorporated cities allowing any form of commercial cannabis activity in District 1 include: *Los Angeles, El Monte, Baldwin Park and Huntington Park.*

Appendix Figure 1B.
Adult Marijuana Users and Total Demand among LAC Supervisorial District 2, 2019

Frequency of Use	Percent of Past Month Users	Adult MJ Users	Average Annual Use Days	Average Daily Consumption	Annual Demand	Share of Los Angeles County	
Days/Mo.			Days/Year	Grams	Metric Tons	Users	Demand
<1		290,582	6	0.30	0.5	59.9%	1.1%
1-5	36.6%	72,571	36	0.67	1.7	15.0%	3.7%
6-10	8.5%	16,854	96	0.67	1.1	3.5%	2.3%
11-15	7.3%	14,475	156	0.67	1.5	3.0%	3.2%
16-20	7.3%	14,475	216	0.67	2.1	3.0%	4.4%
21-25	7.3%	13,817	276	1.60	6.1	2.8%	13.0%
26-31	32.9%	62,269	342	1.60	34.1	12.8%	72.3%
Total:	100.0%	485,042	-	-	**47.1**	100%	100%

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update.".

The incorporated cities allowing any form of commercial cannabis activity in District 2 include: ***Los Angeles, Carson, Lynwood and Culver City***.

Appendix Figure 1C.
Adult Marijuana Users and Total Demand among LAC Supervisorial District 3, 2019

Frequency of Use	Percent of Past Month Users	Adult MJ Users	Average Annual Use Days	Average Daily Consumption	Annual Demand	Share of Los Angeles County	
Days/Mo.			Days/Year	Grams	Metric Tons	Users	Demand
<1		303,836	6	0.30	0.5	62.4%	1.2%
1-5	36.6%	68,328	36	0.67	1.6	14.0%	3.7%
6-10	8.5%	15,868	96	0.67	1.0	3.3%	2.3%
11-15	7.3%	13,628	156	0.67	1.4	2.8%	3.2%
16-20	7.3%	13,628	216	0.67	2.0	2.8%	4.4%
21-25	7.3%	13,009	276	1.60	5.7	2.7%	12.9%
26-31	32.9%	58,628	342	1.60	32.1	12.0%	72.2%
Total:	100.0%	486,925	-	-	**44.4**	100%	100%

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update.".

The incorporated cities allowing any form of commercial cannabis activity in District 3 include: ***Los Angeles, Santa Monica, Malibu, and West Hollywood.***

Appendix Figure 1D.
Adult Marijuana Users and Total Demand among LAC Supervisorial District 4, 2019

Frequency of Use	Percent of Past Month Users	Adult MJ Users	Average Annual Use Davs	Average Daily Consumption	Annual Demand	Share of Los Angeles County	
Days/Mo.			Days/Year	Grams	Metric Tons	Users	Demand
<1		238,405	6	0.30	0.4	60.2%	1.1%
1-5	36.6%	58,917	36	0.67	1.4	14.9%	3.7%
6-10	8.5%	13,683	96	0.67	0.9	3.5%	2.3%
11-15	7.3%	11,751	156	0.67	1.2	3.0%	3.2%
16-20	7.3%	11,751	216	0.67	1.7	3.0%	4.4%
21-25	7.3%	11,217	276	1.60	5.0	2.8%	13.0%
26-31	32.9%	50,553	342	1.60	27.7	12.8%	72.3%
Total:	100.0%	396,277	-	-	**38.2**	100%	100%

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update.".

The incorporated cities allowing any form of commercial cannabis activity in District 4 include: *Los Angeles, Long Beach, and Bellflower.*

Appendix Figure 1E.
Adult Marijuana Users and Total Demand among LAC Supervisorial District 5, 2019

Frequency of Use	Percent of Past Month Users	Adult MJ Users	Average Annual Use Days	Average Daily Consumption	Annual Demand	Share of Los Angeles County	
Days/Mo.			Days/Year	Grams	Metric Tons	Users	Demand
<1		245,113	6	0.30	0.4	61.9%	1.2%
1-5	36.6%	56,057	36	0.67	1.3	14.1%	3.5%
6-10	8.5%	13,019	96	0.67	0.8	3.3%	2.2%
11-15	7.3%	11,181	156	0.67	1.2	2.8%	3.0%
16-20	7.3%	11,181	216	0.67	1.6	2.8%	4.2%
21-25	7.3%	10,673	276	1.60	4.7	2.7%	12.3%
26-31	32.9%	48,100	342	1.60	26.3	12.1%	68.8%
Total:	100.0%	395,323	-	-	**36.4**	100%	95%

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update.".

The incorporated cities allowing any form of commercial cannabis activity in District 5 include: *Los Angeles and Lancaster.*

Visitor and Commuter Demand

In addition to estimating Los Angeles County resident and commuter demand for marijuana, MPG also analyzed marijuana demand attributable to visitors and tourists. Using 2019 projections of annual visitation data, which details visitor origin, average length of stay, and corresponding marijuana use prevalence data, the MPG estimated total 2019 visitor demand for LAC marijuana at 17.0 metric tons. Appendix Figure-2 below presents

the MPG estimate of visitor demand for LAC in 2019. These users will mostly be obtaining marijuana through regulated channels as most visitors will be above the age of 21 years old.

Appendix Figure 2.
Visitor Demand for Los Angeles County Marijuana, 2019

2018 Domestic/International Visitation	2018 Annual Visitors	2018 MJ Use Days by Visitors Aged 21+	Annual MJ Demand (Metric Tons)
Domestic	42,042,672	19,964,664	14.6
International	7,387,343	3,654,232	2.4
Grand Total Visitor Demand	49,430,015	23,618,896	17.0

Note: Numbers may not add due to rounding.

Source: Discover Los Angeles – "LA Tourism by Numbers 2015 Quick Facts". Substance Abuse and Mental Health Administration – "NSDUH State Estimates, 2012-2014". Bureau of Labor Statistics –"Travel Expenditures, 2005–2013: Domestic and International Patterns in Recession and Recovery". United Nations Office of Drug Control Statistics. Inter-American Drug Abuse Control Commission – "Report on Drug Use in the Americas 2015". World Health Organization – "Management of Substance Abuse: Facts & Figures".

Commuter demand is derived by applying county-level NSDUH prevalence factors to the in-commuting population.

Appendix Figure 3.
Commuter Demand

Note: Numbers may not add due to rounding.
Source:
MPG, LLC; NSDUH;
California Employment Development Department.

County	Daily Commuters to LAC	Past Month Prevelance	Commuter Cannabis Users
Orange	178,681	12.76%	22,800
Ventura	66,832	15.69%	10,487
Riverside	50,901	11.93%	6,074
San Bernardino	126,642	12.45%	15,772
		Total	55,133

Commuter demand is a minor factor in our model to account for the regional nature of shopping and employment patterns. Commuters make up about 2 percent of annual demand (Report Figure 1).

Demand for Cannabis by Origin, User Type and Market

Figure 4 illustrates the total breakdown of demand by; Resident/Commuter, Domestic Visitors and International Visitors. The figure also displays the percentage (60 percent) that the MPG anticipates the regulated market will capture in 2018. Of the total regulated market demand; only 40 percent is estimated to be Adult-Use consumers, with 60 percent of the market being medical marijuana patients. After observing data from Colorado and Washington State and analyzing the regulatory climate in LAC and California as a whole; the MPG anticipates the regulated market capture to grow in the coming years, and a shift in the share of the market from medical cannabis patients to adult-use users.

Demand met by unregulated channels will shift to regulated markets as the overall market becomes more competitive when more licenses are issued, more products are available, and companies are competing for regional market share. Demand is also expected to shift from the medical market to the adult-use market as prices in adult use decline and the extra expense and effort to maintain a medical registration becomes less beneficial. There will always be a medical market, especially if there are different products and potency requirements for medical cannabis products.

Appendix Figure 4.
Demand for Los Angeles County Marijuana, by Origin, User Type, and Market (metric tons) 2019

LAC Resident/Commuter Demand	Share	Total Demand	Regulated Market Demand (60%)	Unregulated Market Demand (40%)
Total	**100.0%**	**207.4**	**124.5**	**83.0**
Medical Marijuana Patients	*55.0%*	*114.1*	*68.4*	*45.6*
Recreational Marijuana Users	*45.0%*	*93.3*	*56.0*	*37.3*
LAC Domestic Visitor Demand				
Total	**100.0%**	**14.6**	**12.0**	**2.7**
Non-California Residents	54.2%	7.9	7.9	0.0
California Residents	45.8%	6.7	4.0	2.7
Medical Marijuana Patients	*55.0%*	*3.7*	*2.2*	*1.5*
Recreational Marijuana Users	*45.0%*	*3.0*	*1.8*	*1.2*
LAC International Visitor Demand				
Total	**100.0%**	**2.4**	**2.4**	**0.0**
Grand Total 2018 Demand for LAC Marijuana		**224.4**	**138.8**	**85.7**

Note: Numbers may not add due to rounding.

Source: Substance Abuse and Mental Health Administration – NSDUH State and Sub-state estimates, 2012-2014. California Department of Finance 2018 Demographic Forecasts. MPG "Market Size and Demand for Marijuana in Colorado: 2016 Market Update."

Product Market Share by Market and Type

Consumers will have several cannabis product types to choose from, including flower, edibles, concentrated extracts, and infused non-edibles. In recent years, the popularity of edibles and concentrates has grown significantly in states with regulated sales. MPG used recent Colorado data to make an informed estimate of the market share for each product type in each regulated market.

MPG calculated average prices for marijuana products in California's medical marijuana market and in other states with regulated medical and recreational sales in order to estimate the total market size, in terms of dollar sales. Figure 5 provides the estimated share of each product type in the medical and recreational markets, the associated average retail price, and the total market value from the sales of each product type.

Appendix Figure 5.
Marijuana Product Market Share, by Regulated Market - 2019

Product Type	CA 2018 Estimated Product Market Share	Demand (Metric Tons of Flower Equivalent)	Average Price	Market Value ($ Millions)
Medical Marijuana				
Flower	66.4%	46.9	$8.00 Per Gram	$375.4
Concentrates	26.5%	18.7	$30.00 Per Gram	$122.1
Infused Edibles	6.1%	4.3	$20.00 Per 100mg Unit	$87.9
Infused Non-Edibles	1.0%	0.7	$15.00 Per Unit	$10.8
Total	**100.0%**	**70.7**	-	**$596.2**
Recreational Marijuana				
Flower	63.2%	43.1	$15.00 Per Gram	$646.0
Concentrates	22.0%	15.0	$50.00 Per Gram	$163.0
Infused Edibles	13.3%	9.1	$25.00 Per 100mg Unit	$231.1
Infused Non-Edibles	1.5%	1.0	$20.00 Per Unit	$20.9
Total	**100.0%**	**68.1**		**$1,060.9**
Grand Total LAC Marijuana Market Size		**138.8**		**$1,657.2**

Note: Numbers may not add due to rounding.

Source: MPG calculations based on Washington and Colorado market data.

Jurisdiction Information

MPG allocates sales across LAC by license in the tax projections. There are an expected 498 retail licenses according to research conducted winter 2017/2018. Most licenses (487) will be available in jurisdictions that permit adult-use and medical cannabis. There are an expected 40 licenses (about 8 percent of total) in unincorporated LAC.

Appendix Figure 6.
Jurisdiction Information – Current as of January 2018

City	Supervisorial District	Retail/ Delivery Adult-Use	Retail/ Delivery Medical	Cultivation Manufacturing Distribution	Anticipated Retail Permits	City Adult Use Tax Rate (Special Can. Tax)	City Medical Tax Rate (Special Can. Tax)
Baldwin Park	1	No	No	Yes	0	-	-
Bell	1	No	No	Yes	0	-	-
Bellflower	4	No	Yes	Yes	4	-	0%
Carson	2	No	No	Yes	0	-	-
Cudahy	1	No	No	Yes	0	-	-
Culver City	2	Yes	Yes	Yes	3	6%	5%
El Monte	1	No	No	Yes	0	-	-
Huntington Park	1	No	Yes	Yes	3	-	0%
Lancaster	5	No	No	Yes	0	-	-
Long Beach	4	Yes	Yes	Yes	32	10%*	6%
Los Angeles	1, 2, 3, 4, 5	Yes	Yes	Yes	401	10%	5%
Lynwood	2	No	No	Yes	0	-	-
Malibu	3	No	Yes	Yes	2	-	0%
Maywood	1	Yes	Yes	Yes	3	6%	5%
Santa Monica	3	No	Yes	Yes	2	-	0.125%
Unincorporated LAC	1, 2, 3, 4, 5	Yes	Yes	Yes	40	10%	5%
West Hollywood	3	Yes	Yes	Yes	8	10%	5%
			Total Retail Permits (AU & Med)		**498**		

Note: Numbers may not add due to rounding.

Source: MPG from LAC and individual municipalities.

Tax Revenue Estimation

LAC tax revenues will depend on the quantity of legal sales inside the county. In turn, these sales will grow or shrink, based on the final price of marijuana products in each of the County's cities, and based upon the relative prices of marijuana between the legal and illegal markets.

However, if multiple cities in LAC choose to ban sales, it is unlikely to impact the County's revenues, so long as there are large cities like LA City and Long Beach, where the County tax is applied. In other words, cannabis consumers in a community that bans retail sales will likely travel to a nearby municipality that allows sales. If cannabis retail establishments are reasonably available, then consumers will likely choose them over illicit suppliers, assuming competitive pricing. The presence of unlicensed retail establishments will slow this absorption.

In order to calculate County-wide revenues, the MPG first reviewed current and proposed tax measures for each city. Next, expected number of retail licenses in each city was used to estimate a relative share of potential adult use and medical marijuana sales. Finally, the relative tax rates were compared against a "benchmark" tax rate of 33 percent for adult-use and 19 percent for medical products. The benchmark rates represent a cumulative tax rate at the midpoint across all jurisdictions in LAC that is used to adjust sales upward or downward in each municipality to estimate demand elasticity and tax sensitivity among consumers.

If the cumulative tax rate is higher than 33 percent, then sales are adjusted downward to account for consumers purchasing cannabis in lower tax jurisdictions or on the illicit market. Conversely, if a city's cumulative tax rate is low, then demand is adjusted upward as consumers from other areas buy cannabis products in the lower tax community. LAC countywide tax is not affected by this dynamic, but the unincorporated sales are adjusted downward slightly to account for a small amount of price conscious consumers seeking the least expensive product in lower tax communities. LA City sales are adjusted similarly. Each jurisdiction has a 35 percent cumulative tax rate, which is slightly higher than the midpoint rate in the county.

Demand within each city and the unincorporated area is computed in this manner and is then combined to calculate sales and tax revenue. Figure 7 shows an example of how the demand in each city is computed, and then combined for total revenues for adult use. Medical taxes are calculated similarly.

Appendix Figure 7.
Example Adult Use Tax Collection Estimates - by City within LA County

	Retail Licenses	License Share	State & Local Sales Tax (AU Only)	State Retail Excise Tax	City/Uninc Cannabis Tax Rate	Countywide Cannabis Tax Rate	Cumulative Rate	Demand / Market Size	Adjusted Sales	LAC Tax Revenue
LA County Total	487	100%						$1,060,776,158	$942,523,851	$12,458,068
UNINCORPORATED AREAS	40	8.2%	9.50%	15.0%	10.0%	0.5%	35.0%	$87,127,405	$77,454,485	$8,132,721
INCORPORATED CITIES										
Los Angeles	401	82.3%	9.50%	15.0%	10.0%	0.5%	35.00%	$873,452,237	$776,481,213	$3,882,406
Long Beach	32	6.6%	10.25%	15.0%	10.0%	0.5%	35.75%	$69,701,924	$59,390,989	$296,955
West Hollywood	8	1.6%	9.50%	15.0%	10.0%	0.5%	35.00%	$17,425,481	$15,490,897	$77,454
Maywood	3	0.6%	9.50%	15.0%	8.0%	0.5%	33.00%	$6,534,555	$6,534,555	$32,673
Culver City	3	0.6%	10.00%	15.0%	6.0%	0.5%	31.50%	$6,534,555	$7,171,712	$35,859

Note: Numbers may not add due to rounding.

Source: MPG, LLC.

Tax Projection Scenarios – Baseline and Alternatives

Retail tax projections are based on a countywide tax rate of 0.5 percent on adult use and 0.25 percent on medical purchases in incorporated areas and an additional 10 percent on adult use and 5 percent on purchases in the unincorporated area. The five-year projection considers population growth, cannabis use prevalence growth, increased regulated market capture and price decline based on official sources or observed data from Colorado and Washington.

Three scenarios are projected: (1) a baseline scenario, where LAC maintains its market share for 5 years; (2) where LAC market share is diluted due to additional licenses issued in municipalities; and (3) where LAC retailers secure and maintain a larger market share due to locational factors or other factors, such as very well-run stores, advantageous access, and visibility on major thoroughfares. All scenarios are based on the following assumptions.

Appendix Figure 8.
Projection Scenario Macro Assumptions

Assumption	Value	Source
5-Year Population Growth	0.83%	Projections Prepared by Demographic Research Unit, California Department of Finance, January 2018
Cannabis Use Prevelance Growth	6.88%	Federal Survey (NSDUH). Historic annual growth rate applied.
Weighted Price/per Gram	$15.56 to $11.90 /Adult Use $8.44 to $5.93 /Medical	Based on observed CO (metrc) and WA (i502) data
Sales Capture (Baseline)	8% capture based on licenses (40 out of an estimated 500)	MPG Estimate
LAC Toursim Growth	3.5%	https://www.discoverlosangeles.com/tourism/research

Source: MPG, LLC.

Appendix Figure 9.
LAC Retail Cannabis Tax Projection – Baseline

	2019	2020	2021	2022	2023
Population aged (21+)	7,724,018	7,788,252	7,853,019	7,918,326	7,984,175
Past Month Prevalence	10.79%	11.54%	12.33%	13.18%	14.09%
Past-month cannabis consumers (PMCC)	833,736	898,531	968,360	1,043,617	1,124,722
Resident/Commuter Demand (Metric Tons MT)	207.4	223.5	240.9	259.6	279.8
Visitor Demand (MT)	17.0	17.6	18.2	18.9	19.5
Total Demand (MT)	**224.4**	**241.1**	**259.1**	**278.5**	**299.3**
Regulated Market Capture (AU)	30.4%	39.8%	49.2%	58.6%	68.0%
Regulated Market Capture (Med)	31.5%	30.4%	29.4%	28.3%	27.2%
Regulated Market Demand (MT)					
Adult-Use	68.1	95.9	127.4	163.1	203.5
Medical	70.7	73.4	76.1	78.8	81.5
Total	**138.8**	**169.2**	**203.5**	**241.9**	**285.0**
Price/gram ($)					
Adult-Use	$15.57	$14.65	$13.73	$12.82	$11.90
Medical	$8.44	$7.81	$7.18	$6.56	$5.93
Regulated Sales - Unadjusted - Countywide ($ Million)					
Adult-Use	$1,060.8	$1,404.9	$1,749.8	$2,090.6	$2,421.2
Medical	$596.1	$573.0	$546.6	$516.8	$483.6
Total	**$1,656.9**	**$1,977.9**	**$2,296.4**	**$2,607.5**	**$2,904.8**
LAC Uninc Sales - Unadjusted - ($ Million)					
Adult-Use	$87.1	$115.4	$143.7	$171.7	$198.9
Medical	$47.9	$46.0	$43.9	$41.5	$38.8
Total	**$135.0**	**$161.4**	**$187.7**	**$213.3**	**$237.7**
LAC Tax Revenue - Unadjusted - ($ Million)					
Adult-Use	$12.5	$16.5	$20.6	$24.6	$28.4
Medical	$3.4	$3.3	$3.1	$3.0	$2.8
Total	**$15.9**	**$19.8**	**$23.7**	**$27.5**	**$31.2**

Note: Numbers may not add due to rounding.

This baseline scenario is based on observed growth in population and prevalence in California and a regulated market capture and pricing trend observed in Colorado and Washington. LA County captures 8 percent of the market based on amount of licenses.

Source: MPG from publicly available data.

Appendix Figure 10.
LAC Retail Cannabis Tax Projection – Dilution

	2019	2020	2021	2022	2023
Population Aged (21+)	7,724,018	7,788,252	7,853,019	7,918,326	7,984,175
Past Month Prevalence	10.79%	11.54%	12.33%	13.18%	14.09%
Past-Month Cannabis Consumers (PMCC)	833,736	898,531	968,360	1,043,617	1,124,722
Resident/Commuter Demand (Metric Tons MT)	207.4	223.5	240.9	259.6	279.8
Visitor Demand (MT)	17.0	17.6	18.2	18.9	19.5
Total Demand (MT)	**224.4**	**241.1**	**259.1**	**278.5**	**299.3**
Regulated Market Capture (AU)	30.4%	39.8%	49.2%	58.6%	68.0%
Regulated Market Capture (Med)	31.5%	30.4%	29.4%	28.3%	27.2%
Regulated Market Demand (MT)					
Adult-Use	68.1	95.9	127.4	163.1	203.5
Medical	70.7	73.4	76.1	78.8	81.5
Total	**138.8**	**169.2**	**203.5**	**241.9**	**285.0**
Price/gram ($)					
Adult-Use	$15.57	$14.65	$13.73	$12.82	$11.90
Medical	$8.44	$7.81	$7.18	$6.56	$5.93
Regulated Sales - Unadjusted - Countywide ($ Million)					
Adult-Use	$1,060.8	$1,404.9	$1,749.8	$2,090.6	$2,421.2
Medical	$596.1	$573.0	$546.6	$516.8	$483.6
Total	**$1,656.9**	**$1,977.9**	**$2,296.4**	**$2,607.5**	**$2,904.8**
LAC Uninc Sales - Unadjusted - ($ Million)					
Adult-Use	$87.1	$91.8	$95.0	$97.0	$98.1
Medical	$47.9	$36.8	$29.2	$23.7	$19.4
Total	**$135.0**	**$128.6**	**$124.2**	**$120.7**	**$117.5**
LAC Tax Revenue - Unadjusted - ($ Million)					
Adult-Use	$12.5	$14.4	$16.2	$17.9	$19.5
Medical	$3.4	$2.9	$2.5	$2.2	$1.9
Total	**$15.9**	**$17.3**	**$18.7**	**$20.1**	**$21.4**

Note: Numbers may not add due to rounding.

Macro assumptions are the same as the baseline scenario. LAC market share declines from 8 percent to 4 percent as more facilities open in the incorporated areas.

Source: MPG from publicly available data.

Appendix Figure 11.
LAC Retail Cannabis Tax Projection – Increased Capture

	2018	2019	2020	2021	2022
Population	7,724,018	7,788,252	7,853,019	7,918,326	7,984,175
PM Prevalence	10.8%	11.5%	12.3%	13.2%	14.1%
Past-Month Cannabis Consumers (PMCC)	833,736	898,531	968,360	1,043,617	1,124,722
Resident/Commuter Demand (Metric Tons MT)	207.4	223.5	240.9	259.6	279.8
Visitor Demand (MT)	17.0	17.6	18.2	18.9	19.5
Total Demand (MT)	**224.4**	**241.1**	**259.1**	**278.5**	**299.3**
Regulated Market Capture (AU)	30.4%	39.8%	49.2%	58.6%	68.0%
Regulated Market Capture (Med)	31.5%	30.4%	29.4%	28.3%	27.2%
Regulated Market Demand (MT)					
Adult-Use	68.1	95.9	127.4	163.1	203.5
Medical	70.7	73.4	76.1	78.8	81.5
Total	**138.8**	**169.2**	**203.5**	**241.9**	**285.0**
Price/gram ($)					
Adult-Use	$15.57	$14.65	$13.73	$12.82	$11.90
Medical	$8.44	$7.81	$7.18	$6.56	$5.93
Regulated Sales - Unadjusted - Countywide ($ Million)					
Adult-Use	$1,060.8	$1,404.9	$1,749.8	$2,090.6	$2,421.2
Medical	$596.1	$573.0	$546.6	$516.8	$483.6
Total	**$1,656.9**	**$1,977.9**	**$2,296.4**	**$2,607.5**	**$2,904.8**
LAC Uninc Sales - Unadjusted - ($ Million)					
Adult-Use	$87.1	$163.3	$203.4	$243.0	$281.5
Medical	$47.9	$65.7	$62.7	$59.2	$55.4
Total	**$135.0**	**$229.0**	**$266.1**	**$302.3**	**$336.9**
LAC Tax Revenue - Unadjusted - ($ Million)					
Adult-Use	$12.5	$20.8	$25.9	$31.0	$35.9
Medical	$3.4	$4.2	$4.0	$3.8	$3.5
Total	**$15.9**	**$25.0**	**$29.9**	**$34.7**	**$39.4**

Note: Numbers may not add due to rounding

LAC maintains 40 licenses, but due to locational and other factors, the stores outperform competition and LAC captures 11 percent of the market.

Source: MPG from publicly available data.

Non-retail Tax

The figure below displays gross receipts tax revenue estimate from cultivation, manufacturing and distribution of cannabis in LAC. MPG estimates LAC will collect about $2.4 million in non-retail taxes.

Appendix Figure 15.
LAC Gross Receipts Tax Estimate - 2019- $ Million

Cannabis Sector	Economic Value ($M)	Supply Chain Allocation	LAC Pre-regs capture	LAC Post-regs capture	LAC Economic Value ($M)	Uninc LAC Share	Uninc LAC Gross Receipts ($M)	Incorp LAC Gross Receipts ($M)	LAC Tax Revenue ($M)
Cultivation	$ 1,560.0	30.6%	4.8%	10.0%	$ 156.0	3.6%	$ 5.6	$150.4	**$0.9**
Manufacturing	1,023.3	20.1%	7.0%	10.0%	102.3	2.0%	2.0	100.3	**$0.6**
Distribution/Transport	510.0	10.0%	n/a	32.5%	165.7	2.8%	4.6	161.1	**$0.9**
Retail	2,006.7	39.3%	32.5%	32.5%	652.0				
Total Value	**$ 5,100.0**	**100.0%**			**$1,076.0**		**$12.2**	**$411.8**	**$2.4**

Note: Numbers may not add due to rounding

Source: State SRIA Documents (see footnotes); MPG LLC.

The following describes the calculation process:

- **Economic value and supply chain allocation.** MPG accessed state cultivation[2], manufacturing[3] and retail/distribution[4,5] SRIA and other documents to develop the economic value and supply chain allocations. The cultivation value is based on statewide production of 1.3 million pounds of cannabis and wholesale value of $1,200 per pound. Manufacturing value is based on 23.6 million grams of cannabis oil and a wholesale value of $43 per gram. Retail and distribution/transport size is based on a combined 50 percent markup of wholesale prices, heavily weighted to retail as indicated in the retail/distribution SRIA and Pacific University study. Pure distributors may not emerge, because the state will allow cultivators and manufacturers to distribute their products directly. Few cities are putting hard caps on the numbers of licenses to be issued which makes it difficult to assess the full implications of a gross receipts tax among wholesalers.

- **LAC capture rates.** MPG market size estimates of the state ($5.1 billion) and LAC ($1.66 billion) indicate LAC will capture 32 percent of retail sales and a similar distribution figure. Total market size is based on NSDUH prevalence rates and price figures shown in Appendix Figure 5. State SRIA studies indicate LAC is home to 5 percent of current statewide cultivation activity and 7 percent of current manufacturing activity. MPG estimates these rates will modestly increase to 10 percent. These assumptions imply that about two-thirds of cannabis products consumed in LAC are produced elsewhere in the state, which seems reasonable given that Northern California is home to most of the state's production and LAC's relatively high resource costs.

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[2] http://www.dof.ca.gov/Forecasting/Economics/Major_Regulations/Major_Regulations_Table/documents/Cultivation_SRIA_CDFA_1-5-2018.pdf

[3] http://www.dof.ca.gov/Forecasting/Economics/Major_Regulations/Major_Regulations_Table/documents/DPH_OMCS_SRIA_021017.pdf

[4] http://www.dof.ca.gov/Forecasting/Economics/Major_Regulations/Major_Regulations_Table/documents/SRIAandAppendix.2.28.17.pdf

[5] http://www.pacific.edu/Documents/school-business/BFC/CannabisStudy/Sacramento%20Area%20Legal%20Cannabis%20Sector%20Impact%20Study_2016_10_12.pdf

- **Incorporated/Unincorporated share and tax revenue.** Assumptions for cultivation activity were that LAC offered 10 of a total of 279 licenses available, all being "type 3" license types, resulting in a total canopy of roughly 4.4 million square feet. For manufacturing, there are an assumed 511 licenses available, 10 of which will be in the unincorporated area. MPG assumed the unincorporated area would capture 2.8 percent of distribution gross receipts – the average rate of cultivation and manufacturing. All other activity is assumed to occur in incorporated areas. LAC is evaluating a 2.5 percent gross receipts tax on cannabis entities in the unincorporated areas and a 0.5 percent rate in incorporated areas. Gross receipts taxes are estimated at $2.4 million per year.

Unlike retailers, manufacturers, distributors and cultivators are free to locate operations where conditions are financially advantageous within California. Gross receipts taxes are estimated at $2.4 million per year, assuming LAC captures 10 percent of cultivation/manufacturing activity, and 32 percent of retail/distribution activity. MPG calculated an upper bound gross receipts tax estimate at $7 million if LAC captured 32 percent of all economic activity and the unincorporated areas captured 10 percent of activity within LAC.

There are a host of factors that impact virtually all industrial location decisions and that undoubtedly will impact cannabis cultivators, manufacturers and distributors in California. Corporate siting choices generally involve cost minimization related to land, facilities, water, electricity, and, in the case of labor and water quality, demonstration of an acceptable standard for cannabis production and manufacturing. The cannabis industry will be no different than other industries as companies attempt to optimize physical, market and economic factors to provide the most benefit for employees, shareholders and customers. LAC is expected to be a consumer center primarily, and gross receipts tax will be a relatively small amount of overall LAC cannabis tax revenues.