



*(FORMERLY MARIJUANA POLICY GROUP)*

# Cannabis Based Municipal Bonds

Maximizing value in the nation's fastest growing industry

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By Salmeron Barnes, Managing Director, MPG Consulting

## CANNABIS BASED MUNICIPAL BONDS UNTAPPING POTENTIAL IN THE INDUSTRY

*April, 2020 - A note on COVID-19: As the growth in COVID-19 cases accelerates quickly and the US surpasses China in total cases, it is apparent that the pandemic will gravely impact public health across the world and cause a significant but extremely necessary slowdown in the world economy. Businesses and households will feel the financial impacts of widespread “stay at home” orders immediately. The impact on governments will lag by several months to a year, as sales taxes and then income taxes decline. MPG Consulting offers this paper to governments and financial institutions to consider as a creative means to aid in recovery efforts when they begin in earnest, hopefully soon.*

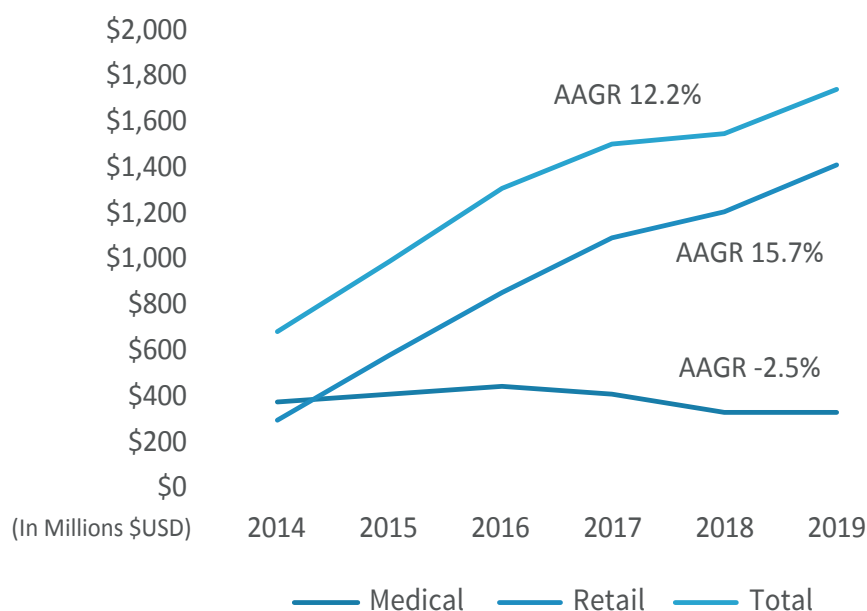
*We hope everyone stays safe and healthy.*

Salmeron Barnes and Adam Orens, MPG Consulting

It has been six years since the nation’s first legal, adult-use, retail sale of cannabis occurred in Colorado in January 2014. Since that time, there has been a rapid transformation of the industry in the U.S. with 11 states legalizing recreational sale of cannabis, and potentially other states to follow.

Adult-use cannabis sales have seen steady growth during this short time period. Colorado, for example, has experienced a compound annual growth rate of 20.7% for total cannabis sales and a 36% CAGR for adult-use sales during 2014-2019 (based on \$1.747B total sales for 2019<sup>1</sup>). Nationwide, growth has been tied to both the opening and maturing of cannabis markets, with U.S. legal sales estimated to reach \$23B by 2022.<sup>2</sup> If implemented correctly, regulated adult-use markets should experience rapid growth in the first four to six years as the illicit market is absorbed into the regulated market.<sup>3</sup>

**Figure 1: Colorado Cannabis Retail Sales Growth 2014-Present**



Source: Colorado Department of Revenue, MPG Analysis

As the industry continues to grow at a rapid pace and regulations mature, MPG believes it is time for state and local governments and financial institutions to start taking a serious look at the validity of Cannabis Based Municipal Bonds (CMBs) as a source of financing local initiatives and infrastructure.

Similar initiatives are currently in place in the form of special tax bonds, which are typically backed by taxes on certain activities or assets. For example, most states have excise or special sales taxes on tobacco, alcohol and gaming, or so called “sin taxes”. Revenue derived from these activities can be used to fund future investment initiatives such as improvements to infrastructure. Iowa, for example allocates \$55 million per year in gaming taxes to service debt on revenue bonds issued in 2009 and 2010<sup>4</sup>. Those bonds are used to fund community revitalization, flood mitigation and bridge improvement efforts.

## In this white paper, we will examine:

- ▶ CMB Basics
- ▶ CMBs in a theoretical historical context
- ▶ A theoretical example of CMBs in Colorado
- ▶ A second example of how CMBs could work in Minnesota
- ▶ CMB legal considerations
- ▶ CMBs and COVID-19
- ▶ Best markets for CMBs
- ▶ MPG expertise in estimating tax revenue

## CMB Basics :

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CMBs will provide states and cities with regulated adult-use cannabis markets of any size another revenue source that may interest the debt markets. These new CMBs will most likely take the form of General Obligation or Revenue Bonds and will be repaid using tax and fee revenue from adult-use retail cannabis sales.

States and local jurisdictions generate revenue from cannabis from two main sources: 1) gross receipts, excise and special sales taxes; or 2) licensing and other fees. Taxes are imposed along the value chain, such as at cultivation, processing and retail. States generally implement taxes across multiple sections of the value chain (i.e., wholesale excise tax and special sales tax) while municipalities most often impose taxes on retail sales, although some California cities impose gross receipts taxes across the value chain.

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<sup>1</sup> Colorado Department of Revenue, MPG analysis

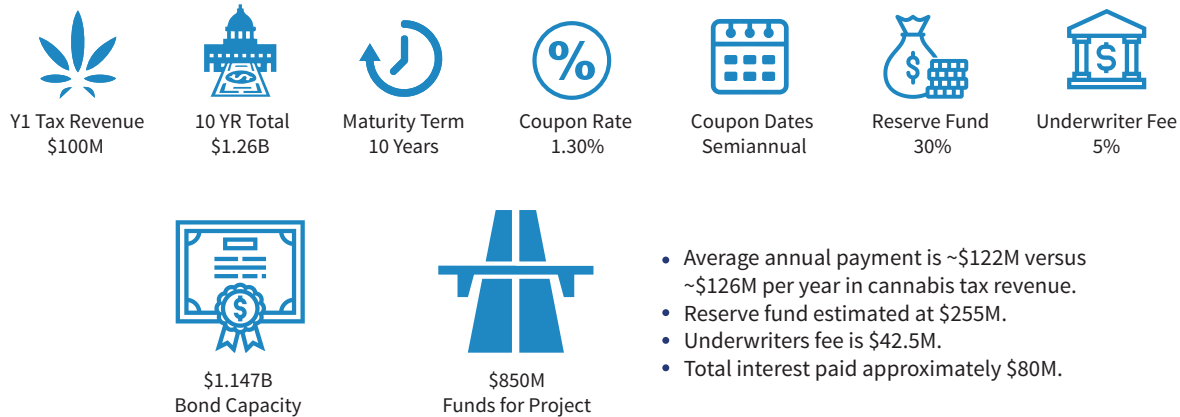
<sup>2</sup> MPG analysis

<sup>3</sup> [See MPG Economic Impact of Marijuana Legalization on Colorado; Market Size and Demand for Marijuana in Colorado](#)

<sup>4</sup> Iowa Racing and Gaming Commission

## Hypothetical CMB Example

**Scenario:** A state with an established adult use cannabis market would like to issue bonds to fund improvements to the state highway system. The state estimates it will generate **\$100M** in cannabis tax, license and fee revenue in year 1 with an estimated **5% annual growth rate**. Total tax revenue over the next 10 years is approximately **\$1.26B**. Under the following assumptions let's estimate the bond capacity supported by future cannabis tax revenue.



Calculated using a level payment and a 10-year amortization term based on current Colorado Municipal bond rates.

While there are currently no active CMBs today, we can examine how cannabis tax revenue is currently spent in mature adult-use markets, namely Colorado. The Colorado example is instructive for other state and local governments on the potential for CMBs to finance public infrastructure and social initiatives.

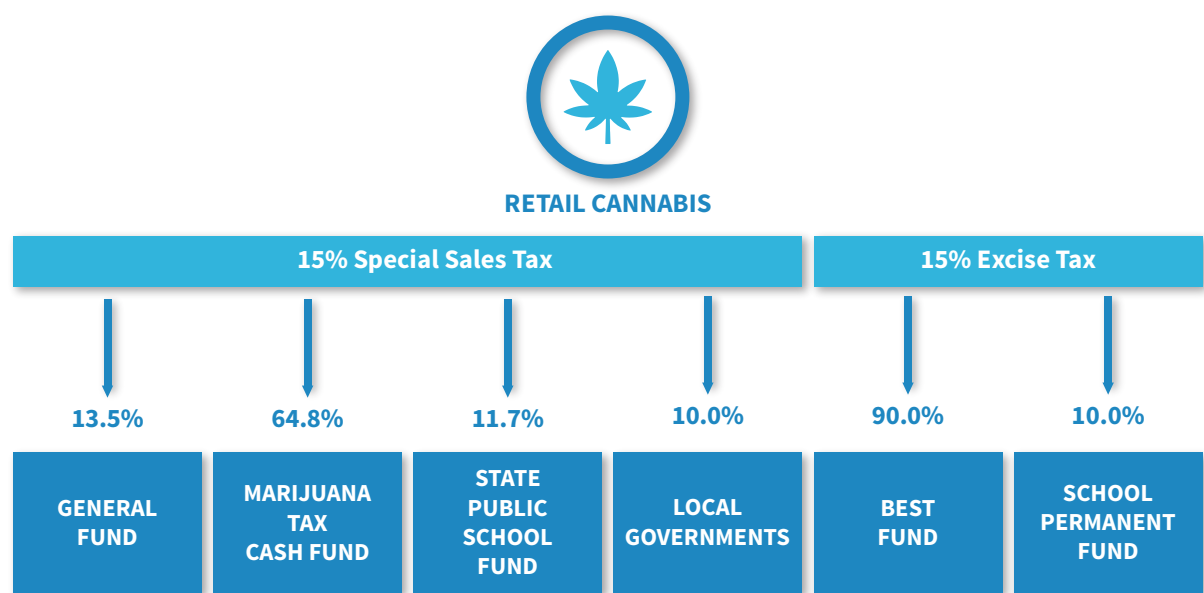
### COLORADO BUILDING EXCELLENT SCHOOLS TODAY

The flagship cannabis-funded social program in Colorado is the Building Excellent Schools Today (BEST) program. The BEST program focuses on helping public schools with a multitude of capital construction needs, from new roofs and boilers to major renovations and new school construction. The goal of the BEST program is to provide Colorado students with first class, high performing, school facilities and to help alleviate facility health and safety concerns throughout Colorado<sup>5</sup>. The BEST program has four revenue sources: 1) Cannabis Excise Taxes, 2) State Land Trusts, 3) Colorado Lottery Funds and 4) Interest earned from other funds.

Cannabis excise tax currently contributes 90% of annual revenue or \$40M (whichever is greater) to the BEST program with the remainder going to the Public School “Permanent” Fund<sup>6</sup>. In 2017-18, \$90.3M (the most recent available figure) in cannabis tax revenue was allocated to the Colorado Department of Education (CDE), a substantial increase from the 2016-17 period which was \$48.5M in Cannabis Tax Funds. Figure 2 provides an overview of how retail cannabis tax revenue is allocated by the state of Colorado.

As shown, there is substantial allocation for education and education-related infrastructure. Given the success and growth rate of Colorado’s cannabis market, it is feasible to expect that a cannabis-based municipal bond could provide leverage to stretch the cannabis tax revenue further and accelerate the timeframe to achieve CDE infrastructure goals.

Figure 2: Colorado Cannabis Tax Revenue Allocation



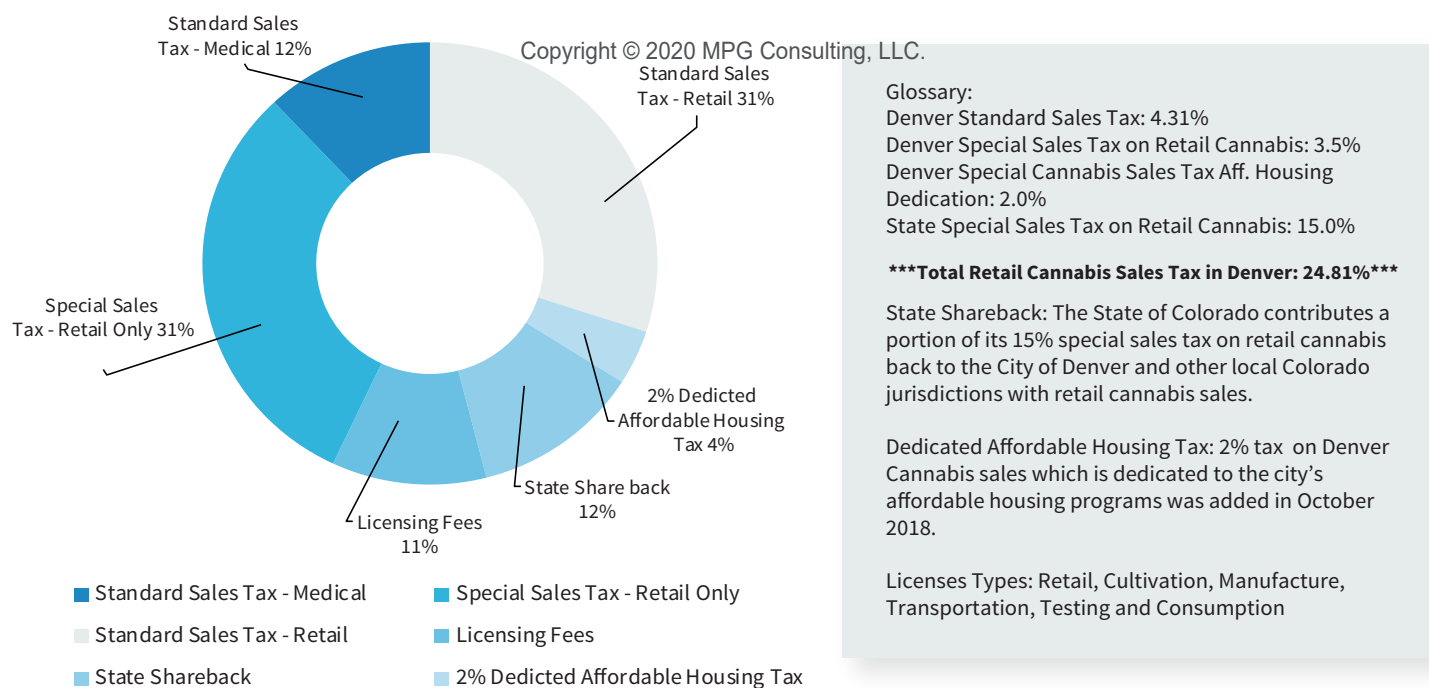
Source: State of Colorado Marijuana Enforcement Division, MPG Analysis

<sup>5</sup> Colorado School Finance Project  
<sup>6</sup> [Learn more about the CO Permanent Fund here \(p.3\)](#)

## DENVER CMBS IN A THEORETICAL HISTORICAL CONTEXT:

As the nucleus of the world's most mature adult-use legal cannabis market, Denver provides us with an opportunity to examine the potential for bondable cannabis revenue. In 2018, Denver's cannabis tax and license revenue were \$46.8M<sup>7</sup> (Figure 3).

**Figure 3: 2018 Denver Cannabis Revenue Sources – Total \$46.8M**



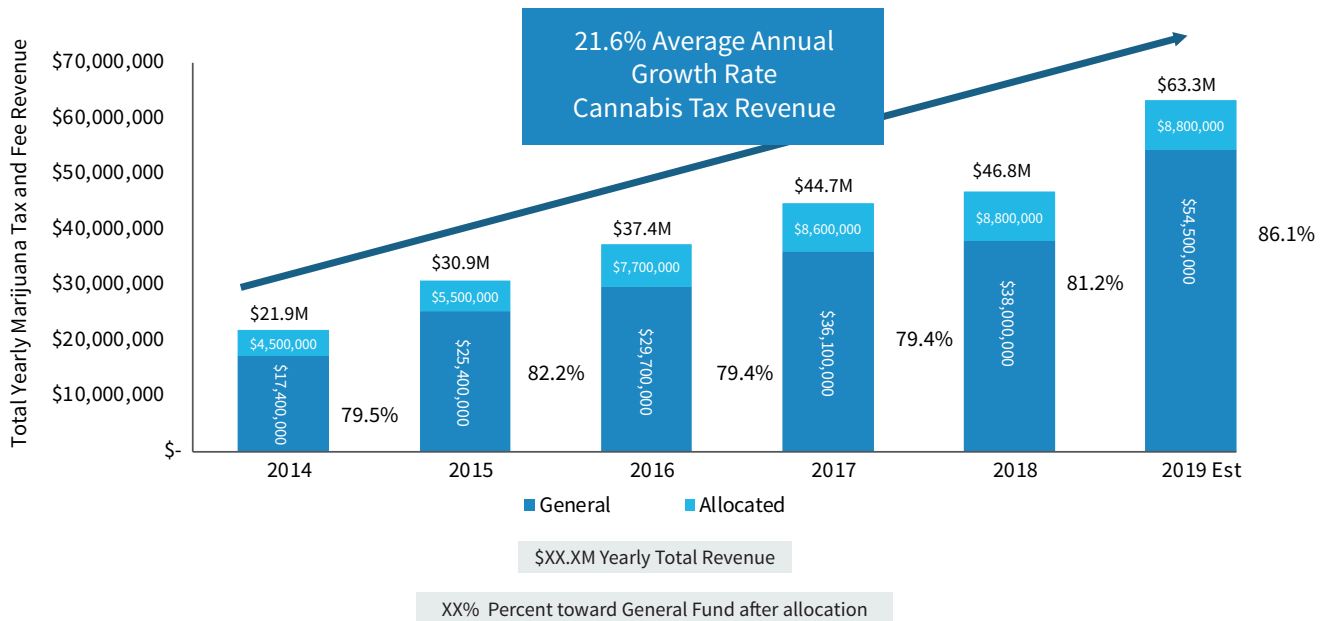
Source: [2019 Denver Annual Marijuana Report](#)

Of that amount, \$8.8M has specific allocations for city departments and agencies for cannabis regulation, enforcement and education. The remaining \$38M, goes into to the city general fund. At the time of writing this paper, Denver's estimated 2019 cannabis tax revenue is \$63.3M, which represents an increase of approximately 35.3% over 2018. Specific allocations remained at \$8.8M, which leaves \$54.5M used for discretionary spending, a 43.4% increase from last year.

Given the historical average annual tax revenue growth rate of 21.6%, we can use some simple assumptions to calculate the future cannabis revenue for Denver and associated allocations (Figure 4).

<sup>7</sup> 2019 Denver Marijuana Annual Report (most recent figure at time of publication), MPG Analysis

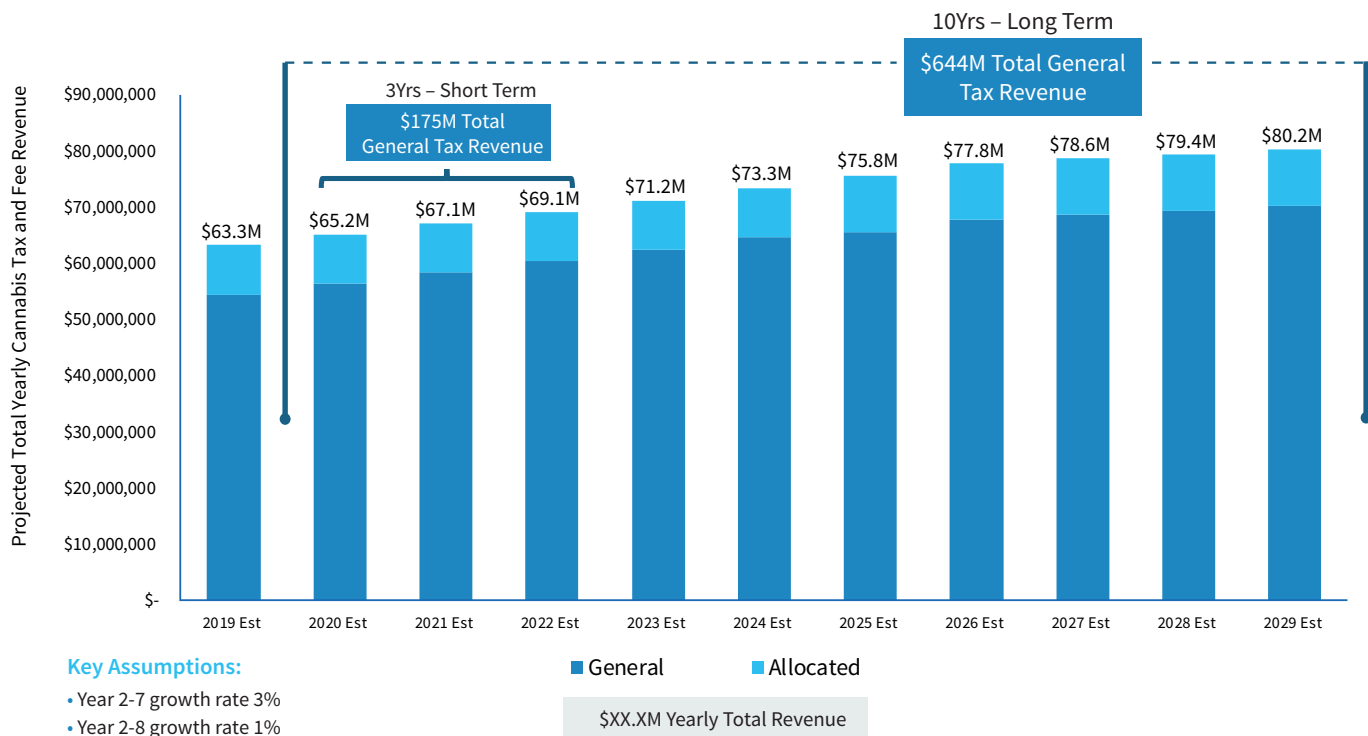
**Figure 4: Denver Cannabis Tax Revenue Growth Rate and Allocation**



Source: [2019 Denver Annual Marijuana Report](#)

Figure 5 shows a theoretical calculation of Denver's future tax revenue and leveraging historical allocation and using a much lower, conservative growth rate of 3 percent in years 2-7 and 1 percent in years 8-10. Allocated funds remain at \$8.8M/year until 2025 when they rise to \$10M/year.

**Figure 5: Example Projected Denver Cannabis Tax Revenue**



Source: MPG Analysis



As shown, total general (non-allocated) tax revenue for short-term three-year bonds is about \$175M and nearly \$643M for long-term ten-year bonds, which are significant amounts that can be dedicated for local educational programs and infrastructure initiatives. This translates into a short-term bond capacity of \$166M and long-term bond capacity of \$591M with \$123M and \$438M available to use for educational initiatives and infrastructure.

## Denver CMB Analysis



**3 Year Bond  
Capacity  
\$166M**

=



**\$123M for  
Educational  
Initiatives**

Calculated using a level payment and a 3-year amortization term based on current Colorado Municipal bond rates.

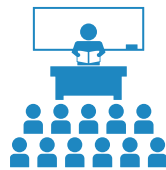
### Assumptions and Key Data:

- 1.55% Interest Rate
- 30% Reserve Fund - \$36.9M
- 5% Underwriter Fee - \$6.1M
- Semiannual Coupon
- Average Annual Payment ~\$56.7M
- Average Annual Revenue ~\$58.3M
- Total Interest Paid - \$4.53M



**10 Year Bond  
Capacity  
\$591M**

=



**\$438M for  
Educational  
Initiatives**

Calculated using a level payment and a 10-year amortization term based on current Colorado Municipal bond rates.

### Assumptions and Key Data:

- 1.30% Interest Rate
- 30% Reserve Fund - \$131.4M
- 5% Underwriter Fee - \$21.9M
- Semiannual Coupon
- Average Annual Payment ~\$63.2M
- Average Annual Revenue ~\$64.4M
- Total Interest Paid - \$41.2M

Source: MPG Analysis

The city of Denver and the state of Colorado are generally viewed as having one of the most effective cannabis regulatory and economic systems in the world. A CMB would provide true economic benefit, however with an already strong and steady cannabis economy, it might not have as significant of an impact as it would in a new market. For that examination, we look towards Minneapolis and Minnesota to see how a new market could use cannabis bonds to solve a persistent and pervasive local challenge.

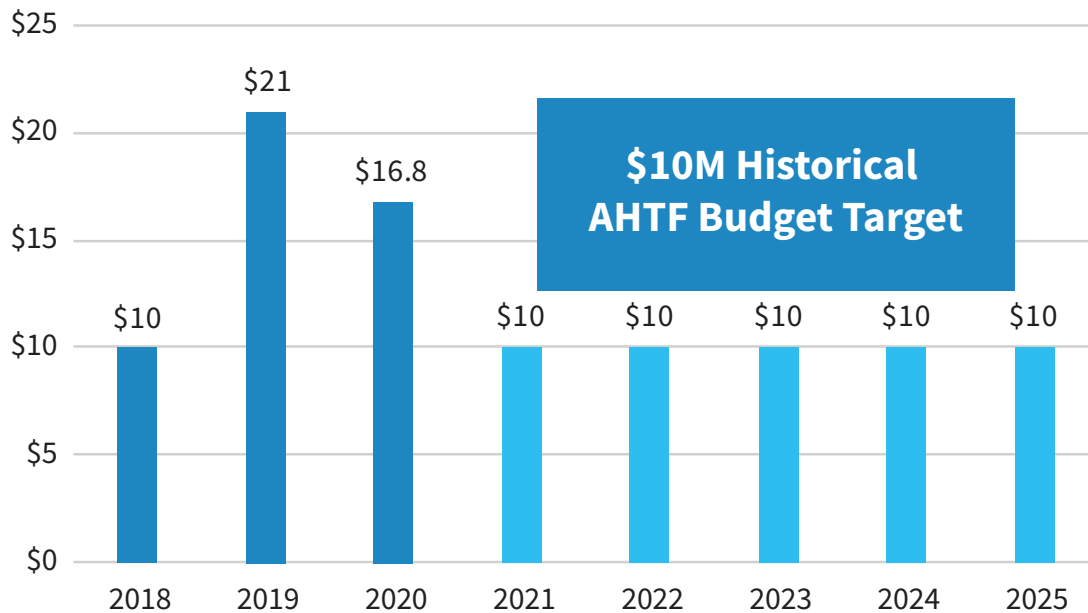
## MINNEAPOLIS AND MINNESOTA: GRASS IS GREENER FOR AFFORDABLE HOUSING

Recently, Minnesota has come into the spotlight as a possible state to legalize adult-use cannabis. Minneapolis, the largest city in the state and its economic and political center, has identified affordable housing as a central challenge facing the city. To address this issue, Minneapolis has created the Affordable Housing Trust Fund (AHTF), which is one of the city's primary tools for providing financing to help close the gap between what it costs to provide decent, safe housing and what low-income residents can afford. In 2018 the AHTF had a \$10M balance, which increased to over \$21M in 2019, and has a recommended budget of \$16.8M in 2020<sup>8</sup>.

<sup>8</sup> 2020 Minneapolis City Budget.



Figure 6 Affordable: Minneapolis Affordable Housing Trust Fund Budget – Millions \$USD

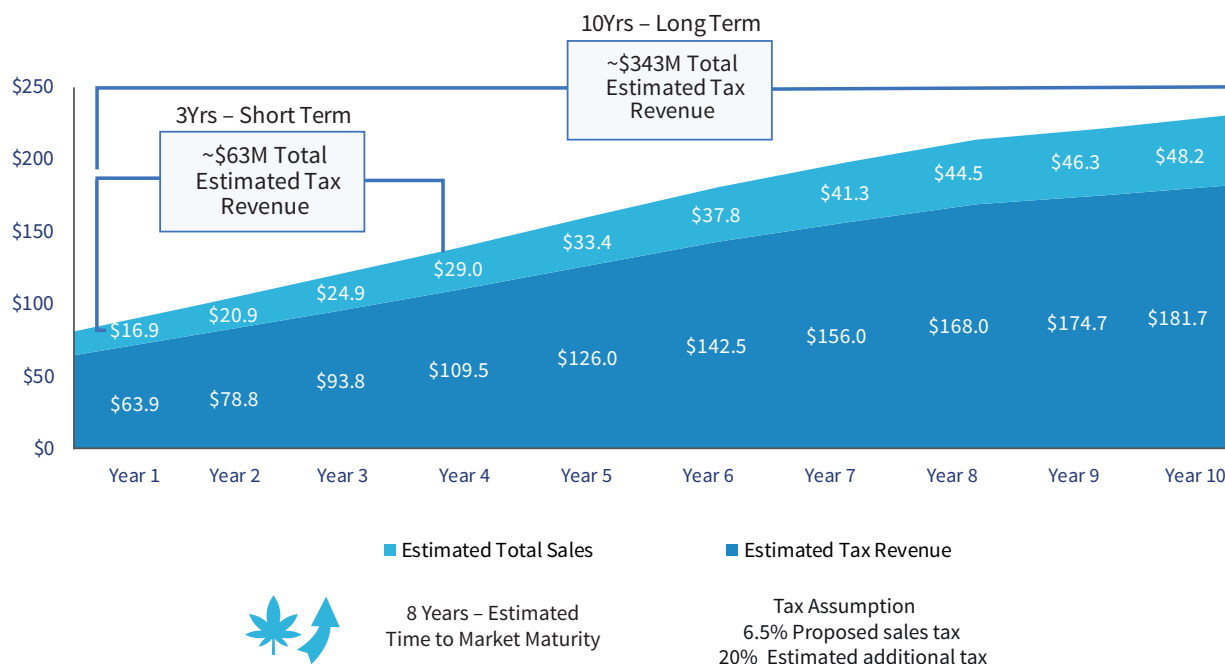


Source: 2020 Minneapolis Mayor's Recommended City Budget

MPG conducted a high-level analysis of the potential for the Minneapolis adult-use cannabis market using the assumptions listed in Figure 7 (most importantly a 26.5% tax rate). Based on the stated market demand and tax assumptions, which were derived using MPG best practice demand modeling, we estimated Year 1 total sales of approximately \$64 million reaching \$182 million at market maturity in Year 10. This translates to approximately \$17 million in cannabis tax revenue for Minneapolis in Year 1 growing to \$48.2 million in Year 10. As illustrated in Figure 7<sup>9</sup>, total tax revenue for the first 3 years is approximately \$63 million with a 10-year total revenue of \$343 million. These short- and long-term bonding scenarios present an attractive and effective alternative to accessing immediate capital to help support the AHTF. Based on these tax revenue projections, MPG estimates that Minneapolis could access \$44M or \$233M in funds for local affordable housing from short-term or long-term CMBs.

<sup>9</sup>MPG Analysis.

**Figure 7: Hypothetical Minneapolis Projected Cannabis Tax Revenue – Millions \$USD**



Source: MPG Analysis

## Minneapolis CMB Analysis



**3 Year Bond Capacity**  
**\$59.4M**

=



**\$44M for Affordable Housing**

Calculated using a level payment and a 3-year amortization term based on assumptive Minnesota Municipal bond rates.

Assumptions and Key Data:

- 1.6% Interest Rate
- 30% Reserve Fund - \$13.2M
- 5% Underwriter Fee - \$2.2M
- Semiannual Coupon
- Average Annual Payment ~\$20M
- Average Annual Revenue ~\$21M
- Total Interest Paid - \$1.67M



**10 Year Bond Capacity**  
**\$314.5M**

=



**\$233M for Affordable Housing**

Calculated using a level payment and a 10-year amortization term based on assumptive Minnesota Municipal bond rates.

Assumptions and Key Data:

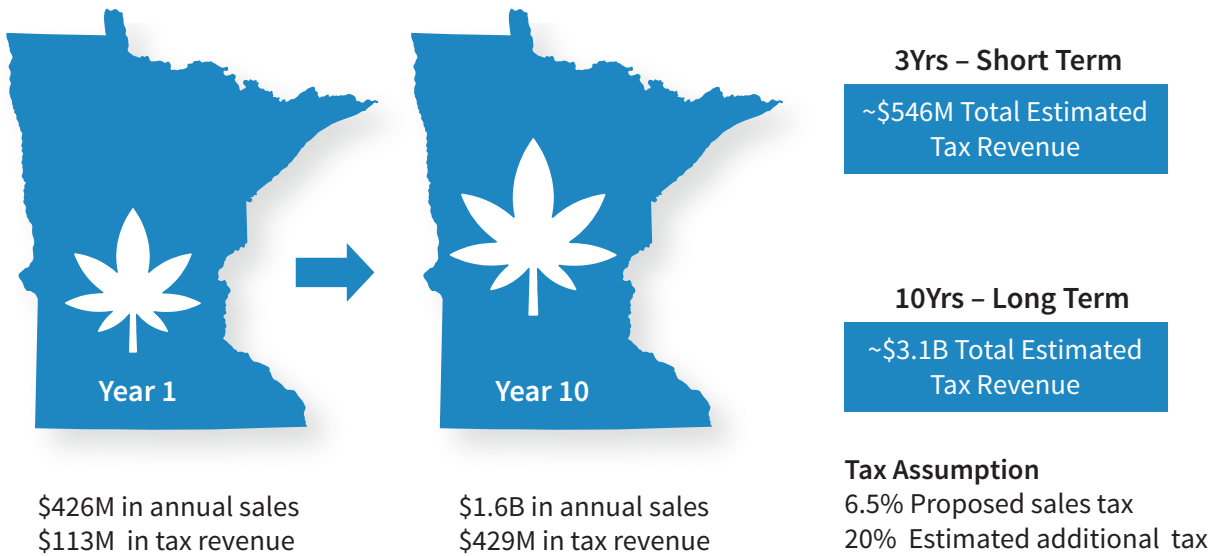
- 1.4% Interest Rate
- 30% Reserve Fund - \$70M
- 5% Underwriter Fee - \$11.65M
- Semiannual Coupon
- Average Annual Payment ~\$33.8M
- Average Annual Revenue ~\$34.3M
- Total Interest Paid - \$23.6M

Source: MPG Analysis

From a state perspective, a CMB could significantly impact Minnesota's housing goals. For example, the Greater Minnesota Housing Fund (GMHF) works with the housing development community throughout Minnesota to create and preserve affordable housing for the full spectrum of housing needs, including affordable rental housing and homeownership, and supportive housing for vulnerable populations. The GMHF has three distinct capital initiatives: 1) Grow the development loan fund to \$72 million by YE 2021; 2) Grow the equity raised for Minnesota Equity Fund to \$225 million by YE 2021; and 3) Grow the NOAH Impact Fund to \$50 million by YE 2021<sup>10</sup> (visit the link below to learn more about the GMHF, the Minnesota Equity Fund and the NOAH Impact Fund).

<sup>10</sup>[Greater Minnesota Housing Fund](#)

**Figure 8: Estimated Minnesota Cannabis Market Size**



Source: MPG Analysis

As noted in Figure 8, the estimated total tax revenue for Minnesota for the first year of a statewide market is \$133M, the three-year total aggregate revenue is estimated at \$546M and ten-year (time to market maturity) aggregate estimated at \$2.2B. According to the Minnesota Housing Finance Agency (MHFA), a major strategic initiative for the state is to preserve and create affordable housing opportunities<sup>11</sup>. From our calculations, a bond program would allow the state \$385M or \$2.05B to accelerate affordable housing access for Minnesotans.

## Minnesota CMB Analysis



**3 Year Bond Capacity**  
**\$519.8M**

=



**\$385M for Affordable Housing**

Calculated using a level payment and a 3-year amortization term based on assumptive Minnesota Municipal bond rates.

### Assumptions and Key Data:

- 1.6% Interest Rate
- 30% Reserve Fund - \$115.5M
- 5% Underwriter Fee - \$19.25M
- Semiannual Coupon
- Average Annual Payment ~\$178M
- Average Annual Revenue ~\$182M
- Total Interest Paid - \$14.65M



**10 Year Bond Capacity**  
**\$2.77B**

=



**\$2.05B for Affordable Housing**

Calculated using a level payment and a 10-year amortization term based on assumptive Minnesota Municipal bond rates.

### Assumptions and Key Data:

- 1.4% Interest Rate
- 30% Reserve Fund - \$615M
- 5% Underwriter Fee - \$102.5M
- Semiannual Coupon
- Average Annual Payment ~\$297.5M
- Average Annual Revenue ~\$308M
- Total Interest Paid - \$208M

Source: MPG Analysis

The above examples are illustrative. An adult-use cannabis market would have differing tax structures at the state and city level, which would have significant impact on potential tax revenue, and therefore bond amount.

<sup>11</sup> MHFA 2020-2022 Strategic Plan

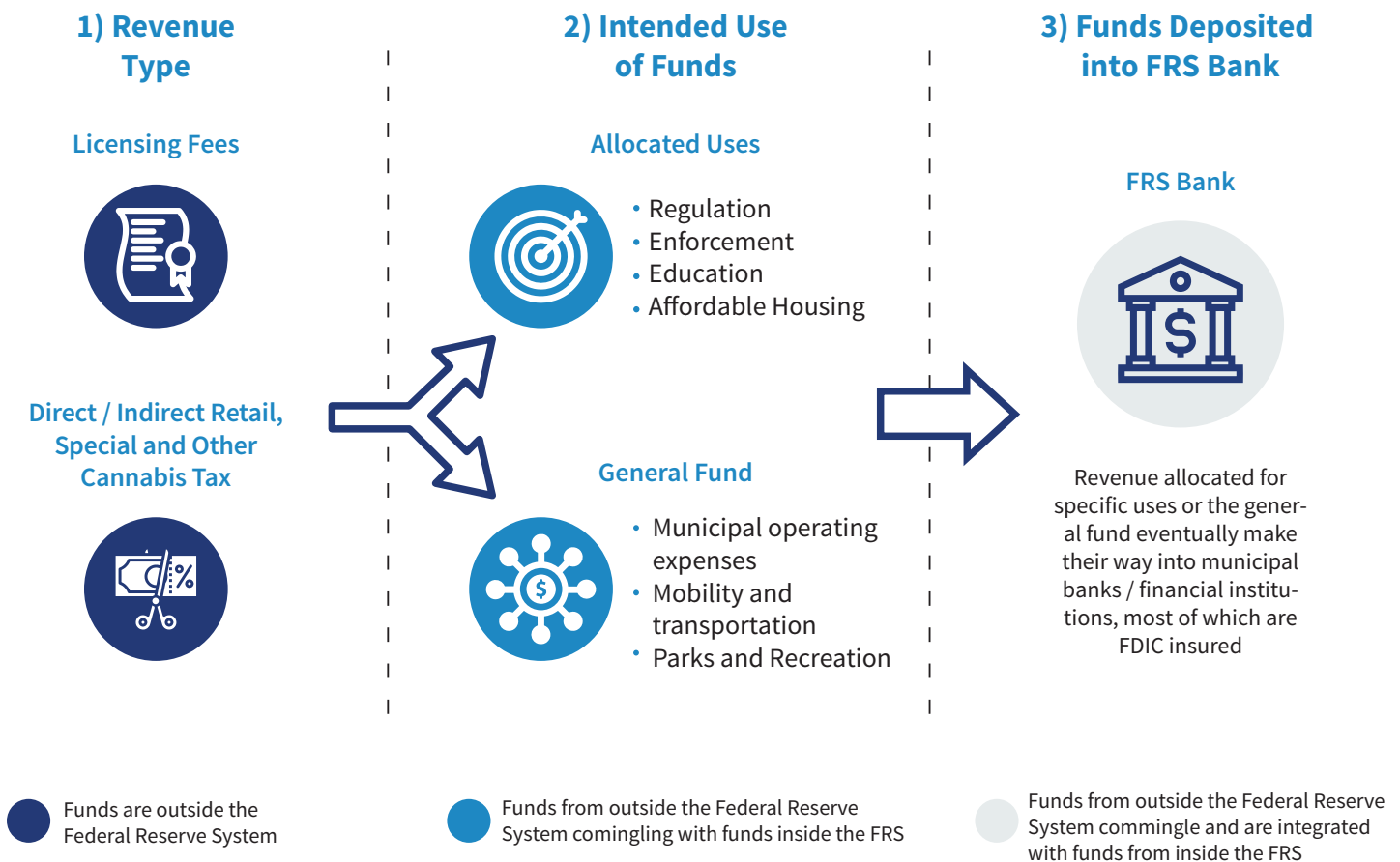
## WHAT ABOUT BANKING?

As the past six years have shown us, there is no clear timeline in the cannabis industry for passage of crucial federal banking regulations. Despite consistent industry lobbying efforts, challenges still exist in achieving CSA de-scheduling and access to adequate financial services.

While these policies are critical for the continued growth and maturity of the industry as a whole, and operators in particular, are they really preventing the usage of Cannabis Based Municipal Bonds? In our opinion they should not prevent a state or municipality from considering CMBs.

When state and local governments collect cannabis tax revenue, the funds are comingled in the general fund with revenue from other sources. The funds then enter the Federal Reserve System. Figure 9 shows a generalized overview of the flow of municipal cannabis tax revenue. Capital raised from CMBs would be no different than any other tax revenue and therefore, in our opinion, would not require any sort of special regulation. However, convincing banks and underwriters to offer CMBs to the market could be a separate challenge, given the difficult posture financial institutions have taken towards the industry.

**Figure 9: The flow of state and local government cannabis tax revenue**



Source: MPG Analysis

## Where will CMBs most likely succeed? It's all about demand...

Cannabis, like other retail-focused businesses is supported by discretionary consumer purchases, which are more significant in population- and income-dense areas. In our opinion, a CMB would be the most impactful in new adult-use markets, issued by a state or a larger city. There is rapid growth in early cannabis markets as illicit markets transition to the regulated space. Smaller municipalities would not likely be able to generate sufficient tax revenue to properly service the debt for large capital needs such as educational facilities or affordable housing. Of the seven states most likely to pass adult-use legislation in the next few years (AZ, CT, MO, MT, NJ, NY, VT), only the major east coast markets, Missouri and Arizona have the demand to support a CMB. Vermont for example, with state population of around 630,000 may not generate enough tax revenue to make a material impact on statewide or city-wide capital initiatives.

## But quantifying demand is tricky...

Cannabis demand is determined by more than just population. Colorado for example has a much higher demand than states with a comparable population, like the state of Washington (\$1.7B total sales in CO vs \$1.1B total sales in Washington in FY 2019)<sup>12</sup>. Usage rates, taxes, demographics, income, tourism and a combination of multiple other factors determine cannabis demand. MPG Consulting has been accurately estimating demand in the cannabis industry since 2014. We have worked with esteemed regulatory agencies like the Colorado Marijuana Enforcement Division, Health Canada and L.A County to accurately quantify cannabis demand and projected tax revenue, and ultimately craft the effective corresponding policy.

## WHAT COMES NEXT?

As the writing of this paper, COVID-19 has been recognized as a real threat to the U.S. population, with federal, state and local measures being put into place to curb the spread of the virus. As a result of these measures, local business revenues and consequently the tax produced from those revenues will certainly decrease – possibly drastically. CMBs present a real opportunity for cannabis markets to make up for lost tax revenue and continue to fund key initiatives that may otherwise be in danger of losing their financing due to current market conditions. Since the U.S. COVID-19 outbreak began, the cannabis industry has reported an uptick increase in sales<sup>13</sup>. Additionally, some states such as Michigan, have allowed delivery services during outbreak. MPG discussed the impact of COVID-19 virus with Christine De La Rosa, CEO and Co-Founder of The People's Dispensary<sup>14</sup>. She stated, “Our sales are way up and we are having trouble keeping product on the shelf”. She also stated that this seems to be a common trend across the industry. Given that cannabis sales are resilient in the most difficult market conditions, we at MPG believe states with existing cannabis markets should consider utilizing CMBs as a tool to fund infrastructure and social programs.

Additionally, states looking to open adult-use cannabis markets should consider utilizing CMBs to finance crucial infrastructure or strategic public initiatives. Strong and accurate estimation of cannabis demand, tax revenue, growth rates and other market development factors are imperative to calculating proper bond issue size, yield and maturity dates. Finally, banks who resell CMBs must develop diligence methods and models to effectively price these securities.

<sup>12</sup>[Washington State Liquor and Cannabis Board Annual Report Fiscal Year 2019](#)

<sup>13</sup>MPG Analysis

<sup>14</sup>[Mytpd.com](#)

We at MPG Consulting, believe that CMBs represent the next evolution in legal cannabis management for communities. By allowing governments to generate immediate income from cannabis sales, the industry as whole will provide more timely and impactful societal benefit. Cannabis revenues seem to be steadier than those of tobacco and alcohol and more closely resemble the revenue streams of casinos and lotteries. Colorado's cannabis revenues have never seen a decline and have grown steadily every year despite prices hitting a price floor in 2019<sup>15</sup>. As the industry matures, MPG Consulting expects to see more regulatory agencies incorporate CMBs into their cannabis market plans.

## ABOUT MPG CONSULTING

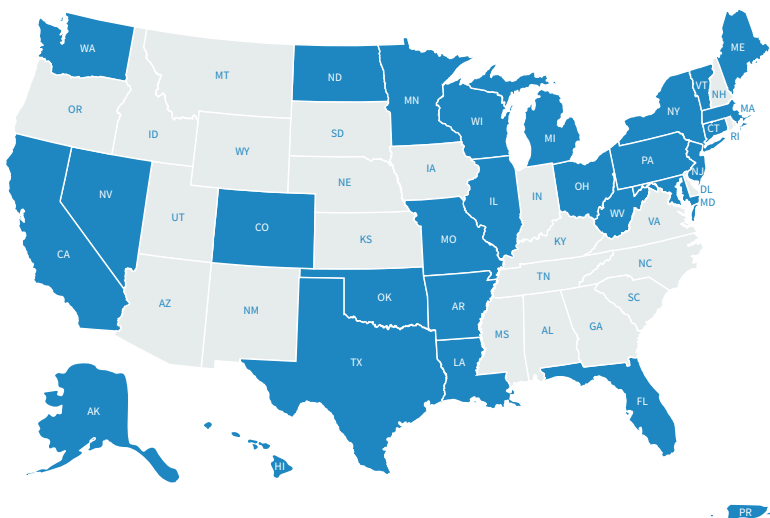
MPG Consulting (MPG) is the leading strategic advisory firm in the cannabis and hemp industry. MPG are experts at estimating cannabis/hemp demand, pricing trends and customer base size, which are the key components to calculating cannabis based municipal bond principal amounts, interest rates and maturity dates. MPG has worked with financial institutions, governments of all sizes, regulators, enforcement agencies, entrepreneurs and corporations to help craft and execute effective cannabis strategies. MPG has conducted projects in cannabis and hemp across the value chain in 27 states and 8 countries. For more information on MPG's cannabis based municipal bond services please contact [info@mpg.consulting](mailto:info@mpg.consulting).

## OUR ADVISORY WORK IN THE US

Since 2014 the MPG has helped US based regulators, private companies and entrepreneurs succeed in the domestic cannabis and hemp markets.

### Highlights

- ▶ Completed strategic projects or operational set up in 27 states including CA, OK, WA, NV, IL and NY
- ▶ Current lead consultant and author for Colorado Hemp Advancement Management Plan (CHAMP)
- ▶ Completed market feasibility studies for Native American tribes in 4 states
- ▶ Lead market analyst for the State of Colorado's Marijuana Enforcement Division since 2014
- ▶ Developed business plans and helped raise capital for multiple companies across the US
- ▶ Advisory and analysis for lobbying groups in NY, NJ, NV, PR, CA, IL



<sup>15</sup> MPG Analysis



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