Report of the Special Senate Committee on Marijuana

March 8, 2016

Committee Members

Senator Jason Lewis, Chair
Senator Michael Moore, Vice-Chair
Senator Harriette Chandler
Senator Viriato deMacedo
Senator Linda Dorcena Forry
Senator John Keenan
Senator Michael Rodrigues
Senator Richard Ross
Senator James Welch

Committee Staff

Zach Crowley, Chief of Staff in the Office of Senator Jason Lewis
Dennis Burke, Legislative Director and General Counsel in the Office of Senator Lewis
Aryn Phillips and Dina Nathanson, Interns in the Office of Senator Lewis

Acknowledgments

The Committee wishes to acknowledge the foresight shown by Senate President Stan Rosenberg in launching this effort to ensure that the Massachusetts Senate would be well prepared if efforts to legalize marijuana in the Commonwealth were to move forward. We also acknowledge and appreciate the support of Senate Minority Leader Bruce Tarr.

The Committee is deeply grateful to the many individuals and organizations that made time to meet with us to share their expertise and experience. In particular, we are indebted to Andrew Freedman and his colleagues in Colorado state and local government who spent considerable time with us discussing that state's experience with marijuana. Similarly, Rick Garza and Senator Ann Rivers shared invaluable information about marijuana policy in Washington.

We greatly appreciate the assistance provided by the Milbank Memorial Fund which made possible the Committee's research trip to Colorado. We also want to thank the Colorado Health Institute in Denver for hosting our delegation during our visit.

We have been impressed with the knowledge and passion of the many different stakeholders involved in this issue, including healthcare providers, law enforcement, industry officials and entrepreneurs, academics, government officials, lawmakers, and cannabis reform advocates. We particularly want to recognize the leadership of the UMass Amherst School of Public Health and Health Sciences in organizing several marijuana policy forums that brought together many of these stakeholders.

The input and assistance we received from the Office of the Senate President and the Senate Counsel were invaluable.

Finally, it would have been impossible to complete a project of this size and scope without the dedication and hard work of the Committee staff, Zach Crowley and Dennis Burke. Thank you!

Senator Jason Lewis
Chair, Special Senate Committee on Marijuana

Letter from the Committee Members

The Massachusetts Senate created the Special Senate Committee on Marijuana in February, 2015. The purpose of the Committee was to research and analyze the policy ramifications if Massachusetts were to legalize the adult recreational use and sale of marijuana.

The Committee was charged with conducting a thorough and objective review of marijuana policy in Massachusetts as well as lessons to be learned from other states, particularly Colorado and Washington, that have already legalized marijuana.

The Committee was not charged with recommending whether or not the Commonwealth should legalize marijuana. We expect this decision will be made by the voters of Massachusetts, since an initiative petition to legalize marijuana is likely to appear on the statewide ballot this November. The Committee will not be taking an official position on the ballot question.

In this report, the Committee recommends actions for the state to take to address numerous policy issues if marijuana were to be legalized. However, this should not be interpreted to indicate the Committee's endorsement of marijuana legalization.

After completing this extensive review of marijuana policy, the Committee members feel that we have an obligation to share our overall perspective on this important issue with our colleagues in the legislature and the public. To this end, we wish to express our serious concerns about the prospect of legalizing marijuana for recreational use and sale in Massachusetts, in part for the following reasons:

Public health concerns

- Even with strong safeguards in place, legalization may increase the accessibility of marijuana for youth and contribute to the growing perception among youth that marijuana is safe for them to consume.
- Marijuana-infused edibles are the fastest growing segment of the market and present particularly challenging issues for public health and safety.
- The risk of harmful health consequences and addiction may be greater than in the past due to the high potency of many products on the market today.
- Even with tight restrictions on advertising and marketing, legalization would likely encourage commercialization and market expansion as marijuana businesses seek to grow their revenues and profits by gaining new customers and increasing the consumption of their existing customers.

Public safety concerns

- There is no well-accepted standard for determining driver impairment from marijuana intoxication and no equivalent test to an alcohol breathalyzer, making it difficult for law enforcement to identify and arrest offenders and gain convictions in court.
- Although some banks have been willing to assume the risk and considerable expense involved in providing banking services to marijuana businesses, the industry still relies heavily on cash for many transactions and is unable to obtain bank loans or lines of credit, raising security concerns.
- Even with legalization and reasonable tax rates, the black market is likely to persist due to the significant profits to be gained from meeting demand (of adults and youth) across New England, as well as the ease of growing marijuana and the difficulty that law enforcement would face in enforcing home growing limits.

Economic and fiscal concerns

- Since marijuana remains illegal under federal law, state agencies would have to assume the difficult and costly responsibilities for ensuring public health and safety, environmental protection, and agricultural safeguards that would ordinarily be undertaken by federal agencies such as the FDA and EPA.
- There is considerable uncertainty regarding federal policy toward marijuana, particularly with the impending change in administration after the presidential election, as well as growing conflict among states with different policies toward marijuana.
- Tax revenues and fees that would be generated from legal sales may fall short of even covering the full public and social costs (including regulation, enforcement, public health and safety, and substance abuse treatment), and should not be expected to provide a significant new funding source for other public needs such as education or transportation.

We are also concerned that the effort required at this time to implement marijuana legalization by our state and local governments would consume enormous amounts of time and energy that could otherwise be spent addressing other challenging issues already facing our cities and towns.

Furthermore, Massachusetts currently lacks the necessary baseline data on marijuana public health, public safety, and economic and fiscal impacts, as well as the ability to

track and monitor trends over time. This issue has been particularly problematic for Colorado and Washington in formulating sound marijuana policy.

In the final analysis, the Committee members believe strongly that it would be prudent for Massachusetts to take a cautious approach to considering marijuana legalization, and continue to learn from the experience of other states. If the legislature were to take up legislation to legalize marijuana or the voters were to approve the likely ballot question in November, it will be critical for the legislature to carefully consider how best to address the numerous policy issues outlined in this report in order to protect the health and safety of the residents of the Commonwealth.

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1. Executive Summary

Background

In November, 2008, Massachusetts voters approved an initiative petition to decriminalize the possession of small amounts of marijuana. Formerly a jailable offense, possession of less than one ounce of marijuana became a civil offense punishable by a fine of $100.

In November, 2012, Massachusetts voters approved an initiative petition to allow the use and sale of medical marijuana. The state Department of Public Health is charged with licensing vertically-integrated medical marijuana grow and dispensary operations.

Also in November, 2012, voters in Colorado and Washington approved ballot questions to legalize the recreational use and sale of marijuana. Retail sales began in both states in 2014, with Colorado about six months ahead of Washington.

Marijuana remains a Schedule I substance under the Controlled Substances Act of 1970, making it illegal under federal law to possess or distribute marijuana under most circumstances. In August, 2013, the Obama administration issued guidance, known as the Cole Memo, to clarify the relationship between conflicting state and federal marijuana laws. This essentially allowed states to proceed with marijuana legalization as long as they do not violate certain conditions established by the Department of Justice. However, numerous issues remain problematic, including banking, regulation of product safety, diversion across state lines, and other issues. It is also possible that a future administration after the 2016 presidential election could take a different approach from that taken by the Obama administration.

In November, 2014, Oregon and Alaska voters also legalized the recreational use and sale of marijuana, but retail sales in these states have not yet begun.

Massachusetts Ballot Question

In November, 2016, Massachusetts voters are likely to consider an initiative petition to approve the recreational use and sale of marijuana in the Commonwealth. This ballot question was filed by the Campaign to Regulate Marijuana like Alcohol, an organization affiliated with the Marijuana Policy Project, a national group that advocates for "non-punitive, non-coercive marijuana policies."

Secretary of State William Galvin certified in December, 2015 that the campaign had gathered the necessary number of signatures. This allowed the petition to proceed to

the next phase of the ballot process, a public hearing before the Massachusetts legislature.

The legislature has until May 3 to take any action on the petition. Should the legislature take no action (or if the campaign organizers are not satisfied with any action that the legislature does take), the campaign must then gather 10,792 additional signatures to place the petition on the statewide ballot in November.

The ballot question proposes to establish a regulatory framework that will be discussed in detail throughout this report and compared to the approaches being taken by Colorado and Washington.

Current Marijuana Use in Massachusetts

An estimated 885,000 Massachusetts residents used marijuana in the past year, including almost 400,000 youth and young adults under the age of 25. They consumed an estimated 85 metric tons of marijuana. Approximately 1 in 4 high school students used marijuana in the past year.

Most marijuana users begin using as youth. Youth use marijuana more intensely and for longer durations than users who begin consuming as adults. Fewer youth today than in the past view marijuana as a harmful substance, and more youth are using daily.

Concurrent use of tobacco and/or alcohol with marijuana is common.

Health Impacts of Marijuana Use

Recreational marijuana use can cause short-term impacts that may include increased heart rate and blood pressure, delayed reaction time, reduced motor control, and impaired decision making. Longer-term impacts of adult marijuana use are less well understood.

Approximately 1 in 9 users become dependent on marijuana and require treatment to overcome this addiction. Addicts may suffer from anxiety, depression, mania, and phobias as well as other behavioral health complications.

Although marijuana overdose is rare, it can lead to psychotic events. Pregnant women who use marijuana face risk of damage to the fetal brain.

Higher potency marijuana may increase the risk of addiction, heighten physical and mental health consequences, and worsen the effects of withdrawal, but these effects are still uncertain and require further study.

Youth marijuana users face serious health and brain development risks. They may suffer long-term developmental impacts, including reduced IQ, memory, and learning functions. These risks increase the younger the individual and the more intensely that marijuana is consumed. Addiction risk is also substantially greater for youth users than for users who begin as adults. Youth marijuana users are more likely than their peers to become addicted to other harmful substances, although this does not prove a causation.

Children who accidentally ingest marijuana, such as edible products that appear similar to ordinary treats, may face serious injury.

Users of medical marijuana report that the drug helps them feel better, and is an efficacious treatment for pain and seizures. Some have suggested that medical marijuana could be a substitute for opioid painkillers for some patients, with less risk of addiction. However, the medical community has not achieved consensus on the verifiable medical benefits of marijuana. Federal law continues to define marijuana as a dangerous substance lacking use as a medical treatment.

Public Safety and Criminal Justice Impacts of Marijuana Use

Marijuana use impacts public safety in many different ways, ranging from violence associated with drug trafficking to driving under the influence to product safety risks.

Law enforcement officials at the local, state, and federal levels all play important roles in the enforcement of marijuana laws. Local police largely enforce prohibitions against possession, public use, and small-scale trafficking. State and federal law enforcement typically investigate large-scale trafficking and gang activity.

Based on the wide availability of marijuana across Massachusetts, it is obvious that a large black market currently exists. Some marijuana is likely grown in people's homes, but substantial amounts are also trafficked from Canada, Mexico, or other states.

Driving a vehicle while under the influence of marijuana is a significant public safety concern, and there is no well-accepted standard for determining driver impairment from marijuana intoxication. Nationwide, fatal motor vehicle accidents attributable to marijuana-impaired operators tripled between 1999 and 2012.

Legalization of marijuana creates some different public safety concerns. State health officials have to assume responsibility for ensuring that products do not contain unsafe levels of pesticides, mold, or other contaminants. Businesses and law enforcement have to deal with security issues, including theft of product and the industry's high use of cash for many transactions. State and local law enforcement have to monitor illegal grow operations (including home growing) that may seek to hide within the legal

market. Black market activities and smuggling across state lines are likely to remain significant law enforcement concerns.

Although marijuana users are unlikely to face arrest since decriminalization, there are still sanctions they could face, including a fine, probation violation, eviction from public housing, or other consequences.

Minority communities have been disproportionately impacted by arrests and other sanctions as a result of marijuana use, and advocates for legalization believe that racial disparities continue to be a problem in the enforcement of marijuana laws.

Policy Goals when Considering Marijuana Legalization

The Committee believes that the following policy goals should guide all decisions regarding any regulatory framework in Massachusetts if marijuana were to be legalized for recreational use and sale:

- Prevent marijuana use by youth under 21 years old
- Minimize adult misuse and addiction
- Minimize black market and criminal activity
- Ensure a well-regulated marketplace that minimizes commercialization and avoids disparate impacts on vulnerable communities
- Generate sufficient tax revenue to meet necessary public costs

Policy Choices when Implementing a Regulatory Framework for Legalized Marijuana

The bulk of this report focuses on the numerous policy choices and decisions that must be made when implementing a regulatory framework to govern the legal recreational use and sale of marijuana. These policy choices range from the minimum legal sales age to product packaging and labeling requirements to business licensing regulations to taxes and use of revenue. There are also complicated issues that arise between different levels of government, from federal to state to local control.

For each policy choice, the report explains the issue, compares the approaches taken by Colorado, Washington, and the Massachusetts ballot question, and offers specific recommendations for the Senate to consider.

Should the voters of Massachusetts decide to legalize marijuana, it will be critical to dedicate sufficient time, expertise, and resources to ensure as smooth an implementation as possible, which nevertheless is likely to be challenging.

It will also be important to gather baseline data as soon as possible on public health, public safety, and economic and fiscal impacts, and ensure a robust system is in place for tracking and monitoring trends. Without this data, lawmakers and regulators cannot make sound, evidence-based decisions.

Even with as much careful preparation and planning as possible, it will still be necessary to build in flexibility since changes in laws and regulations governing marijuana will almost certainly be necessary as the market develops and new issues are identified.

2. Background on Current Marijuana Laws, Usage, and Public Health and Safety Impacts in Massachusetts

2.1 Current Laws Related to Marijuana

Marijuana is a Schedule I substance under the federal Controlled Substances Act, a law that sets forth criminal penalties for the manufacture and distribution of marijuana.

Trafficking of marijuana is also illegal under Chapter 94C of the Massachusetts General Laws, which categorizes marijuana as a class D controlled substance. Criminal sanctions increase as the quantity of trafficked marijuana increases.

With the exception of individuals registered as medical marijuana patients with the Department of Public Health and those who lawfully supply medical marijuana patients as caregivers or dispensaries, it is illegal to possess or distribute marijuana in Massachusetts.

In November, 2008, Massachusetts voters approved an initiative petition to decriminalize the possession of small amounts of marijuana. Formerly a jailable offense, possession of less than one ounce of marijuana became a civil offense, punishable by a fine of $100. Possession of more than one ounce remains a criminal offense, punishable by jail time up to 6 months and a $500 fine.

Penalties for dealing marijuana near a school or public park carry mandatory minimum sentences of 2 years in prison.

It is illegal to drive under the influence of marijuana. Failure to pass a sobriety test can result in a fine and/or imprisonment. However, Massachusetts does not currently test drivers who are suspected of marijuana intoxication for their THC level. As a result, arrests and convictions are rare.

In November, 2012, Massachusetts voters approved an initiative petition to allow the use and sale of medical marijuana.

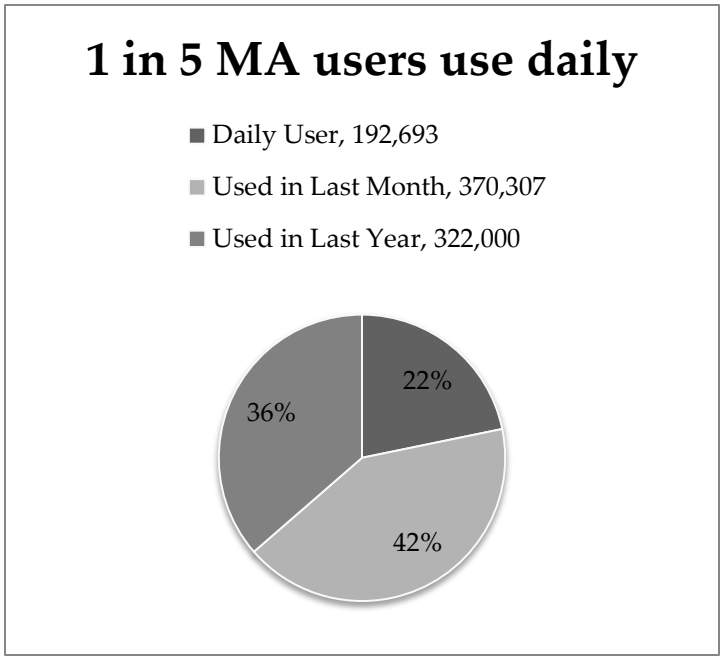
The table below summarizes the penalties for marijuana-related offenses under current Massachusetts law (other than legal medical marijuana possession and sale):

Offense	Penalty	Incarceration	Max. Fine
Possession and Distribution or Cultivation			
Personal use			
1 oz or less	Civil Offense	N/A	$ 100
More than 1 oz (first offense)	Misdemeanor	6 months	$ 500
More than 1 oz (subsequent offense)	Misdemeanor	2 years	$ 2,000
More than 1 oz (hash and concentrates)	N/A	1 year	$ 1,000
With intent to distribute, and distribution or cultivation			
Less than 50 lbs (first offense)	Not Classified	0 - 2 years	$ 5,000
Less than 50 lbs (subsequent offense)	Not Classified	1 - 2.5 years	$ 10,000
50 - less than 100 lbs	Felony	1* - 15 years	$ 10,000
100 - less than 2000 lbs	Felony	2* - 15 years	$ 25,000
2000 - less than 10,000 lbs	Felony	3.5* - 15 years	$ 50,000
10,000 lbs or more	Felony	8* - 15 years	$ 200,000
Within 300 feet of a school, or within 100 feet of a public park	Felony	2* - 15 years	$ 10,000
Causing or inducing someone under 18 years to commit offenses	Felony	5* - 15 years	$ 100,000
Manufacture or distribution (hash and concentrates)	N/A	2.5 - 5 years	$ 5,000
Manufacture or distribution to a minor (hash and concentrates)	N/A	2 - 15 years	$ 25,000
Using a minor to manufacture or distribute (hash and concentrates)	N/A	5* - 15 years	$ 100,000
Paraphernalia			
Selling, possessing, or purchasing paraphernalia	Not Classified	1 - 2 years	$ 5,000
Selling to someone under 18 years	Felony	3 - 5 years	$ 5,000

of age			
Forfeiture			
Marijuana, vehicles, and money are subject to forfeiture.			
Miscellaneous			
Conspiracy to commit any marijuana related offense is punishable by up to the maximum punishment.			
Possession of 1 oz or less cannot result in the suspension of driving privileges.			

* Mandatory minimum sentence
Source: Norml.com

2.2 Marijuana Usage

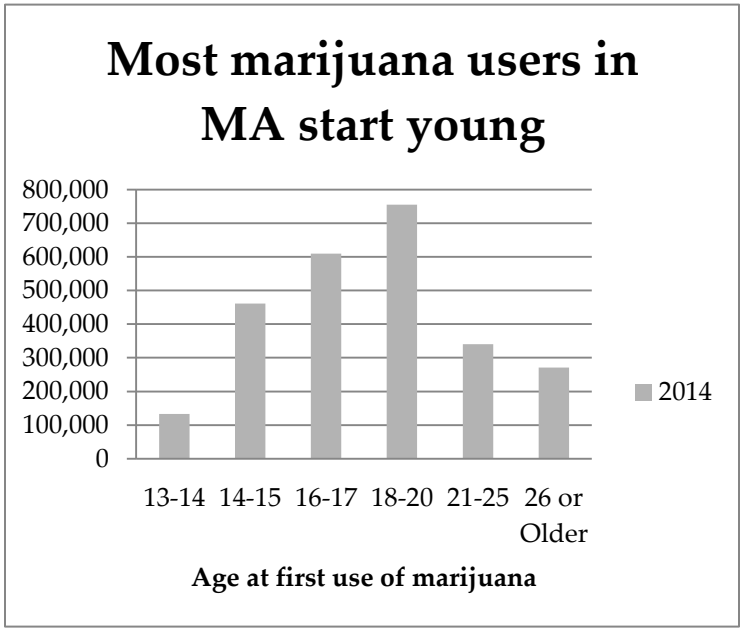


Source: SAMHSA National Survey on Drug Use and Health, 2014

Although recreational marijuana use is not legal in Massachusetts, approximately 2.5 million residents of the Commonwealth have used marijuana in their lifetime. An estimated 885,000 Massachusetts residents used marijuana in the past year.

They consumed an estimated 3 million ounces of marijuana, or about 85 metric tons. This is equivalent to 168 million servings (of ½ gram each). By comparison, Massachusetts consumers purchased the equivalent of 3.1 billion servings of beer, wine, and spirits in 2012.

Nearly all adults who use marijuana began using as youth. Of the 2.5 million Massachusetts residents who have used marijuana, 78% first tried marijuana before age 21, and 92% first used before age 25.



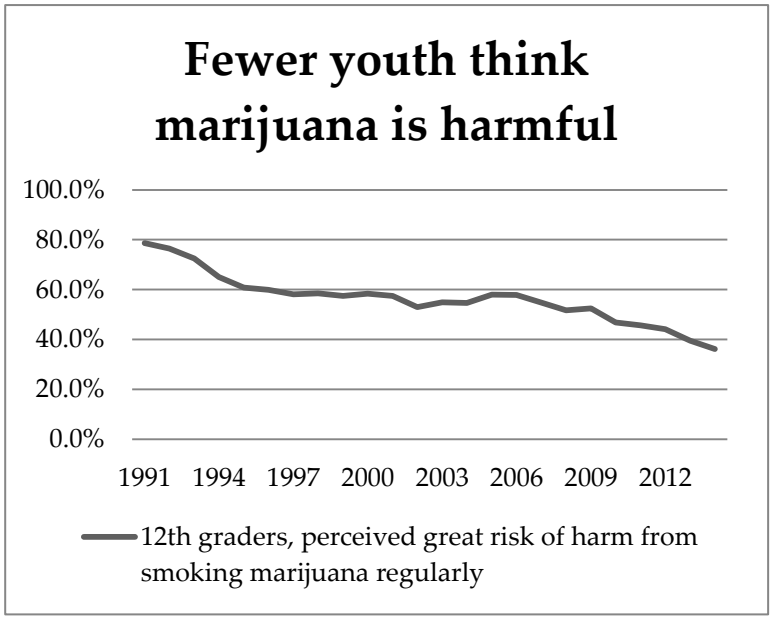
Source: SAMHSA National Survey on Drug Use and Health, 2014

Those few users who begin using as adults will use for only half as long a duration as those who begin using as youth. Users who begin using as adults are also less likely to become addicted than users who begin using as youth.

It is uncertain what impact the legalization of marijuana for recreational use and sale would have on marijuana usage in Massachusetts, although past experience with alcohol would suggest that usage may grow over time.

Trends in Youth Usage

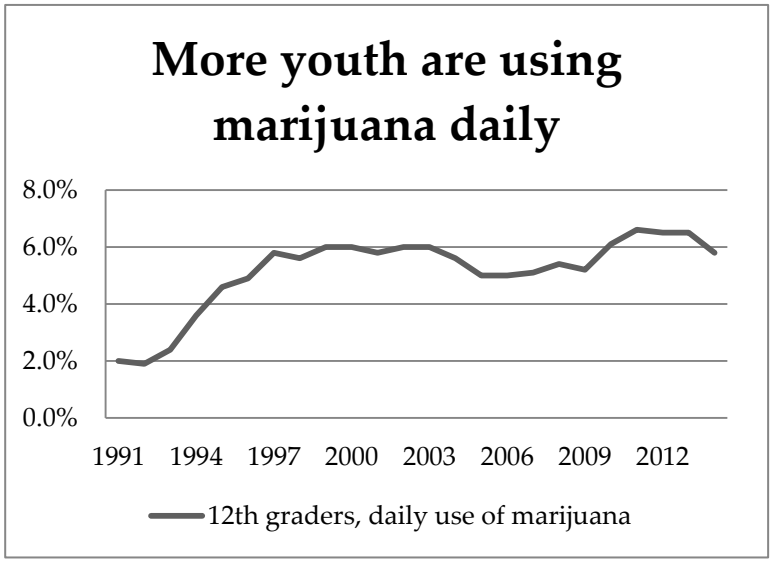
In Massachusetts, an estimated 398,000 youth and young adults under the age of 25 used marijuana in the past year. This includes 74,000 youth under the age of 18. Approximately 1 in 4 high school students used marijuana in the past year. Many of these users are more frequent users than adults, with 63% having used marijuana in the past month.



Source: National Institute on Drug Use, Monitoring the Future, 2014

Social acceptability plays an important role in the decision to use marijuana. Those who perceive more widespread use of marijuana are at greater risk of initiating use. However, perceived social norms do not reflect actual rates of use among youth. Far fewer youths and young adults actually use marijuana than their peers think.

Marijuana appears to be highly accessible to youth. A large proportion of high school students responding to the national Monitoring the Future study indicated that marijuana is easy for them to obtain.

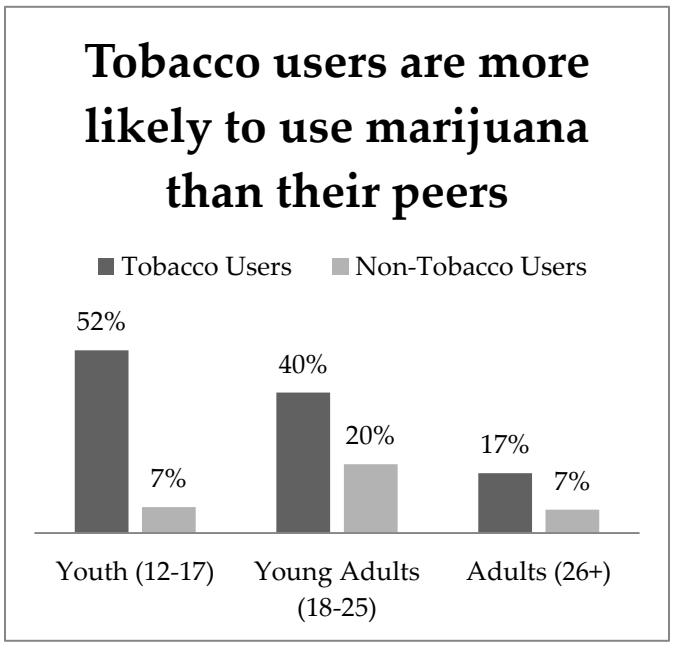


Source: National Institute on Drug Use, Monitoring the Future, 2014

In recent years, teen perception of marijuana's riskiness has substantially decreased, a particularly worrisome trend. In 1991, when marijuana use among youth was at historic lows, 79% of teens thought great risk of harm could follow from smoking marijuana regularly. Today, only 36% of youth think the same. Meanwhile, the proportion of high school seniors who use marijuana daily has tripled from 2% in 1991 to 6% today.

Concurrent Use with Tobacco, Alcohol, and Other Drugs

Tobacco and marijuana are consumed in a similar fashion, and are commonly used together. They are considered complementary goods, i.e. when sales of one increase, sales of the other are likely to increase as well. Marijuana users are more likely to smoke cigarettes than the general population, particularly among youth and young adults. Similarly, tobacco users are more likely to use marijuana than non-smokers. Use of marijuana and tobacco concurrently can lead to greater risks of lung or respiratory disease, as well as heart disease. Use of the two substances at the same time also increases the risk of addiction.



Source: SAMHSA National Survey on Drug Use and Health, 2013 and 2014

Teens who use alcohol are more likely than their peers to also use marijuana, and the reverse is true as well. While teen alcohol and marijuana use may be correlated, use of one is not necessarily the cause of use of the other. Other factors may be at play, such as social acceptance, genetics or accessibility of illicit substances. Teens that use both substances usually begin using alcohol before marijuana. A recent study found that almost all teens or young adults who used marijuana also used alcohol, but that many who used alcohol did not also use marijuana. It also found that those who used marijuana or alcohol as teens were likely to eventually stop using marijuana, but not alcohol. Another study attributed the difference in teen rates of use to differing social acceptability of the two substances, which could change as a result of marijuana's legalization.

Users of marijuana are also more likely than their peers to use other hard drugs. Like alcohol and nicotine, marijuana changes how the brain seeks rewards and pleasure. However, like users of alcohol and tobacco, most marijuana users do not go on to use harder drugs. When use of marijuana declines in a population, users do not appear to seek out other drugs; historically, when marijuana use in the U.S. has declined, so has use of harder drugs like cocaine and heroin.

2.3 Health Impacts

Short-term impacts of marijuana use may include hunger, dry eyes and mouth, increased heart rate and blood pressure, hyperventilation, delayed reaction time, reduced motor control, impaired memory, and impaired decision making. Some users also may experience hallucinations and paranoia.

Longer-term impacts of adult marijuana use are less well understood. Marijuana products contain toxins that can cause adverse health impacts, and users prone to psychosis are at greater risk of experiencing mental illness. However, other studies targeted at specific areas of the human body fail to identify negative health impacts. For instance, one study of long-term users demonstrated no pulmonary harm from smoking marijuana.

Use of marijuana can lead to addiction. Approximately 1 in 9 users become dependent on marijuana and require treatment to overcome this addiction. Addicts may suffer from anxiety, depression, mania, and phobias as well as other behavioral health complications. There is also increasing evidence that heavy marijuana use may be associated with heart attacks.

Although marijuana overdose is rare and does not result in death, it can lead to psychotic events. Pregnant women who use marijuana increase the risk of damage to the fetal brain.

Higher potency marijuana may increase the risk of addiction, heighten physical and mental health consequences, and worsen the effects of withdrawal, but these effects are still uncertain and require further study.

Marijuana users, over time, may use more health system resources than non-users. Substance use disorder services must be covered by registered insurance plans under the Affordable Care Act as well as under Massachusetts law. According to the Government Insurance Commission (GIC), each of the health plans they contract with offer coverage for marijuana addiction. The average treatment cost was $1,533 per claimant for the past five fiscal years. For indigent and uninsured individuals, Massachusetts provides substance abuse treatment through the Department of Public Health's Bureau of Substance Abuse Services. Around 5,000 individuals receive treatment each year for drug addiction where marijuana is the primary drug being abused.

Health Risks to Youth

Youth users of marijuana face serious health and brain development risks. They may suffer long-term developmental impacts, including reduced IQ, memory, and learning functions. Studies of users who begin using as adults do not show these same negative impacts on brain development. Since youth use for longer periods and with more intensity, they may be subject to longer-term physical and mental health risks that are not yet well understood.

Marijuana users who begin using as youth are twice as likely to become addicted than users who start as adults. Nationwide, among youth age 12-17 who received treatment for substance abuse within the past year, more than half were receiving treatment for marijuana addiction. Among young adults age 18-25 who received treatment for substance abuse, around a third were treated for marijuana addiction.

Youth marijuana users are more likely than their peers to become addicted to other drugs, such as cocaine or heroin, although this does not prove a causation. Healthcare professionals who work with teens at recovery high schools and substance abuse treatment programs indicate that substantially all of their clients use marijuana, often in addition to tobacco, alcohol, and other substances.

Accidental marijuana consumption by children, such as edible products that appear similar to ordinary treats, can lead to acute health impacts. In cases where children have presented at emergency rooms from marijuana ingestion, they suffered from decreased levels of consciousness as well as difficulty breathing. Child-ingested marijuana is also dangerous because ER doctors may be unaccustomed to looking for marijuana as a cause of symptoms.

Nationwide, emergency room visits attributable to marijuana use (for both children and adults) doubled between 2004 and 2011, from 60,000 such visits to more than 120,000. This increase may be due in part to an increase in use and potency of marijuana products, an increase in awareness of marijuana use, or other factors.

Potential Benefits of Medical Marijuana

Users of medical marijuana report that the drug can help them feel more relaxed and less anxious, and is an efficacious treatment for pain, seizures, and other ailments.

Medical marijuana strains typically contain more CBD and less THC than marijuana used for recreational purposes. Some have suggested that medical marijuana could be a substitute for opioid painkillers for some patients, with less risk of addiction, but this view is not shared by most of the medical community. In general, the medical community has not achieved consensus on the verifiable medical benefits of marijuana.

The FDA has approved one prescription medication containing cannabis, sold under the brand name Marinol. In 2015, 27 patients in the Commonwealth received prescriptions for this drug.

Federal law continues to define marijuana as a Schedule I substance lacking any medical use which complicates efforts to research its potential health benefits. However, the DEA has recently announced new steps to ease restrictions on the scientific study of marijuana.

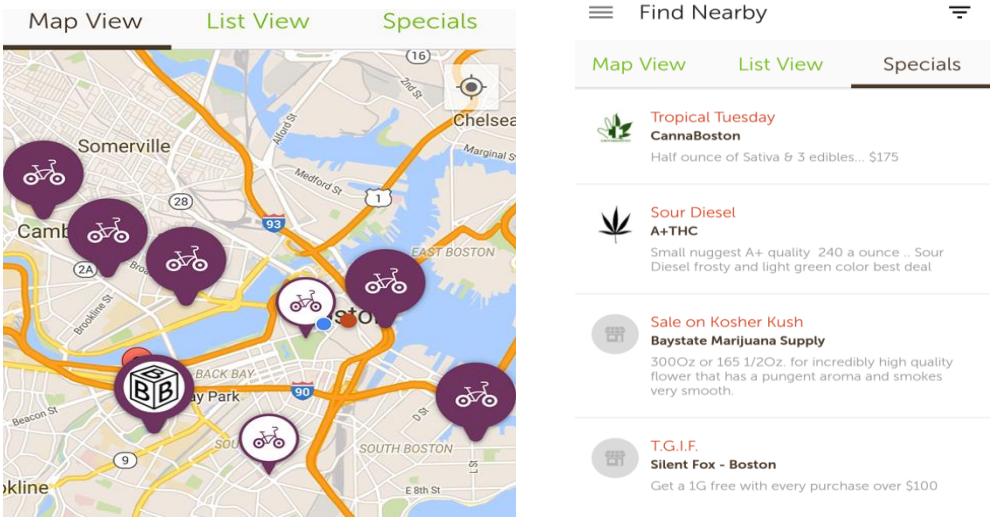
2.4 Public Safety and Criminal Justice Impacts

Marijuana use impacts public safety in many different ways, ranging from violence associated with drug trafficking to driving under the influence to product safety risks.

Law enforcement officials at the local, state, and federal levels all play important roles in the enforcement of marijuana laws. Local police largely enforce prohibitions against possession, public use, and small-scale trafficking. State and federal law enforcement typically investigate large-scale trafficking and gang activity.

Bristol County was recently designated by the Obama administration as the 7th High Intensity Drug Trafficking Area in Massachusetts, joining Essex, Hampden, Middlesex, Plymouth, Suffolk, and Worcester counties. This designation increases access to federal resources in order to strengthen law enforcement efforts against drug trafficking. High Intensity Drug Trafficking Areas were first formed in the late 1990s, following an escalation in the federal war on drugs, with concerns at that time largely about crack cocaine. Emphasis in law enforcement efforts has shifted over time as other substances increased in use and prevalence, including heroin and prescription opioids in recent years. Marijuana has typically been a lower priority.

Based on the wide availability of marijuana across Massachusetts, it is obvious that a large black market currently exists. Some marijuana is likely grown in people's homes, but most is trafficked from Canada, Mexico, or other states. Social media applications like Leafly appear to provide convenient access to marijuana (although Leafly does specify that a medical marijuana card is required).



Source: Social media application Leafly, the self-described "world's cannabis information resource". Click on a bicycle icon near you on the map, and you are directed to a menu of marijuana items for sale.

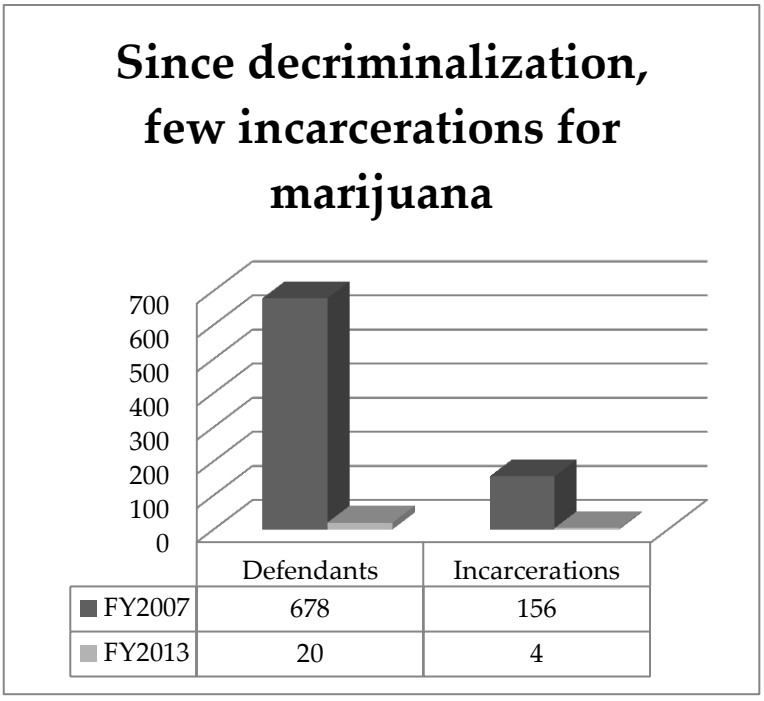
Driving a vehicle while under the influence of marijuana is a significant public safety concern, and there is no well-accepted standard for determining driver impairment from marijuana intoxication. Nationwide, fatal motor vehicle accidents attributable to marijuana-impaired operators tripled between 1999 and 2012.

Legalization of marijuana creates some different public safety concerns. State health officials have to assume responsibility for ensuring that products do not contain unsafe levels of pesticides, mold, or other contaminants. Businesses and law enforcement have to deal with security issues, including theft of product and the industry's high use of cash for many transactions. State and local law enforcement have to monitor illegal grow operations (including home growing) that may seek to hide within the legal market. Black market activities and smuggling across state lines are likely to remain significant law enforcement concerns.

Colorado and Washington have had to implement a number of safety measures, including security for grow operations, retail stores, and during transit in the supply chain. In Denver, marijuana businesses are the second-most burglarized type of business. Law enforcement officials in Colorado describe large-scale illegal residential grows operating behind legal façades.

Criminal Justice Impacts

Since 2008 when Massachusetts decriminalized possession of up to one ounce of marijuana, arrest rates for possession have declined significantly. In 2010, Massachusetts had the lowest arrest rate for marijuana possession in the country, and by 2013 almost no incarcerations. Prior to decriminalization, most marijuana offenses, whether of possession or distribution, were for quantities of less than one ounce.



Source: Massachusetts Sentencing Commission, Survey of Sentencing Practices

Although marijuana users are unlikely to face arrest, there are

still sanctions they could face, including a fine, probation violation, eviction from public housing, or other consequences. Users may also face social or professional pressures.

Minority communities have been disproportionately impacted by arrests and other sanctions as a result of marijuana use, and advocates for legalization believe that racial disparities continue to be a problem in the enforcement of marijuana laws. On the other hand, stakeholders have also observed that the negative impacts of substance use often fall disproportionately on minority communities, and that legalization could increase access to marijuana in minority communities, leading to increased harm.

2.5 Economic Impacts

The black market value of marijuana sales in Massachusetts is estimated to be anywhere from $230-900 million last year (depending on different assumptions about price). It is impossible, however, to know the full economic impact.

There is also little data at this point on the economic impact of the nascent medical marijuana market in Massachusetts.

The Commonwealth produced $460 billion in total economic output in 2014, as measured by state GDP. Approximately 3.5 million workers were employed.

According to ArcView Market Research, Americans spent $5.4 billion on legal medical and recreational marijuana in 2015. About half of this marijuana was purchased in California (medical), Colorado (medical and recreational), and Washington (medical and recreational). The total annual market value of legal and illegal marijuana sales in the United States is estimated to be between $15-30 billion.

Legalization of marijuana could lead to a $500 million or more recreational marijuana market in Massachusetts within a few years.

Based on the experience to-date in Colorado and Washington, there would likely be hundreds of mostly small to medium-size businesses quickly entering the market, many already operating in other states. These businesses would provide a wide range of marijuana-related products and services.

Employment in this new industry could number in the tens of thousands, with most workers in lower skilled agricultural and retail jobs. Colorado estimates that there are 20,000 people employed in its marijuana industry.

Other economic impacts may include a boost in "pot" tourism, increased demand for vacant industrial warehouses and retail space, and some boost to the construction industry and other ancillary services, such as security firms.

2.6 Status of Medical Marijuana Implementation

In November, 2012, Massachusetts voters approved an initiative petition to allow the use and sale of medical marijuana. The Department of Public Health (DPH) is charged with licensing vertically-integrated medical marijuana grow and dispensary operations.

Today, 23 states and Washington D.C. have legalized medical marijuana.

The initiative petition required the state to license up to 35 medical marijuana dispensaries, and to ensure access to all areas of the state, including minimum distances and requirements for a dispensary in each county. Medical marijuana dispensaries are required to be non-profit entities, but are restricted from typical non-profit activities by conflicts with federal law. They must self-finance and are unable to obtain bank loans. DPH tightly regulates medical marijuana production, testing, and sale.

With the recommendation of a physician, a patient may obtain a medical marijuana card and purchase up to a 60 day supply at a dispensary. A 60 day supply is defined as 10 ounces of smokable marijuana or its equivalent in other forms (e.g. edibles, concentrates). With state approval, patients who demonstrate a hardship may grow their own supply or rely on a caregiver. Caregivers may supply only one patient. Federal and state privacy laws apply to information about patients in the state's medical marijuana registry.

The implementation of the state's medical marijuana program has been slow, beset by problems, and subject to lawsuits from some applicants. The dispensary application process was substantially overhauled last year. Recently, DPH revised its testing protocol, first issued in 2014. The new protocol relies on standards developed by the United States Pharmacopeia Convention.

There are currently 5 dispensaries that have completed the DPH licensing process and are supplying patients with medical marijuana. They are located in Salem, Lowell, Ayer, Brockton, and Northampton. There are 12 additional dispensaries in the inspection phase.

As of December 31, 2015, there were 23,346 certified patients (18,476 of whom were active), 936 active caregivers, and 129 registered physicians in the state. Approximately 90% of these certified patients listed "other" (rather than a specific condition) as the underlying reason for their use of medical marijuana.

Issues That May Need to be Addressed

Although the Committee's primary focus has been on issues related to recreational marijuana, the Committee has received significant input on the current state of medical marijuana in Massachusetts, and would like to note the following issues that may need to be addressed:

- The availability of medical marijuana remains a challenge in many parts of the state. Home delivery may be an opportunity to address access issues and reduce the incentive for black market or home grow participation, at least until more dispensaries are able to open around the state.
- The DPH and medical marijuana growers have had difficulty developing and implementing product testing requirements, partially due to the difficulty accessing testing facilities with the ability and expertise to test for pesticides and other contaminants. However, the new testing protocol recently rolled out by DPH may alleviate these problems.
- There are currently no THC potency limits for medical marijuana, raising the concern that medical marijuana users may access marijuana inappropriate for medical purposes (i.e. high in THC, low in CBD).
- The personal possession allowance for medical marijuana may be excessive. At 10 ounces every 60 days, medical marijuana card holders have legal access to more than 250 servings of marijuana each month. This raises the risk of diversion to the black market. If a lower possession allowance is considered, it could be coupled with a waiver program to accommodate those patients who legitimately need a larger quantity.
- The eligibility criteria and medical assessment process for obtaining a medical marijuana patient certification may lack credibility given the very high proportion of patients who were not able to cite a specific medical condition. The certification process may need to be tightened up.
- Significant uncertainty remains about legal protections for medical marijuana users in employment, housing, professional licensing, and other areas.
- Most states that have a medical marijuana program collect taxes on medical marijuana sales, although at a lower rate than recreational sales in Colorado and Washington. These tax revenues help offset regulatory and other costs. However, Massachusetts currently assesses no sales or excise taxes on medical marijuana.

3. Public Policy Goals and Policy Considerations Relative to the Legalization of Marijuana for Recreational Use in Massachusetts

3.1 Policy Goals

The Committee believes that the following policy goals should guide all decisions regarding any regulatory framework in Massachusetts if marijuana were to be legalized for recreational use and sale:

- **Prevent marijuana use by youth under 21 years old.** Marijuana use poses a serious risk to the physical and mental health of young people, and the risk of addiction is much greater for youth than adults. Far fewer youth today than in the past view marijuana as a harmful substance and this misperception may get worse with legalization unless strong steps are taken to educate youth and restrict product availability. Public health education campaigns aimed at youth should be funded and launched as soon as possible.
- **Minimize adult misuse and addiction.** Approximately 1 in 9 users will become dependent on marijuana. This addiction can have harmful health impacts and impair an individual's ability to function productively. It is important that adults understand the risks of using marijuana and make good decisions. Public health education campaigns aimed at adults should be funded and launched as soon as possible.
- **Minimize black market and criminal activity**. Efforts to reduce the size of the black market and reduce criminal activity will protect consumers and legitimate businesses, promote public safety, preserve tax revenues, and prevent diversion to other states.
- **Ensure a well-regulated marketplace that minimizes commercialization and avoids disparate impacts on vulnerable communities**. Marijuana-related businesses will depend on well-defined laws and regulations to ensure the market functions properly and they can compete on a level playing field with their competitors. Strong enforcement of laws, equitable collection of taxes, and many other provisions are essential to a well-functioning market. Consumers will depend on effective government oversight to ensure the product they purchase is safe. At the same time, efforts must be vigorously pursued to minimize the marketing of marijuana products, which can increase their appeal to youth, and to prevent the pursuit of profits from disproportionately harming low-income and minority communities.

- **Generate sufficient tax revenue to meet necessary public costs**. Marijuana taxes and fees should cover the regulatory, administrative, legal and enforcement costs incurred by state and local governments in regulating the marijuana industry. These revenues should also be sufficient to fund data collection and research, public health education and prevention programs, and treatment for marijuana substance abuse as well as associated medical and behavioral health conditions.

3.2 Policy Considerations Relative to Possession, Use, and Consumption

3.2.1 Minimum Legal Sales Age

There is a large body of scientific research that documents brain development through adolescence and up to the age of 25. This includes the prefrontal cortex - which controls impulses and helps an individual organize behavior in order to reach a goal - and the brain's reward system. From the start of puberty until around age 25, the reward system becomes highly active in increasing an individual's interest in uncertain and pleasurable situations.

Thus, establishing a minimum age for many different activities recognizes that a young person's brain development and understanding of responsibility and consequences is fundamentally different from that of an adult. We set varying minimum ages depending on a variety of factors associated with a particular activity. For example, in Massachusetts an individual must be 16 years old to apply for a driver's learning permit; 18 years old to vote; 19 years old to be considered to have criminal adult responsibility; 21 years old to purchase alcohol; and up to 25 years old before many rental car companies stop adding additional fees.

Setting a minimum legal sales age for marijuana at 21 or higher would likely reduce youth consumption compared to a MLSA of 18 because it would remove legal purchases from high school social networks. Largely for this reason, a recent Institute of Medicine study concluded that raising the legal age of tobacco sales from 18 to 21 would reduce smoking rates in the population by 12%. Similarly, when the legal age for purchasing alcohol increased from 18 to 21, drinking rates among high school students dropped.

Policy Approaches in Different Jurisdictions

Colorado	Washington	MA Ballot Question
21+	21+	21+

Recommended Actions if Marijuana Were Legalized

- Set the minimum legal sales age for marijuana at 21.
- Raise the minimum legal sales age for tobacco to 21 so there is a consistent legal age for alcohol, tobacco and marijuana. This would help communicate to youth that all three of these substances should only be consumed by adults.
- Consider imposing additional limits or restrictions on sales of marijuana products to young adults age 21-24.

3.2.2 Possession Allowance

Most jurisdictions that have decriminalized and/or legalized recreational marijuana allow possession of small amounts of marijuana, while prohibiting the possession of larger amounts. The intent is to permit personal consumption while limiting the risk of re-sale or diversion to the black market.

Policy Approaches in Different Jurisdictions

		Colorado	Washington	MA Ballot Question
Legal possession limit	Smokable	Up to 1 ounce	Up to 1 ounce	Up to 1 ounce
	Solid edible	Up to 1 ounce	Up to 16 ounces	Up to 1 ounce
	Liquid edible	Up to 1 ounce	Up to 72 ounces	Up to 1 ounce
	Concentrates	Up to 1 ounce	Up to 0.24 ounces	Up to 0.18 ounces
Civil violation	Smokable	1-2 ounces	1-1.4 ounces	1-2 ounces
	Solid edible	1-2 ounces	N/A	1-2 ounces
	Liquid edible	1-2 ounces	N/A	1-2 ounces
	Concentrates	1-2 ounces	1-1.4 ounces	N/A*
Misdemeanor	Smokable	2-12 ounces	N/A	Greater than 2 ounces
	Solid edible	2-12 ounces	N/A	Greater than 2 ounces
	Liquid edible	2-12 ounces	N/A	Greater than 2 ounces
	Concentrates	2-3 ounces	0.24 to 1.4 ounces	Greater than 1 ounce
Felony	Smokable	Greater than 12 ounces	Greater than 1.4 ounces	N/A**
	Solid edible	Greater than 12 ounces	Greater than 16 ounces	N/A**
	Liquid edible	Greater than 12 ounces	Greater than 72 ounces	N/A**
	Concentrates	Greater than 3 ounces	Greater than 1.4 ounces	N/A**

Home Possession	All Types	N/A	N/A	10 ounces

* The MA ballot question is silent on possession amounts of concentrates greater than 0.18 ounces (5 grams) but less than 1 ounce.
** There is no felony for possession of a controlled substance for personal use in Massachusetts. While possession of significant amounts of a substance may suggest the individual is involved in trafficking, that must be proven and determined in a court of law.

Recommended Actions if Marijuana Were Legalized

- Set the maximum personal possession limit at 1 ounce for smokable marijuana, including home possession.
- Establish appropriate possession limits for other types of marijuana products -- lesser amounts for concentrates, greater amounts for edibles.
- Review and adjust appropriate penalties for personal possession in excess of the legal possession limit for smokable marijuana, edibles, and concentrates.
- Consider whether to adopt a reasonable standard at which it is assumed the quantity possessed indicates trafficking.

3.2.3 Public Use

Massachusetts limits use of alcohol and tobacco in public settings. For example, residents may not consume alcohol on the street outside a bar or restaurant. In 2003, the legislature prohibited smoking in the workplace and in public buildings.

Limits on public use of marijuana are intended to reduce second-hand exposure to smoke; reduce the extent to which marijuana use is seen as socially acceptable behavior; and reduce the possibility that a user consumes alcohol and marijuana at the same time, a combination that can greatly impair driving.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Public use	No public use allowed	No public use allowed	As limited by existing smoking laws May be further regulated at local level
Penalty for public use	Up to 15 days incarceration and $100 fine	Up to $100 fine	$100 fine for smoking

The existing workplace smoking ban in Massachusetts extends to "non-tobacco products designed to be combusted or inhaled," and should prohibit workplace use of smokable marijuana. Employers who allow smoking in the workplace are also subject to fines and reports to the local Board of Health. However, current law contemplates neither edible nor concentrated marijuana, including vaporized marijuana.

Local Boards of Health have the authority to issue regulations to restrict activities that can harm the public health. Without further statutory authorization, local boards could prohibit the use of different types of marijuana in public places.

Recommended Actions if Marijuana Were Legalized

- Regulate public consumption of marijuana in a similar fashion to public consumption of alcohol, by prohibiting public smoking, vaping, and consumption of edibles.
- If consumption of marijuana is permitted on premises in adults-only (21+) establishments that are appropriately licensed, then prohibit the serving of alcohol and ensure that local governments can opt out of allowing this type of establishment.

3.2.4 Driving Under the Influence

Driving under the influence of marijuana impairs a driver's ability and may increase the risk of an accident. Anecdotally, marijuana-impaired drivers are observed to operate their cars more slowly, and with a mildly erratic course. Elements of the visual system may be impaired by marijuana use. When alcohol and marijuana use are combined, a driver's decision making, reaction time, and ability to safely operate a vehicle are further impaired.

A whole blood THC concentration of 3.5-5 nanograms/milliliter (ng/ml) is considered comparable to a 0.05% blood alcohol concentration (BAC) with regards to impairment. Massachusetts law sets the following limits on BAC for operators: 0.08% for adults, 0.04% for operators of commercial vehicles, and 0.02% for youth under the age of 21.

Under current Massachusetts law, a zero impairment standard applies to marijuana; in other words, an operator of a motor vehicle impaired by marijuana use risks civil and criminal penalties and fines. Unlike with alcohol, however, there is no subsection in the statute describing how law enforcement should test drivers for marijuana intoxication. The alcohol testing statute instructs the Secretary of Public Safety to create rules regarding methods and criteria for testing.

Testing a driver for marijuana impairment is difficult. A blood test is the most reliable method to identify impairment, but it must be drawn in a clinical setting and may detect latent THC that is not impairing the driver. Blood tests for marijuana impairment often require probable cause or a warrant. Tests of urine or saliva are less reliable than blood draws. However, the U.S. Department of Health and Human Services recently proposed the establishment of rigorous guidelines for oral testing in workplace settings. This policy might lead to increased reliability of oral fluid tests.

Colorado and Washington are also trying to develop new kinds of tests that would function more like an alcohol breathalyzer. However, it may take considerable time before any such tests are generally considered reliable and will be accepted in courtrooms.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Impairment measurement	5 ng/ml THC blood level + apparent intoxication	5 ng/ml THC blood level + apparent intoxication	Silent
Judicial standard	Permissible inference	Per se violation	Silent

Colorado's driving under the influence (DUI) statute works as follows:

For alcohol, it is considered a *per se* violation of the statute if an operator's blood alcohol content (BAC) is 0.08 or above. In other words, if testing reveals that an operator's BAC meets or exceeds the 0.08 threshold, then the prosecutor has established DUI beyond a reasonable doubt. The operator's defenses are essentially limited to challenging the validity of the testing, or establishing that he or she consumed alcohol sometime between driving and testing. If the operator's BAC is between 0.05 and 0.08, then there is a *permissible inference* of DUI. That is, the judge or jury can infer from that level of BAC that the operator was driving under the influence. But it is just an inference, and not a presumption. So, the prosecutor may need to do more to establish beyond a reasonable doubt that the operator was impaired. And the operator may present any relevant evidence to counter the inference.

For marijuana, it is a little different. There is no *per se* violation of the statute. Instead, there is a *permissible inference* that the operator was impaired if the operator's blood contains 5 ng/ml or more of THC. In other words, the judge or jury can infer that the operator was impaired, but it is not a presumption of DUI. And the operator remains free to present any relevant evidence to counter that inference.

Washington's DUI statute works as follows:

For both alcohol and marijuana, Washington has a *per se* DUI violation. For alcohol, it is a BAC of 0.08 or higher, as long as the testing is done in compliance with certain standards. For marijuana, it is a concentration of 5 ng/ml or higher within two hours of driving, subject to the same standards. Washington also provides an operator the option of proving that he or she consumed enough marijuana between driving and testing to push the THC level beyond the 5 ng/ml threshold.

THC testing done outside the two-hour window can still be used to establish that the operator's THC level exceeded the threshold amount when he or she was driving, and any THC test results above zero can be used to establish that the operator was driving under the influence of marijuana. However, this does not create an explicit *permissible inference* standard.

Colorado's approach was likely influenced by the developing state of THC testing and the fact that different levels of THC affect individuals differently. That may be why Colorado does not have a *per se* marijuana DUI violation. Washington was a bit bolder in adopting a *per se* violation, possibly influenced by improving science and by the statutory testing requirements. While it is easier for prosecutors to prove *per se* violations based on laboratory testing, convictions may still be subject to challenge. Due process requires a prosecutor to prove each and every element of a criminal offense beyond a reasonable doubt, and an operator may argue that the current level of THC science does not support a presumption that 5 ng/ml means that he or she was driving under the influence.

Recommended Actions if Marijuana Were Legalized

- Establish a commission or direct the Secretary of Public Safety to develop methods and procedures for determining driver impairment due to marijuana, including establishing a legal limit for THC blood concentration that would support at least a *permissible inference* standard in court. These procedures and protocols should be adopted by statute and be in place before any effective date of marijuana legalization (since a criminal offense must be established in statute to be enforceable).
- Support efforts underway to develop new and reliable tests for marijuana intoxication that can function more like an alcohol breathalyzer.
- Develop a public education campaign to inform drivers about the risks and consequences of operating a motor vehicle while under the influence of marijuana.
- Provide adequate funding for training of law enforcement, including more drug recognition experts.

3.3 Policy Considerations Relative to Products and Packaging

3.3.1 Types of Products Allowed

There are 3 major product types of marijuana: dried marijuana, concentrates, and edibles. There are also a range of other products, from skin patches to throat sprays to muscle rubs to personal lubricants.

Dried marijuana may be smoked or vaporized in pipes, blunts or vaping devices, which are like e-cigarettes. Dried marijuana may pose harm to passive third-parties, through exposure to second-hand smoke. Vaped marijuana generates vapor, whose health effects are not yet well understood.

Concentrates remove the THC from the marijuana in a liquid form, and may be used to infuse anything consumable or may be hardened and then smoked. These stronger marijuana products, particularly butane hash oil (also known as dabs, shatter or wax), have become more popular in recent years. Concentrates typically have higher THC potency than dried marijuana and may pose a greater health risk. The home manufacture of marijuana concentrates poses a significant safety risk of butane explosions.

Edibles are food products that are infused with marijuana, usually by way of cooking the marijuana with oil or butter since THC is fat-soluble. Many of these products can be mistaken for other products already on the shelves, as the differences in taste, color, and smell may be close to undetectable. Edibles such as cookies or candy can be particularly appealing to children. Edible products can also be the cause of food-borne illness, particularly if sold at a retailer poorly equipped to manage food safety concerns.

In Colorado, edibles comprise nearly half the market of legal sales, and are the fastest growing segment of the market. Edibles also pose the greatest public health concerns for Colorado regulators due to adverse health effects from accidental overconsumption.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Smokables allowed?	Yes	Yes	Yes
Edibles allowed?	Yes	Yes (but not products that are appealing to children like candies)	Yes
Concentrates allowed?	Yes	Yes	Yes

Recommended Actions if Marijuana Were Legalized

- Prohibit the manufacture and sale of marijuana products that are particularly appealing to youth and may be mistakenly consumed by children, such as candy bars or gummy bears.
- Consider reasonable restrictions on products that may present a higher risk of harmful health impacts, such as concentrates with high THC potency or edibles with multiple servings.
- Require that all edibles be originally manufactured products to prevent practices like spraying THC on already existing products.
- Prohibit liquid marijuana products with multiple servings of THC.
- Grant the Commissioner of the Department of Public Health authority to take action to regulate new marijuana products if they are determined to pose a particular threat to public health or safety.

3.3.2 Packaging and Labeling Requirements

Product packaging can be see-through (transparent) or opaque. Packaging can grab the attention of the consumer (and, perhaps inadvertently, of children) through display of bright colors, cartoon characters, and other appealing designs.

Marijuana product labeling can be designed to inform consumers what they are ingesting, where the product originated, potential health risks, and other useful information.

Child resistant packaging helps minimize the risk of harm to young children from accidentally ingesting marijuana.

Packaging and labeling requirements for marijuana products may resemble the packaging and labeling requirements for tobacco and alcohol, such as disclosures of potency and health warnings.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Packaging requirements - opacity	Must be opaque	Must be opaque	Requirements to be set by the Cannabis Control Commission (CCC)*
Packaging requirements - children	Must be child resistant, re-sealable and unappealing to children	Must be child resistant, re-sealable, and unappealing to children	Must include protections against accidental ingestion Additional requirements to be set by the CCC
Packaging requirements - other	N/A	Packaging must divide multiple servings into single serving unit divisions If there is more than one serving in a liquid product, the product	Packaging must divide multiple servings into single serving unit divisions

		must include a measuring device.	
Labeling requirements - potency	Must display potency	Must display potency	Requirements to be set by the CCC
Labeling requirements - freshness	Must display a best-by date and information of origin	Must display a best-by date and information of origin	Requirements to be set by the CCC
Labeling requirements – legal disclaimers	Must include warnings about conflict with laws in other jurisdictions	Must include warnings about conflict with laws in other jurisdictions	Requirements to be set by the CCC
Enforcement responsibility	Colorado Department of Revenue	A three member board must approve all edible products and packaging before the product can be sold at retail	Cannabis Control Commission

* The Massachusetts ballot question establishes a new entity, known as the Cannabis Control Commission, to be the chief regulatory authority for the marijuana industry.

Recommended Actions if Marijuana Were Legalized

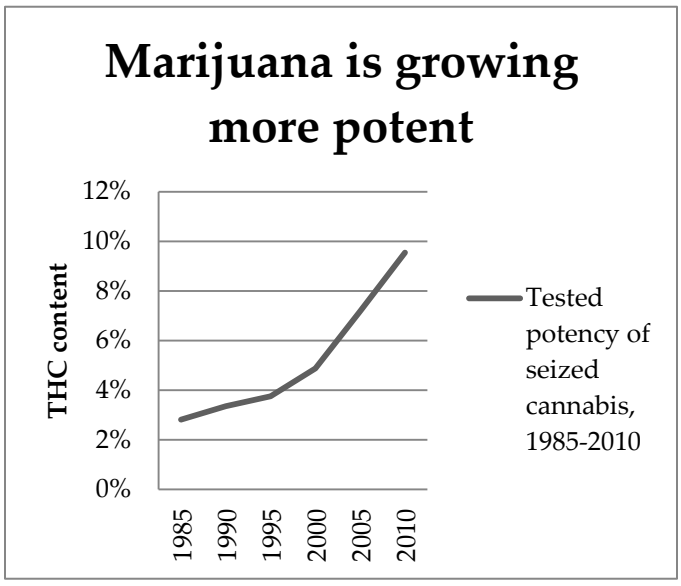
- Prohibit product packaging with designs that are appealing to youth, such as bright colors, cartoon characters, superheroes, or knockoffs of existing products like candy bars.
- Require plain gray or similar opaque packaging for all products when they are purchased and removed from a retail store.

- Require child-resistant packaging along with a clear indication that the product contains marijuana.
- Require clear, legible labels on all products that indicate THC potency, best-by date, and place of origin.
- Require a standard health warning to be developed by DPH and included on all products.
- Require a standard warning on all products that the product must be consumed in Massachusetts and cannot be taken across state lines.
- Require GMO labeling where appropriate.

3.3.3 Maximum Potency

The potency of marijuana is measured by the amount of THC per volume of the marijuana product.

Marijuana potency has increased substantially over time. Growers have been experimenting with breeding different strains and creating products that have a higher amount of THC per volume. Concentrates can have a potency greater than 90% THC (compared to marijuana plants that may reach a potency of around 30%). A recent study of 600 samples suggested that average potency in Colorado marijuana products is 18%.



Source: National Drug Control Strategy Data Supplement, 2014

As more THC is consumed, the impairment increases for the user. Inexperienced users consuming high potency marijuana may have difficulty moderating their intake based on how they feel.

Higher potency marijuana may increase the risk of addiction, heighten physical and mental health consequences, and worsen the effects of withdrawal, but these effects are still uncertain and require further study.

No national health and safety standards exist for marijuana potency. Testing potency is not a standardized field. Different labs use different methods, rely on different technologies with varying levels of sophistication, and test different parts of the plant (e.g. seed vs. bud). As a result, tests often yield different results. For example, a single sample of marijuana was divided and given to four different labs in Oregon; THC potency estimates ranged from 13.9% to 23.9%.

The Netherlands has proposed classifying marijuana with THC potency greater than 15% as a hard drug.

While it may be desirable to set a potency maximum, there would be numerous challenges to overcome, including: a lack of laboratories qualified to do the testing and agencies willing to be responsible for lab certification; the difficultly faced by growers in controlling the potency of their plants; and a lack of consensus on where a threshold

should be set. Limiting potency might also encourage black market sales for high potency products.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Limits on THC in edibles	10mg of THC per serving and max of 100mg per package	10mg of THC per serving and max of 100mg per package	Silent
Other limits on THC	Silent	Maximum potency of 60% THC	Silent

Recommended Actions if Marijuana Were Legalized

- Establish a state-certified reference lab for determining potency levels.
- Establish clear testing protocols and procedures in order to measure potency as accurately and reliably as possible.
- Set a maximum THC limit per serving for all edibles, and a maximum number of servings per package (or consider allowing only one serving per package).
- Consider setting an upper limit on potency that would apply to all marijuana products.

3.3.4 Product Safety

Marijuana products may contain contaminants that pose a public health and safety threat to consumers and manufacturing employees. Contaminants can include fungi, mold, and bacteria that grow on the plants (e.g. e. coli, salmonella), as well as the chemical solvents used to extract THC to produce marijuana concentrates (e.g. butane).

Pesticides used during growing pose a potential exposure risk to employees working in grow operations, as well as to consumers who may consume unsafe amounts in the absence of strict regulation.

The health impacts of smoking contaminants potentially found in marijuana are uncertain, and can be complicated by the manner of consumption.

In the absence of strong food safety standards and practices, edibles may contain harmful bacteria or other contaminants that pose specific risks with certain marijuana products. For instance, Washington has prohibited food items that must be acidified to be made shelf stable, including canned goods, fruit and vegetable butters, pies containing eggs or dairy, vinegars, and dried meats.

As with testing for potency, in the absence of federal standards and regulation, there is a lack of a vetted, uniform threshold for what constitutes safe levels of contaminants in marijuana products. Thresholds set for tobacco cannot be used as guidance, since the EPA has not determined pesticide allowances for tobacco as a food crop. Also, tobacco, unlike marijuana, is typically smoked through filtered cigarettes.

State agricultural regulators in Colorado and Washington have faced a difficult problem: no pesticides are federally approved for use on marijuana crops, while state laws require application of pesticides according to federal guidelines. Colorado has now approved some low toxicity pesticides for use on marijuana crops, and has had to devote substantial resources to trying to ensure safe pesticide practices.

Another challenge facing regulators is that the industry has little experience with typical agricultural practices used in the production of other crops.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Lab testing certification	Requires testing to be performed by state certified labs	Requires testing to be performed by state certified labs	Testing facilities must be certified Directs the CCC to set requirements
Contaminant standards	Legislation proposed to require state agency to develop uniform testing standards	Labs to be held to American Herbal Pharmacopeia standard for allowable threshold contaminants	Directs the CCC to set testing parameters and contaminant guidelines
Pesticides approved for use	Has now developed approved list (contains 278 pesticides)	Has established criteria pesticides must meet	Silent

Recommended Actions if Marijuana Were Legalized

- Establish a state-certified reference lab for determining testing standards
- Require product safety testing to minimize risks from contaminants and pesticides (evaluate whether existing medical marijuana standards and testing protocols could be used).
- Prohibit the sale of edibles that present too high a risk of food contamination.
- Coordinate with other states like Colorado and Washington on developing a list of approved pesticides for use in marijuana growing, as well as best management practices.
- Regulate wastewater and odor from growing facilities and labs.

3.4 Policy Considerations Relative to Growing, Distributing, Sales, and Marketing

3.4.1 Seed-to-Sale Tracking

Seed-to-sale tracking allows for identification of a marijuana product as it proceeds from grow to distribution to retail (and from retail back to distribution and grow). This can provide a number of policy benefits.

In the event of consumer harm, seed-to-sale tracking allows regulators to track a contaminated product back to the manufacturer or grower. This enables appropriate steps to be taken to protect public health, and can provide legal recourse for the affected consumers. This is a common practice for products that may cause consumer harm. For example, raw milk production is closely monitored in order to track the origin of any contaminated milk.

For the marijuana market, a further benefit is that regulators can compare marijuana produced, marijuana disposed of, and marijuana sold, and then calculate whether marijuana may have been improperly diverted to the black market and/or determine compliance in a jurisdiction with grow limits.

Law enforcement can more easily determine whether product is legitimate or contraband. The Department of Revenue can also accurately calculate taxes owed.

Seed-to-sale tracking is not foolproof, however, and unscrupulous businesses can divert or intake product outside of the tracking system. The data entered into the system is controlled by the marijuana business; thus the integrity of the data hinges upon the accuracy of the information entered into the system in the first place. For example, disciplinary action was recently taken against a business in Colorado where the seed-to-sale tracking system showed 950 plants at the facility, but a hand count during an inspection showed 2,000 plants. There is no way of knowing how many harvests had already gone through without being tracked.

Home growing is also difficult to include in a tracking system, creating a potentially significant loophole.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Seed-to-sale system used	METRC	BIOTrackTHC	Silent
Type of system	Closed (requires all industry players to use the same software)	Open (allows industry players to use other systems as long as they can report required information)	Silent
Home growing tracked?	No	N/A	No

Recommended Actions if Marijuana Were Legalized

- Require the implementation of an effective seed-to-sale tracking system that meets the needs of regulators, law enforcement, and tax collectors.
- Ensure frequent on-site inspections to ensure compliance with the tracking system.
- Establish reporting requirements that must be met by different types of marijuana businesses in order to maintain their licenses.
- Establish penalties for violations that increase with the number of violations and can result in loss of license.

3.4.2 Market Structure and Vertical Integration

Jurisdictions around the world have developed different approaches for organizing legal markets for substances of concern to public health and safety.

Market Structure Alternatives

An alcohol-style commercial model is the most common market structure for legalized marijuana in the United States. Many for-profit businesses compete in a highly regulated marketplace. Marijuana is typically sold at marijuana-specific retailers only. This model generally allows the private sector to efficiently produce and sell products to meet consumer demand. However, there is the risk of commercialization and strong incentives to grow demand in order to increase profits.

Washington D.C. has adopted a grow-your-own model. Adults are permitted to grow their own marijuana but there are no commercial sales. This structure is simple and requires much less government regulation and oversight. However, many consumers may not wish to grow their own marijuana, and tax collection is unlikely.

The Netherlands allows a locally-controlled retail sale model. Adults can purchase marijuana from certain retailers and local governments determine special taxes and regulations. The Dutch prefer this model as a means to separate soft drug (cannabis) from hard drug (e.g. heroin) markets, thereby reducing consumer exposure to dealers of hard drugs. This model reduces the role of the state and its capacity to collect taxes.

Some Spanish jurisdictions allow individuals to grow their own product, and share or sell at cost in a cannabis club. This model seeks to reduce the value of the black market by permitting members to buy from other members at a low cost. However, some clubs appear to serve as part of the black market and may be used as illegal trafficking fronts. Consumers unable to access a club may continue to purchase in the black market.

Another possible model is a government monopoly, similar to the approach taken by New Hampshire with spirits. This would allow the government greater control over the marijuana market, providing for improved capacity to monitor supply and to prevent a price collapse. However, a state may be wary of taking on this role given the federal prohibition against marijuana.

Massachusetts could also choose to offer only a limited number of licenses, a so-called structured oligopoly. This model artificially creates scarcity and encourages firms to cooperate with regulators because the value of the license far exceeds the risk of bad behavior and potential loss of license.

Extent of Vertical Integration

If Massachusetts selects an alcohol-style commercial model, it must then determine whether or not to regulate the degree of vertical integration. Vertical integration means that growing, processing, distribution, and retail sales must all be conducted by a single company. No firm can engage in just growing, just processing, or just sales.

Vertical integration can allow for ease and efficiency of regulation, with a single point of contact for regulators to conduct oversight and monitoring. On the other hand, vertical integration tends to reduce competition, consolidate wealth and power, may reduce efficiency, and could increase the risk of corruption and regulatory capture.

The medical marijuana market in Massachusetts is currently required to be vertically integrated, thus each dispensary must grow and process the marijuana that it sells.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Market structure	Alcohol-style commercial model	Alcohol-style commercial model	Alcohol-style commercial model
Vertical integration	Allowed (initially it was required)	Prohibited	Silent

Recommended Actions if Marijuana Were Legalized

- Investigate further the feasibility of pursuing an alternative market structure to an alcohol-style commercial model.
- Remain silent on vertical integration (i.e. neither require nor prohibit).

3.4.3 Growing Limits

Massachusetts could choose to limit the total supply of legal product based on the projected demand for marijuana. Through such a limit, Massachusetts could demonstrate adherence to the guidance of the federal government and limit the supply of marijuana that could be diverted to the black market or across state borders.

Reliable baseline consumption data and ongoing data collection would be necessary to enable the state to set an overall limit and adjust it over time.

Limits could also be applied to individual grow operations. However, these can be difficult to design and may have unintended consequences. For example, a limit placed on the number of plants or amount produced might encourage a grower to breed higher potency plants. Limits could be tiered, with stiffer regulatory standards and/or licensing fees applied to larger license limits.

Massachusetts could also choose to limit how much marijuana a retail establishment and/or a grower can have on hand for a given period. This could be done by creating a flat cap for every retailer and/or grower, or by creating different levels of licensure and limiting the number of licenses at each level.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Statewide aggregate limit	Silent	The state may limit total amount of marijuana grown	CCC may limit total amount of marijuana cultivated in the state (if they do, they have to revisit this amount biannually)
Individual license limits	No more than 10,200 plants	30,000 square feet	CCC may set license limits
Tiered licensure system?	Yes	Yes	CCC may establish a tiered licensure system

Recommended Actions if Marijuana Were Legalized

- Consider establishing an aggregate limit on the amount of marijuana that can be grown in the state each year.
- Establish a tiered licensure system to tightly regulate the size of individual grow, manufacturing, and retail operations.

3.4.4 Licensing Requirements

Licenses are typically issued to specific types of marijuana businesses. In an alcohol-style commercial market, marijuana businesses may be licensed to grow marijuana crops, process and manufacture the raw plant into a finished product, distribute the finished product to a retailer, and/or sell the product to a consumer.

Government-issued licenses allow tracking of the movement of products; ensure that products meet minimum quality standards and that workers are protected; assist in collection of market data; and help monitor sales to identify issues of excess or insufficient supply. A licensing system also enables efficient tax collection and reduces potential for diversion. By imposing additional costs on industry players, licensing requirements may help keep prices higher and demand lower.

Without licensing, the market may be difficult to regulate. For example, it would be more difficult for the government to restrain supplier promotion of a product that causes harm, or prevent excess grow that feeds illegal distribution.

Placing limits on the number of retail licenses issued is an effective means of restricting product access and availability, which tends to reduce consumption, particularly among youth.

A challenge of licensing is the cost incurred by state and local governments to implement the system. A solution is often to require payments from the industry to cover these costs.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Grow (production)	Producer License	Producer License	Cultivator License
Manufacturing (processing)	Processor License	Processor License	Product Manufacturer License
Distribution	Wholesaler License	Included in the Processor License	Included in the Product Manufacturer License

Retail	Retail License	Retail License	Retailer License
Testing	Testing Facility License	Testing Facility License and Accreditation	Testing Facility License
Limits on retail licenses	Silent	Limited to 334 stores (one store per 20,000 people)	Municipalities may limit the number of marijuana establishments within their jurisdiction

Recommended Actions if Marijuana Were Legalized

- Establish a licensing system with separate licenses for growers, manufacturers, distributors, retailers, and testing facilities.
- Consider limiting the number of licenses of each type that can be granted, particularly retail licenses.
- Ensure that licenses are location specific.
- Require as condition of licensure for growers and manufacturers that the applicant provide sufficient surety to ensure that the site is free of any contamination should the operation be terminated.
- Require the license(s) to be returned to the licensing authority upon sale of a business or transfer of ownership, and that the new owner re-apply for the necessary license(s). Licenses should not be allowed to be pledged or used as security.

3.4.5 Safety and Security

Marijuana grow and retail operations face security concerns unique to their product. Marijuana operations conduct significant amounts of cash business, and the securing of marijuana plants and products is a critical priority for the industry and government. If marijuana is stolen or diverted and then trafficked in the black market or across state lines, the federal government may take steps to restrict the sale of marijuana in the state.

Security measures are typically required to protect the product, both on site and while in transit, protect employees and customers, and prevent underage access.

Medical marijuana dispensaries in Massachusetts are required to establish strong security measures, including: restricting unauthorized access to the facility; storing marijuana in vaults or other secure locations; safely disposing of excess marijuana; and installing security systems like locks, surveillance cameras, and biometric or electrical security systems.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Alarm systems	Requires alarm and video surveillance systems	Requires alarm and video surveillance systems	To be set by CCC
Physical security	Requires commercial-grade locks	Silent	To be set by CCC
Inventory tracking	Yes, including waste disposal	Yes	To be set by CCC

Hours of operation limitations	Yes	Silent	To be set by CCC
Employee requirements	ID badges required	ID badges required	Silent

Recommended Actions if Marijuana Were Legalized

- Require rigorous safety and security systems and procedures for all marijuana businesses (evaluate whether existing medical marijuana safety and security requirements can/should be applied to the recreational market).
- Require employers to follow OSHA employee workplace safety regulations.
- Require all employees to undergo background CORI checks.
- Ensure appropriate progressive penalties for violations of safety and security regulations.

3.4.6 Home Growing

The question of whether to allow home cultivation of marijuana (and, if so, to what extent) is an important policy decision with substantial impacts on use, access and availability of supply, collection of taxes, and potential diversion to the black market.

A single plant can yield more than one pound of marijuana, worth almost $5,000 at $300 per ounce.

Across the country, a half million individuals are estimated to grow marijuana in their homes, nearly all illegally today. Applying these national figures to Massachusetts would suggest that around 28,000 residents may already be growing marijuana in their homes.

The option to grow marijuana at home can provide consumers with greater choice and may be particularly beneficial for people who live in cities or towns that have banned retail sales.

However, marijuana grown at home would not be tested for product safety or potency, would not be subject to the tracking and monitoring of commercial sales, and could more easily be diverted to the black market (including youth consumption).

Enforcement of home growing limits is nearly impossible without some type of registration process. Law enforcement would likely struggle to identify who cultivates in the manner allowed by law and abides by grow limits, and aggressive enforcement efforts could raise civil liberty concerns.

In addition to home growing, some people cook their own marijuana concentrates at home. This process is relatively simple but dangerous: put marijuana in butane, a solvent that takes the THC with it and leaves behind the plant, and then boil off the butane, isolating the THC. Butane is highly volatile and heating it can result in explosions and house fires. There were 32 such explosions in Colorado in 2014, resulting in injuries and severe burns.

Other related issues that policy makers would have to address include: home growing and marijuana consumption in multi-family dwelling units; home growing where children are living; and the rights of landlords and tenants when growing or consumption of marijuana is in conflict.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Home growing allowed?	Yes	No	Yes
Individual home grow limits	6 plants in a secure enclosed location	N/A	6 marijuana plants and 12 marijuana seedlings for personal use
Household home grow limits	Silent	Silent	No more than 12 plants and 12 marijuana seedlings can be cultivated on the premises at one time

Home growers in Colorado must notify the Department of Revenue's Marijuana Enforcement Division. However, they do not need to register for seed-to-sale tracking and are otherwise unregulated. Colorado estimates that about 4% of users grow their own marijuana, but that 9% of marijuana consumed in the recreational market comes from home grown product.

Recommended Actions if Marijuana Were Legalized

- Prohibit home growing or impose a temporary moratorium.
- If/when home growing is allowed:
  - Implement a registration system.
  - Require the homeowner to attest under penalty of perjury that the home grow operation is in compliance with all relevant state and local laws and regulations.
  - Allow local control, including the ability for a municipality to prohibit home growing.
- Ban the home production of concentrates.
- Establish policies to regulate home growing and consumption in multi-family dwelling units.

3.4.7 Location Restrictions

Ease of availability for substances like marijuana, alcohol, and tobacco is an important driver of consumption rates, particularly for youth. As a result, policy makers may seek to restrict the number, type, and location of retail establishments that sell marijuana products.

Some typical location restrictions might include proximity to schools, parks, daycare centers, libraries, healthcare facilities, and other locations frequented by youth or other vulnerable populations.

Retail density may also be regulated to restrict supply and easy availability, and to prevent a high concentration of marijuana businesses in a particular neighborhood.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Location restrictions in state law	Silent	Prohibits retail within 1,000 feet of schools, parks, transit centers, libraries, or arcades	Cannot be located within 500 feet of an existing K-12 school (municipalities can reduce the footage of this requirement)
Additional location restrictions under local ordinances	County governments may set location restrictions (for example, Denver prohibits retail within 1,000 feet of schools and drug treatment facilities)	Local governments may set further location restrictions	Local governments may set further location restrictions

Recommended Actions if Marijuana Were Legalized

- Establish location restrictions in state law for schools (of all types), parks, daycare centers, libraries, and other facilities frequented by youth.
- Ensure that location restrictions do not result in high concentrations of marijuana facilities in certain neighborhoods, particularly low-income and minority communities.
- Allow municipalities to adopt further location restrictions as they see fit.

3.4.8 Advertising and Marketing Restrictions

If Massachusetts implements an alcohol-style commercial market, a primary concern would be profit-driven commercialization through advertising and other marketing strategies. Marijuana businesses would seek to grow their revenues and profits by attracting new customers and increasing the consumption of their existing customers.

Youth are particularly susceptible to marketing campaigns. The tobacco industry, for example, is notorious for using a wide variety of marketing techniques, such as the cartoon character Joe Camel, to make its products appealing to young people. Celebrities are already signing endorsement deals for marijuana product lines in Colorado and Washington.

It is difficult for governments to restrict the marketing and promotion of tobacco and alcohol products due to commercial free speech protections. However, the alcohol industry requires (through self-regulatory rulemaking) that no more than 28.4% of an alcohol ad's audience can be underage. The Federal Trade Commission monitors the industry's compliance with its self-regulatory codes and guidance, and reserves the right to regulate if the industry fails to comply with its own regulations.

Since marijuana remains illegal under federal law, it does not currently enjoy similar free speech protections. Thus, states and municipalities have much greater latitude to restrict marijuana advertising and marketing that they deem harmful to public health or safety.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Restrictions on advertising content	False and misleading advertising is prohibited Advertising must warn of dangers	False and misleading advertising is prohibited Advertising must warn of dangers Prohibits advertising that promotes over consumption	Requirements to be set by CCC

Advertising targeted at minors	Prohibits advertising targeting underage users Prohibits ads where children and adolescents congregate Prohibits ads where more than 30% of the audience is reasonably expected to be underage	Prohibits advertising targeting underage users Prohibits ads where children and adolescents congregate	Requirements to be set by CCC
Television and radio advertising	Prohibits TV or radio ads that could be aired out of state	Prohibits TV and radio advertising	Requirements to be set by CCC
Advertising in public areas	Prohibits storefront advertisements visible to public ways	Prohibits storefront advertisements visible to public ways Prohibits ads on public transit or public property	Requirements to be set by CCC
Event-specific advertising	Limits advertising at charitable and sporting events	Silent	Requirements to be set by CCC
Marketing promotions	Silent	Prohibits giveaways, coupons and distribution of branded merchandise	Requirements to be set by CCC
Local government authority	May regulate further	May regulate further	May regulate further

In regulating advertising, Colorado employs a 70/30 standard that is similar to the

existing industry standard for alcohol advertising (in other words, no more than 30% of the expected audience for a particular ad can be under 21 years old).

Recommended Actions if Marijuana Were Legalized

- Implement strict limits on marijuana marketing, advertising, and promotion in order to limit commercialization and youth appeal.
- Prohibit or severely restrict marijuana advertising on television, radio, print, internet, billboard, or other media that may be viewed by youth.
- Prohibit marijuana advertising that may be seen out of state (except for internet).
- Require advertising and marketing materials to warn of health risks.
- Require retail storefront signage to be unobtrusive and to indicate that it is an adult-only marijuana establishment.
- Prohibit free samples, coupons, price discounting, or other promotional activities that encourage product experimentation and consumption.
- Prohibit celebrity endorsements and brand sponsorships that may increase appeal to youth.

3.5 Policy Considerations Relative to Taxes and Revenue

3.5.1 Taxes and Fees

Decisions concerning taxes and fees have a significant impact on several policy objectives, including revenues generated for state and local governments, marijuana consumption, business competitiveness, and black market diversion.

Standard fees likely to be assessed on industry participants include application fees, initial and renewal license fees, and administrative service fees. Typically, these fees are used to help cover regulatory, enforcement and other administrative costs incurred by regulators.

Taxes imposed by the state may be fixed or variable, may be levied at different points in the supply chain, and may be based on price, weight, or potency of the marijuana.

A tax may be collected at the point of sale (typical sales tax) or it may be collected earlier in the supply chain (typical excise tax). A concern that businesses might have with an earlier collection point is that growers and manufacturers cannot deduct this tax for federal tax purposes due to marijuana's federal status. A sales tax avoids this concern since retailers would collect the tax directly from the consumer and remit the funds to the state.

The structure of a tax (large or small, fixed or variable, etc.) can have significant impacts. Policy makers must balance the amount of revenue generated with factors including: affordability for the industry and consumers; driving sales to the black market; preventing price collapse; avoiding complicated collection and enforcement mechanisms; and minimizing gaming of the system or other unintended consequences.

Higher tax rates are likely to generate greater revenue for the Commonwealth, dissuade youth from consuming since they tend to be price-sensitive, and generally reduce market demand. However, they may limit the development of a regulated industry and drive consumers to purchase marijuana illegally in the black market.

Marijuana taxes may be calculated based on price, weight, potency, or other readily measurable characteristics of the marijuana. An ad valorem tax, based on price, is the simplest form of tax and the most often used; however, it amplifies pre-tax price changes and the revenue can fluctuate. A weight-based tax can deliver a more stable and predictable revenue stream, but it is more difficult to set up and administer, and it may create an incentive to pack more THC into each gram sold. Taxing based on potency (amount of THC) would likely control intoxication better than any other base,

but implementation would be the most difficult given the variability in potency levels and current inaccuracy of testing procedures.

In addition to generating revenue for the government, taxes and fees also serve a valuable data collection service. The information collected on the market when assessing taxes and fees provides useful data on the size and scope of the marijuana industry.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Type of tax	Excise and sales tax	Sales tax (was initially a three-tiered excise tax)	Excise tax (collected at retail)
Tax base	By weight (excise tax) and by price (sales tax)	Price	Price
Excise tax rate	15%	N/A	3.75%
Marijuana-specific sales tax rate	10%	37%	N/A
General sales tax rate	2.9%	6.5%	6.25%
Additional local option tax rate	Local governments may apply additional sales taxes	Local governments may apply additional sales taxes	Cities and towns may apply additional sales tax up to 2%
Fees*	Application, licensing, and renewal fees for growers, distributors and retailers, and various administrative fees	Application, licensing, and renewal fees for growers, distributors and retailers	To be determined by the CCC

* See Appendix 4.3 for further detail on fees assessed in Colorado and Washington.

Colorado collected approximately $87 million in taxes and fees from the sale of recreational marijuana in the first full fiscal year after legalization (July 1, 2014 - June 30, 2015). In the first five months of the current fiscal year, monthly collections were up 60% over the same period in the prior year. If revenues continue at this pace, Colorado could collect around $125 million in the current fiscal year.

Washington collected $75 million in excise and retail taxes from the sale of recreational marijuana in its first full fiscal year after legalization (July 1, 2014 – June 30, 2015). If revenues continue at the pace set by the first seven months of this year, Washington could collect more than $163 million in marijuana revenues in the current fiscal year.

In Massachusetts, a rough estimate is that the state would collect $50-60 million in total annual marijuana taxes and fees within the first few years of legal recreational marijuana sales. This assumes a recreational marijuana market size of around $500 million, modest fee collections, and the tax rate as specified in the ballot initiative. Of this amount, approximately $20-25 million would be directed to a dedicated marijuana fund, and the remainder would be deposited in the state's general fund (absent any action by the legislature).

Although the population of Massachusetts is larger than Colorado and similar to Washington, the Commonwealth is likely to collect lower revenues than these two states for the following reasons: (1) Colorado and Washington have much higher marijuana tax rates than the rate proposed for Massachusetts; (2) Colorado and Washington both tax medical marijuana sales in addition to recreational marijuana sales; and (3) Washington prohibits home growing.

Recommended Actions if Marijuana Were Legalized

- Require the Department of Revenue to report to the Legislature the potential tax revenues that would be generated from the recreational marijuana market, assuming a number of different excise and sales tax rate scenarios.
- Establish an excise tax of between 5-15% that is collected from growers, with the exact rate determined based on the DOR's analysis.
- Establish a marijuana-specific sales tax of 10-20%, with the exact rate determined based on the DOR's analysis.
- Allow a local option sales tax of up to 5%.
- Ensure that all applicable taxes are paid by marijuana businesses and their employees, including corporate income tax, vehicle excise taxes, property taxes, employee withholding, etc.

3.5.2 Use of Revenue

Revenue generated for state and local governments from taxes and fees assessed on the marijuana industry can be used to meet a variety of public needs.

Typically, this revenue is used to cover the regulatory, administrative, legal, and enforcement costs incurred in regulating the industry.

Policy makers may also want to use additional available revenues to meet some or all of the following needs: marijuana baseline and ongoing data collection and analysis; marijuana research; public health education and prevention programs; law enforcement training; and treatment for substance abuse and other related medical and behavioral health impacts.

Revenue could also be used to fund other public policy goals unrelated to marijuana, such as education, transportation, and healthcare.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Mandated use of revenues	First $40 million is directed to school building fund	Treatment, prevention and education, and local aid	Implementation, enforcement, regulation, and local assistance
Where the funds are deposited	In part, into dedicated funds for specific programs	Dedicated marijuana fund	Excise tax revenues to a dedicated marijuana fund Sales tax revenues to the general fund

In a November, 2015 letter accompanying his proposed budget for the next fiscal year, Governor John Hickenlooper of Colorado recommended about $45 million in marijuana-related spending (not including the excise tax revenue that is required to be deposited in the state's school building fund). This includes:

- $11.5 million to cover regulatory costs, including the Marijuana Enforcement Division in the Department of Revenue, the Department of Public Health, the Department of Public Safety, and the Department of Agriculture.

- $10.8 million for grants to mitigate the impacts of legalization, including education and prevention campaigns, substance abuse treatment, youth mentoring, and support for local government.
- $0.2 million for a coordinating agency housed in the Governor's Office.
- $5.7 million for the Department of Public Health to develop and implement marijuana public education campaigns, including impaired driving.
- $15.5 million for the Department of Education and the Department of Social Services to fund substance abuse treatment programs.
- $0.6 million for baseline data collection and ongoing monitoring, and for support of the state's poison call center.

The Governor also notes in his letter that he intends to file an additional request for marijuana-related spending later in the year.

Washington also has substantial marijuana-related spending in its state budget, including: $7 million for the Liquor and Cannabis Control Board (primary regulatory agency); $6 million for marijuana programs in local government; and $21 million for various education, prevention, and treatment programs. More than $100 million is directed to the state's general fund.

Recommended Actions if Marijuana Were Legalized

- Direct all revenue generated from marijuana taxes and fees, including the general sales tax, to a dedicated fund, and not to the state's general fund.
- Use these revenues to fund the following marijuana-related public needs:
  - Regulatory, administrative, legal and enforcement costs incurred by state and local governments in regulating the marijuana industry.
  - Baseline and ongoing data collection, analysis, and research.
  - Law enforcement training.
  - Public health education and prevention programs, including school-based initiatives and public health campaigns aimed at adults and youth.
  - Marijuana substance abuse treatment as well as associated medical and behavioral health impacts.
  - Other public health programs to promote health and wellness.

3.6 Other Policy Considerations

3.6.1 State Regulatory Authority

Policy makers must determine which existing or newly established government agencies will be tasked with specific regulatory responsibilities. A key decision is whether to create a new, dedicated entity that will have most of the regulatory authority, or instead spread the responsibilities across several existing state agencies.

In Massachusetts, alcohol is regulated by the Alcoholic Beverages Control Commission, an agency in the Office of the State Treasurer and Receiver General. Tobacco sales are regulated by the Department of Revenue, and tobacco control efforts are led by the Department of Public Health.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Chief regulatory authority	Department of Revenue	Liquor and Cannabis Control Board	Cannabis Control Commission
Other important roles	Director of Marijuana Coordination in the Office of the Governor	N/A	Cannabis Advisory Board

Colorado officials believe that a coordinating function like they have established within the Office of the Governor is helpful to facilitate communications and policy development across state government and with other stakeholders.

Under the Massachusetts ballot question, the Cannabis Control Commission would be a new agency in the Office of the State Treasurer and Receiver General. The three members of the Commission would be appointed by the State Treasurer. The Cannabis Advisory Board, consisting of 15 members with different areas of expertise appointed by the Governor, would advise the Commission on regulations and other matters.

Recommended Actions if Marijuana Were Legalized

- Investigate further whether to establish a new regulatory authority or instead distribute responsibilities across existing state agencies. If it is determined that a new regulatory authority is the preferred approach, then a decision will need to be made as to whether this entity should reside within the Office of the State Treasurer and Receiver General, within another state agency, or should be completely independent (like the Massachusetts Gaming Commission).
- Provide any new regulatory authority, such as a Cannabis Control Commission, with the authority to share information and data with other state agencies.
- Consider whether the Attorney General may need to create a special legal unit to deal with marijuana enforcement issues.

3.6.2 Local Control

A key issue is the degree of authority exercised by the state government versus authority exercised by local cities and towns. Local governments are likely to be concerned about whether or not to allow marijuana production and sales in their communities; time, place, and manner restrictions if sales are permitted; taxes and fees that may be assessed; and other licensing or regulatory issues.

Municipalities will almost certainly want to exercise some authority over marijuana activity near places where youth congregate, how best to manage populations more susceptible to addiction, sales in downtown versus more suburban or rural areas, and the role of local law enforcement.

Municipalities in Massachusetts currently have the ability to control who receives a liquor license, and what types of alcohol the licensee may serve or sell. Cities and towns can alter their zoning requirements to include or exclude liquor establishments. In fact, there are 8 dry towns in Massachusetts where alcohol cannot be sold or distributed.

While a community may wish to restrict marijuana sales entirely, they will be unable to control proximity to "wet" communities. If municipalities have too many different local ordinances and regulations pertaining to marijuana, this can lead to confusion among government officials, businesses, and consumers.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Local authority to limit marijuana establishments	Counties may limit or prohibit marijuana establishments	Counties may limit or prohibit marijuana establishments	Municipalities may limit or prohibit marijuana establishments (certain restrictions would require a local referendum)
Additional local authority to regulate	May add time, place, and manner restrictions	May add time, place, and manner restrictions	May add time, place, and manner restrictions (but may not restrict locating in the area of an existing medical marijuana dispensary)

Recommended Actions if Marijuana Were Legalized

- Provide municipalities with the authority to limit or prohibit any type of marijuana establishment by action of the City Council or Town Meeting, and without requiring a local voter referendum.
- Provide municipalities with the authority to set time, place, and manner restrictions as well as take other regulatory actions that they deem necessary.
- Ensure that local licenses include right to inspect provisions.
- Ensure local authority over building, health, sanitation, and other appropriate code enforcement.

3.6.3 Banking Issues

The federal government is largely responsible for banking laws and regulations. Many financial institutions have been wary of doing business with marijuana-related firms because the drug is still illegal under federal law.

In February, 2014, the Department of the Treasury's Financial Crimes Enforcement Network issued guidance concerning how financial institutions can service marijuana businesses without violating the federal Bank Secrecy Act. Banks must undertake rigorous due diligence and compliance efforts to ensure a marijuana business is in compliance with all state laws, and to identify any suspicious or criminal activity.

Notwithstanding this guidance, the large national banks have not participated in the industry to this point, perhaps because dealing with a marijuana business requires a higher level of compliance and effort or because they fear future federal policy changes could leave them and their customers exposed to risk.

The major credit card companies, including MasterCard and Visa, have also been reluctant to participate in the marijuana market. As a result, cash is often the preferred mode of payment for many marijuana-related transactions, although debit cards and electronic payment applications are also used to facilitate purchases.

Some smaller, local banks and credit unions have been willing to provide banking services to marijuana businesses in Colorado and Washington. These services typically include deposits, payroll, tax collection and payment, and filing of compliance reports. However, they do not provide loans or other forms of financing. The banks must comply with daunting requirements for due diligence and compliance reporting, which can be time consuming and expensive. For example, they must file cash transaction reports for every deposit and Suspicious Activity Reports every 90 days.

There is still considerable uncertainty in the market. Recently, the Federal Reserve denied a Colorado-chartered credit union's application for a master account, citing federal primacy and comparing marijuana business to "trade with North Korea".

This uncertainty has created potential business opportunities outside the traditional banking system. Some enterprising firms are developing full-service marketplaces that combine electronic trading platforms, tax revenue calculation and collection, regulatory supports, and other services.

Congress is currently considering legislation that proposes to create a "safe harbor" for banks providing financial services to legitimate marijuana businesses.

In Massachusetts, the Department of Public Health has required that medical marijuana applicants provide evidence that they are banked in order to qualify for a license.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Current banking status	Approximately 70% of marijuana businesses have a banking relationship 3 local banks and 1 credit union serve most of the market	Multiple credit unions are serving the industry	Appear to be a number of banks serving medical marijuana dispensaries
State "marijuana" bank?	Has sought to charter a state bank to serve marijuana businesses, but has been denied Federal Reserve approval	N/A	N/A

Recommended Actions if Marijuana Were Legalized

- Require evidence of a banking relationship as part of the licensure process for a marijuana-related business.
- Ensure that state banking regulators have sufficient regulatory authority to oversee banks that service marijuana-related businesses.
- Enable state banking regulators to share information and data with the Department of Revenue.
- Encourage state banking regulators to communicate early and frequently with federal banking regulators, and provide clear guidance to banks that are serving (or considering serving) marijuana-related businesses.

3.6.4 Employment Issues

The conflict between federal and state laws over marijuana's legal status adds complexity to employment law. Companies required to drug test by the federal government would be compelled to have a marijuana-free workforce. Companies with operations in multiple states may fear federal involvement since their business could be considered interstate commerce. However, if a company terminated employment due to an employee's use of marijuana (off premises), the company would be terminating the employee for a non-offense in a state where marijuana is a legal substance.

A large majority of private employers have the right to test their employees for a wide variety of substances, although most do not choose to do so. Some employers operating in fields with high security concerns may be required to drug test their employees, including those in the trucking industry, aviation, or mass transit, as well as those who contract with the Department of Defense or NASA. Private employers may choose to institute a drug testing program to qualify for workers' compensation discounts, to avoid legal liability, and to maintain worker productivity and save money.

Drug testing can conflict with privacy rights since these tests reveal not only current drug use but also show past drug use, including use of legal drugs and use of drugs on the employee's own time. THC, in particular, can be detected in a drug test long after the effects of marijuana intoxication have worn off. Tests also require the employee to surrender bodily fluids, often under close supervision. State and federal laws apply limits on when, how, and whether drug testing can be done. Current employees are afforded greater rights than job applicants.

The California Supreme Court has ruled that the state's medical marijuana law applies only to criminal prosecution, not to the workplace. The Oregon Supreme Court also found against an employee in a medical marijuana case, but did not decide the ultimate question of whether an employee who is using medical marijuana for a disability is entitled to an accommodation for his or her drug use. In June, 2015, the Colorado Supreme Court ruled that a quadriplegic medical marijuana patient who was fired for using the drug while at home and off-duty was not protected under the state's "lawful activities statute".

Massachusetts law does not address drug testing in private employment. In *Webster v. Motorola*, the Supreme Judicial Court found that the validity of an employer's policy of random drug testing had to be weighed on a case-by-case basis, taking into account the employee's job responsibilities and the employer's interests.

Massachusetts law in this area is not yet settled. An individual diagnosed with Crohn's Disease was fired last year for her use of medical marijuana. She has filed an employment discrimination lawsuit, citing discrimination as a result of her disability. The court case is still pending.

Policy Approaches in Different Jurisdictions

Colorado	Washington	MA Ballot Question
A private employer may drug test and dismiss employees for positive tests, including medical marijuana users	A private employer may drug test and dismiss employees for positive tests, including medical marijuana users	Affirms existing state and federal authority of employers to restrict consumption of marijuana by employees

Recommended Actions if Marijuana Were Legalized

- Consider whether there should be employee non-discrimination provisions in state law for medical marijuana patients.
- Ensure that marijuana businesses maintain appropriate employment records and fulfill required reporting to enable proper employee withholding, workers' compensation, unemployment insurance, etc.

3.6.5 Recreational and Medical Interactions

If Massachusetts were to legalize marijuana for recreational use and sale, policy makers would need to clarify the relationship between the medical and recreational markets. Medical marijuana is designed to serve a different purpose than recreational marijuana, and the regulations governing the two markets can be different.

Medical marijuana facilities are presumed to meet a public health purpose. Purchases require physician approval, and the facilities are licensed and regulated according to standards that seek to be medical-grade. Patient privacy is protected. Taxes and prices are typically lower for medical marijuana than recreational marijuana.

Although the products sold in these two markets are often different, some medical marijuana strains are also sold as recreational strains, and vice versa. These products are typically relatively "balanced", with similar levels of CBD and THC. However, there are no requirements or guidelines governing which strains can or should be sold as medical versus recreational.

Many existing or new medical marijuana facilities may seek to enter the recreational market. This can create challenges for businesses and regulators in determining how to apply the different laws and regulations that govern the two different markets.

In Colorado, nearly every medical marijuana dispensary also participates in the recreational market. They typically combine their grow and retail operations. Medical and recreational plants are grown right next to each other (just with different tags). Medical and recreational products are sold in the same retail stores. And the same workers manage these operations.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Retail medical marijuana market prior to recreational marijuana?	Yes	No (medical marijuana was grown in collectives)	Yes
Medical marijuana businesses given first opportunity to enter recreational market?	Yes	N/A	Yes

Medical and recreational permitted under one roof?	Yes	Yes	Yes
Same regulatory authority?	Yes (Marijuana Enforcement Division)	Yes (Liquor and Cannabis Control Board)	No (DPH for medical, CCC for recreational)
Tax on medical marijuana	General retail sales tax applies (2.9%)	General retail sales tax applies (6.5%)	None

In Colorado, existing medical marijuana dispensaries were granted the first opportunity to enter the recreational marijuana market, under the reasoning that they had already undergone the necessary background checks. Many of these businesses chose to participate in the recreational industry. On January 1, 2014, 348 medical marijuana businesses applied for recreational licenses (136 retail stores, 178 cultivation facilities, 31 product manufacturing facilities, and 3 testing facilities). Medical marijuana sales in 2014 did not decline from the previous year (other than briefly in January), and the total number of dispensaries in Colorado only grew from 493 to 505.

Medical marijuana in Colorado sells for about $250 per ounce, and recreational marijuana for about $300 per ounce.

Recommended Actions if Marijuana Were Legalized

- Explore the feasibility of merging the medical and recreational markets to simplify the regulatory structure for both businesses and government, while still serving the legitimate needs of medical marijuana patients.
- Consult with the Attorney General to determine the financial, accounting and legal requirements should existing non-profit medical marijuana dispensaries wish to enter the recreational market.

3.6.6 Federal Law and Compliance Issues

Marijuana is a Schedule I substance under the Controlled Substances Act, meaning it is illegal under federal law to possess or distribute marijuana under most circumstances.

However, in August, 2013, the Obama administration issued guidance, known as the Cole Memo, to clarify the relationship between conflicting state and federal marijuana laws. Under the Cole Memo, federal law enforcement is essentially directed to not intervene in a state where marijuana has been legalized as long as the state addresses the following goals:

- Prevent distribution of marijuana to minors
- Prevent criminal activity and violence
- Prevent diversion across state lines
- Prevent drugged driving and other adverse public health and safety consequences
- Prevent growing of marijuana on public lands
- Prevent marijuana use or possession on federal property

This guidance from the Justice Department has essentially allowed states to proceed with marijuana legalization. However, numerous issues remain problematic, including: banking and other financial concerns (for example, federal bankruptcy protections are unavailable, and employers cannot charge certain business expenses against their income for tax purposes); an absence of federal regulation of product safety (for example, the FDA does not regulate food safety for marijuana edibles and the EPA does not regulate pesticide use for marijuana crops); the federal prohibition on sales of firearms to users of illicit drugs; potential conflicts over the use of federal resources or infrastructure that may be contributing to the marijuana trade; and numerous other issues.

State and local government officials and market participants may be considered by federal officials, including the DEA, to be participating in the illegal trafficking of a Schedule I substance.

It is also possible that a future administration after the 2016 presidential election could take a different approach from that taken by the Obama administration, which creates additional uncertainty in the market.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Prevent distribution of marijuana to minors	MLSA 21+ Marketing, packaging restrictions, etc.	MLSA 21+ Marketing, packaging restrictions, etc.	MLSA 21+ Additional requirements to be determined by CCC
Prevent criminal activity and violence	Law enforcement training Seeking to establish state-chartered marijuana bank to reduce cash transactions	Law enforcement training	Requirements to be determined by CCC
Prevent diversion across state lines	METRC system for tracking product, rules about transport and surveillance	BioTrackTHC system for tracking product, rules about transport and surveillance	Requirements to be determined by CCC
Prevent drugged driving and other adverse public health and safety consequences	Legal limit 5ng/ml, no sobriety checkpoints allowed	Legal limit 5ng/ml, no sobriety checkpoints allowed	Affirms existing zero tolerance standard for DUI
Prevent growing of marijuana on public lands	N/A	N/A	N/A
Prevent marijuana possession or use on federal property	N/A	N/A	N/A

Marijuana diversion across state lines is an issue of particular concern to Colorado regulators and law enforcement. There is ample evidence of smuggling of marijuana from Colorado to other states. It is not clear how much of this marijuana is diverted from the legal system.

The Washington Liquor and Cannabis Control Board believes that the amount of diversion is less in Washington than Colorado, chiefly due to the proximity of Canada

and Oregon where marijuana policies are less stringent than in Colorado's neighboring states.

Recommended Actions if Marijuana Were Legalized

- Closely monitor any updates or changes in federal law or guidance that may impact marijuana production, sales, regulation, or enforcement in Massachusetts.
- Ensure that federal regulators and law enforcement are briefed regularly on the status of the marijuana industry in Massachusetts and any new developments or issues of concern.
- Establish strong penalties for transporting marijuana out of Massachusetts.
- Encourage the federal government to support research into the health impacts of marijuana use, both recreational and medical.

3.6.7 Hemp

Hemp is a cannabis plant with very low THC, typically less than 0.3%. Hemp has no value in the recreational marijuana market, but may be useful for medical purposes since it can be cultivated to have high levels of CBD.

Like marijuana, hemp is illegal under federal law. Thus, there are no pesticide or other product safety or environmental standards approved for hemp production.

The cultivation of hemp has increased substantially in Colorado since marijuana legalization (which also legalized hemp). Much of this hemp is believed to be used to extract CBD liquid to be sold as an alternative to medical marijuana products. There is a financial incentive to grow hemp instead of marijuana, since hemp products are not taxed like marijuana products and are not subject to the same strict regulations.

There may be consumer demand for other products made from hemp, such as clothing and rope.

The oversight of hemp cultivation is a challenge for agricultural regulators. It also presents a challenge for law enforcement. Anecdotally, the "hemp defense" may be invoked by impaired drivers and others facing possible marijuana violations, and it can be difficult for law enforcement to tell hemp from marijuana without potency testing.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Definition of hemp	Cannabis with a THC level less than 0.3% by volume	Cannabis with a THC level less than 0.3% by volume	Cannabis with a THC level less than 0.3% by volume
Amount under cultivation	3,657 outdoor acres under cultivation; 570,000 square feet of indoor cultivation	Unknown	N/A

Taxes	Standard retail sales tax (no hemp-specific tax)	Standard retail sales tax (no hemp-specific tax)	Presumably standard sales tax would apply

It is unclear in Colorado and under the MA ballot question whether home cultivation of hemp is allowed. The statutory language indicates that production of hemp cannot lead to arrest, but does not expressly authorize home cultivation.

Recommended Actions if Marijuana (and Hemp) Were Legalized

- Implement a licensing system for hemp cultivation, product manufacturing, and sales.
- Consider appropriate regulation of hemp CBD products, including product safety and testing standards for potency, contaminants, and pesticides.
- Assess an additional sales or excise tax on hemp, in addition to the standard sales tax, to cover regulatory and enforcement costs.
- Prohibit home growing of hemp.

3.6.8 Research and Data Collection

It is important that policy makers and regulators have access to reliable and timely research and data to support evidence-based decision making.

Data collected over time -- and measured against accurate baseline data prior to legalization -- is critical to understanding the true social, economic, public health, and public safety impacts of marijuana legalization. Monitoring these impacts over time will determine if policy objectives are being met, will help guide investments in public health and safety measures, and will aid in identifying unanticipated issues.

Massachusetts currently lacks the necessary baseline data on marijuana public health, public safety, and economic and fiscal impacts, as well as the ability to track and monitor these trends going forward. For example, existing public data sets that track illicit substance use often combine marijuana with other substances, making it impossible to isolate marijuana trends. There is also very limited data about how marijuana is currently consumed in Massachusetts.

This issue has been particularly problematic for Colorado and Washington in formulating sound marijuana policy, since they both lacked good baseline data when marijuana was legalized. Lack of such data makes it difficult to accurately assess trends in areas like youth consumption, driving under the influence, or emergency room visits.

It would be highly desirable to have reliable and comprehensive baseline data collected before any sale of recreational marijuana were to get underway.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Baseline data collected?	No	No	Silent
Ongoing data collection?	Yes (improving over time)	Yes	Silent

In Washington, the Washington State Institute for Public Policy is responsible for collecting and analyzing data to monitor trends and conduct cost-benefit evaluations. The Institute is required to produce reports for the legislature in 2015, 2017, 2022, and 2032. The first report detailed a plan of overall study and cautioned that the effects of legalization will not be felt until several years after implementation.

Recommended Actions if Marijuana Were Legalized

- Establish clear responsibility and adequate funding for the collection of baseline data, as well as ongoing research, data collection and analysis to help inform all aspects of marijuana policy.
- Identify public and private institutions with the capacity to conduct the necessary research, data collection, and analysis (or consider the creation of a new independent agency to fulfill these tasks).
- Ensure baseline data collection has been completed prior to the effective date of marijuana legalization.
- Require annual publication of relevant data and trends for lawmakers, regulators, industry stakeholders, and the public.

3.6.9 Implementation Timeline

Legalizing the recreational use and sale of marijuana is a major social change. As outlined in this report, policy makers would need to grapple with numerous complex issues and make many critical policy decisions. Equally important and challenging would be the implementation of these policies.

It is essential that lawmakers, government officials, and industry stakeholders have sufficient time to ensure that decision making and implementation proceed as smoothly as possible. Establishing a new market for recreational marijuana would require many steps and would take considerable time, expertise, and resources.

Policy Approaches in Different Jurisdictions

	Colorado	Washington	MA Ballot Question
Election	November 6, 2012	November 6, 2012	November 8, 2016
Possession, use, and home growing in effect	December 10, 2012 34 days after election	December 6, 2012 31 days after election (no home growing)	December 15, 2016 37 days after election
Cannabis Advisory Board appointments	N/A	N/A	February 1, 2017 85 days after election
Cannabis Control Commission appointments	N/A	N/A	March 1, 2017 113 days after election
Initial regulations	October 15, 2013 343 days after election	December 1, 2013 391 days after election	September 15, 2017 311 days after election

Acceptance of applications for cultivation, manufacturing, and retail licenses from medical marijuana companies	October 1, 2013 329 days after election	N/A	October 1, 2017 327 days after election
Acceptance of applications for marijuana testing facilities	N/A	N/A	October 1, 2017 327 days after election
Deadline to issue licenses*	January 1, 2014 421 days after election	July 7, 2014 609 days after election	January 1, 2018 419 days after election
Acceptance of all applications for manufacturing and retail licenses	October 1, 2013 330 days after election	September 1, 2013 300 days after election	October 1, 2018 692 days after election
Acceptance of all applications for cultivation licenses	October 1, 2013 330 days after election	September 1, 2013 300 days after election	October 1, 2019 1,057 days after election
Retail stores open	January 1, 2014 421 days after election	July 8, 2014 610 days after election	N/A

* There was no specific deadline in Washington to issue licenses (this date is just when it happened). The date specified in the MA ballot question would apply to applications from medical marijuana dispensaries only. If the state missed this deadline to issue licenses, medical marijuana dispensaries would be allowed to begin selling recreational marijuana without approval from the state.

Colorado and Washington officials stress that the deadlines under which they had to operate were very tight. They recommend slowing down the process as much as possible in order to help prevent mistakes and achieve the best possible outcomes.

Since passage of the ballot questions in Colorado and Washington, each state has incorporated many revisions to their marijuana policy, through passage of new laws as well as executive actions.

Recommended Actions if Marijuana Were Legalized

- Establish an implementation schedule that:
  - Enables comprehensive baseline data to be collected before legalization takes effect.
  - Ensures that methods and procedures for determining driver impairment due to marijuana, including establishing a legal limit for THC blood concentration that would support at least a *permissible inference* standard in court, are adopted by statute and in place before any effective date of marijuana legalization.
  - Provides sufficient time for regulatory agencies to be staffed and trained before regulations need to be issued.
  - Provides sufficient time to develop and implement public health education and prevention campaigns before retail sales begin.
  - Provides sufficient time to engage all stakeholders in the policy development process and the promulgation of regulations.

4. Appendices

4.1 Marijuana Glossary of Terms

The following glossary of terms has been adapted from "The Cannabis Lexicon: Terms to Know, from A-Z" by Ry Pritchard and Jake Browne (published by thecannabist.com).

Anatomy of the Marijuana plant: Informal anatomy terms that are most well-known are bud and trim. Bud refers to dried flower of the cannabis plant. Trim refers to the leftover leaves, which can be used for extraction. Trim generally has less cannabinoid content than buds by weight.

Cannabis (also known as Marijuana): A flowering plant that includes three species: indica, ruderalis, and sativa. Cannabis plants are known to contain cannabinoids. Plants can be male, female, or asexual. Female plants produce large flowers that are trimmed down to round or pointed buds while males produce smaller spheres near the base of the leaves. The male plants pollinate the female plants to initiate seed production. The potent flowers for consumption come from the seedless female plants which grow large cannabinoid-rich buds while without seed. Asexual plants are rare. It should be noted that marijuana and cannabis are different names for the same substance. Throughout this report we will principally refer to marijuana rather than cannabis.

Cannabis indica: Indica plants tend to grow shorter and bushier than the sativa plants. Indica strains tend to have wide, short leaves with short wide blades. The buds of indica strains tend to be wide, dense and bulk. It has a higher ratio THC: CBD ratio compared to sativa plants. This plant is well-suited for cultivation in temperate climates.

Cannabis ruderalis: This plant rarely grows over 2 feet in height. The plants have a thin, slightly fibrous stem with little branching. Foliage is open with large leaves. It has less THC in its resin compared to other Cannabis species. However, it is often high in CBD.

Cannabis sativa: Sativa strains have long leaves with thin long blades and are likely to have long, sausage shaped flowers. In the vegetative growth phase of its life, it requires more than 12–13 hours of light per day to stay vegetative. Flowering usually occurs when darkness equals at least 12 hours per day. The flowering cycle can last anywhere between nine to fifteen weeks. On average it has a higher CBD: THC ratio.

Cannabinoids: Class of diverse chemical compounds that act on cannabinoid receptors in cells that repress neurotransmitter release in the brain. The two most well-known cannabinoids are Delta-9-Tetrahydrocannabinol (THC) and Cannabidiol (CBD) though there can be 60-85 cannabinoids that can exist in a single plant.

Cannabinoid Receptors: One of the most common types of receptors in the brain. So far, we know there are two main types of cannabinoid receptors: CB1 receptors are located primarily in the brain, but they also are found in blood vessels and heart cells; CB2 receptors are primarily located outside of the brain, in the peripheral nervous system and glands. See Endocannabinoid system for why we have these receptors.

Cannabidiol (abbreviated as **CBD**): Believed to be the most therapeutic cannabinoid, most medical marijuana strains are those high in CBD and low in THC. There is some evidence that it acts as an anti-convulsant, has anti-psychotic effects, and relieves gastrointestinal distress. While there is some evidence, more is needed to fully understand the therapeutic properties.

Concentrate: Any product which refines flowers into something more clean and potent. This umbrella term includes any type of hash, dry sieve, as well as any hash oils and indicates that these products are a concentrated form of cannabis, carrying a much higher potency. Concentrates may be vaporized, ingested (i.e. via edible products), or smoked.

Dab: A dab is typically hash oil that is placed on a hot surface so that that THC can be vaporized and inhaled.

Delta 9-Tetrahydrocannabinol (better known as **THC**): Principal psychoactive cannabinoid that exists in the cannabis plant. THC has a very low solubility in water, but good solubility in most organic solvents, specifically lipids and alcohols. Marijuana potency is determined by how much THC exists in the plant. THC dials down neuron activity and has a stronger and longer effect than any of the naturally produced endocannabinoids. This interferes with the balance that the endocannabinoid system is designed to achieve.

Edible: Any cannabis product which is consumed orally and digested. Cannabis consumed orally is quite a bit stronger and lasts longer with a delayed initial effect.

Endocannabinoid System: The human body naturally produces endocannabinoids that bind to these receptors and helps to regulate how active neurons are, and how much neurotransmitter gets released. This includes neurotransmitters that affect pleasure,

mood, pain, appetite, motivation, memory, and muscle activity (e.g., dopamine, serotonin, endorphins). This helps to keep brain cell activity in balance, not underactive (like in depression or ADHD) or overactive (like in epilepsy or post-traumatic stress disorder). **Cannabinoids**, such as **THC**, have a similar chemical structure as these endocannabinoids and can bind to our cannabinoid receptors.

Hash oil: Produced by a solvent extraction of marijuana. By filtering and evaporating the marijuana with solvent, a sticky resinous dark liquid with a strong herbal odor remains. From olive oil to butane, a wide variety of solvents can be used.

Hemp: A commonly used term for high-growing varieties of the Cannabis plant and its products, which include fiber, oil, and seed. Hemp is refined into products such as hemp seed foods, hemp oil, wax, resin, rope, cloth, pulp, paper, and fuel. Contains very small amounts of THC.

Hookah (or water pipe): Tall stemmed pipe in which the smoke is cooled and filtered by passing through water.

Pipe: A device with a bowl and a stem that allows the user to inhale smoke derived from the burning.

Scheduling: In the Control Substances Act of 1970, the Federal Government created 5 schedules, or classifications, for all drugs. Schedule I represents substances that have a high potential for abuse, have no accepted medical use in treatment in the U.S., and lack accepted safety for use under medical supervision. Schedule V represents substances that have a low potential of abuse, have accepted medical use in treatment in the U.S., and may lead to limited dependence.

Serving Size Amounts

- 1 ounce of marijuana is equal to 28.34 grams

- A marijuana cigarette (or joint) can vary in size but typically contains 0.25 to 1 gram of marijuana. The THC content will depend on the strain and the part of the plant the marijuana is drawn from.

- Generally, one serving size of marijuana edible contains 10mg of THC.

Shatter: A texture of hash oil and refers to the transparent, shelf-stable oil which breaks into pieces rather than bending. The most popular choices of butane concentrates on the

market are either shatter or wax, which are on opposite ends of the spectrum when it comes to texture.

Sinsemilla: The FBI defines sinsemilla as a high-THC strain of marijuana, in contrast to cannabis, which they define as a low-THC strain.

Skunk: Receiving its name from the aroma given off by it, skunk is a strain of cannabis that is usually a hybrid of the sativa and indica species of marijuana. Skunk strains are generally high in THC content and very low in CBD content.

Smokable marijuana: Typically dried marijuana flower. Smokable marijuana may be vaporized as well as smoked.

Tincture: A liquid extraction of cannabis, often made with alcohol or glycerin. Tinctures are often administered under the tongue to help with quick absorption, offering a similar high to edibles without having to swallow food.

Topicals: External applications of cannabis that can be used to treat body pain or skin conditions, infused with THC and other cannabinoids. These can include lotions, creams, balms and anything you can rub on your skin. Most do not give the person a body high.

Vaporizer: A device used to vaporize the active ingredients of plant material for the purpose of inhalation. Vaporizers work by heating marijuana at a cooler temperature than is required for combustion (burning). Vaporizing is more efficient than smoking, because approximately 30 % of THC in marijuana or hashish cigarettes is destroyed during smoking.

Wax: Opaque, crumbly texture seen in hash oil, generally after being whipped over heat in order to introduce air into the product.

4.2 Marijuana Policy in Other New England States

The Cole memo identifies diversion of marijuana across state lines as one of the federal government's greatest concerns. If Massachusetts were to legalize marijuana for recreational use and sale, the Commonwealth would need to coordinate policy and enforcement with neighboring New England states.

New Hampshire

Possession of any amount of marijuana is categorized as a misdemeanor, with a maximum prison sentence of one year and a maximum fine of $2,000. In 2013, New Hampshire passed a law exempting certain therapeutic use of marijuana from criminal penalties. In June, 2015, a bill that would downgrade possession of half an ounce or less of marijuana to a civil violation passed in the House, but failed to pass in the Senate.

Vermont

Vermont passed a medical marijuana bill in 2004. It decriminalized possession of up to an ounce of marijuana in 2013, demoting it to a civil violation. Possession of between one and two ounces remains a misdemeanor; possession above two ounces is a felony. A bill to legalize recreational marijuana was recently endorsed by the Senate Finance Committee and is awaiting further action in the legislature. The bill has the support of Governor Peter Shumlin.

Rhode Island

Rhode Island passed a medical marijuana law in 2006, and decriminalized possession of up to an ounce of marijuana in 2013. The legislature considered a recreational marijuana bill for the fourth time last year, but ended its session without voting on it.

Connecticut

Connecticut decriminalized possession of less than one-half ounce of marijuana in 2011, a year before legalizing medical marijuana. In 2015, the legislature considered two recreational marijuana bills, but neither moved beyond the Judiciary Committee.

New York

New York decriminalized possession of 25 grams or less of marijuana, not in public view, in 1977. However, arrests continued in some cases. In 2014, New York City adopted a new policy, under which it began issuing tickets rather than arresting those found possessing 25 grams or less of marijuana.

The Senate currently is considering a bill that decriminalizes possession of 25 grams or less, even in public view. New York legalized medical marijuana in 2014. A bill to legalize recreational marijuana has been filed in the Senate.

Maine

Maine decriminalized possession of up to 1.25 ounces of marijuana in 1976. That law was expanded in 2009 to cover up to 2.5 ounces. Maine legalized medical marijuana in 1999, and expanded its medical marijuana laws in 2009 by ballot initiative. In 2013, the city of Portland legalized recreational marijuana possession of up to 2.5 ounces for adults. While a bill legalizing statewide recreational use failed in the legislature last year, residents will likely be voting on a ballot initiative in November, 2016.

4.3 Fees Assessed in Colorado and Washington

Colorado

Application Fees
- Retail Marijuana Store: $5,000
- Retail Marijuana Cultivation Facility: $5,000
- Retail Marijuana Products Manufacturer: $5,000
- Retail Marijuana Testing Facility: $1,000

Initial License Fees
- Retail Marijuana Store: $3,000
- Retail Marijuana Cultivation Facility: $2,200
- Extended Plant Count Fee 1 (3,601 - 6,000 plants): $4,000
- Extended Plant Count Fee 2 (6,001 - 10,200 plants): $8,000
- Retail Marijuana Products Manufacturer: $2,200
- Retail Marijuana Testing Facility: $2,200

Renewal License Fees
- Retail Marijuana Store License Fee ($3,000) + Renewal Fee ($300) = $3,300
- Retail Marijuana Cultivation Facility License Fee ($2,200) + Renewal Fee ($300) = $2,500
- Retail Marijuana Cultivation Facility License Fee ($2,200) + Extended Plant Count Fee 1 ($4,000) + Renewal Fee x 2 ($600) = $6,800
- Retail Marijuana Cultivation Facility License Fee ($2,200) + Extended Plant Count Fee 2 ($8,000) + Renewal Fee x 2 ($600) = $10,800
- Retail Marijuana Products Manufacturer License Fee ($2,200) + Renewal Fee ($300) = $2,500
- Retail Marijuana Testing Facility License Fee ($2,200) + Renewal Fee ($300) = $2,500

Administrative Service Fees
- Transfer of Ownership - New Owners: $2,000
- Transfer of Ownership - Reallocation of Ownership: $800
- Change of Corporation of LLC Structure per Person: $800 per Person
- Change of Trade Name: $40
- Change of Location Applicant Fee - Same Local Jurisdiction Only: $500
- Modification of License Premises: $120
- Duplicate Business License: $40
- Duplicate Occupational License: $10
- Indirect Financial Interest Background Investigations: $150

- Off Premise Storage Permit: $2,200
- Subpoena Fee: $200

Washington

Application Fees

- Marijuana Producer: $250
- Marijuana Processor: $250
- Marijuana Retailer: $250

Annual Fee for Issuance and Renewal

- Marijuana Producer: $1,000
- Marijuana Processor: $1,000
- Marijuana Retailer: $1,000

Administrative Fees

- Change of Location: $75
- Change of Ownership: $75

4.4 Stakeholders Consulted for this Report

The Committee consulted with a wide range of stakeholders with different experience, expertise, and perspectives. The contents of this report reflect solely the work of the Committee, and do not necessarily reflect the opinions or views of any specific person with whom the Committee consulted.

Government Officials

- Shawn Collins, Director of Policy and Legislative Affairs, Office of the State Treasurer and Receiver General of Massachusetts
- Molly Duplechian, Deputy Director of Marijuana Policy, City of Denver
- Andrew Freedman, Director of Marijuana Coordination, Colorado Governor's Office
- Rick Garza, Director, Washington State Liquor and Cannabis Control Board
- Steve Johnson, Deputy Chief of Law Enforcement Division, Washington State Liquor and Cannabis Control Board
- Ashley Kilroy, Executive Director of Marijuana Policy, City of Denver
- Sarah Kim, General Counsel, Office of the State Treasurer and Receiver General of Massachusetts
- Frank McNulty, former Colorado Speaker of the House of Representatives
- Chris Myklebust, Commissioner, Colorado Division of Banking
- Mark Nunnelly, Commissioner, Massachusetts Department of Revenue
- Justin Nordhorn, Chief of Law Enforcement Division, Washington State Liquor and Cannabis Control Board
- Jennifer Queally, Undersecretary of Law Enforcement, Massachusetts Executive Office of Public Safety and Security
- Ann Rivers, Washington State Senator
- Dan Rowland, Communications Advisor, City of Denver
- Randy Simon, Deputy Director, Washington State Liquor and Cannabis Control Board
- Jonathan Singer, Colorado State Representative
- David Solet, Chief Legal Counsel, Massachusetts Executive Office of Public Safety and Security
- Pat Steadman, Colorado State Senator
- Larry Wolk, Executive Director and Chief Medical Officer, Colorado Department of Public Health and Environment
- Mitchell Yergert, Division Director, Colorado Department of Agriculture

Law Enforcement

- John Carmichael, Chief, Walpole Police Department
- Chelsey Clarke, Intelligence Analyst, Rocky Mountain High Intensity Drug Trafficking Area
- Robert Ferullo, Chief, Woburn Police Department
- Jim Gerhardt, Vice President, Colorado Drug Investigators Association
- Tom Gorman, Director, Rocky Mountain High Intensity Drug Trafficking Area
- Darrin Grondel, Director of Traffic Safety Commission, Washington State Patrol
- James McIntyre, Chief, Stoneham Police Department
- Todd Reeves, Commander, North Metro Task Force, Colorado
- John Sofis Scheft, Consultant, Law Enforcement Dimensions
- Marc Vasquez, Chief, Erie Police Department, Colorado
- Kevin Wong, Intelligence Analyst, Rocky Mountain High Intensity Drug Trafficking Area

Academics and Health Policy Experts

- David Buchanan, Chair, Department of Health Promotion and Policy, UMass Amherst
- Ben Cort, Center for Dependency, Addiction, and Rehabilitation, University of Colorado
- Bob Doyle, Executive Director, Colorado Tobacco Education and Prevention Alliance, and Chair, Colorado SAM Coalition
- Alan Ehrlich, Assistant Professor of Family Medicine, UMass Medical School and Senior Deputy Editor of Dynamed
- Mark Kleiman, Chair, UCLA Luskin School of Public Affairs
- Michelle Lueck, President and Chief Executive Officer, Colorado Health Institute
- Jeffrey Miron, Professor of Economics, Harvard University
- John Quelch, Professor of Business Administration, Harvard Business School
- Rosa Rodriguez-Monguio, Associate Professor, Health Policy and Management Program, UMass Amherst
- Sarah Schmitt, Director of Community Health Policy, Colorado Health Institute
- Jennifer Whitehill, Assistant Professor, Health Policy and Management Program, UMass Amherst

Healthcare Providers

- Jay Broadhurst, Family Physician, UMass Memorial Medical Center
- Vic diGravio, President and Chief Executive Officer, Association for Behavioral Health

- Kevin Hill, Director of Substance Abuse Consultation Service, Division of Alcohol and Drug Abuse, McLean Hospital
- John Knight, Director of Center for Adolescent Substance Abuse Research, Boston Children's Hospital
- Sharon Levy, Medical Director of Adolescent Substance Abuse Program, Boston Children's Hospital
- Julie Lunstead, Clinical Social Worker in the Adolescent Substance Abuse Program, Boston Children's Hospital
- Shannon Mountain-Ray, Clinical Social Worker in the Adolescent Substance Abuse Program, Boston Children's Hospital
- Tim Naimi, Physician and Epidemiologist at the Clinical Addiction Research and Education Unit, Boston Medical Center

Industry Participants

- Norton Arbelaez, Consultant, New England Treatment Access and Founder, RiverRock Cannabis
- Shawn Coleman, President, 36 Solutions
- Dan Delaney, Delaney Policy Group
- Christopher Edwards, Chief Executive Officer, Alternative Therapies Group
- Michael Elliot, Executive Director, Marijuana Industry Group
- Kevin Gilnack, Executive Director, Commonwealth Dispensary Association
- Dennis Kunian, Patriot Care
- Leslie Laurie, Director of Patient Services, New England Treatment Access
- Bob Mayerson, President, Patriot Care
- Dianne Morad, Neponset Strategies
- Meghan Sanders, Chief Executive Officer, MindFul
- Sundie Seefried, President and Chief Executive Officer, Partner Colorado Credit Union
- Eric Speidell, Co-Chief Executive Officer, TGS National
- Trent Woloveck, Managing Director, TGS National

Cannabis Reform Advocates

- Matthew Allen, Director of Field Department, ACLU of Massachusetts
- Jim Borghesani, Communications Director, Campaign to Regulate Marijuana Like Alcohol
- Marvin Cable, Principal, Law Offices of Marvin Cable
- Michael Cutler, Committee to Regulate Marijuana Like Alcohol
- Bill Downing, Bay State Repeal
- Steven Epstein, Bay State Repeal

- Dick Evans, Chair, Committee to Regulate Marijuana Like Alcohol
- Adam Fine, Managing Partner, Vicente Sederberg
- Terry Franklin, Bay State Repeal
- Michael Latulippe, President, Cannabis Society of Massachusetts
- Will Luzier, Campaign Manager, Campaign to Regulate Marijuana Like Alcohol
- Jeremiah Mackinnon, Vice President, Cannabis Society of Massachusetts
- Tom Rodgers, Principal, Carlyle Consulting
- Matt Simon, New England Political Director, Marijuana Policy Project
- Nichole Snow, Executive Director, Massachusetts Patient Advocacy Alliance
- Whitney Taylor, Director of Public Advocacy, ACLU of Massachusetts

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