The Legalization of Marijuana in Colorado: *The Impact* Volume 5

UPDATE

September 2018

Rocky Mountain
High Intensity Drug Trafficking Area

REPORT AVAILABLE AT:
www.RMHIDTA.org
(Click on the "Reports" tab)

PREPARED BY THE ROCKY MOUNTAIN HIDTA
STRATEGIC INTELLIGENCE UNIT
SEPTEMBER 2018

Table of Contents

Table of Contents i

Executive Summary 1

Introduction 5

- Purpose 5
- Background 5

Section I: Traffic Fatalities & Impaired Driving 7

- Some Findings 7
- Definitions by Rocky Mountain HIDTA 8
- Traffic Fatalities 9
- Impaired Driving 16
- Impaired Driving Information 18

Section II: Marijuana Use 21

- Some Findings 21
- National Survey on Drug Use and Health (NSDUH) Data 22
- Healthy Kids Colorado Survey (HKCS) Data 27
- Youth Risk Behavior Surveillance System (YRBSS) Data 31
- Marijuana Use Information 32

Section III: Public Health 35

- Some Findings 35
- Definitions by Rocky Mountain HIDTA 36
- Emergency Department Data 37
- Hospitalization Data 39
- Poison Control/ Marijuana Exposure Data 42
- Treatment Data 44
- Suicide Data 46

Public Health Information 49
Section IV: Black Market 53
Some Findings 53
Definitions by Rocky Mountain HIDTA 53
Task Force Investigations 54
Highway Interdiction Data 57
Parcel Interdiction Data 60
Public Lands 63
Black Market Information 63
Section V: Societal Impact 71
Some Findings 71
Tax Revenue 71
Crime 73
Local Response 75
Medical Marijuana Statistics 76
Alcohol Consumption 77
Societal Impact Information 77
Section VI: Marijuana Industry 79
Some Findings 79
Business 80
Market Size and Demand 81
Reported Sales of Marijuana in Colorado 82
Pricing and Potency Trends 84
Resource Consumption 87
Marijuana Industry Information 88

Executive Summary

Purpose of Report Update:

RMHIDTA has published annual reports every year since 2013 tracking the impact of legalizing recreational marijuana in Colorado. The purpose is to provide data and information so that policy makers and citizens can make informed decisions on the issue of marijuana legalization. This year (2018) RMHIDTA elected to provide an update to the 2017 Volume 5 report rather than another detailed report.

Section I: Traffic Fatalities & Impaired Driving

- Since recreational marijuana was legalized, marijuana related traffic deaths **increased 151 percent** while all Colorado traffic deaths **increased 35 percent**
- Since recreational marijuana was legalized, traffic deaths involving drivers who tested positive for marijuana **more than doubled** from 55 in 2013 to 138 people killed in 2017.
    - This equates to one person killed every 2 ½ days compared to one person killed every 6 ½ days.
- The percentage of all Colorado traffic deaths that were marijuana related **increased from 11.43 percent** in 2013 **to 21.3 percent** in 2017.

Section II: Marijuana Use

- Colorado past month marijuana use shows a **45 percent increase** in comparing the three-year average prior to recreational marijuana being legalized to the three years after legalization.
- Colorado past month marijuana use for ages 12 and older is ranked **3rd** in the nation and is **85 percent higher** than the national average.

Section III: Public Health

- The yearly rate of emergency department visits related to marijuana **increased 52 percent** after the legalization of recreational marijuana. (2012 compared to 2016)
- The yearly rate of marijuana-related hospitalizations **increased 148 percent** after the legalization of recreational marijuana. (2012 compared to 2016)
- Marijuana only exposures more than tripled in the five-year average (2013-2017) since Colorado legalized recreational marijuana compared to the five-year average (2008-2012) prior to legalization.

Section IV: Black Market

- RMHIDTA Colorado Task Forces (10) conducted **144 investigations** of black market marijuana in Colorado resulting in:
  - **239** felony arrests
  - **7.3 tons** of marijuana seized
  - **43,949** marijuana plants seized
  - **24** different states the marijuana was destined
- The number of highway seizures of Colorado marijuana **increased 39 percent** from an average of 242 seizures (2009-2012) to an average of 336 seizures (2013-2017) during the time recreational marijuana has been legal.
- Seizures of Colorado marijuana in the U.S. mail system has **increased 1,042 percent** from an average of 52 parcels (2009-2012) to an average of 594 parcels (2013-2017) during the time recreational marijuana has been legal.

Section V: Societal Impact

- Marijuana tax revenue represent approximately **nine tenths of one percent** of Colorado's FY 2017 budget.
- Violent crime **increased 18.6 percent** and property crime **increased 8.3 percent** in Colorado since 2013.
- 65 percent of local jurisdictions in Colorado have banned medical and recreational marijuana businesses.

Section IV: Marijuana Industry

- **According to the Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***:
  - "From 2014 through 2017, average annual adult use flower prices fell 62.0 percent, from $14.05 to $5.34 per gram weighted average."
  - "Adult use concentrate prices fell 47.9 percent, from $41.43 to $21.57 per gram."
  - "The average THC content of all tested flower in 2017 was 19.6 percent statewide compared to 17.4 percent in 2016, 16.6 percent in 2015 and 16.4 percent in 2014."
  - "The average potency of concentrated extract products increased steadily from 56.6 percent THC content by weight in 2014 to 68.6 percent at the end of 2017."
- As of June 2017, there were 491 retail marijuana stores in the state of Colorado compared to 392 Starbucks and 208 McDonald's.

THIS PAGE INTENTIALLY LEFT BLANK

Introduction

Purpose

In October of 2017, RMHIDTA issued a detailed report titled "*The Legalization of Marijuana in Colorado: The Impact*, Volume 5" (www.RMHIDTA.org click on Reports tab). This document serves as an abbreviated supplement to Volume 5 to provide updated data related to marijuana legalization in Colorado. Readers are encouraged to review Volume 5 as well as this update for a comprehensive understanding of the topic. These reports were prepared to identify data and trends related to the legalization of marijuana so that informed decisions can be made regarding this issue.

Background

It is important to note that, for purposes of the debate on legalizing marijuana in Colorado, there are three distinct timeframes to consider: the early medical marijuana era (2000-2008), the medical marijuana commercialization era (2009 – current) and the recreational marijuana era (2013 – current).

- **2000 – 2008, Early Medical Marijuana Era:** In November 2000, Colorado voters passed Amendment 20 which permitted a qualifying patient, and/or caregiver of a patient, to possess up to 2 ounces of marijuana and grow 6 marijuana plants for medical purposes. During that time there were between 1,000 and 4,800 medical marijuana cardholders and no known dispensaries operating in the state.

- **2009 – Current, Medical Marijuana Commercialization Era:** Beginning in 2009 due to a number of events, marijuana became *de facto* legalized through the commercialization of the medical marijuana industry. By the end of 2012, there were over 100,000 medical marijuana cardholders and 500 licensed dispensaries operating in Colorado. There were also licensed cultivation operations and edible manufacturers.

- **2013 – Current, Recreational Marijuana Legalization Era:** In November 2012, Colorado voters passed Constitutional Amendment 64 which legalized marijuana for recreational purposes for anyone over the age of 21. The amendment also allowed for licensed marijuana retail stores, cultivation operations and edible manufacturers. Retail marijuana businesses became operational January 1, 2014.

NOTE:

- **DATA, IF AVAILABLE, WILL COMPARE PRE- AND POST-2009 WHEN MEDICAL MARIJUANA BECAME COMMERCIALIZED AND AFTER 2013 WHEN RECREATIONAL MARIJUANA BECAME LEGALIZED.**
- **MULTI-YEAR COMPARISONS ARE GENERALLY BETTER INDICATORS OF TRENDS. ONE-YEAR FLUCTUATIONS DO NOT NECESSARILY REFLECT A NEW TREND.**
- **PERCENTAGE COMPARISONS MAY BE ROUNDED TO THE NEAREST WHOLE NUMBER.**
- **PERCENT CHANGES FOUND WITHIN GRAPHS WERE CALCULATED AND ADDED BY ROCKY MOUNTAIN HIDTA.**
- **THIS REPORT WILL CITE DATASETS WITH TERMS SUCH AS "MARIJUANA-RELATED" OR "TESTED POSITIVE FOR MARIJUANA." THAT DOES NOT NECESSARILY PROVE THAT MARIJUANA WAS THE CAUSE OF THE INCIDENT.**

Section I: Traffic Fatalities & Impaired Driving

Some Findings

- Since recreational marijuana was legalized, marijuana related traffic deaths **increased 151 percent** while all Colorado traffic deaths **increased 35 percent**
- Since recreational marijuana was legalized, traffic deaths involving drivers who tested positive for marijuana **more than doubled** from 55 in 2013 to 138 people killed in 2017.
    - This equates to one person killed every 2 ½ days compared to one person killed every 6 ½ days.
- The percentage of all Colorado traffic deaths that were marijuana related **increased from 11.43 percent** in 2013 **to 21.3 percent** in 2017.
- Consistent with the past, in 2017, less than half of drivers (**42 percent**) or half of operators (**50 percent**) involved in traffic deaths were tested for drug impairment.
- A Colorado Department of Transportation survey found that **69 percent of self-identified marijuana users** admitted to driving after having consumed marijuana.

Definitions by Rocky Mountain HIDTA

Driving Under the Influence of Drugs (DUID): DUID could include alcohol in combination with drugs. This is an important measurement since the driver's ability to operate a vehicle was sufficiently impaired that it brought his or her driving to the attention of law enforcement. The erratic driving and the subsequent evidence that the subject was under the influence of marijuana helps confirm the causation factor.

Marijuana-Related: Also called "marijuana mentions," is any time marijuana shows up in the toxicology report. It could be marijuana only or marijuana with other drugs and/or alcohol.

Marijuana Only: When toxicology results show marijuana and no other drugs or alcohol.

Fatalities: Any death resulting from a traffic crash involving a motor vehicle.

Operators: Anyone in control of their own movements such as a driver, pedestrian or bicyclist.

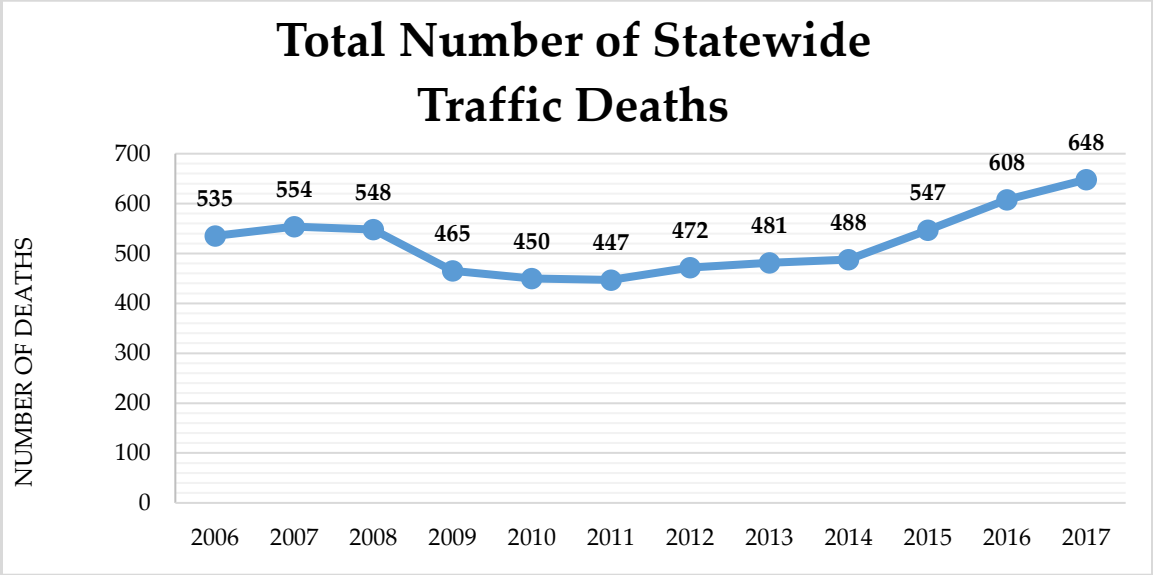
Drivers: An occupant who is in physical control of a transport vehicle. For an out-of-control vehicle, an occupant who was in control until control was lost.

Personal Conveyance: Non-motorized transport devices such as skateboards, wheelchairs (including motorized wheelchairs), tricycles, foot scooters, and Segways. These are more or less non-street legal transport devices.

Traffic Fatalities

NOTE:

- **THE DATA FOR 2012 THROUGH 2017 WAS OBTAINED FROM THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT). CDOT AND RMHIDTA CONTACTED CORONER OFFICES AND LAW ENFORCEMENT AGENCIES INVESTIGATING FATALITIES TO OBTAIN TOXICOLOGY REPORTS. THIS REPRESENTS 100 PERCENT REPORTING. PRIOR YEARS MAY HAVE HAD LESS THAN 100 PERCENT REPORTING TO THE COLORADO DEPARTMENT OF TRANSPORTATION, AND SUBSEQUENTLY THE FATALITY ANALYSIS REPORTING SYSTEM (FARS). ANALYSIS OF DATA WAS CONDUCTED BY ROCKY MOUNTAIN HIDTA. 2017 FARS DATA WILL NOT BE OFFICIAL UNTIL JANUARY 2019.**



SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

- In 2017 there were a total of 648 traffic deaths. Of which:
  - 415 were drivers
  - 125 were passengers
  - 92 were pedestrians
  - 16 were bicyclists

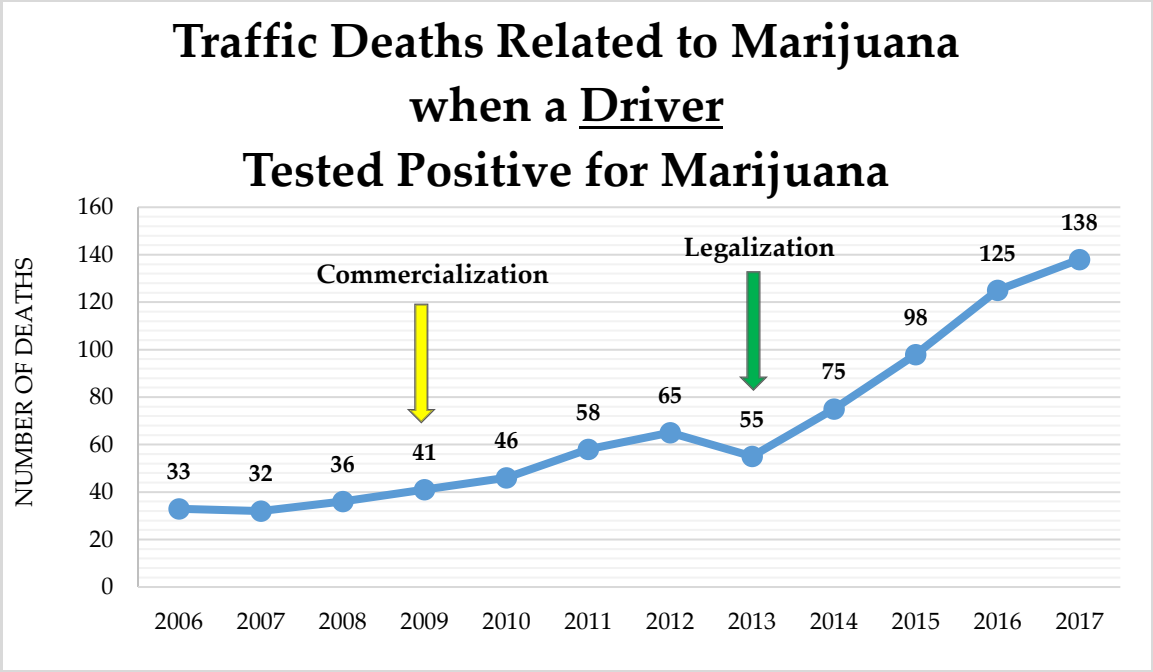
Traffic Deaths Related to Marijuana When a DRIVER Tested Positive for Marijuana			
Crash Year	**Total Statewide Fatalities**	**Fatalities with Drivers Testing Positive for Marijuana**	**Percentage Total Fatalities**
2006	535	33	6.17%
2007	554	32	5.78%
2008	548	36	6.57%
2009	465	41	8.82%
2010	450	46	10.22%
2011	447	58	12.98%
2012	472	65	13.77%
2013	481	55	11.43%
2014	488	75	15.37%
2015	547	98	17.92%
2016	608	125	20.56%
2017	648	138	21.30%

SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

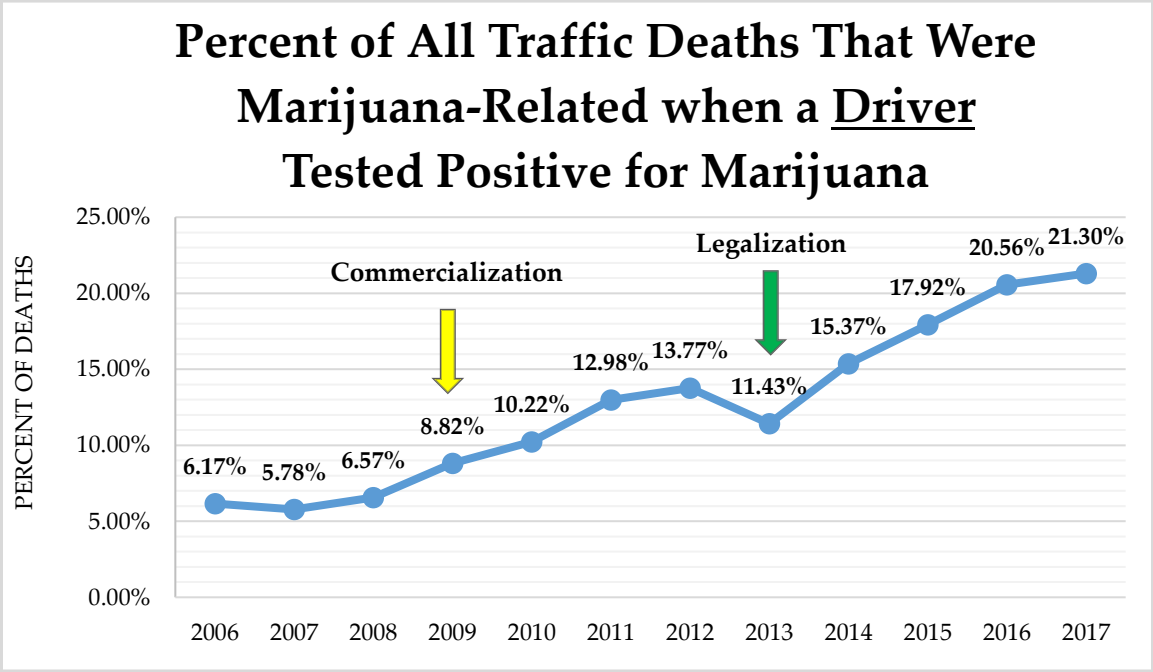
- In 2017 there were a total of 138 marijuana-related traffic deaths when a driver tested positive for marijuana. Of which:
  - 112 were drivers
  - 22 were passengers
  - 4 were pedestrians

- **In 2017, of the 112 drivers in fatal wrecks who tested positive for marijuana use, 76 were found to have Delta 9 tetrahydrocannabinol, or THC, the psychoactive ingredient in marijuana, in their blood, indicating use within hours, according to state data. Of those, 37 percent were over 5 nanograms per milliliter, the state's limit for driving.**

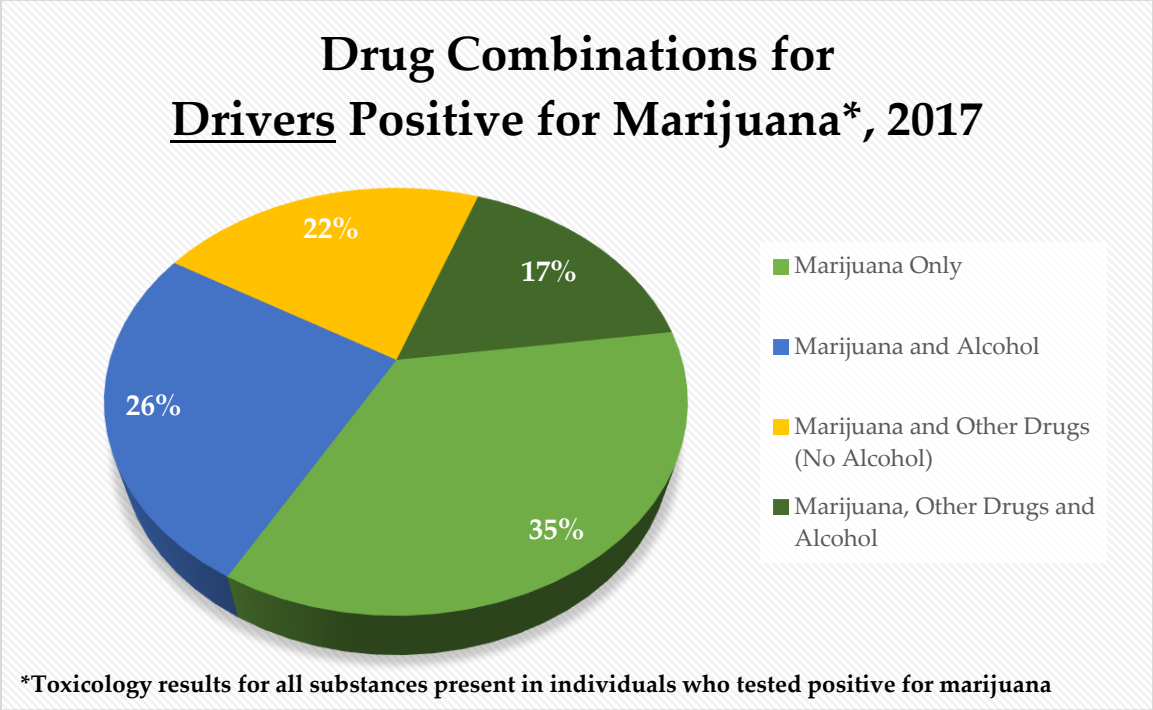
  -- Similar to findings from the August 2017 article by David Migoya, "Exclusive: Traffic fatalities linked to marijuana are up sharply in Colorado. Is legalization to blame?" *The Denver Post*.



SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**



SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

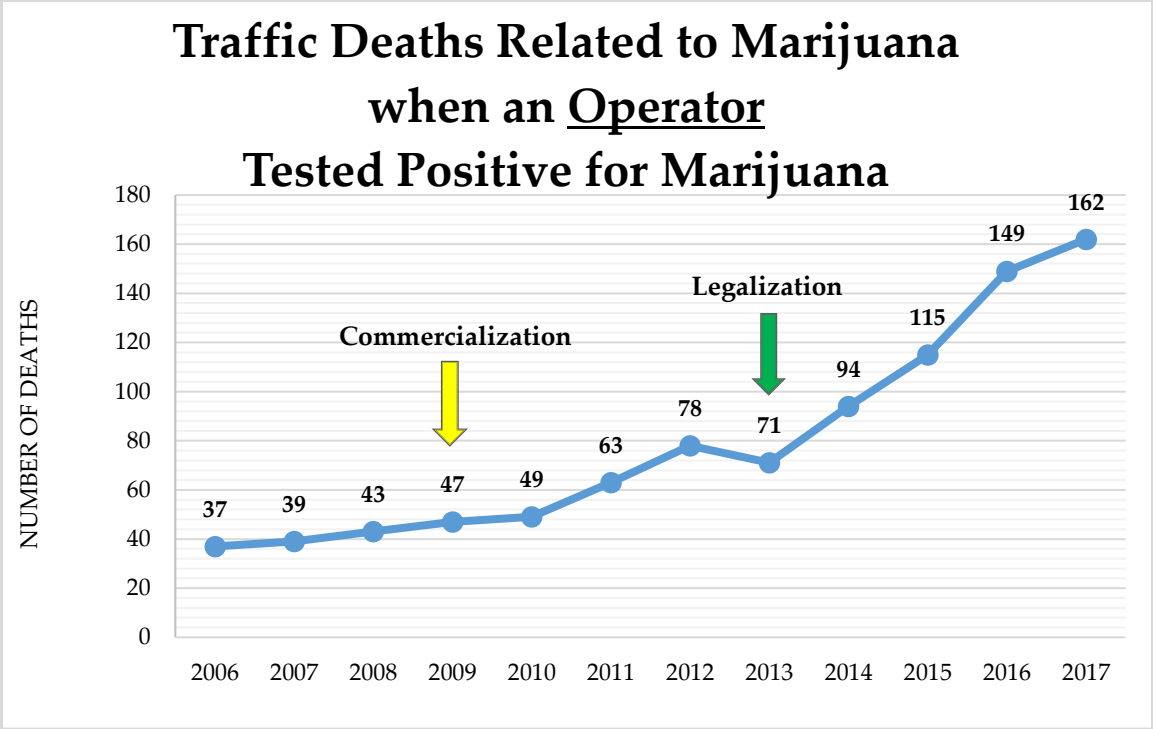


SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

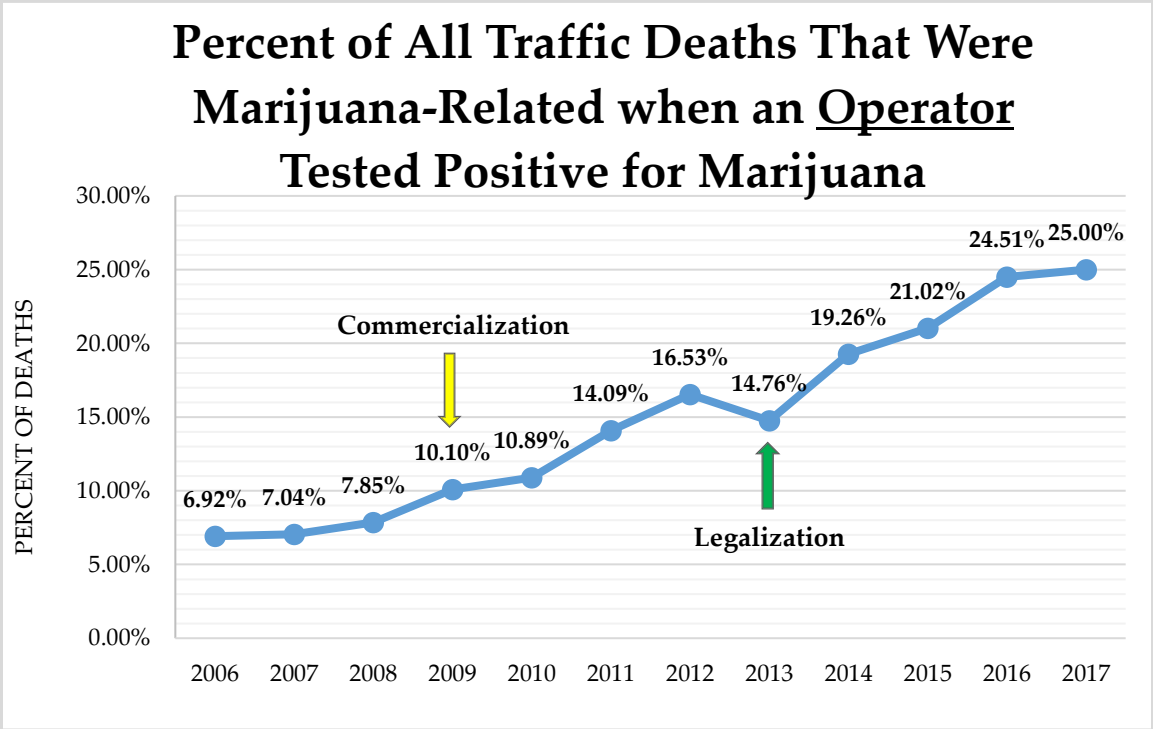
Traffic Deaths Related to Marijuana When an OPERATOR Tested Positive for Marijuana			
Crash Year	**Total Statewide Fatalities**	**Fatalities with Operators Testing Positive for Marijuana**	**Percentage Total Fatalities**
2006	535	37	6.92%
2007	554	39	7.04%
2008	548	43	7.85%
2009	465	47	10.10%
2010	450	49	10.89%
2011	447	63	14.09%
2012	472	78	16.53%
2013	481	71	14.76%
2014	488	94	19.26%
2015	547	115	21.02%
2016	608	149	24.51%
2017	648	162	25.00%

SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

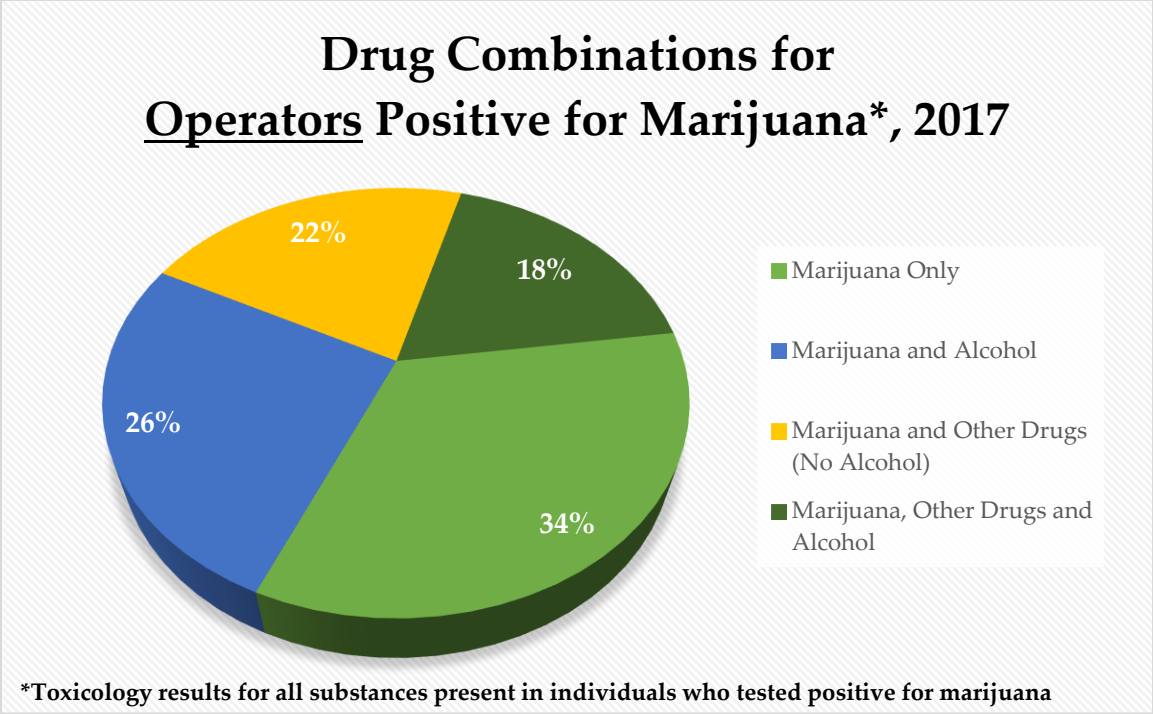
- In 2017 there were a total of 162 marijuana-related traffic deaths when an operator tested positive for marijuana. Of which:
  - 112 were drivers
  - 22 were passengers
  - 27 were pedestrians
  - 1 was a bicyclist



SOURCE: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017



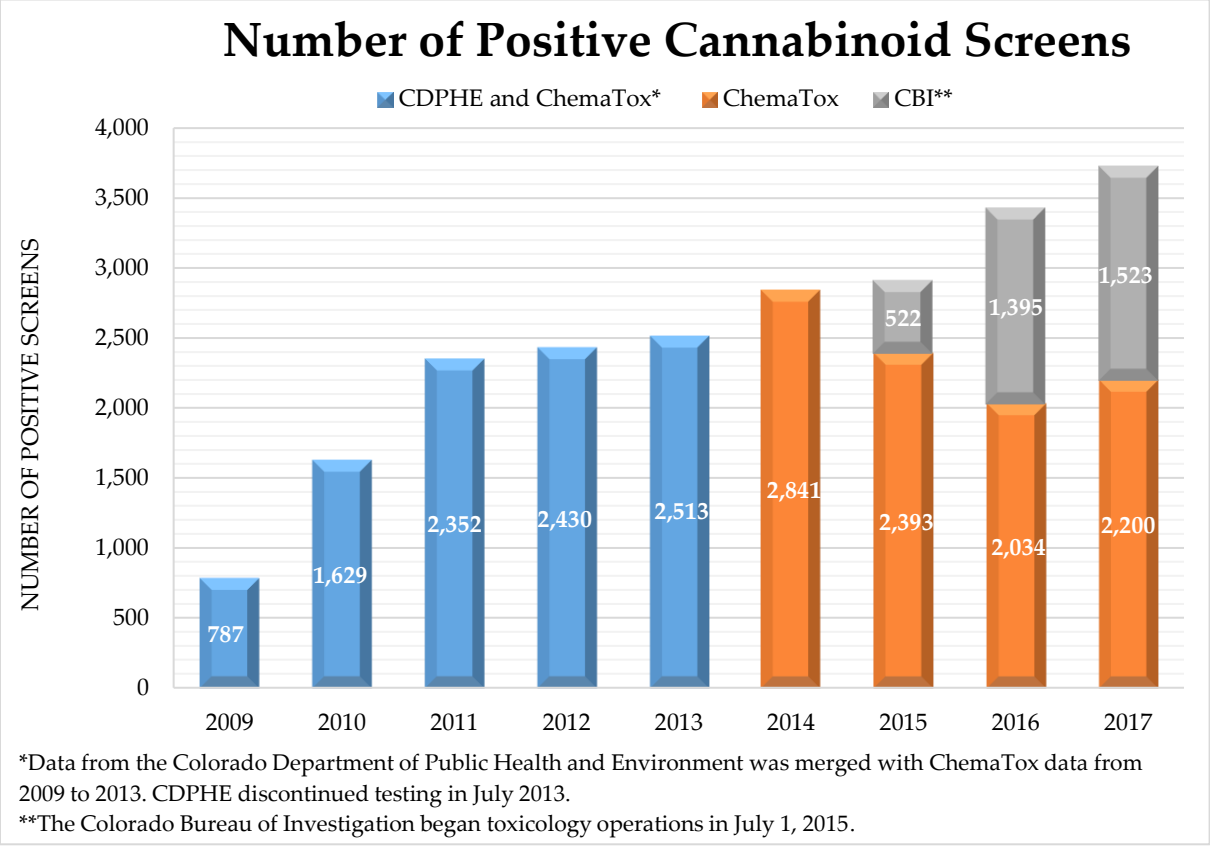
SOURCE: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017



SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017**

Impaired Driving

NOTE: WHEN A DRIVER IS ARRESTED FOR IMPAIRED DRIVING RELATED TO ALCOHOL, (USUALLY 0.08 OR HIGHER BLOOD ALCOHOL CONTENT) TYPICALLY TESTS FOR OTHER DRUGS (INCLUDING MARIJUANA) ARE NOT REQUESTED SINCE THERE IS NO ADDITIONAL PUNISHMENT IF THE TEST COMES BACK POSITIVE.



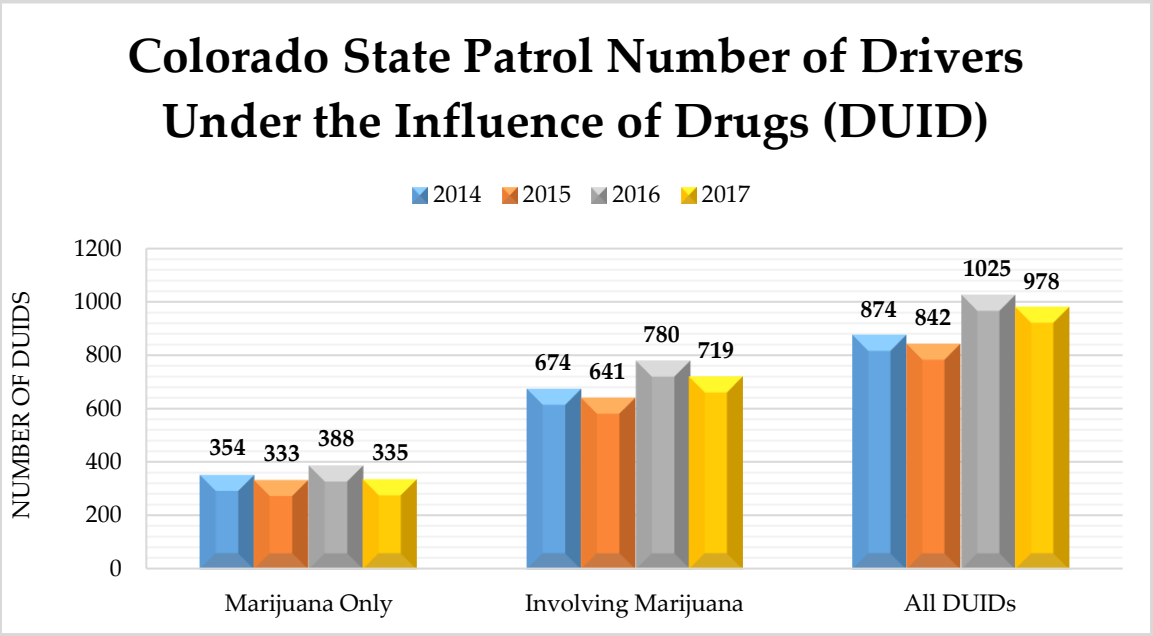
SOURCE: **Colorado Bureau of Investigation, ChemaTox, and Rocky Mountain HIDTA**

- **The above graph is Rocky Mountain HIDTA's conversion of ChemaTox data as well as data from the Colorado Bureau of Investigation's state laboratory.**

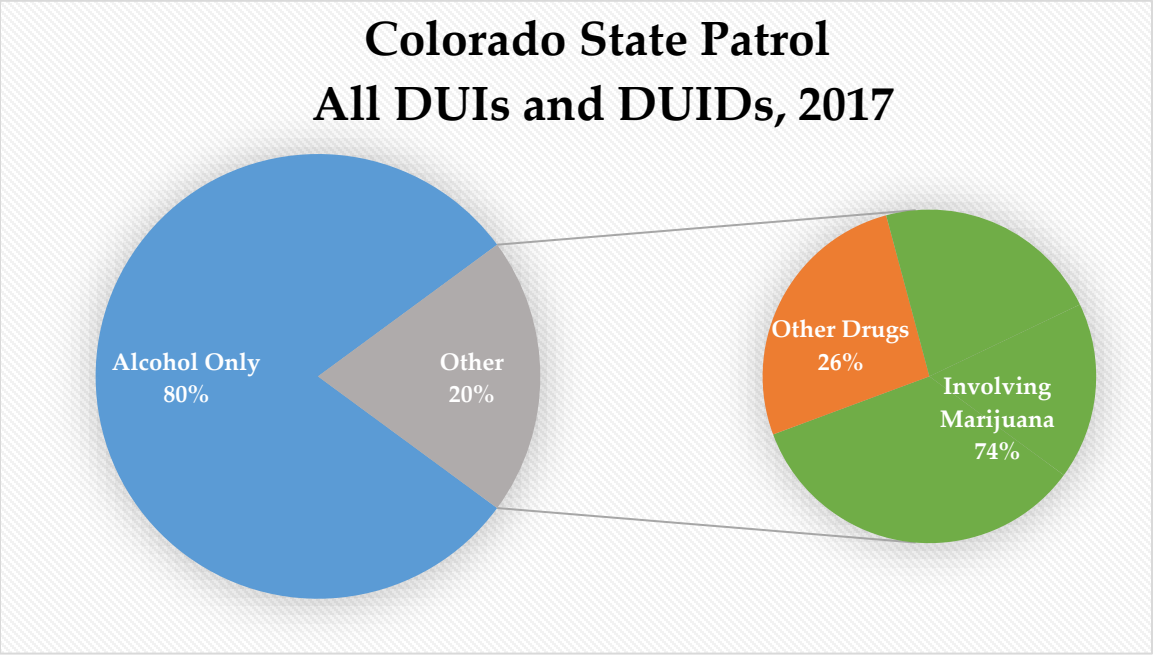
NOTE: THE ABOVE GRAPHS INCLUDE DATA FROM CHEMATOX LABORATORY WHICH WAS MERGED WITH DATA SUPPLIED BY COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT - TOXICOLOGY LABORATORY. THE VAST MAJORITY OF THE SCREENS ARE DUID SUBMISSIONS FROM COLORADO LAW ENFORCEMENT.

NOTE: "MARIJUANA CITATIONS ARE DEFINED AS ANY CITATION WHERE THE CONTACT WAS CITED FOR DUI OR DWAI AND MARIJUANA INFORMATION WAS FILLED OUT ON THE TRAFFIC STOP FORM INDICATING MARIJUANA & ALCOHOL, MARIJUANA & OTHER CONTROLLED SUBSTANCES, OR MARIJUANA ONLY PRESENT BASED ON OFFICER OPINION ONLY (NO TOXICOLOGICAL CONFIRMATION)."

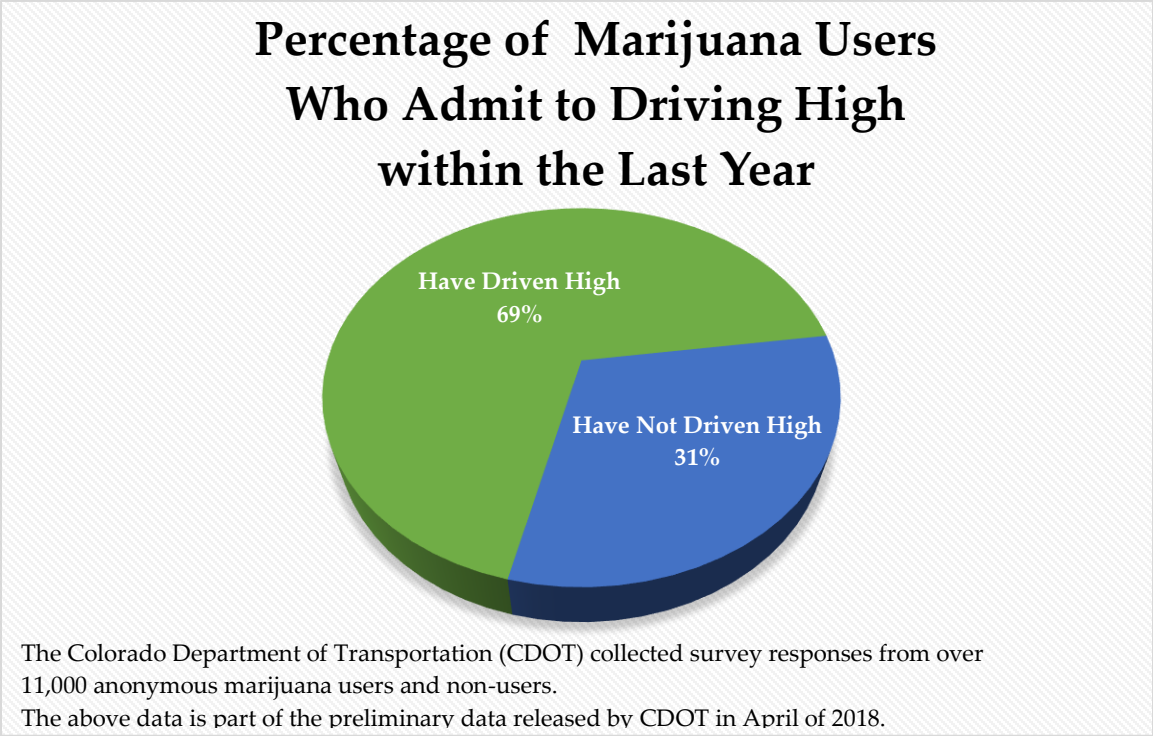
-COLORADO STATE PATROL



SOURCE: Colorado State Patrol, CSP Citations for Drug Impairment by Drug Type



SOURCE: Colorado State Patrol, CSP Citations for Drug Impairment by Drug Type



SOURCE: **Colorado Department of Transportation, *Cannabis Conversation* Survey**

Impaired Driving Information

Over Half of CO Marijuana Users Believe It's Safe to Drive While High

Among marijuana users surveyed by CDOT last November, 55 percent said they believed it was safe to drive under the influence of marijuana. Within that group, the same percentage said they had driven high within the past 30 days, on average 12 times. CDOT spokesman, Sam Cole said that just because drunk driving is more dangerous, it doesn't mean that stoned driving is safe. "I think (comparing the two) is a dangerous road to go down, because driving impaired is driving impaired." Recent analysis found that Colorado drivers involved in fatal crashes has doubled since 2013.

- Jack Queen, *More than half of Colorado marijuana users think it's OK to drive high, CDOT says. Changing that could be an uphill battle,* Summit Daily News, November 12th 2017.

Legal Pot and Pedestrian Deaths

A study published by the Governors' Highway Safety Association looked at pedestrian fatalities over 20 years. They noted interesting information from the seven states that legalized recreational marijuana. Between 2012 and 2016 there was a 16.4 percent increase in pedestrian traffic deaths for the first six months of 2017 compared to the first 6 months of 2016 whereas all other states had a 5.8 percent decrease. Traffic safety engineer, Richard Retting was clear to point out that the report was not making a direct correlation or expressly claiming a link between weed and walking deaths.

- A.J. Herrington, *Is A Rise In Pedestrian Deaths Really Due To Legal Cannabis?* High Times, March 3rd, 2018.

70% Drivers in DUI Test Positive for Marijuana

A comprehensive analysis of 2016 driving under the influence data revealed that over 70% of 3,946 drivers charged with driving under the influence of alcohol also tested positive for marijuana. Even though the presence of Delta 9 THC, the primary psychoactive ingredient in marijuana, dissipates rather quickly, still over 70% tested positive for Delta 9 and close to half detected Delta 9 THC at a 5.0 ng/ML or above.

- *Driving Under the Influence of Drugs and Alcohol* Colorado Department of Public Safety, Division of Criminal Justice, July 2018.

Higher Levels of THC

In Colorado, the legal limit of THC in a driver's blood is 5ng/mL. However, according to the Denver Post, "THC levels in drivers killed in crashes in 2016 routinely reached levels of more than 30 ng/mL… [t]he year before, levels only occasionally topped 5 ng/mL." This trend has coroners concerned because some are "uncertain about listing the presence of THC on a death certificate because of doubts on what constitutes impairment." Police Chief Jackson of Greenwood Village, CO attributes the rise in THC levels of drivers to the rise in THC potency in marijuana oils and concentrates. He states, "This is not your grandfather's weed."

- David Migoya, *Exclusive: Traffic fatalities linked to marijuana are up sharply in Colorado. Is Legalization to blame?* The Denver Post, August 25th 2017.

57 Percent of Marijuana Users in Colorado Admit Driving within 2 Hours:

A survey conducted by the Colorado Department of Transportation discovered that 57 percent of people who reported using marijuana drove within two hours after consumption. The survey also indicated that, on average, those participants who reported consuming marijuana and then driving within 2 hours did so on 11.7 of 30 days. By comparison, 38 percent of respondents who drank alcoholic beverages reported driving within 2 hours after consumption and only reported doing so on 2.8 of 30 days.

- Anica Padilla, *Study: 57 percent of marijuana users in Colorado admit driving within 2 hours*, KDVR/Fox 31 Denver, March 9 2017.

Drivers Killed in Crashes More Likely to be on Drugs than Alcohol

A recent study using data available from 2015 indicates that "[d]rivers who are killed in car crashes are now more likely to be on drugs than alcohol." Drugs were present in 43 percent of drivers in fatal accidents compared to 37 percent with alcohol above the legal limit. Additionally, 36 percent of the drivers tested had marijuana present in their system at the time of the accident. In general, traffic fatalities are rising and can be attributed to factors such as improved economy, more distracted drivers, and more drugged drivers. 11

- Melanie Zanona, *Study: Drivers Killed in Crashes More Likely to be on Drugs than Alcohol,* The Hill, April 26th 2017.

Section II: Marijuana Use

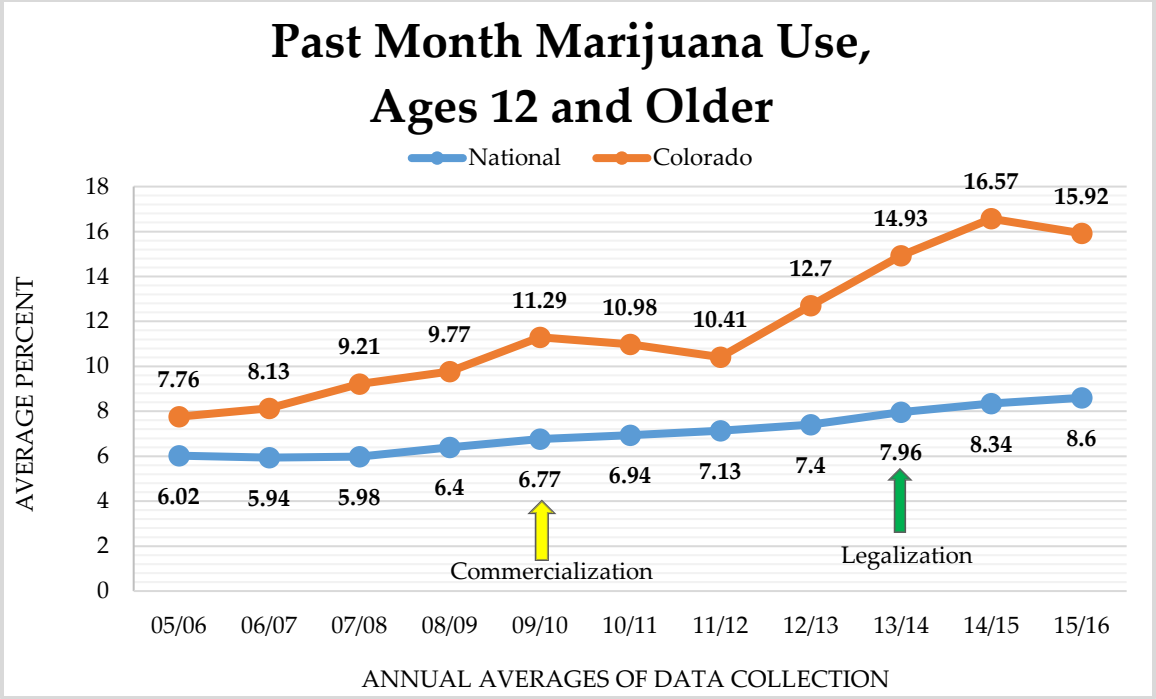
Some Findings

- Colorado past month marijuana use shows a **45 percent increase** in comparing the three-year average prior to recreational marijuana being legalized to the three years after legalization.
- Colorado past month marijuana use for ages 12 and older is ranked **3rd** in the nation and is **85 percent higher** than the national average.
- When comparing the three years prior to legalizing recreational marijuana to the average of three years after legalization, adult marijuana use **increased 67 percent** and is **110 percent higher** than the national average, ranked **3rd** in the nation.
- When comparing the three years prior to legalizing recreational marijuana to the average of three years after the legalization, college age marijuana use **increased 18 percent** and is **60 percent higher** than the national average, ranked **3rd** in the nation.
- When comparing the three years prior to legalizing recreational marijuana to the average of three years after the legalization, youth marijuana use **increased 5 percent** and is **54 percent higher** than the national average, ranked **7th** in the nation.

National Survey on Drug Use and Health (NSDUH) Data

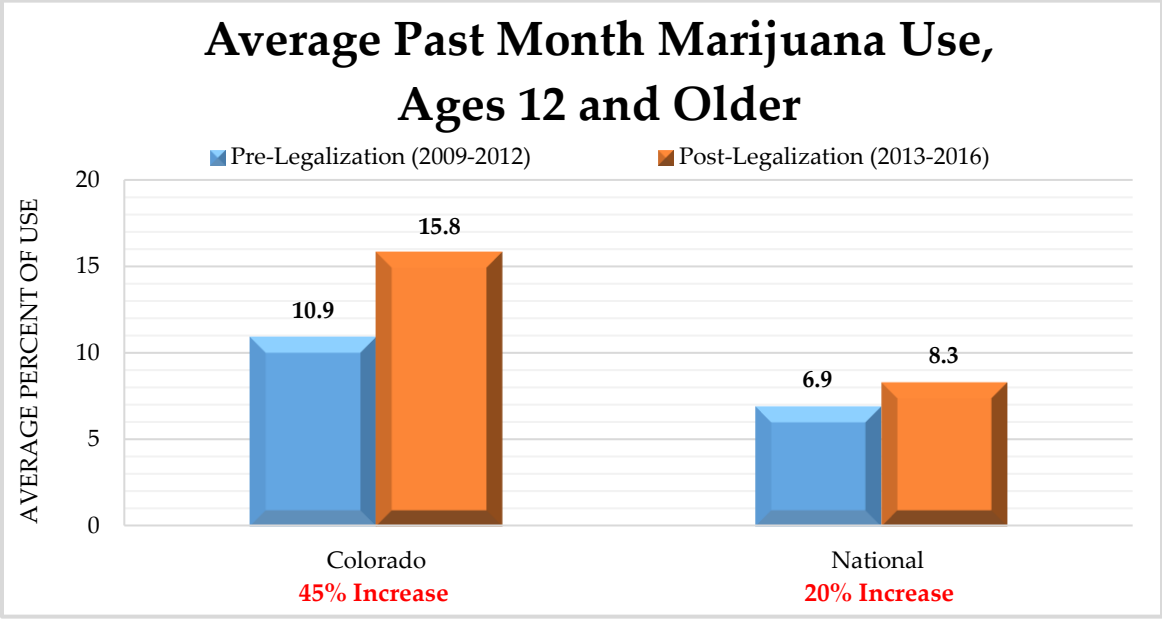
Colorado Averages Compared to National Averages, Ages 12 and Older (NSDUH 2015/2016)		
	Higher	Lower
Marijuana Past Month Use	85%	
Perceptions of Risk for Smoking Marijuana		63%
Age of First Use of Marijuana	96%	
Alcohol Past Month Use	12%	
Cigarette Past Month Use		15%
Perceptions of Risk for Smoking Cigarettes	2%	

SOURCE: SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016



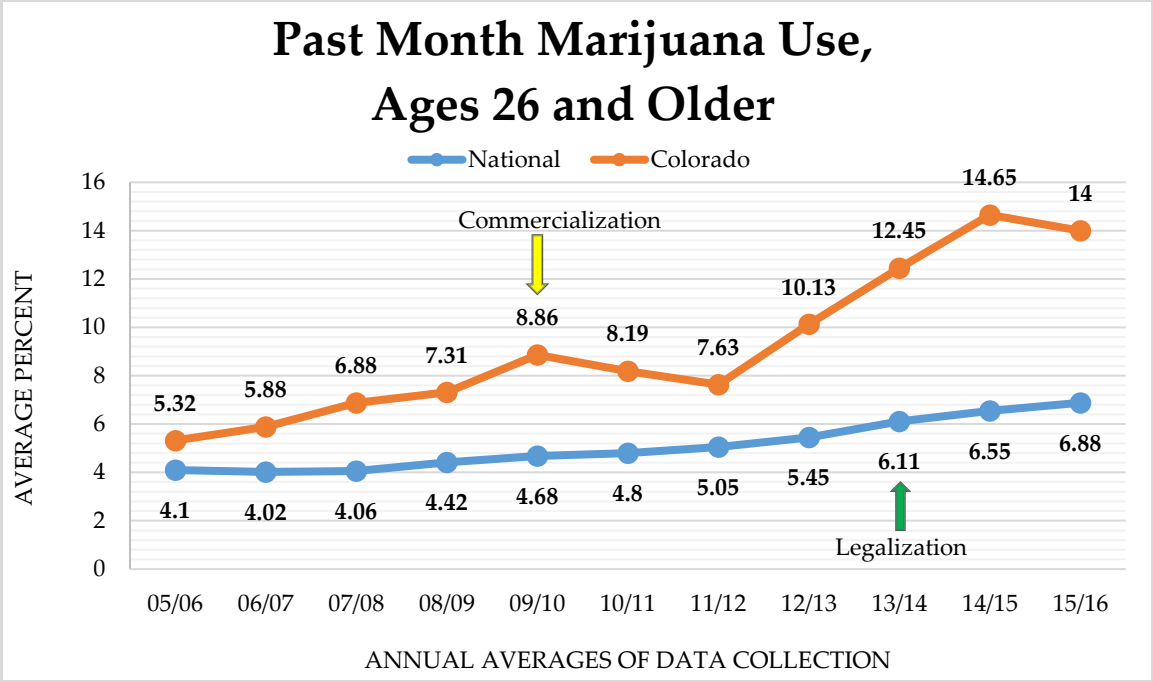
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

- Colorado was **85% higher** than the National average in 2015/2016



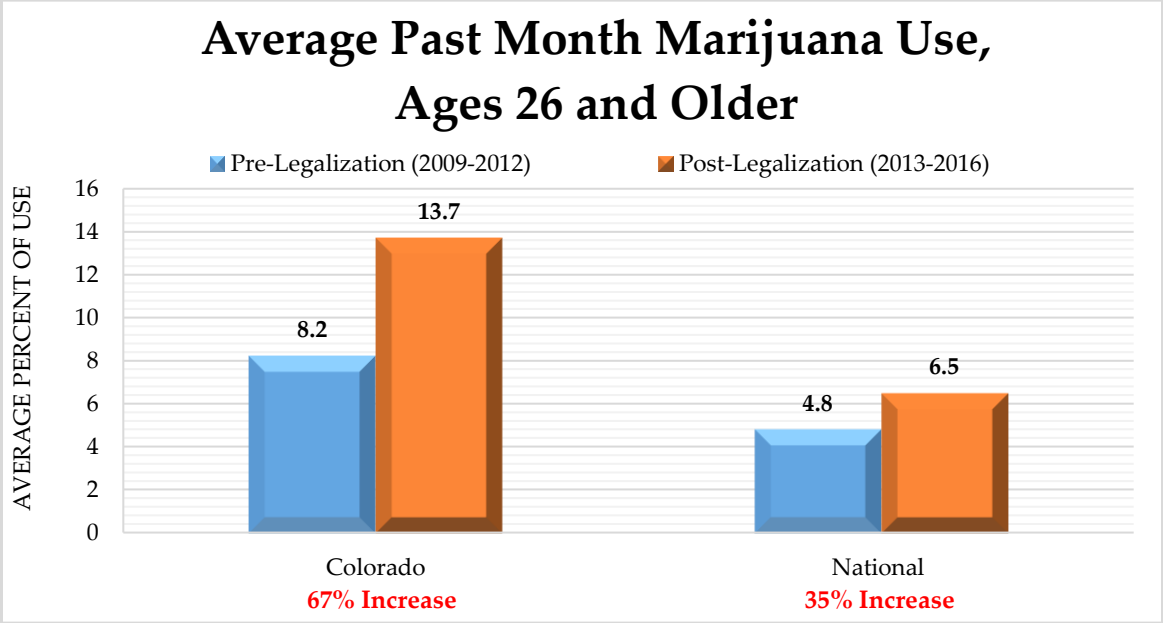
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

NOTE: **WHEN COMPARING THE THREE YEAR AVERAGES, THE YEARS FOR PRE-LEGALIZATION INCLUDE: 2009/2010; 2010/2011; AND 2011/2012. POST-LEGALIZATION YEARS INCLUDE: 2013/2014; 2014/2015; AND 2015/2016. THE DATA FOR 2012/2013 WAS NOT INCLUDE SINCE IT REPRESENTS A YEAR WITH AND A YEAR WITHOUT LEGALIZATION.**



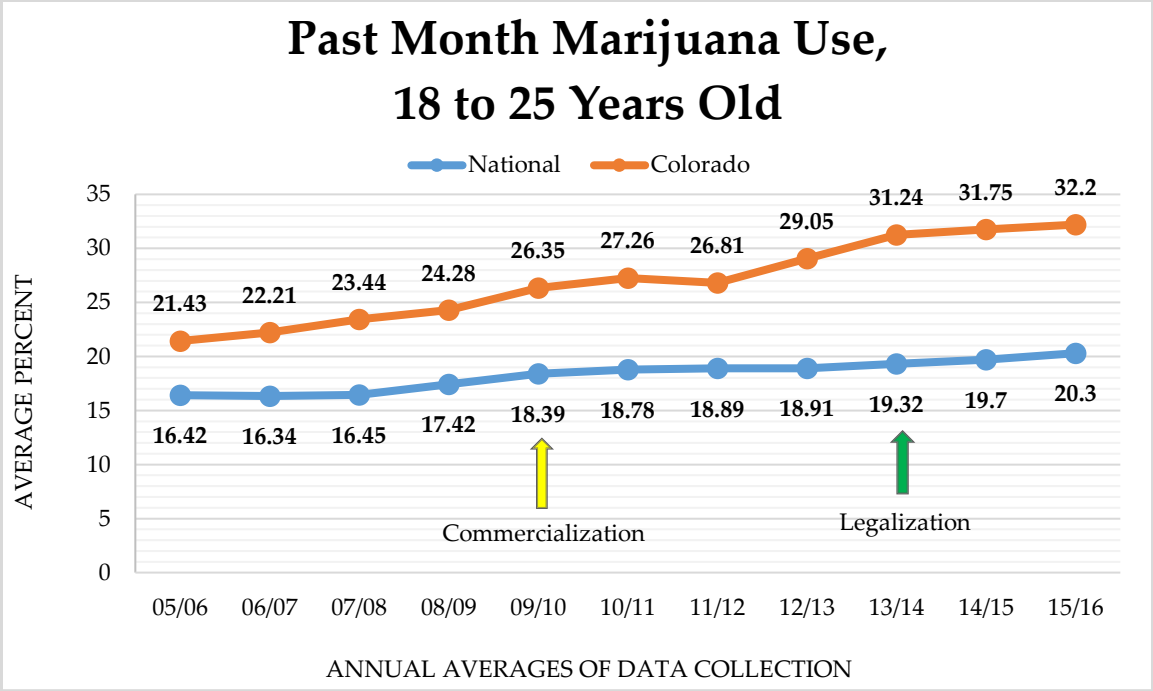
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

- Colorado was **103% higher** than the National average in 2015/2016



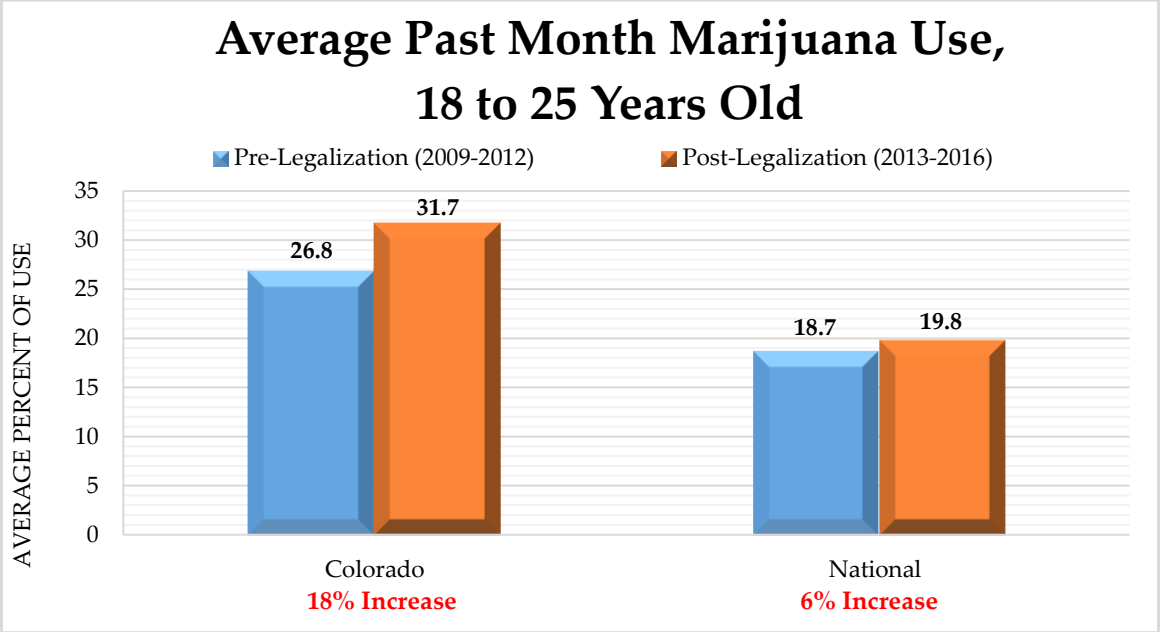
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

NOTE: **WHEN COMPARING THE THREE YEAR AVERAGES, THE YEARS FOR PRE-LEGALIZATION INCLUDE: 2009/2010; 2010/2011; AND 2011/2012. POST-LEGALIZATION YEARS INCLUDE: 2013/2014; 2014/2015; AND 2015/2016. THE DATA FOR 2012/2013 WAS NOT INCLUDE SINCE IT REPRESENTS A YEAR WITH AND A YEAR WITHOUT LEGALIZATION.**



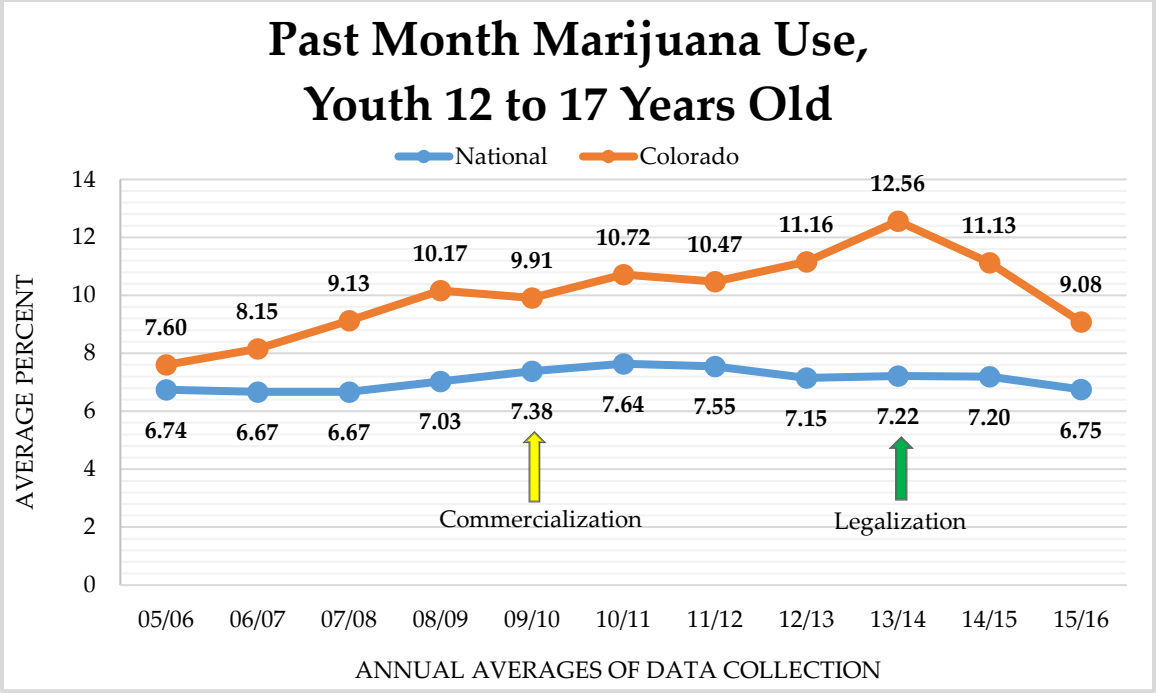
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

- Colorado was **59% higher** than the National average in 2015/2016



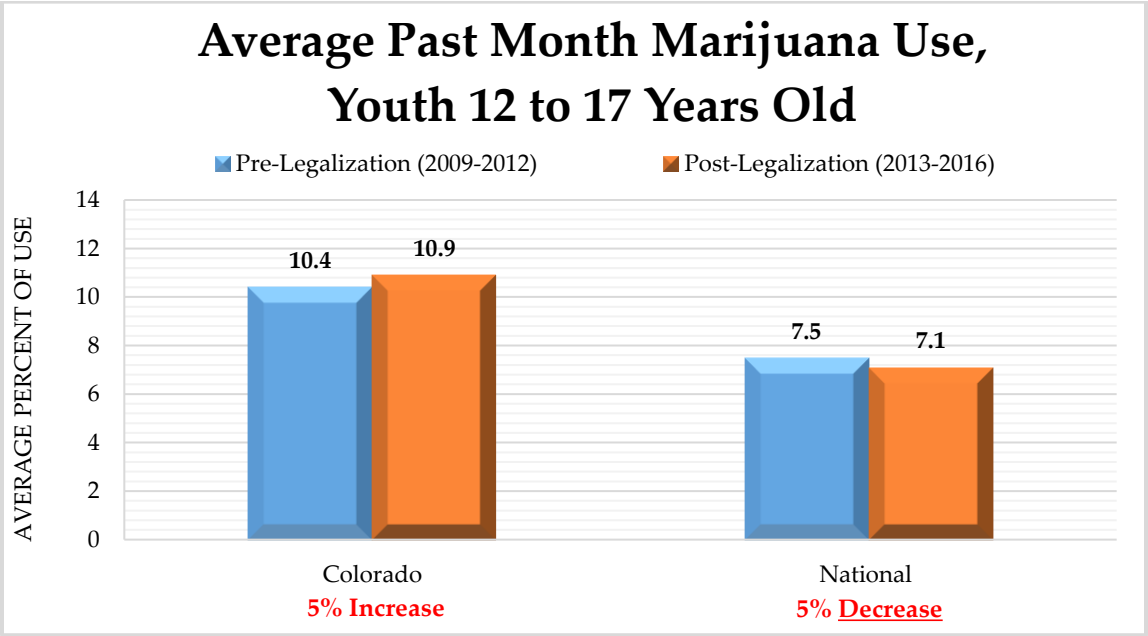
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

NOTE: **WHEN COMPARING THE THREE YEAR AVERAGES, THE YEARS FOR PRE-LEGALIZATION INCLUDE: 2009/2010; 2010/2011; AND 2011/2012. POST-LEGALIZATION YEARS INCLUDE: 2013/2014; 2014/2015; AND 2015/2016. THE DATA FOR 2012/2013 WAS NOT INCLUDE SINCE IT REPRESENTS A YEAR WITH AND A YEAR WITHOUT LEGALIZATION.**



SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

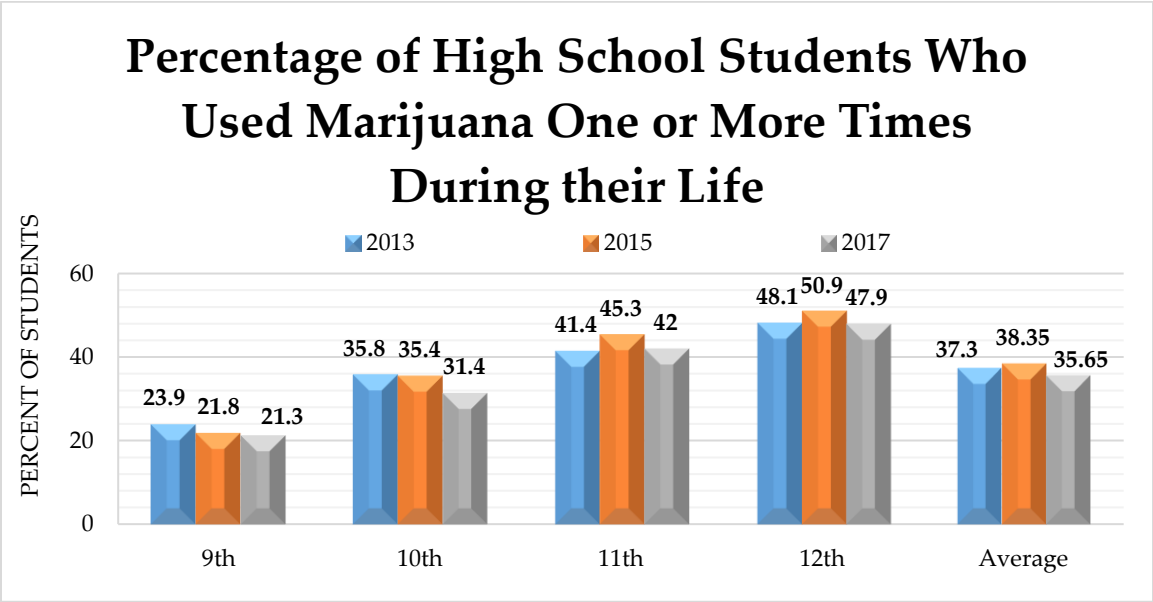
- Colorado was **35% higher** than the National average in 2015/2016



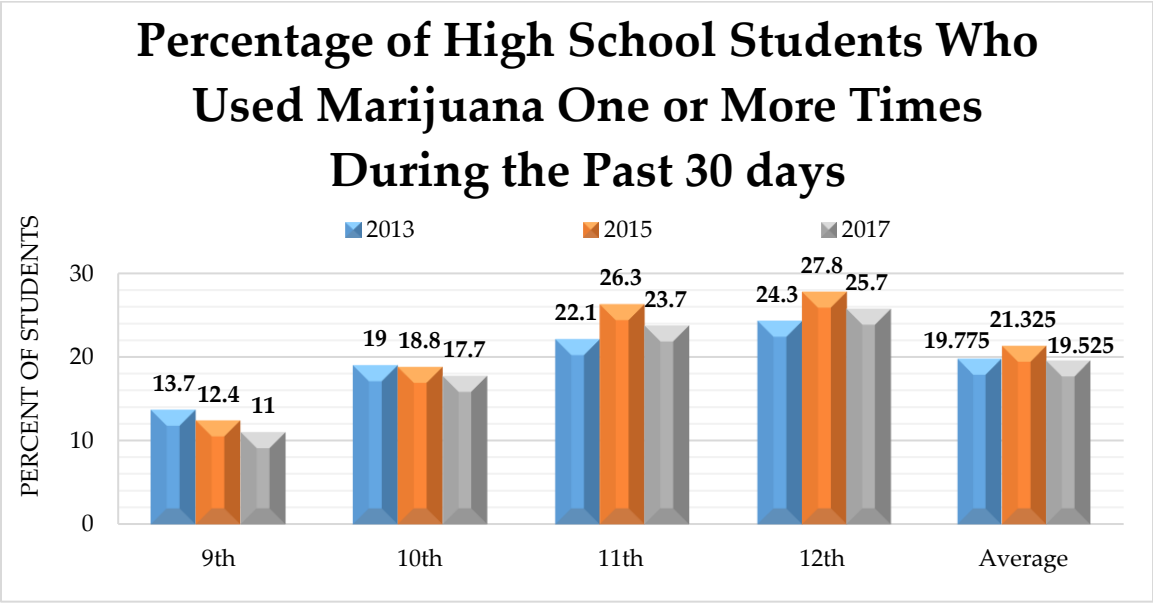
SOURCE: **SAMHSA.gov, National Survey on Drug Use and Health 2015 and 2016**

NOTE: **WHEN COMPARING THE THREE YEAR AVERAGES, THE YEARS FOR PRE-LEGALIZATION INCLUDE: 2009/2010; 2010/2011; AND 2011/2012. POST-LEGALIZATION YEARS INCLUDE: 2013/2014; 2014/2015; AND 2015/2016. THE DATA FOR 2012/2013 WAS NOT INCLUDE SINCE IT REPRESENTS A YEAR WITH AND A YEAR WITHOUT LEGALIZATION.**

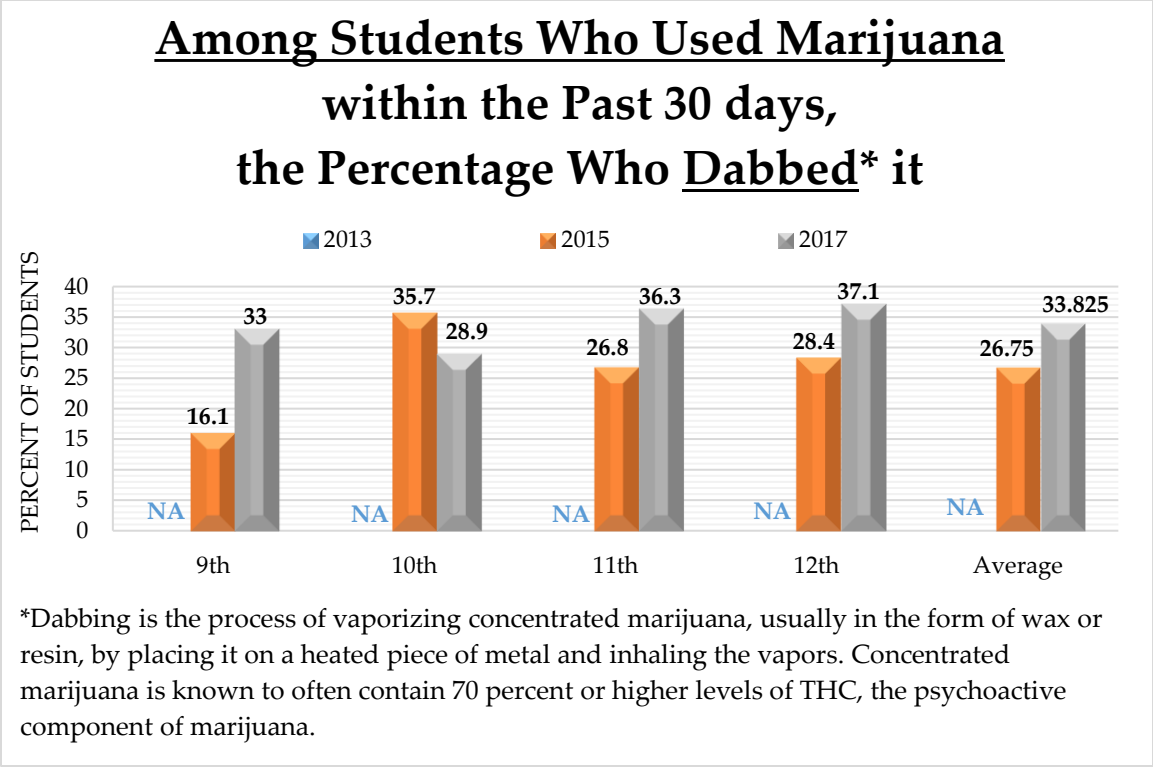
Healthy Kids Colorado Survey (HKCS) Data



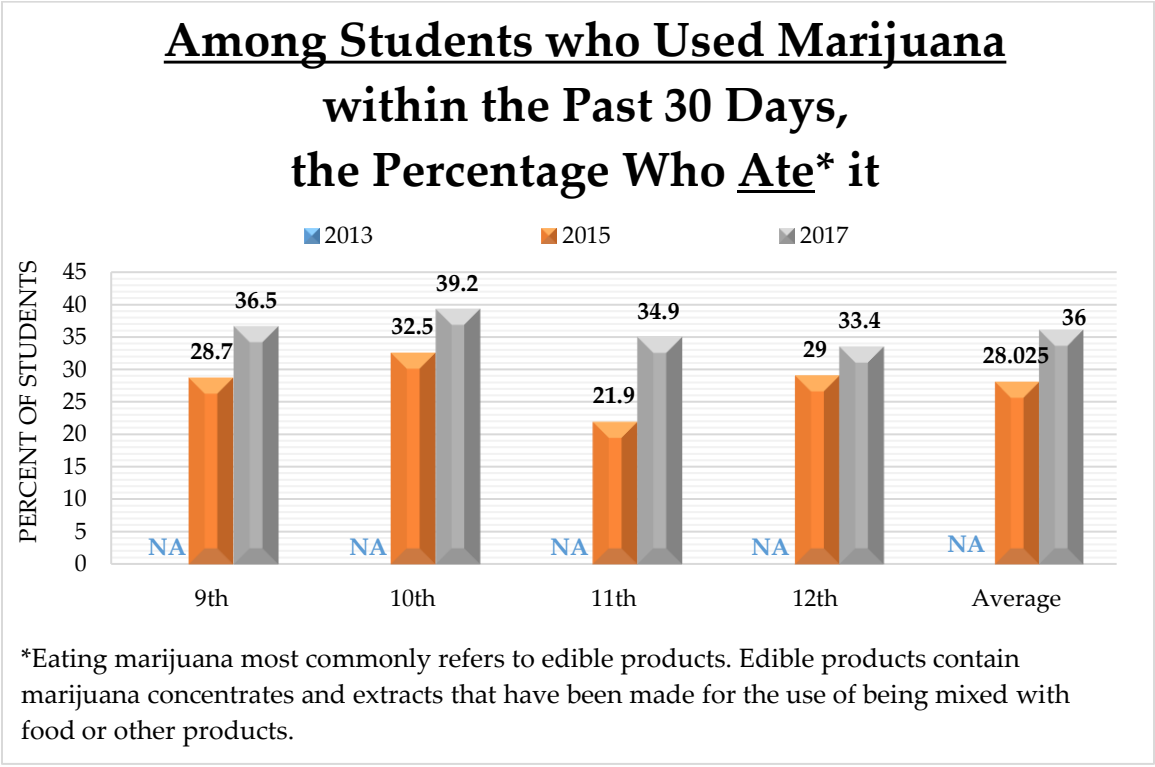
SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**



SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**



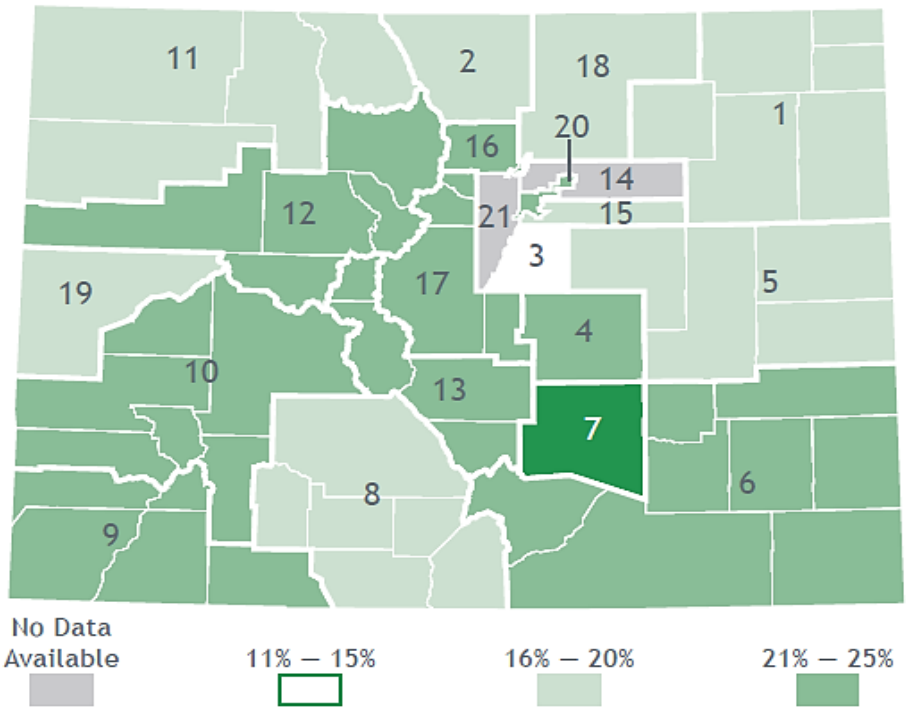
SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**



SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**

Healthy Kids Colorado Survey, High School Data:

REGIONAL BREAKDOWN Youth who use marijuana



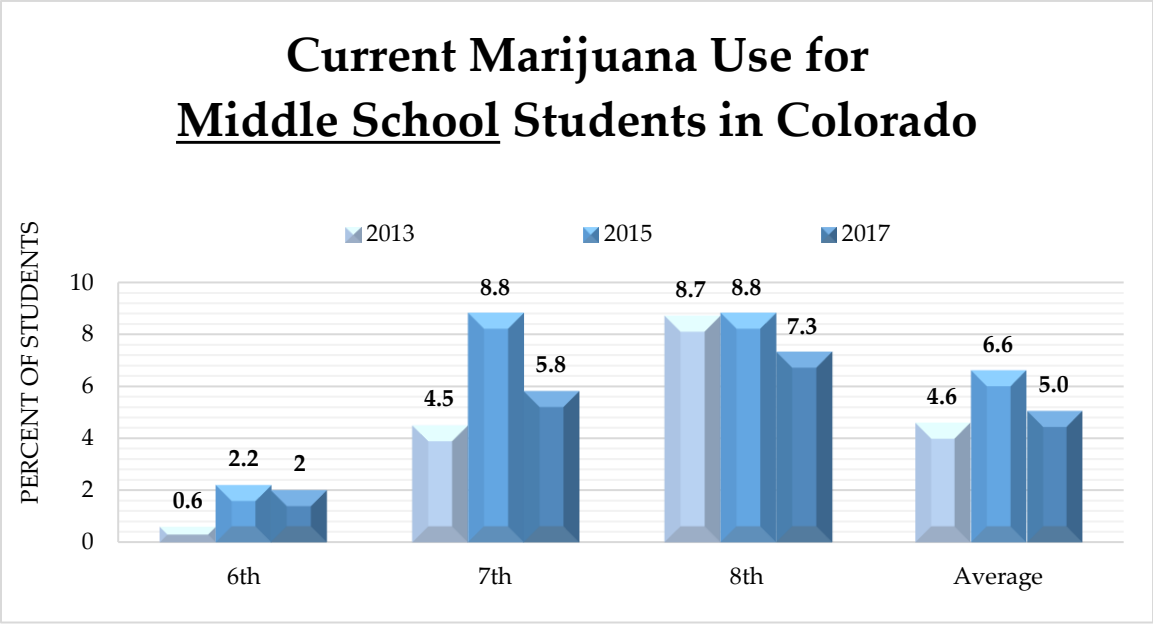
Region	%
1	16%
2	20%
3	14%
4	22%
5	16%
6	21%
7	27%
8	20%
9	25%
10	25%
11	20%
12	21%
13	22%
14	ND
15	18%
16	22%
17	22%
18	18%
19	20%
20	21%
21	ND

SOURCE: **Colorado Department of Public Health and Environment, Data Brief: Colorado Youth Marijuana Use 2017**

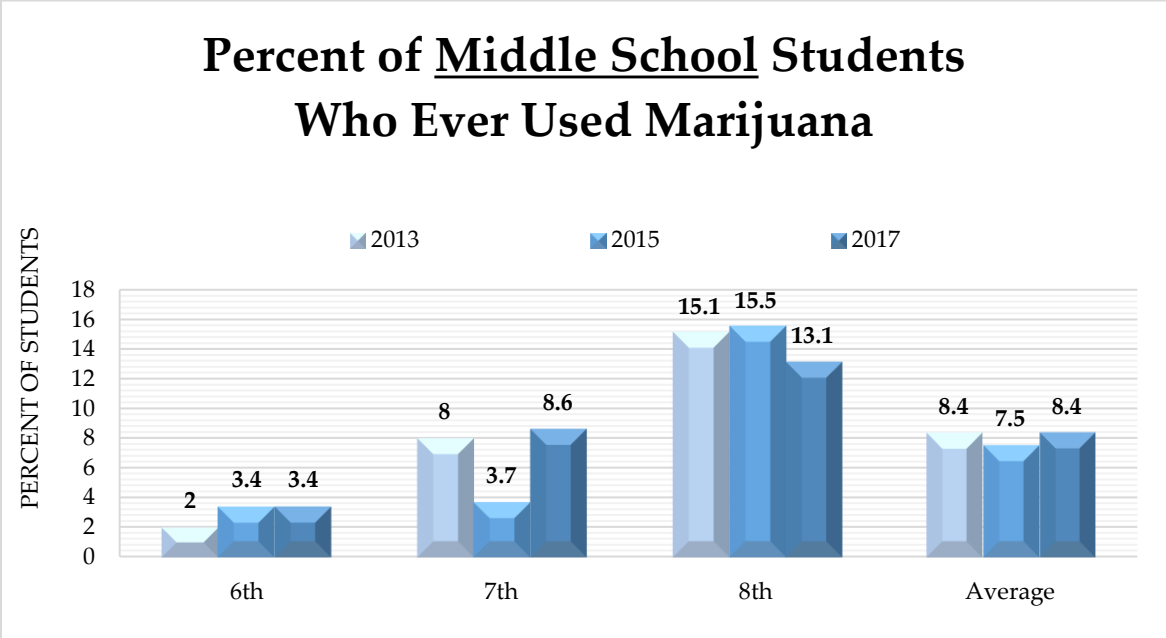
	Regions with the HIGHEST Current Marijuana Use	Regions with the LOWEST Current Marijuana Use
1.)	**Region 7, Pueblo – 26.95%** (**31% higher** than the state average) -Includes Pueblo	**Region 3, Douglas – 13.30%** (**35% lower** than the state average) -Includes Highlands Ranch, Lone Tree, and Castle Roc)
2.)	**Region 9, Southwest – 25.55%** -Includes Durango, Cortez, and Pagosa Springs)	**Region 5, Eastern Corridor – 15.88%** -Includes Burlington and Limon)
3.)	**Region 10, West Central – 24.90%** -Includes Ouray, Montrose, and Gunnison)	**Region 1, Northeast – 16.75%** -Includes Sterling, Yuma, and Wray)

- **1 out of 3** seniors is a current marijuana user in Pueblo – the region with the **highest** current use for high school seniors (34.9%).
- Nearly **1 out of 5** seniors is a current marijuana user in Douglas – the region with the **lowest** current use for high school seniors (18.6%)

SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**



SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**



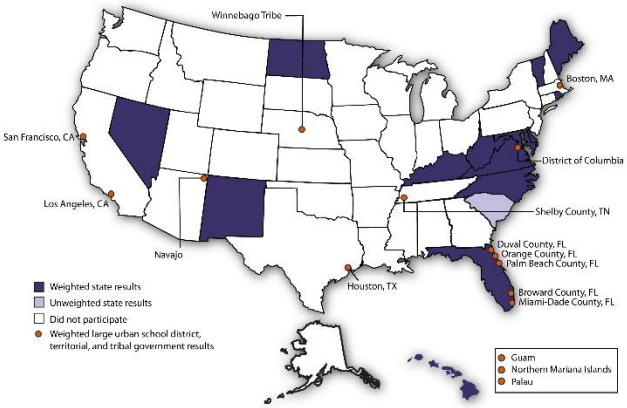
SOURCE: **Colorado Department of Public Health and Environment, Healthy Kids Colorado Survey**

Youth Risk Behavior Surveillance System (YRBSS) Data

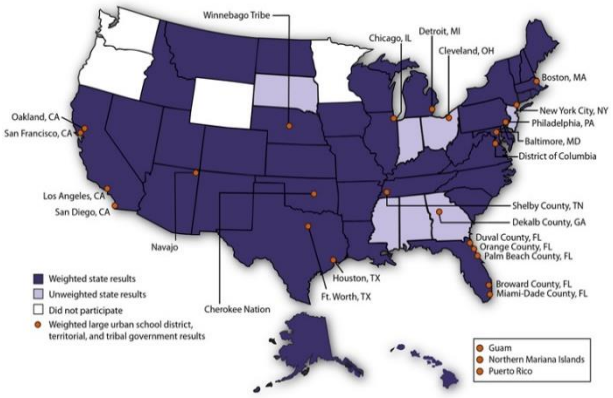
Although 2017 Colorado high school data was represented in YRBSS, in 2015, Colorado fell short of the required 60 percent participation rate and was, therefore, not included with weighted data. This has been a common occurrence for Colorado data over the past decade. Additionally, states that meet the minimum participation requirements for inclusion with weighted data varies from year to year, making national comparisons inconsistent. States that participated in the 2017 Middle School and High School YRBSS surveys are represented in dark purple in the below maps.

2017 YRBSS Participation Map

Middle Schools



High Schools



Marijuana Use Information

Police in Colorado Find Use on the Rise

School resource officers in Colorado – police who are assigned to public schools – say that based on their observation, use among students has increased in recent years. What has changed they say, is how youths are disciplined in school for marijuana violations and how statewide data on violations is collected. "There is a great disparity in the number of kids they say use marijuana and what we actually saw", said Matt Montgomery a former Broomfield police officer and school resource officer (SRO). "They're doing it so much that it's scary. Marijuana is easier to get than alcohol." The Executive Director of Act on Drugs, Lynn Riemer said, "The data collection is just not well done." This article was in response to surveys that said drug use among youth has dropped.

- David Migoya, *Police across Colorado questioning whether youths are using marijuana less,* The Denver Post, December 22nd 2017.

Medical Marijuana Advertising Exposure Among Adolescents

In a seven year study conducted by The RAND Corporation, approximately 6,500 adolescents were surveyed and tracked regarding exposure to medical marijuana advertisements and the likelihood of increased adolescent use. Over the seven years (2010-2017), the study found that the adolescents that were exposed more frequently to medical marijuana advertising were more likely to have used the drug within the previous 30 days with intent to use again within the next six months, had more positive views about the drug, and reported negative consequences because of marijuana use. "This work highlights the importance of considering regulations for marijuana advertising that would be similar to rules already in place to curb the promotion of tobacco and alcohol across the United States."

- Elizabeth J. D'Amico, *Adolescents Who View More Medical Marijuana Advertising Are More Likely to Use Marijuana, Have Positive Views About the Drug,* RAND Corporation, May 17th 2018.

Marijuana Users Go to Work High?

A January 25th 2017 survey was conducted in states with legal recreational marijuana; 600 users took part in the poll. Of the 600, 48 percent said they had gone to work high and 39 percent of those said they did so once a week.

- Michael Roberts, *Survey: 48 Percent of Marijuana Users Have Gone to Work High,* Westword, January 29th, 2018.

Drug Positivity in U.S. Workforce Rises to Nearly Highest Level in a Decade

According to the world's leading provider of diagnostic drug testing services, "The percentage of employees in the combined U.S. workforce testing positive for drugs has steadily increased over the last three years to a 10-year high." The three primary diagnostic tests offered by Quest Diagnostics include oral, urine and hair follicle drug tests. Speaking to oral fluid testing, which provides a 24-48 hour history, the positivity rate increased 47 percent in the past three years. According to the diagnostics corporation, "The increase was largely driven by double-digit increases in marijuana positivity during this time period. In 2015, there was a 25 percent relative increase in marijuana detection as compared to 2014." Additionally, "Almost half (45 percent) of individuals in the general U.S. workforce with a positive drug test for any substance in 2015 showed evidence of marijuana use.

- Quest Diagnostics, *Drug Positivity in U.S. Workforce Rises to Nearly Highest Level in a Decade*, September 25th 2016.

Medical Cannabis Legalization and State-Level Prevalence of Serious Mental Illness in the National Survey on Drug Use and Health (NSDUH)

Researchers have recently taken a preliminary look at the relationship between medical cannabis legalization and mental health. This population level research study saw that medical cannabis legalization is associated with a higher prevalence of serious mental illness. Study authors state that "cannabis use somewhat accounts for this association."

- Lauren M. Dutra, William J. Parish, Camille K. Gourdet, Sarah A. Wylie, and Jenny L. Wiley, *Medical cannabis legalization and state-level prevalence of serious mental illness in the National Survey on Drug Use and Health (NSDUH) 2008-2015,* International Review of Psychiatry, July 16th 2018.

Persistency of Cannabis Use Predicts Violence following Acute Psychiatric Discharge

It is generally accepted that substance use is positively correlated with exacerbations of psychiatric symptoms and violence. Due to the lack of research on psychiatric patients who use cannabis, a team of Canadian researchers recently aimed to examine the relationship between cannabis use and psychiatric episodes as well as violence. Findings indicated that the longer an individual reports using cannabis after a psychiatric discharge, the more likely they are of being violent.

- Jules R. Dugre, Laura Dellazizzo, Charles-Edouard Giguere, Stephane Potvin, and Alexandre Dumais, *Persistency of Cannabis Use Predicts Violence following Acute Psychiatric Discharge,* Frontiers in Psychiatry, Forensic Psychiatry, September 21st 2017.

Section III: Public Health

Some Findings

- The yearly rate of emergency department visits related to marijuana **increased 52 percent** after the legalization of recreational marijuana. (2012 compared to 2016)
- Number of hospitalizations related to marijuana:
  - 2011 – **6,305**
  - 2012 – **6,715**
  - 2013 – **8,272**
  - 2014 – **11,439**
  - Jan-Sept 2015 – **10,901**
- The yearly rate of marijuana-related hospitalizations **increased 148 percent** after the legalization of recreational marijuana. (2012 compared to 2016)
- Marijuana only exposures more than tripled in the five-year average (2013-2017) since Colorado legalized recreational marijuana compared to the five-year average (2008-2012) prior to legalization.
- The five year average (2008-2012) of marijuana treatment admissions prior to legalization, **decreased 9 percent** compared to the five year average (2013-2017) after legalization.

Definitions by Rocky Mountain HIDTA

Marijuana-Related: Also referred to as "marijuana mentions." Data could be obtained from lab tests, patient self-admission or some other form of validation obtained by the provider. Being marijuana-related does not necessarily prove marijuana was the cause of the emergency department admission or hospitalization.

International Classification of Disease (ICD): A medical coding system used to classify diseases and related health problems.

- ****In 2015, ICD-10 (the tenth modification) was implemented in place of ICD-9. Although ICD-10 will allow for better analysis of disease patterns and treatment outcomes for the advancement of medical care, comparison of trends before and after the conversion can be made difficult and/or impossible. The number of codes increased from approximately 13,600 codes to approximately 69,000 codes. For the above reasons, hospitalization and emergency department data was only provided pre-conversion to ICD-10 for the 2017, Volume 5 report. However, <u>some preliminary data for rates per 100,000 individuals was provided by the Colorado Department of Public Health and Environment (CDPHE) for this update.</u>**

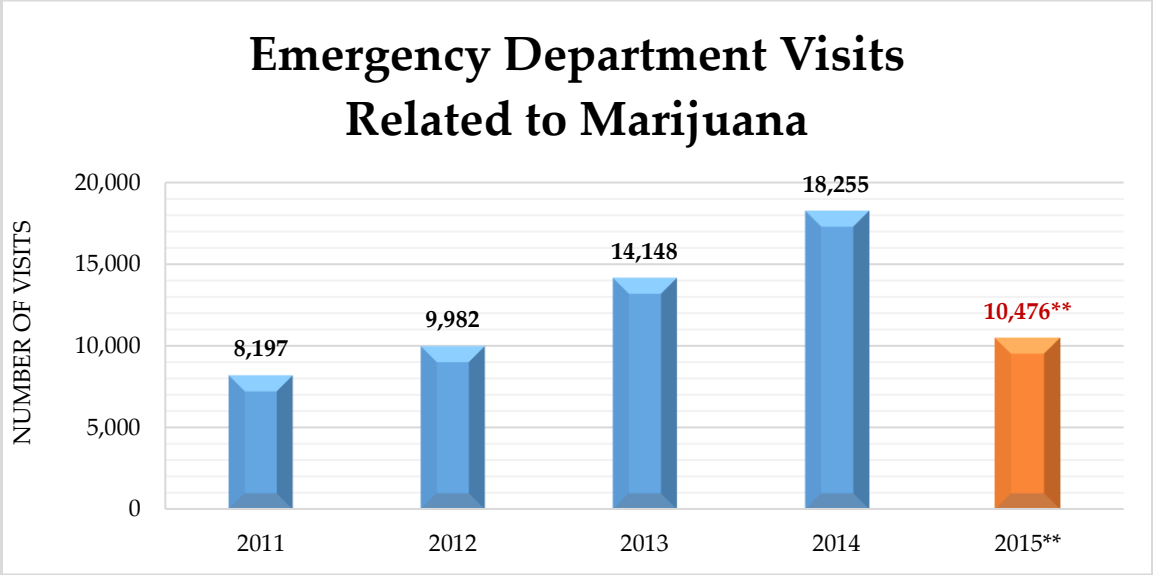
Emergency Department Data

NOTE:

- "POSSIBLE MARIJUANA EXPOSURES, DIAGNOSES, OR BILLING CODES IN ANY OF LISTED DIAGNOSIS CODES: THESE DATA WERE CHOSEN TO REPRESENT THE HD AND ED VISITS WHERE MARIJUANA COULD BE A CAUSAL, CONTRIBUTING, OR COEXISTING FACTOR NOTED BY THE PHYSICIAN DURING THE HD OR ED VISIT. FOR THESE DATA, MARIJUANA USE IS NOT NECESSARILY RELATED TO THE UNDERLYING REASON FOR THE HD OR ED VISIT. SOMETIMES THESE DATA ARE REFERRED TO AS HD OR ED VISITS 'WITH ANY MENTION OF MARIJUANA.'"

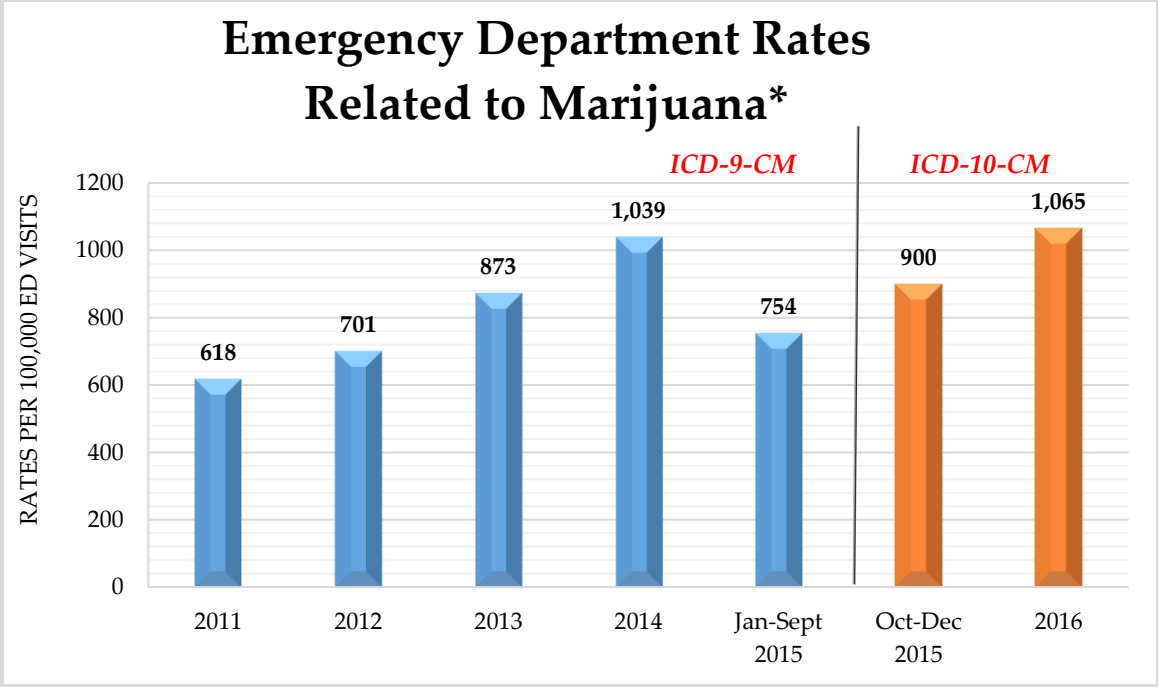
- COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, MONITORING HEALTH CONCERNS RELATED TO MARIJUANA IN COLORADO: 2014

NOTE: DATA NOT AVAILABLE PRE-2011. EMERGENCY DEPARTMENT DATA FROM 2011 AND 2012 REFLECTS INCOMPLETE STATEWIDE REPORTING.



**Only 9 months of comparable 2015 data, see ICD definition on page 36

SOURCE: Colorado Department of Public Health and Environment, *Monitoring Health Concerns Related to Marijuana in Colorado: 2016*



***Rates of Emergency Department (ED) Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes per 100,000 HD visits by Year in Colorado**

SOURCE: **Marijuana Health Monitoring and Research Program, Colorado Department of Public Health and Environment**

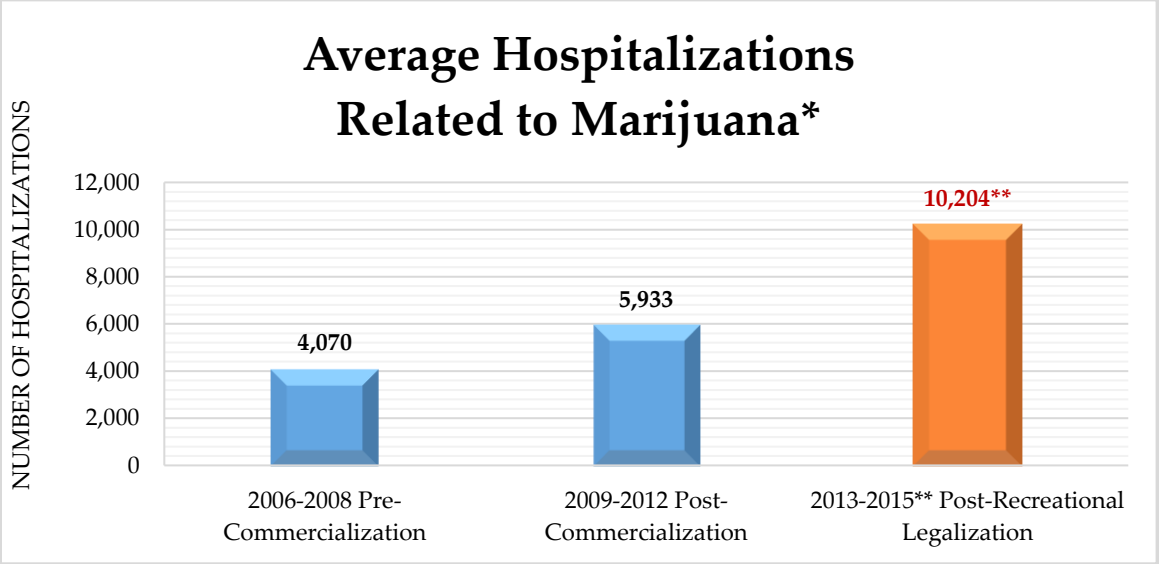
NOTE: "DUE TO CHANGES IN CODING SYSTEMS, VARIABLE STRUCTURES, AND POLICIES AT THE COLORADO HOSPITAL ASSOCIATION (CHA), MARIJUANA NUMBERS/RESULTS FOR 2016 ARE STILL PRELIMINARY. CDPHE IS EXERCISING CAUTION IN THE INTERPRETATION OF THESE DATA DURING THIS CODING TRANSITION. FINALIZED INTERPRETATIONS OF RESULTS ARE NOT EXPECTED UNTIL OCTOBER 2018, AT WHICH TIME THEY WILL BE MADE PUBLICLY AVAILABLE ON CDPHE'S WEBSITE." *-- COLORADO DEPARTMENT OF PUBLIC HEALTH AND*

Hospitalization Data

NOTE:

- "POSSIBLE MARIJUANA EXPOSURES, DIAGNOSES, OR BILLING CODES IN ANY OF LISTED DIAGNOSIS CODES: THESE DATA WERE CHOSEN TO REPRESENT THE HD AND ED VISITS WHERE MARIJUANA COULD BE A CAUSAL, CONTRIBUTING, OR COEXISTING FACTOR NOTED BY THE PHYSICIAN DURING THE HD OR ED VISIT. FOR THESE DATA, MARIJUANA USE IS NOT NECESSARILY RELATED TO THE UNDERLYING REASON FOR THE HD OR ED VISIT. SOMETIMES THESE DATA ARE REFERRED TO AS HD OR ED VISITS 'WITH ANY MENTION OF MARIJUANA.'"

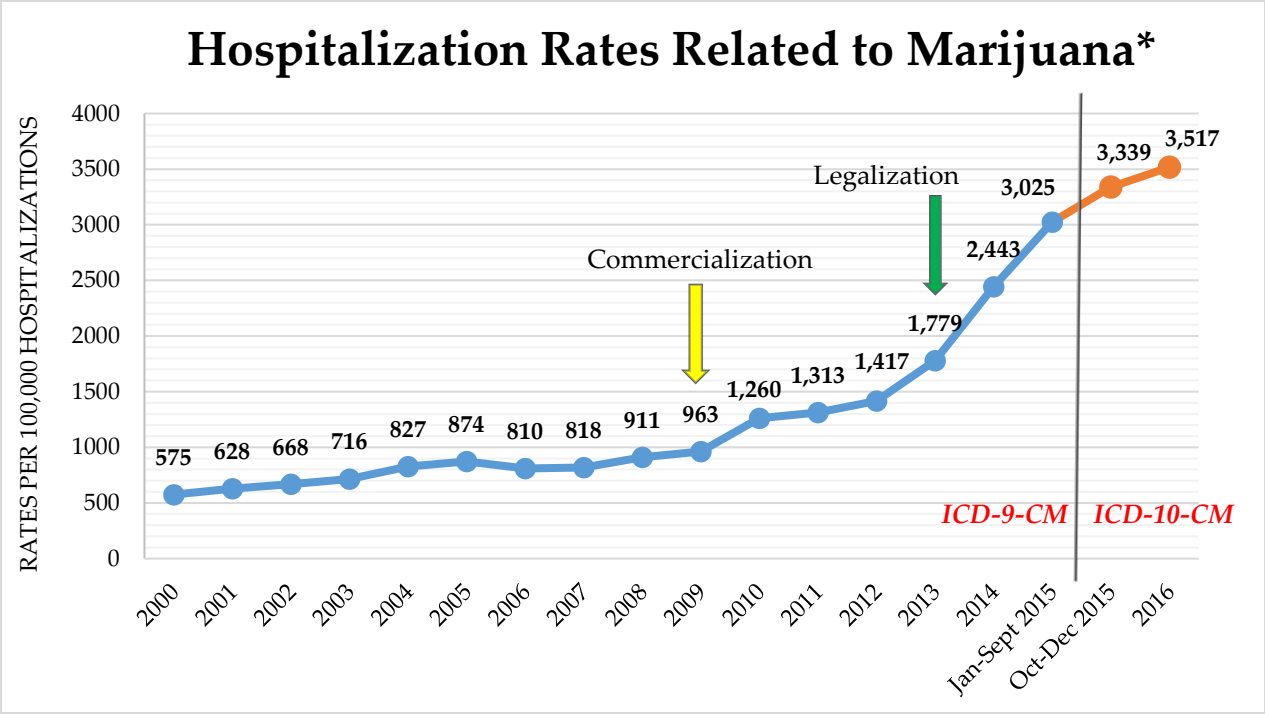
- COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, MONITORING HEALTH CONCERNS RELATED TO MARIJUANA IN COLORADO: 2014



*Hospitalization Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes

**Only 9 months of comparable 2015 data, see ICD definition on page 36

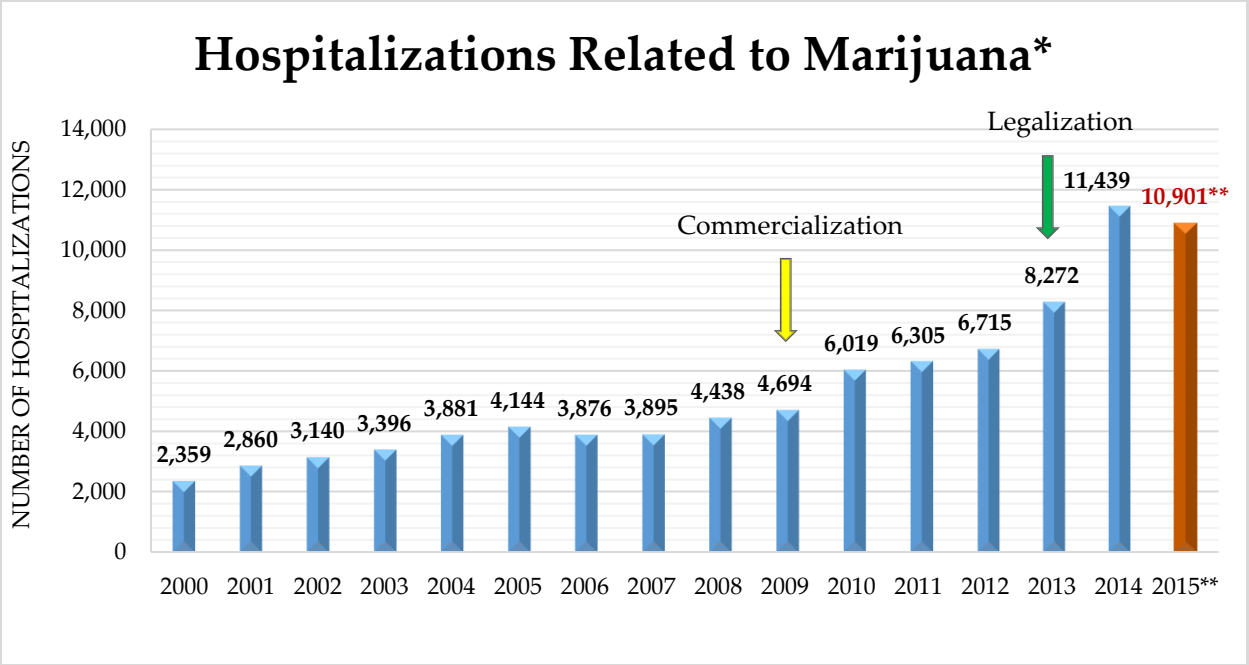
SOURCE: Colorado Hospital Association, Hospital Discharge Dataset. Statistics prepared by the Health Statistics and Evaluation Branch, Colorado Department of Public Health and Environment



***Rates of Hospitalization (HD) Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes per 100,000 HD visits by Year in Colorado**

SOURCE: **Marijuana Health Monitoring and Research Program, Colorado Department of Public Health and Environment**

NOTE: "DUE TO CHANGES IN CODING SYSTEMS, VARIABLE STRUCTURES, AND POLICIES AT THE COLORADO HOSPITAL ASSOCIATION (CHA), MARIJUANA NUMBERS/RESULTS FOR 2016 ARE STILL PRELIMINARY. CDPHE IS EXERCISING CAUTION IN THE INTERPRETATION OF THESE DATA DURING THIS CODING TRANSITION. FINALIZED INTERPRETATIONS OF RESULTS ARE NOT EXPECTED UNTIL OCTOBER 2018, AT WHICH TIME THEY WILL BE MADE PUBLICLY AVAILABLE ON CDPHE'S WEBSITE." *-- COLORADO DEPARTMENT OF PUBLIC HEALTH AND*



***Hospitalization Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes**

****Only 9 months of comparable 2015 data, see ICD definition on page 36**

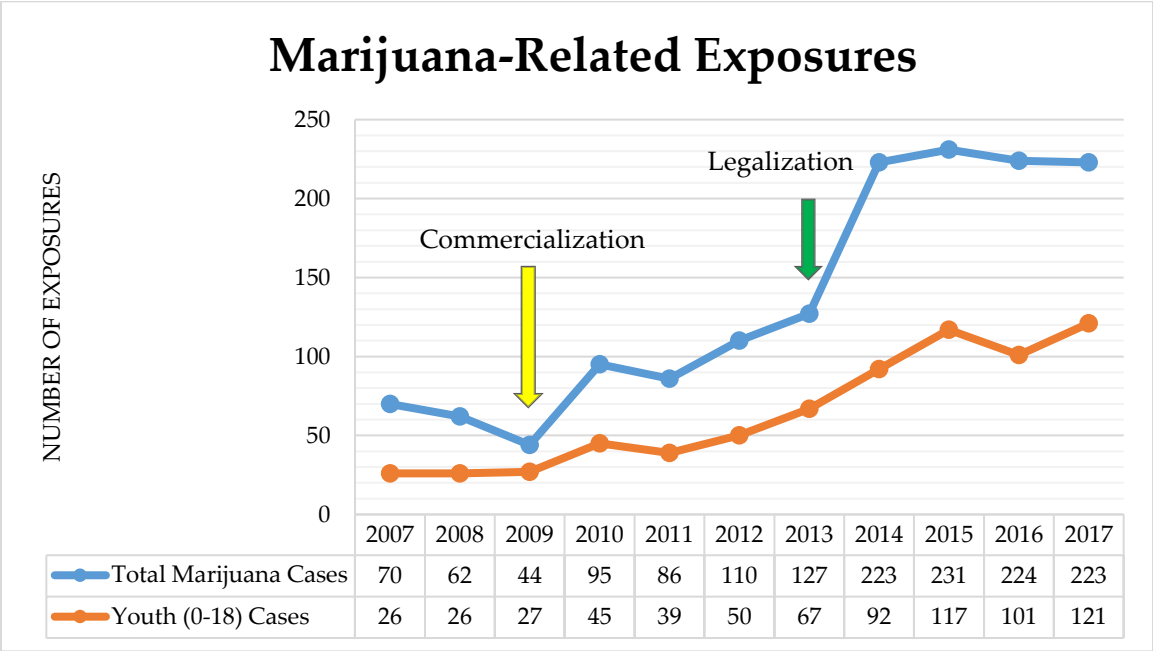
SOURCE: **Colorado Hospital Association, Hospital Discharge Dataset. Statistics prepared by the Health Statistics and Evaluation Branch, Colorado Department of Public Health and Environment**

Poison Control/ Marijuana Exposure Data

Definitions:

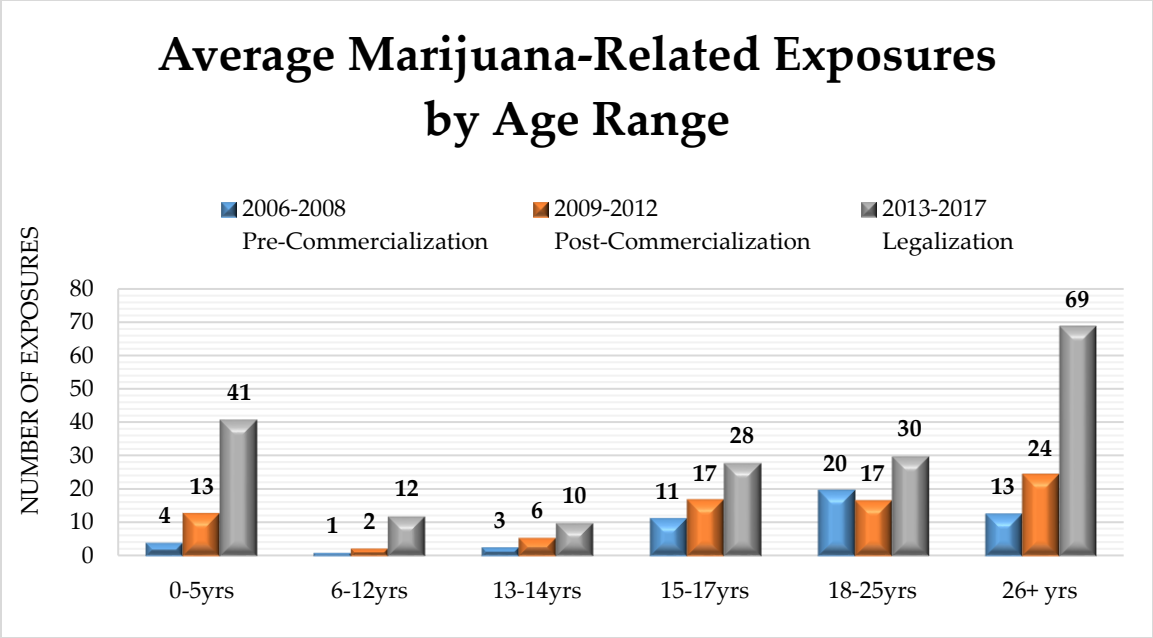
Marijuana-Related Exposures: Any phone call to the Rocky Mountain Poison and Drug Center in which marijuana is mentioned.

Marijuana Only Exposures: Marijuana was the only substance referenced in the call to the poison and drug center.

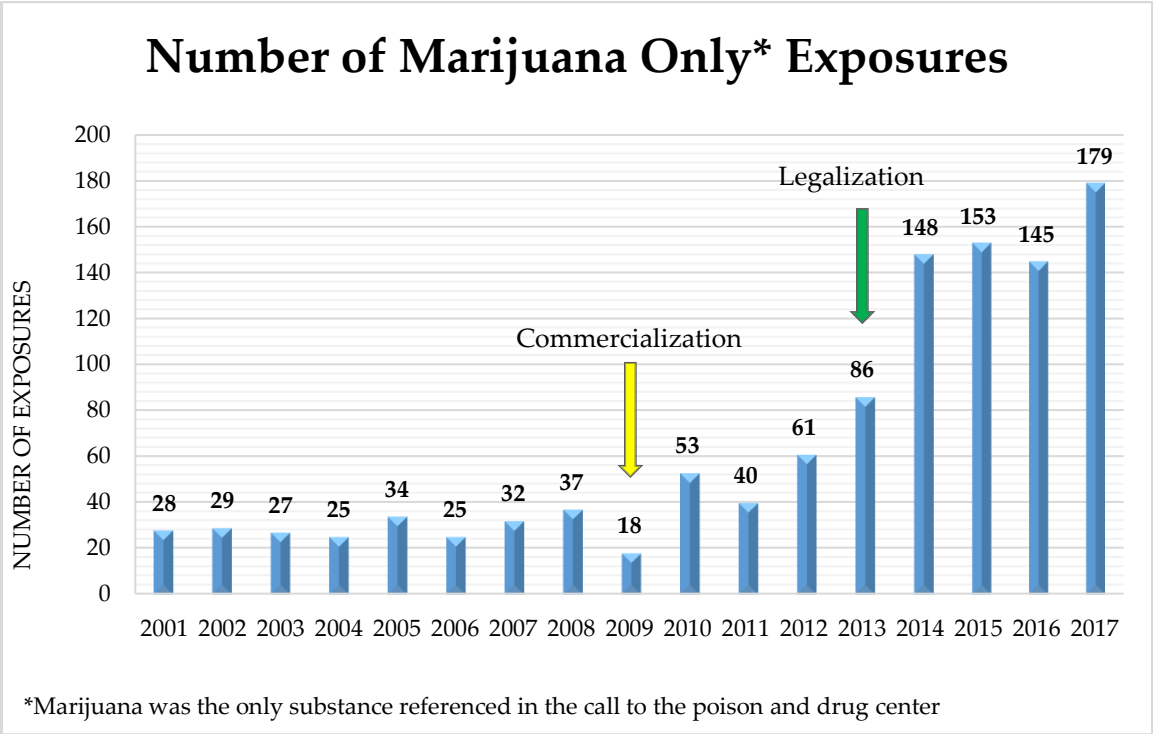


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Marijuana Cases	70	62	44	95	86	110	127	223	231	224	223
Youth (0-18) Cases	26	26	27	45	39	50	67	92	117	101	121

SOURCE: **Rocky Mountain Poison and Drug Center,** ***Colorado Marijuana Data 2017***

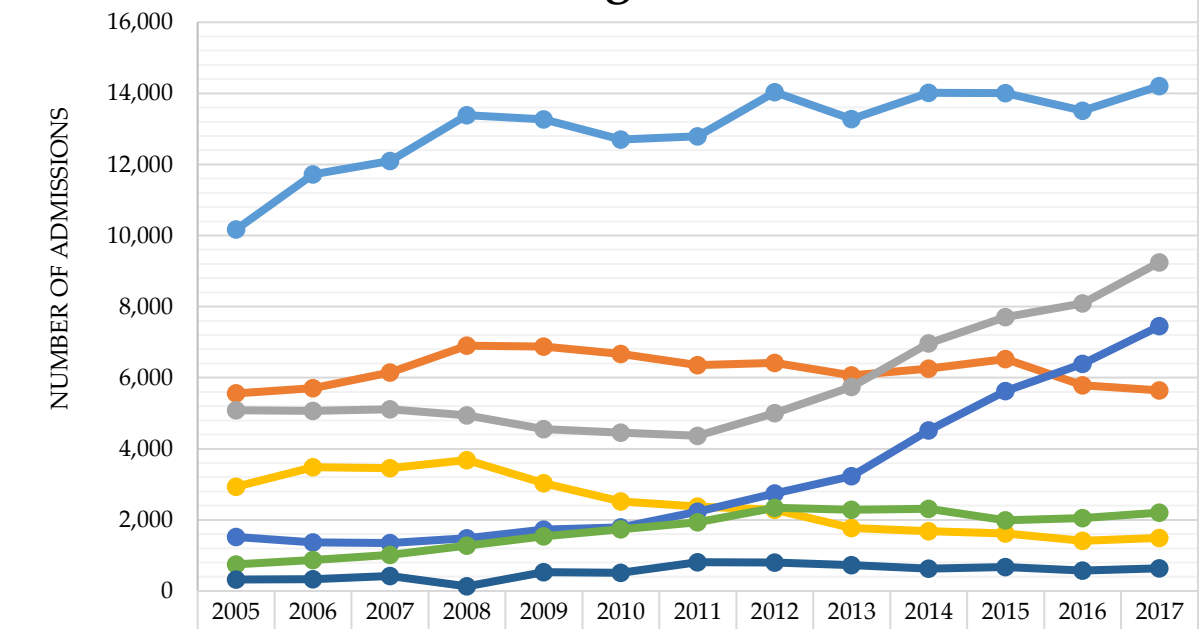


SOURCE: **Rocky Mountain Poison and Drug Center**



SOURCE: **Rocky Mountain Poison and Drug Center**

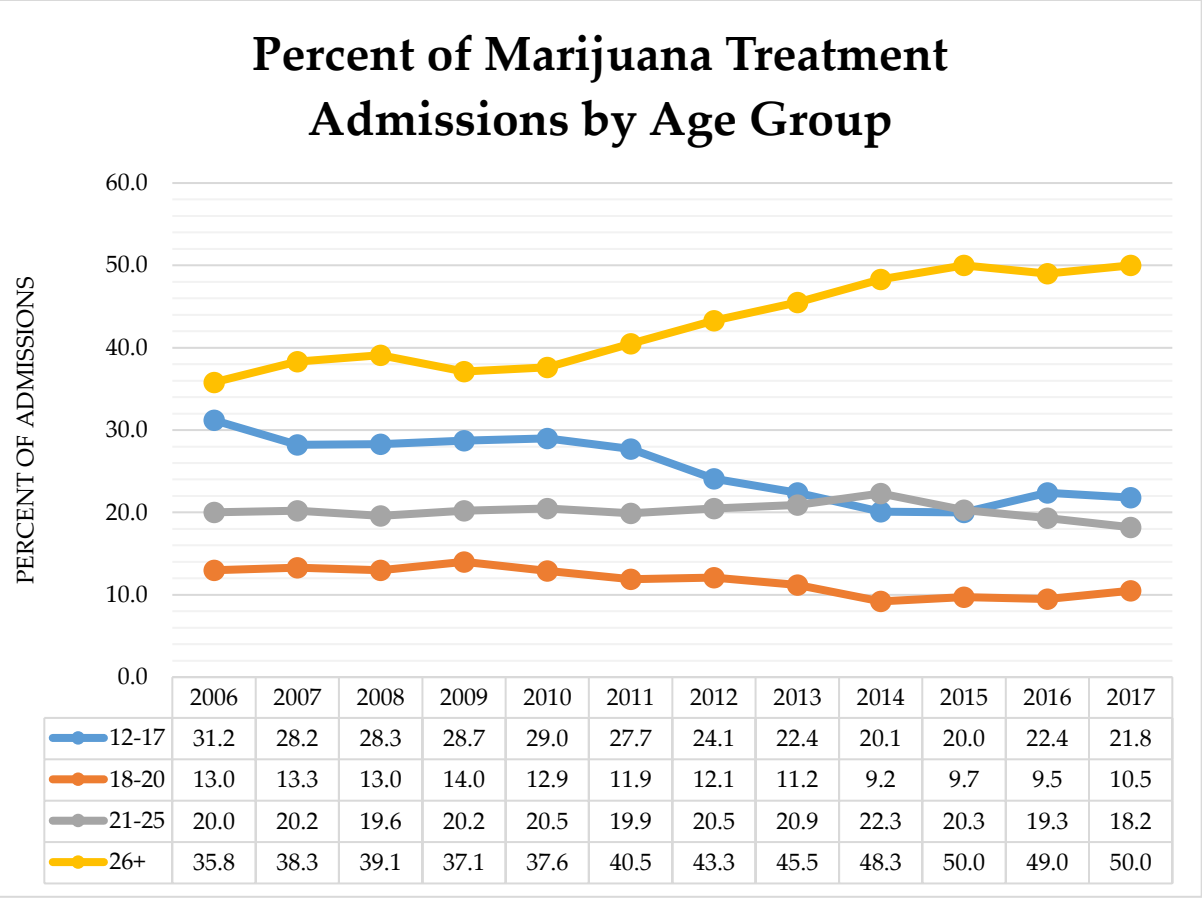
Treatment Data



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alcohol	10,168	11,721	12,094	13,382	13,270	12,701	12,787	14,032	13,275	14,015	14,004	13,514	14,206
Marijuana	5,558	5,708	6,144	6,900	6,872	6,669	6,350	6,413	6,069	6,253	6,525	5,784	5,644
Meth	5,081	5,066	5,109	4,939	4,557	4,451	4,367	5,007	5,745	6,970	7,706	8,094	9,246
Cocaine	2,934	3,481	3,459	3,685	3,035	2,522	2,377	2,288	1,775	1,683	1,616	1,412	1,496
Heroin	1,519	1,369	1,349	1,487	1,731	1,789	2,234	2,746	3,228	4,521	5,627	6,390	7,450
Rx Opioids	749	875	1,014	1,274	1,536	1,736	1,931	2,341	2,282	2,309	1,989	2,053	2,207
Other	324	330	420	131	531	516	810	801	727	632	676	577	636

Data beginning 2009 has been revised using a new methodology for improved accuracy. Treatment categories include residential, outpatient, and intensive outpatient record counts.

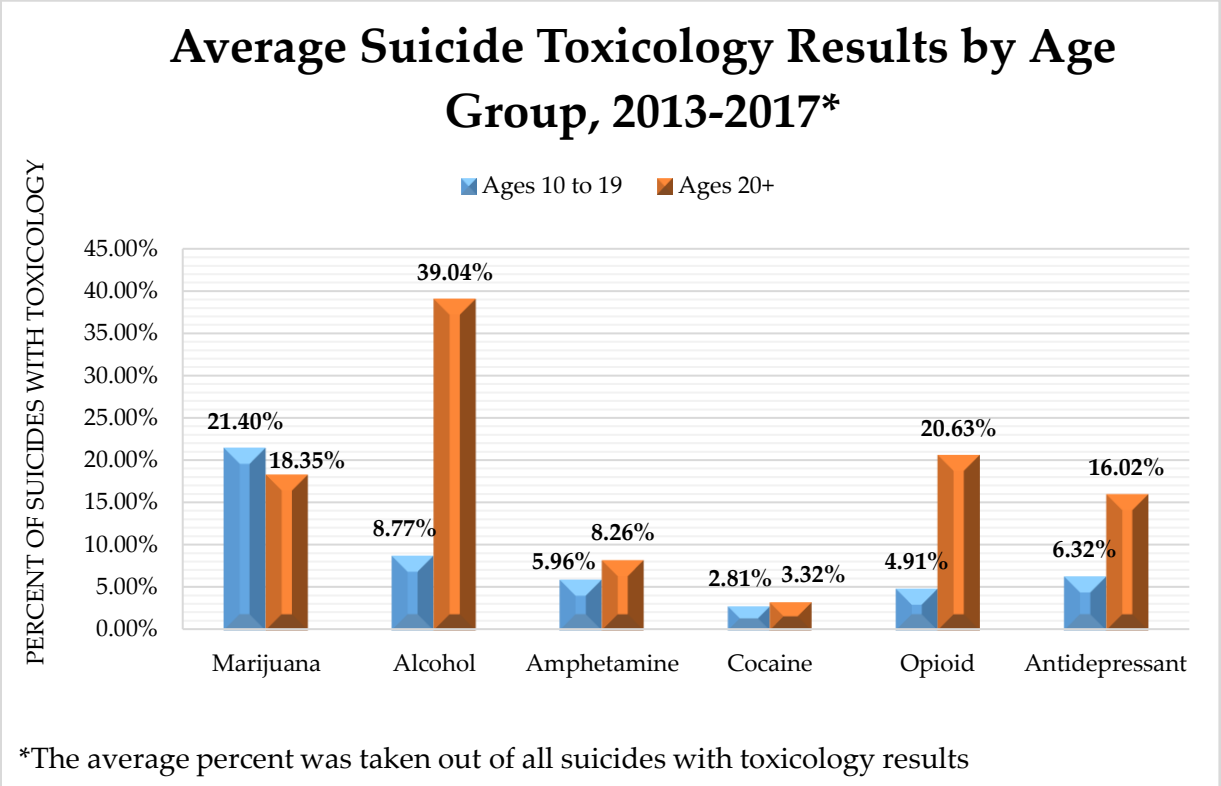
SOURCE: **Colorado Department of Health Services, Office of Behavioral Health, 2005-2017**



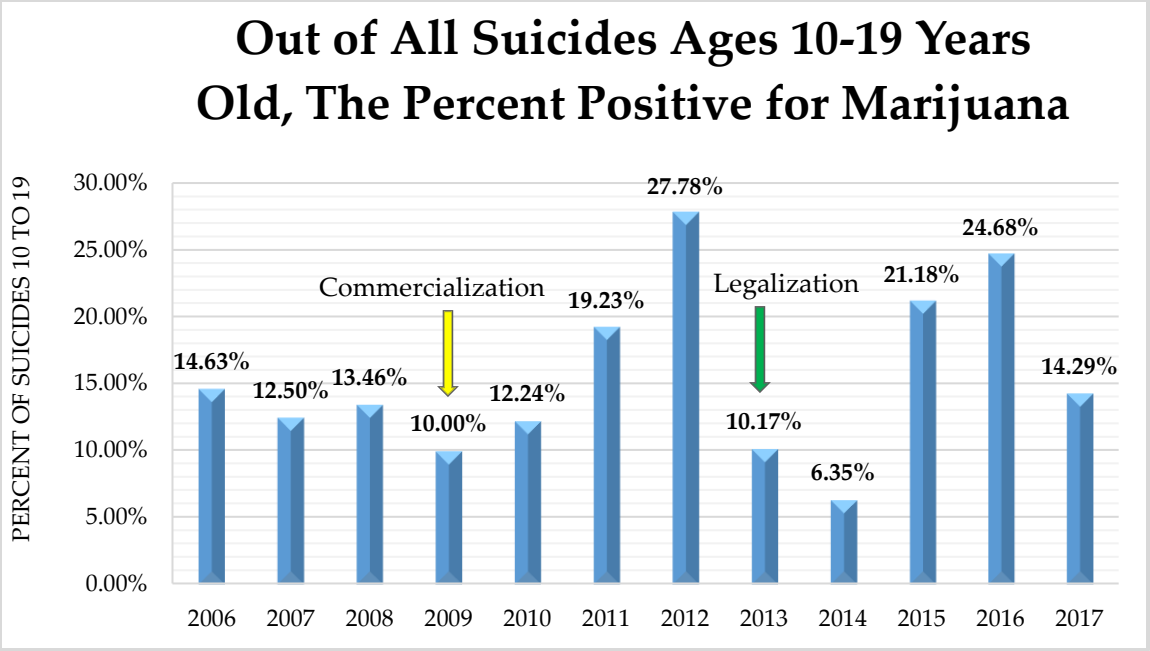
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
12-17	31.2	28.2	28.3	28.7	29.0	27.7	24.1	22.4	20.1	20.0	22.4	21.8
18-20	13.0	13.3	13.0	14.0	12.9	11.9	12.1	11.2	9.2	9.7	9.5	10.5
21-25	20.0	20.2	19.6	20.2	20.5	19.9	20.5	20.9	22.3	20.3	19.3	18.2
26+	35.8	38.3	39.1	37.1	37.6	40.5	43.3	45.5	48.3	50.0	49.0	50.0

SOURCE: **Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS) Based on administrative data reported by States to TEDS through July 1, 2018**

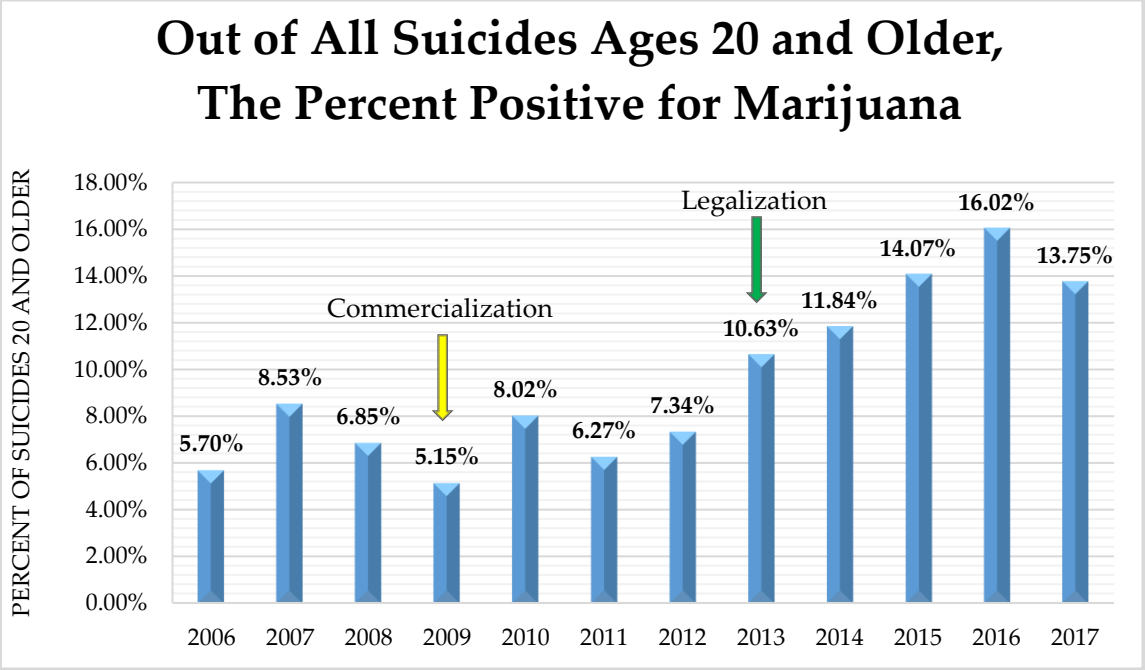
Suicide Data



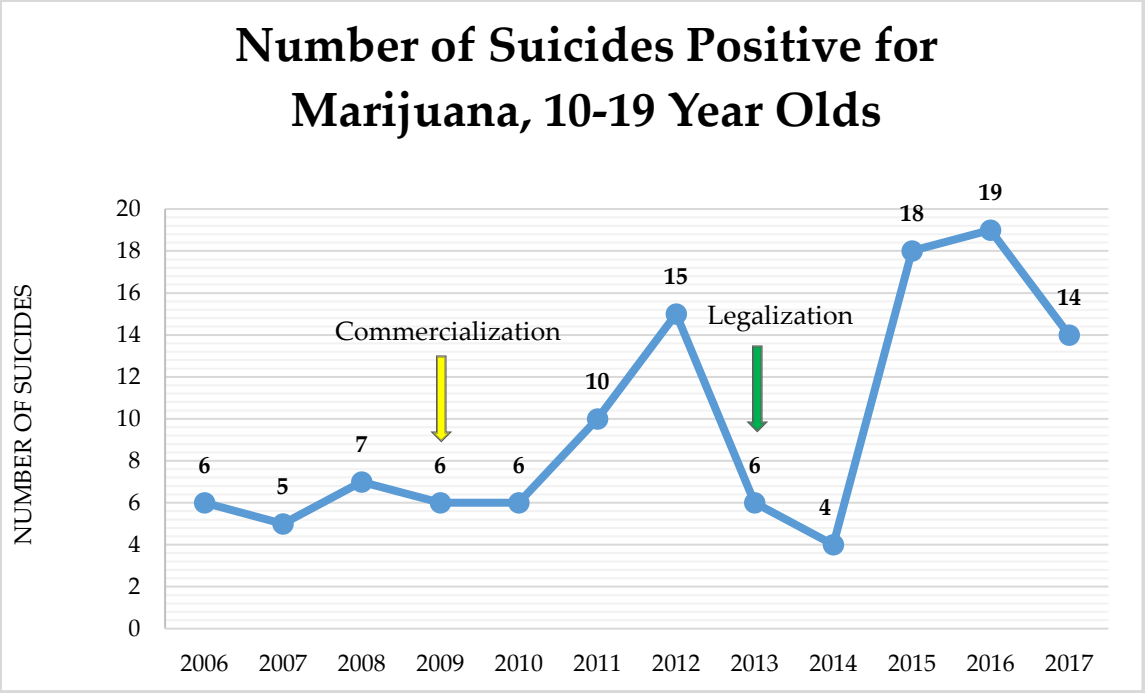
SOURCE: **Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System**



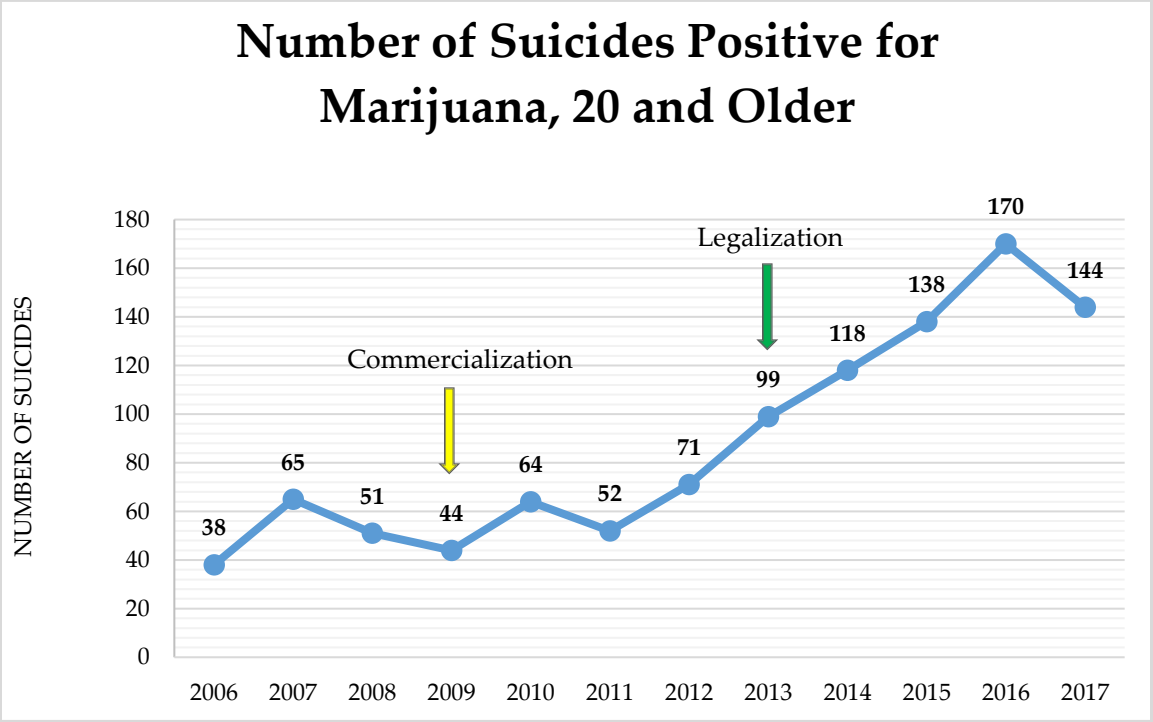
SOURCE: **Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System**



SOURCE: **Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System**



SOURCE: **Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System**



SOURCE: **Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System**

Public Health Information

Opioid Deaths and Legalized Marijuana

Contrary to information that has been published, opioid/opiate deaths in Colorado have increased 33% since legalization of marijuana in 2013. Prescription opioid deaths decreased slightly in 2015 and 2016 but increased to 357 in 2017. Heroin deaths increased 93% from 2013 to 2016 but decreased 7% in 2017.

- Colorado Department of Public Health and Environment, Vital Statistics, 2018.

Marijuana Addiction is Real, and Rising

Many people are unaware of marijuana addiction. In the public health and medical communities, it is a well-defined disorder that includes physical withdrawal symptoms, cravings, and psychological dependence. "There should be no controversy about the existence of marijuana addiction," said David Smith, a physician who has been treating addiction since he opened a free clinic in San Francisco's drug-drenched Haight Ashbury neighborhood in the 1960s. The percentage of people who become addicted to marijuana are estimated at about 9 percent of all users; 17 percent of those who start in adolescence become addicted.

- Christine Vestal, *Marijuana Addiction is Real, and Rising*, Tribune News Service, June 24th 2018.

Marijuana-Related ED Visits by Colorado Teens on the Rise

"Between 2005 and 2015 the proportion of ED or urgent care visits by youth ages 13 to 20 for marijuana-related illnesses rose from 1.8 per 1,000 visits to 4.9 per 1,000 visits, the study team reported in the Journal of Adolescent Health online March 30." That is over a 170% increase in the ten-year period.

- Shereen Lehman, *Marijuana-related ED Visits by Colorado Teens on the Rise*, Reuters, April 18th 2018.

Renowned Medical Marijuana Doctor Says Concentrates Should be Banned

Dr. Rav Ivker, a physician renowned for using marijuana to treat chronic pain, has said he believes marijuana concentrates should be banned. "I think they should be illegal, in fact, I hope they become illegal", he said. "The only thing they're good for is really getting high. But they're a high-risk, and really no benefit from them." Ivker also said that "Addiction is possible with high-potency marijuana products, including concentrates – the shatter and the wax. These can contain from 80% to even 95% THC."

- *Renowned Medical Marijuana Doctor Says Concentrates Should be Banned*, High Times, July 5th 2018.

Marijuana-related Vomiting Ailment

Cannabinoid hyperemesis syndrome was first documented in Australia in 2004. It affects a small population — namely, a subset of marijuana users who smoke multiple times a day for months, years or even decades. Physicians have historically misdiagnosed it as the more generic "cyclic vomiting syndrome," which has no identifiable cause. Doctors say it's difficult to treat the condition. There is no cure other than to quit using marijuana; many skeptical patients continue using cannabis and their vomiting episodes continue.

- Pauline Bartolone, *What doctors have learned about an agonizing marijuana-related vomiting ailment*, California Healthline, December 7th 2017.

Marijuana in Breast Milk

In a study conducted by Thomas Hale and Dr. Teresa Baker from Texas Tech University School of Medicine in Amarillo, they found that mothers that use marijuana transferred a percentage into breast milk. "Levels in milk were quite low," said Hale, director of the Infant Risk Center. Both Hale and Baker said that women should abstain from smoking marijuana while breast-feeding because there's simply no known safe amount."

- Serena Gordon, *Mom's Marijuana Ends Up in Breast Milk*, Healthday Reporter, April 9th 2018.

Effect of Cannabis Use in People with Chronic Non-Cancer Pain

As alternatives to opioids continues to be an important public health topic, recent research suggests that there is no evidence that cannabis use reduced pain severity or any sort of opioid-sparing effect in patients with chronic non-cancer pain.

- Gabrielle Campbell, Wayne D Hail, Amy Peacock, Nicholas Lintzeris, Raimondo Bruno, Briony Larance, Suzanne Nielsen, Milton Cohen, Gary Chan, Richard P Mattick, Fiona Blyth, Marian Shanahan, Timothy Dobbins, Michael Farrell, and Louisa Degenhardt, *Effect of cannabis use in people with chronic non-cancer pain prescribed opioids: findings from a 4-year prospective cohort study,* The Lancet, Public Health, July 1st 2018
- of Psychiatry, September 26th 2017

Non-medical Cannabis Self-Exposure as a Dimensional Predictor of Opioid Dependence Diagnosis: A Propensity Score Matched Analysis

"The impact of increasing non-medical cannabis use on vulnerability to develop opioid use disorders has received considerable attention, with contrasting findings." Researchers have recently found that "Increasing self-exposure to non-medical cannabis… was a predictor of greater odds of opioid dependence diagnosis."

- Eduardo R. Butelman, Angelo G. I. Maremmani, Silvia Bacciardi, Carina Y. Chen, Joel Correa da Rosa, and Mary Jeanne Kreek, *Non-medical Cannabis Self-Exposure as a Dimensional Predictor of Opioid Dependence Diagnosis: A Propensity Score Matched Analysis,* Frontiers in Psychiatry, Addictive Disorders, June 27th 2018

Medical Marijuana Users are More Likely to Use Prescription Drugs Medically and Non-medically

Although there have been conflicting studies regarding the correlation between cannabis use and prescription opioid use, a study published in the Journal of Addiction Medicine concludes that "medical marijuana users should be a target population in efforts to combat nonmedical prescription drug use." Researchers found that medical marijuana users were significantly more likely to report medical and nonmedical use of prescription drugs.

- Theodore L. Caputi and Keith Humphreys, *Medical Marijuana Users are More Likely to Use Prescription Drugs Medically and Nonmedically,* Journal of Addiction Medicine, January 29th 2018

Cannabis Use Causing Alarming Increase in Emergency Hospital Visits and Childhood Poisoning

Dr. Mark S. Gold, a world renowned expert on addiction-related diseases, summarizes a study published in late 2016 that aimed to examine trends and correlates of cannabis-involved emergency department visits in the United States from 2004-2011. "The ED visit rate increased for both cannabis-only use (51 to 73 visits per 100,000) and cannabis-polydrug use (63 to 100 per 100,000) in those aged 12 and older. Of note, the largest increase occurred in adolescents aged 12-17, and among persons who identified as non-Hispanic black."

Dr. Gold goes on to highlight the findings of the study which state that "The odds of hospitalization increased with older age users, as compared to adolescent admissions. These data suggest a heavier burden to both the patient and to the health care system as a result of increasing cannabis use among older adults. The severity of the "burden" is associated with the prevalence of cannabis use, specific cannabis potency and dose (which is increasing over time), the mode of administration, and numerous individual risk factors."

- Mark Gold, MD, *Cannabis Use Causing Alarming Increase in Emergency Hospital Visits and Childhood Poisoning*, Rivermend Health.

Section IV: Black Market

Some Findings

- RMHIDTA Colorado Task Forces (10) conducted **144 investigations** of black market marijuana in Colorado resulting in:
  - **239** felony arrests
  - **7.3 tons** of marijuana seized
  - **43,949** marijuana plants seized
  - **24** different states the marijuana was destined
- The number of highway seizures of Colorado marijuana **increased 39 percent** from an average of 242 seizures (2009-2012) to an average of 336 seizures (2013-2017) during the time recreational marijuana has been legal.
- Seizures of Colorado marijuana in the U.S. mail system has **increased 1,042 percent** from an average of 52 parcels (2009-2012) to an average of 594 parcels (2013-2017) during the time recreational marijuana has been legal.

Definitions by Rocky Mountain HIDTA

Colorado Marijuana Investigations: RMHIDTA Colorado drug task forces investigating individuals or organizations involved in illegally selling Colorado marijuana, both within and outside of the state. These investigations only include those reported by the ten RMHIDTA drug task forces.

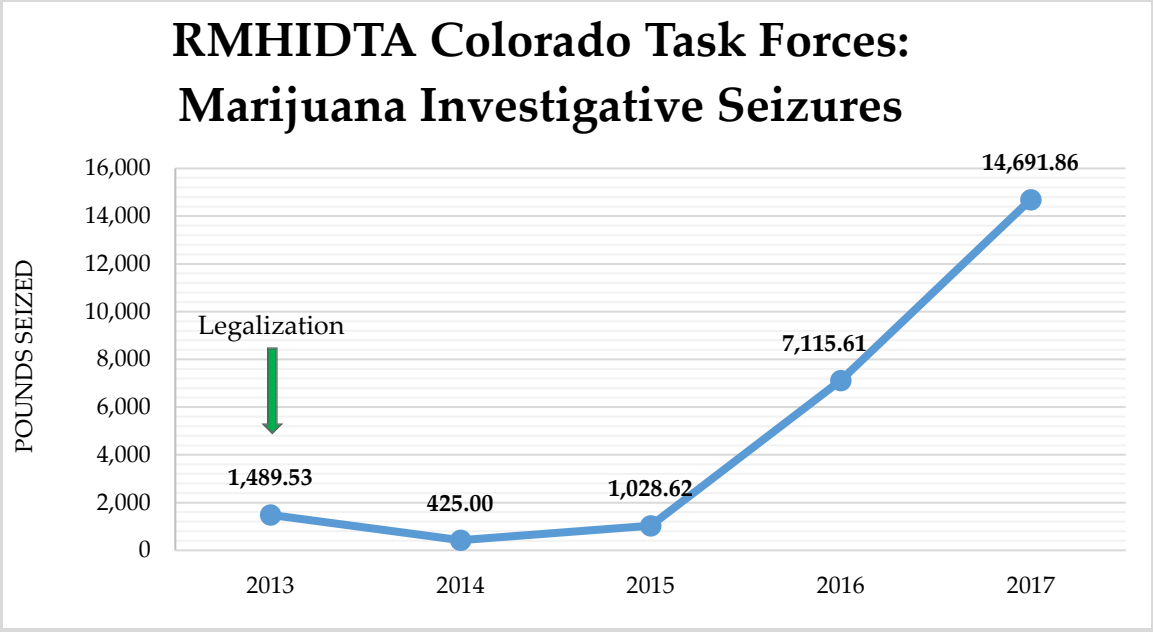
Colorado Marijuana Interdictions: Incidents where state highway patrol officers stopped a driver for a traffic violation and subsequently found Colorado marijuana destined for other parts of the country. These interdiction seizures are reported on a voluntary basis to the National Seizure System (NSS) managed by the El Paso Intelligence Center (EPIC). These are random traffic stops, not investigations, and do not include local law enforcement data.

Task Force Investigations

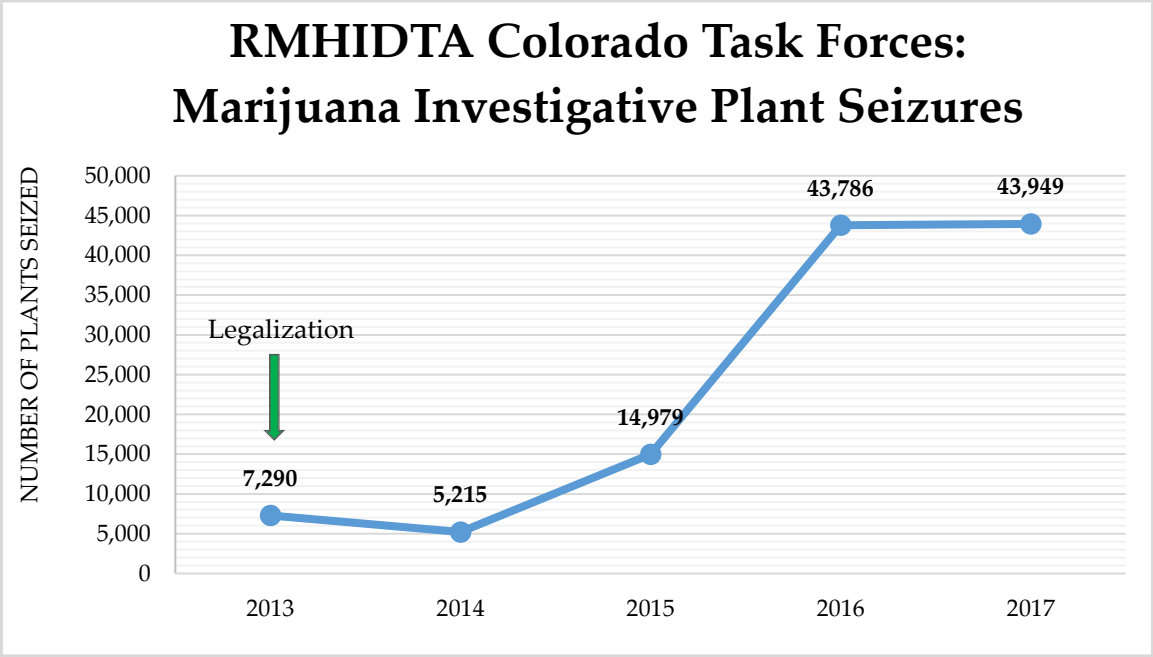
NOTE:

- THE BELOW INFORMATION ONLY INCLUDES COMPLETED INVESTIGATIONS REPORTED BY THE TEN RMHIDTA DRUG TASK FORCES. IT IS UNKNOWN HOW MANY OF THESE TYPES OF INVESTIGATIONS WERE COMPLETED BY NON-RMHIDTA DRUG UNITS OR TASK FORCES.

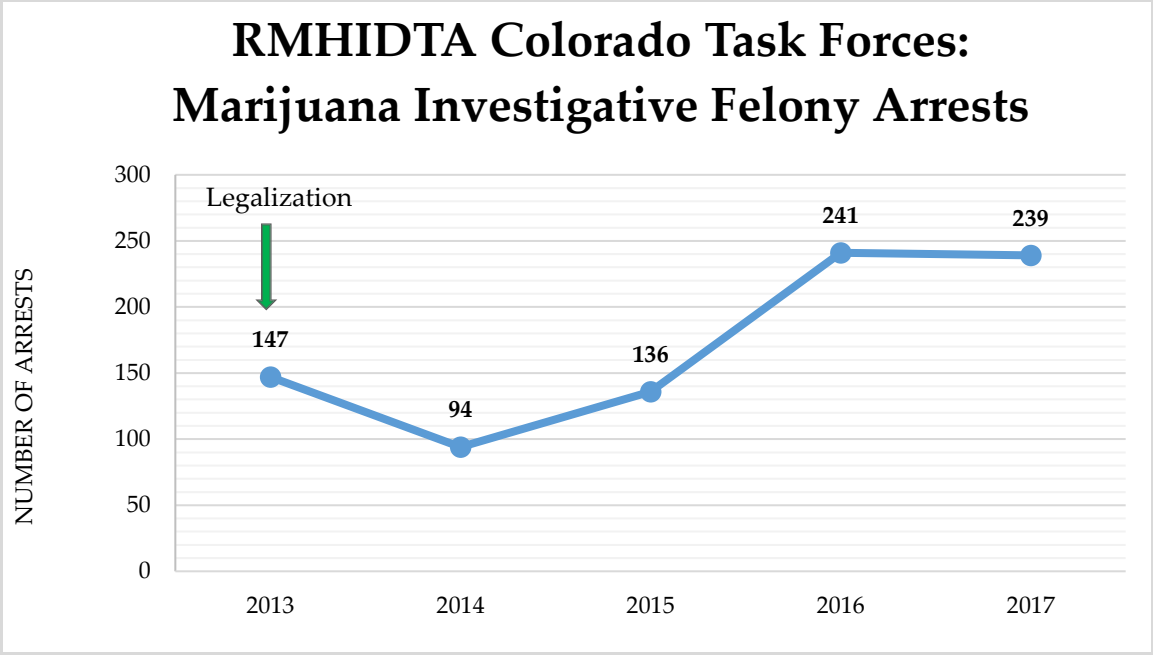
Rocky Mountain HIDTA Colorado Task Forces		
	2016	**2017**
Number of Completed Investigations	163	144
Number of Felony Arrests	241	239
Pounds of Bulk Marijuana Seized	7,116 (3.5 tons)	14,692 (7.3 tons)
Number of Plants Seized	43,786	43,949
Number of Edibles Seized	2,111	6,462
Pounds of Concentrate Seized	232	102
Different States to Which Marijuana was Destined	29	24



SOURCE: **Rocky Mountain HIDTA Performance Management Process (PMP) Data**



SOURCE: **Rocky Mountain HIDTA Performance Management Process (PMP) Data**

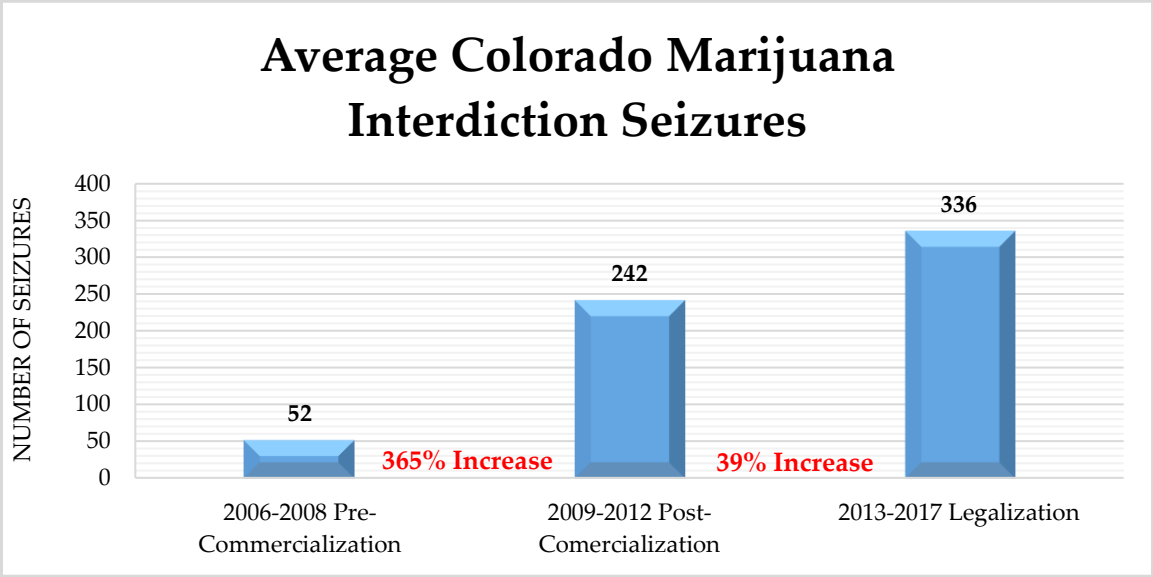


SOURCE: **Rocky Mountain HIDTA Performance Management Process (PMP) Data**

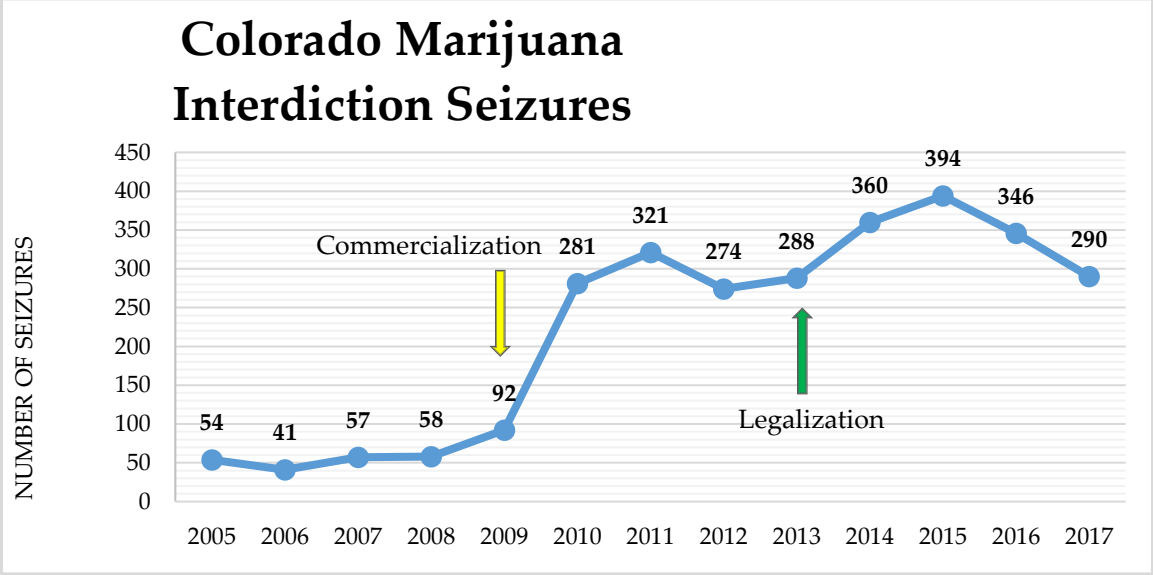
Highway Interdiction Data

NOTE:

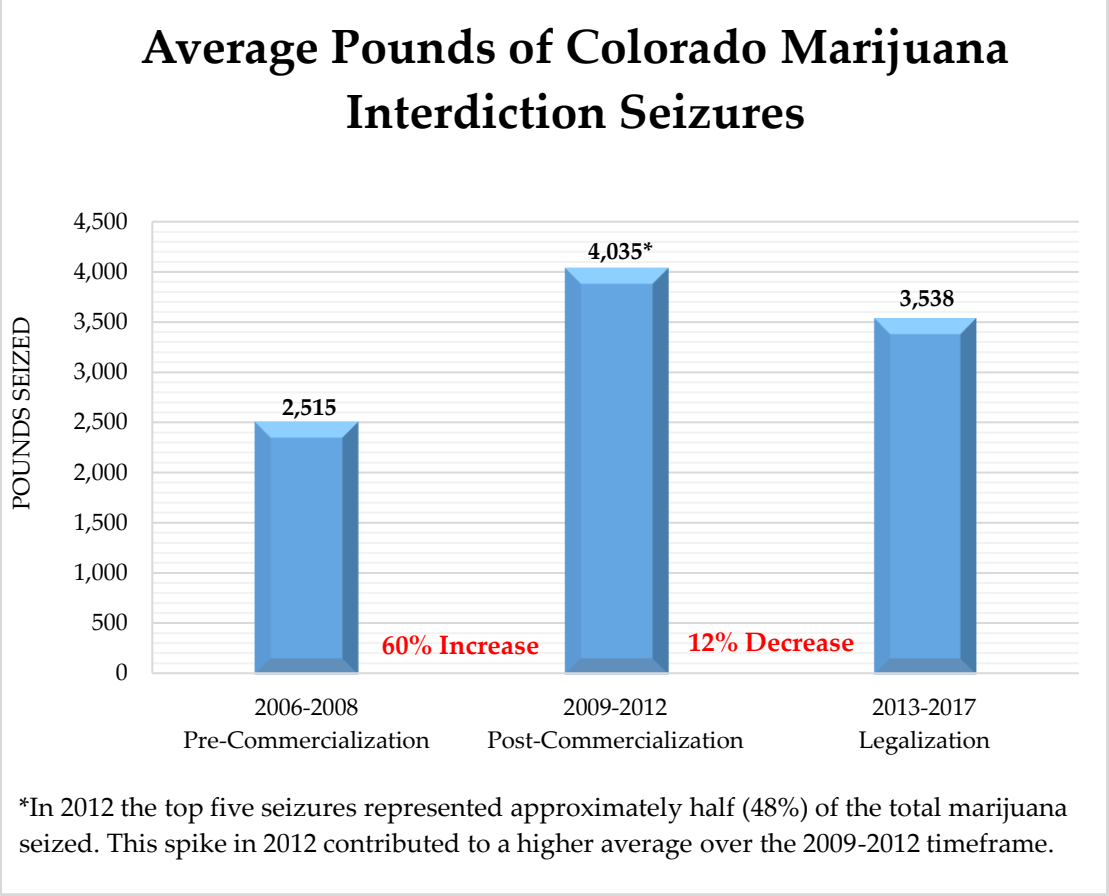
- **THE CHARTS ONLY INCLUDE CASES WHERE COLORADO MARIJUANA WAS ACTUALLY SEIZED AND REPORTED. IT IS UNKNOWN HOW MANY COLORADO MARIJUANA LOADS WERE NOT DETECTED OR, IF SEIZED, WERE NOT REPORTED.**



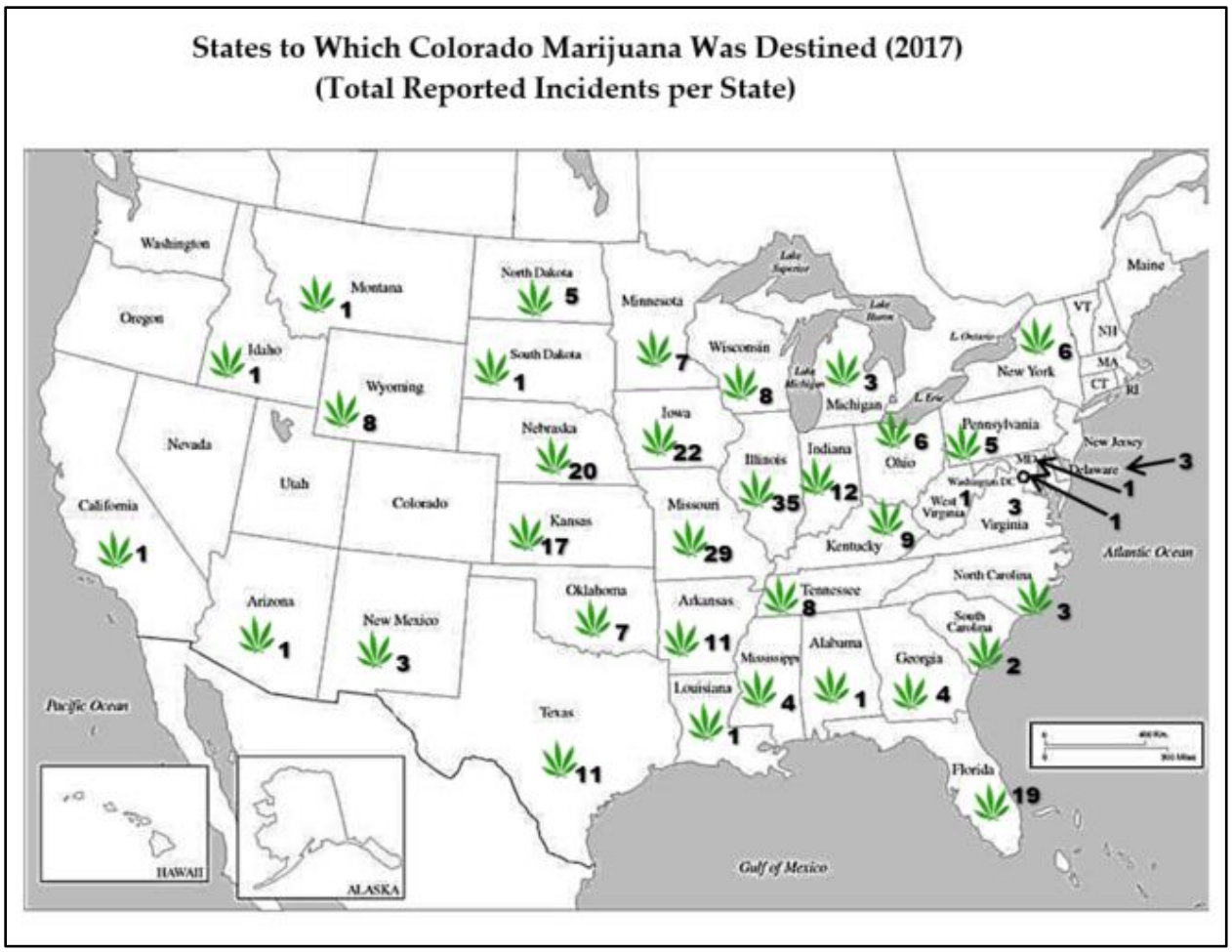
SOURCE: **El Paso Intelligence Center, National Seizure System, as of August 2018**



SOURCE: **El Paso Intelligence Center, National Seizure System, as of August 2018**



SOURCE: **El Paso Intelligence Center, National Seizure System, as of August 2018**



SOURCE: **El Paso Intelligence Center, National Seizure System, as of August 2018**

- There were 15 seizures for which the destination was unknown

Top Cities for Marijuana Origin

Originating City Rank	Number of Seizures	Percent
1. Denver	155	71%
2. Colorado Springs	20	9%
3. Fort Collins	8	4%

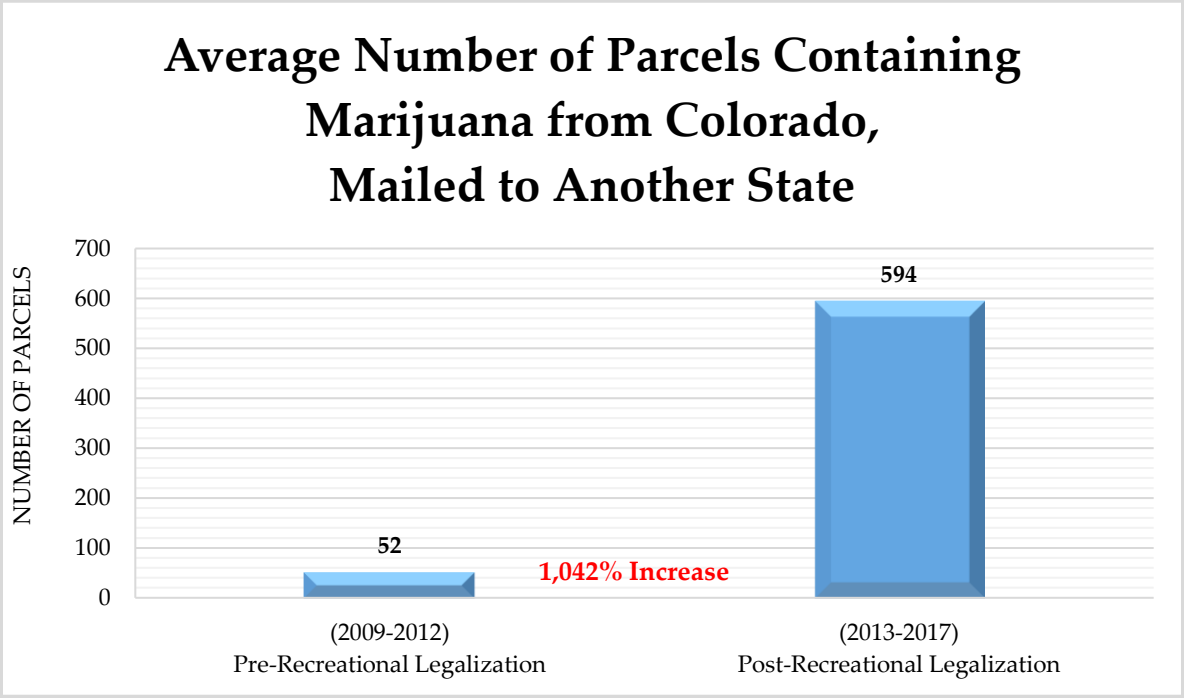
- Of the 290 seizures, only 217 seizures had an origin city identified. The numbers above represent the top three cities from which Colorado marijuana originated. The percentage was calculated from known origin cities.

SOURCE: **El Paso Intelligence Center, National Seizure System, as of August 2018**

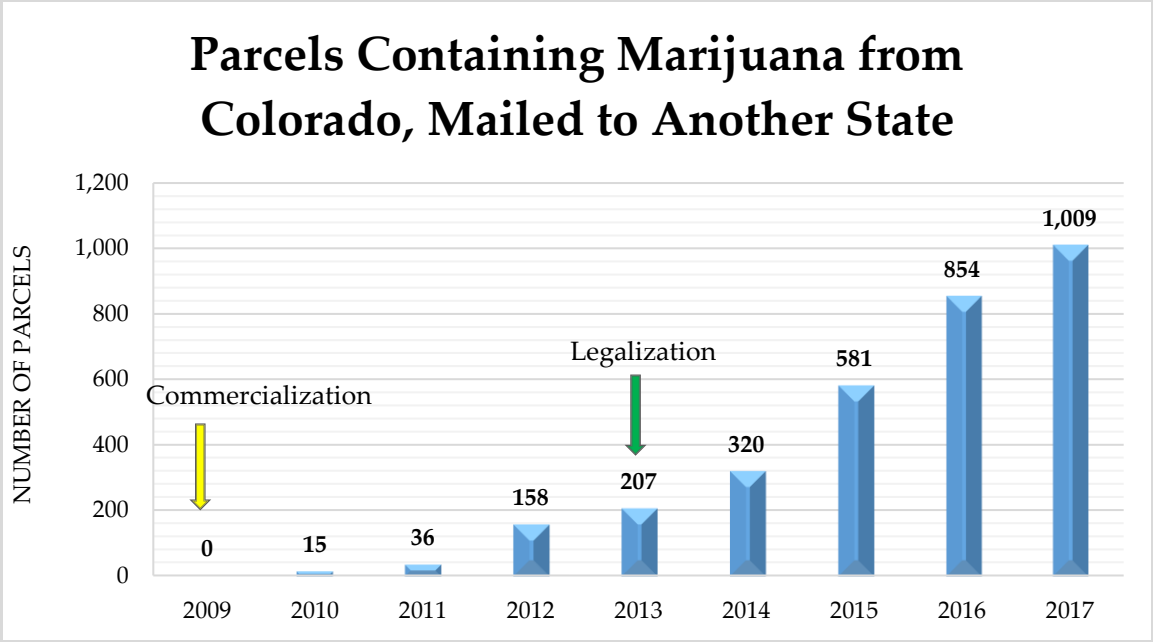
Parcel Interdiction Data

NOTE:

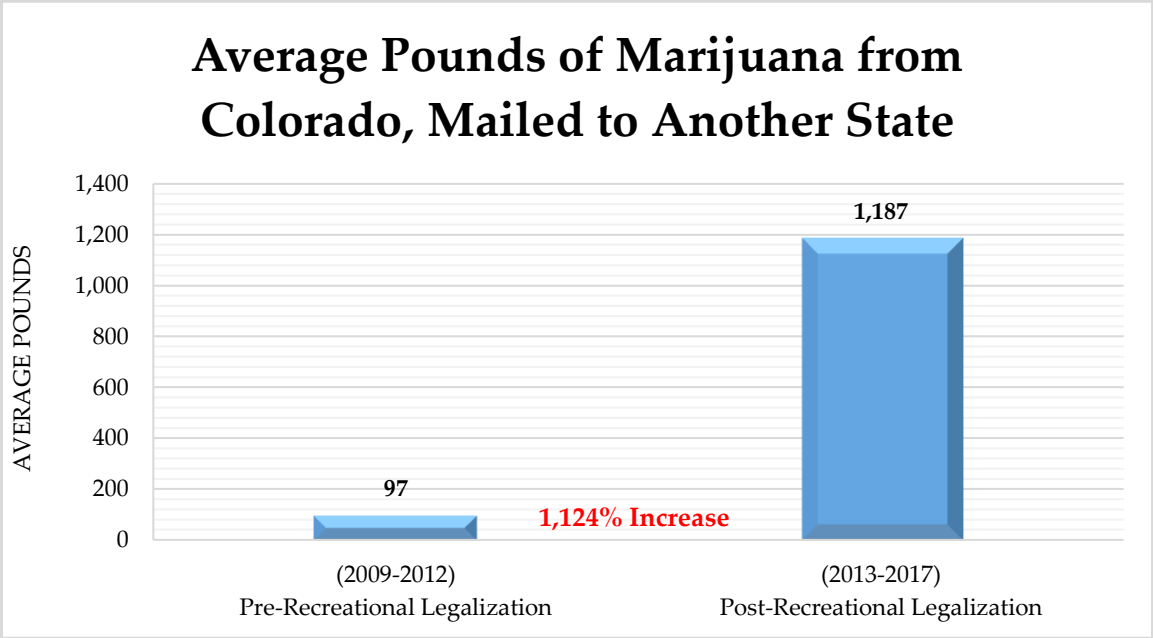
- **THESE FIGURES ONLY REFLECT PACKAGES SEIZED; THEY DO NOT INCLUDE PACKAGES OF COLORADO MARIJUANA THAT WERE MAILED AND REACHED THE INTENDED DESTINATION. INTERDICTION EXPERTS BELIEVE THE PACKAGES SEIZED WERE JUST THE "TIP OF THE ICEBERG."**



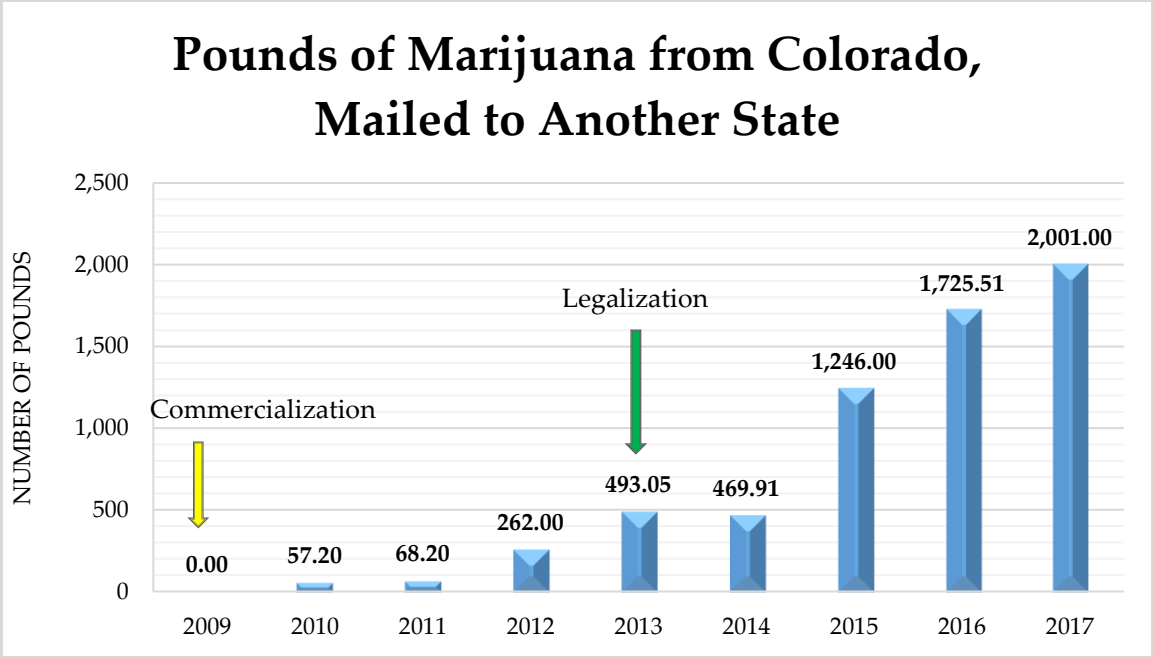
SOURCE: **United States Postal Inspection Service, Prohibited Mailing of Narcotics**



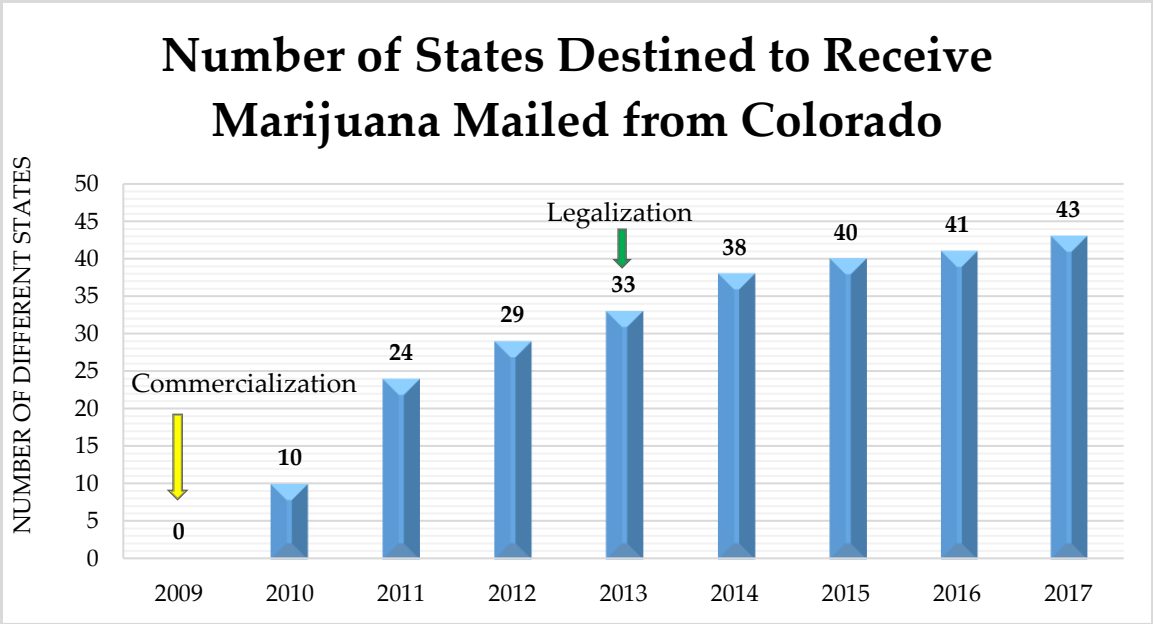
SOURCE: **United States Postal Inspection Service, Prohibited Mailing of Narcotics**



SOURCE: **United States Postal Inspection Service, Prohibited Mailing of Narcotics**

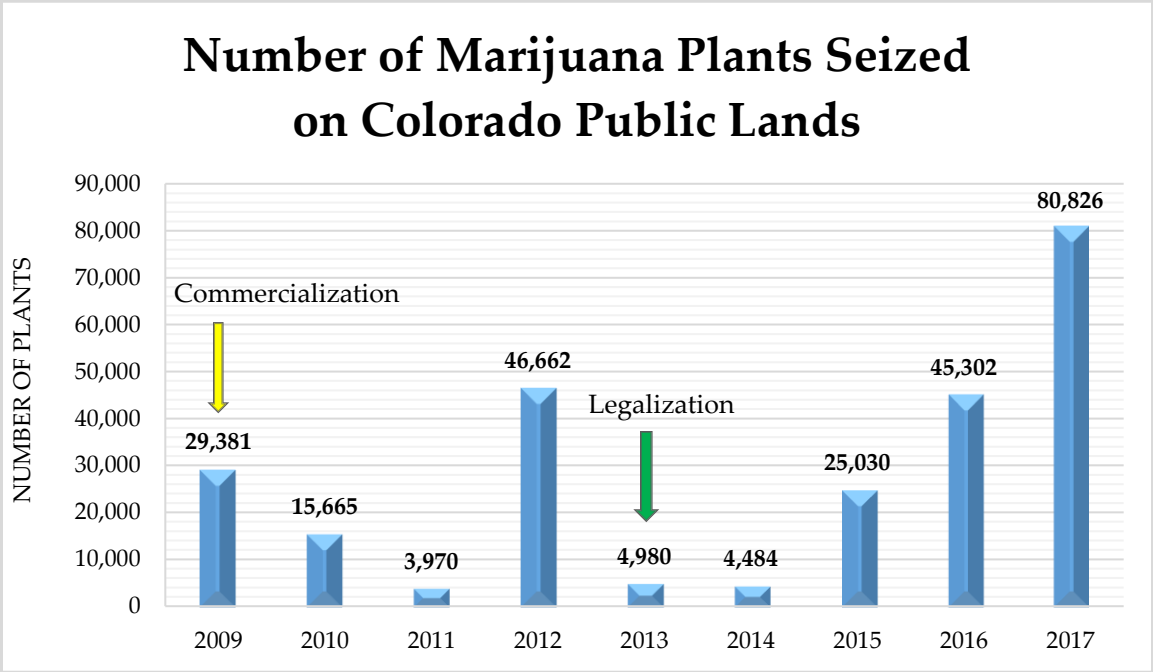


SOURCE: **United States Postal Inspection Service, Prohibited Mailing of Narcotics**



SOURCE: **United States Postal Inspection Service, Prohibited Mailing of Narcotics**

Public Lands



SOURCE: **United States Bureau of Land Management, National Forest Service, and Colorado Division of Parks and Wildlife**

Black Market Information

Dozens of Indictments in Largest Illegal Marijuana Trafficking Ring Bust since Legalization

Colorado Attorney General Cynthia Coffman announced that the largest illegal marijuana trafficking investigation has resulted in arrests in late June of 2017. The trafficking organization spanned five states, and the investigation resulted in 62 people having files charged against them. More than 20 law enforcement organizations were involved in the investigation and/or takedown which included the Denver Police Department and the U.S. Drug Enforcement Administration. According to Coffman, this single investigation is a prime example of how the marijuana black market continues to flourish in Colorado.

During raids, agents seized 2,600 marijuana plants and another 4,000 lbs. of marijuana. As a whole, the trafficking ring produced an estimated 100 lbs. of marijuana a month, which is sold for approximately $2,000 per pound on the black market in Colorado.

- Chuck Hickey, *Dozens of indictments in largest illegal marijuana trafficking ring bust since legalization,* KDVR-TV Channel 2 Denver, June 28, 2017.

Indictment in Colorado Pot Biz's Largest Fraud Case Ever

Scott Pack was indicted by a grand jury in what attorney Matthew Buck referred to as "the largest fraud case in the history of Colorado's marijuana industry." The large operation that distributed Colorado grown marijuana across state lines ended in the indictment of sixteen people. Among those indicted was Renee Rayton, a former Marijuana Enforcement Division employee.

According to attorney Matthew Buck, "There are potentially victims for as much as $10 million. Scott Pack's company is one of the larger marijuana companies in Colorado. They own a significant number of licenses, and through a series of shell companies, they hold the leases on many buildings across the state."

In the *Westword* article published June of 2017, Buck continued to describe the details of the indictment, and said "[Scott Pack] had a sophisticated understanding of how to use loopholes to get around state law." [2]

- Michael Roberts, *Scott Pack Indicted in Colorado Pot Biz's Largest Fraud Case Ever, Attorney Says*, Westword, June 14, 2017.

Arrests Made in South Pueblo County Marijuana Grow

According to a press release by the Pueblo County Sheriff's Office, three individuals were arrested on April 13th, 2016 in connection with an illegal marijuana grow operating from within a Pueblo, CO home. In total, 180 marijuana plants were found growing in the home being occupied by the three individuals.

The three individuals had been living in Florida, but were originally from Cuba. One of the three individuals had recently purchased the home in February of 2016. Although the press release did not specifically state that the marijuana was being illegally trafficked outside the state, several indicators suggest that the marijuana was intended to leave Colorado. Twelve people, all from Florida, have been arrested in seven separate illegal marijuana grow operations discovered in Pueblo County on March 30th and April 14th, 2016. Five of the twelve individuals were originally from Cuba.

- Pueblo County Sheriff's Office, *Arrests Made in South Pueblo County Illegal Marijuana Grow*, April 14, 2016.

Individuals Indicted for an Illegal Home-grow Also Possess Legal Marijuana Licenses

- In March 2017, 16 people were indicted for participating in a massive illicit marijuana home-grow operation. Of the 16, eight are recorded as having active or expired licenses to work in the legal marijuana business including the ringleader, Michael Alan Stonehouse, who acts as a consultant for the marijuana industry in Colorado. According to authorities, the group cultivated their marijuana in properties in Colorado Springs, Castle Rock, Elbert County and Denver and then diverted the marijuana to **Illinois**, **Arkansas**, **Minnesota** and **Missouri** to make a higher profit.

- Jesse Paul, *Eight of 16 people indicted in Colorado marijuana trafficking operation listed as having state pot licenses*, The Denver Post, March 24, 2017.

Laotian Marijuana Operation

Southern Colorado Drug Task Force managed by DEA began an investigation of a Laotian drug trafficking organization that had relocated to Colorado from Arkansas and California. This organization had 12 different cultivation marijuana sites located in 5 different counties in southeast Colorado. Task force officers served search warrants seizing 2,291 marijuana plants, 2,393 pounds of processed marijuana. Also seized were 4 hand guns and 6 long guns.

- Rocky Mountain HIDTA Task Force Quarterly Reports, Calendar Year 2016-2017.

Florida Cuban Drug Trafficking Organization

In May 2016, Southern Colorado Drug Task Force executed search warrants at 5 different residential locations operated by a group of Cubans from Florida. These grow operations were in Pueblo County and offices seized a total of 214 marijuana plants, 55 pounds of processed marijuana and over $100,000 in grow equipment.

- Rocky Mountain HIDTA Task Force Quarterly Reports, Calendar Year 2016-2017.

Marijuana Syndicate Grew Pot in Gated Greenwood Village Home and Sold it Around the U.S.

More than twenty members of a marijuana trafficking organization allegedly transported marijuana across the country from illegal grows in Denver metro houses. The enterprise was mailing boxes of marijuana and stacks of money through the U.S. Postal Service. The Arapahoe County Court indicted members on charges of distributing illegally grown marijuana to Texas, Iowa, Georgia, North Carolina, Tennessee, New York and Kansas. According to the news story, the group was selling 80 pounds of marijuana a week, and in one year had sold more than $1 million of marijuana across the country.

- Kirk Mitchell, *Marijuana syndicate grew pot in gated Greenwood Village home and sold it around the U.S.,* The Denver Post, November 21st 2017.

Colorado Marijuana Activist Arrested in Oklahoma for Felony Possession with Intent to Distribute

In Early 2018, a Colorado activist was traveling to Oklahoma to speak about a medical marijuana measure set to appear on the state's ballot in June. Dr. Regina Nelson, CEO of ECS-Therapy Center in Boulder, was also scheduled to speak at a Cannabis Education Advocacy Symposium that same week. Nelson, along with her colleague and co-author, were found to be traveling with several "rolled cigarettes with a green leafy substance," two pipes, a single edible, capsules with a green oil, and a backpack which had a digital scale along with multiple bags of a green leafy substance. Additionally, a suitcase with three large vacuum-sealed bags of marijuana was located in the vehicle. According to Nelson, "We were absolutely targeted." Despite the accusation, as of February, the three faced felony charges of possession of a controlled drug with intent to distribute.

- Lindsey Bartlett, *Colorado marijuana activist arrested in Oklahoma for felony possession with intent to distribute,* The Cannabist, February 21st 2018.

Nebraska Troopers Seize 227 Pounds of Pot Days After Colorado Man Busted with 122 Pounds of the Drug

In January of 2018, State Troopers arrested a man who was traveling along I-80 with 227 pounds of marijuana in his possession. The vehicle was initially stopped for speeding while just west of Lincoln. This incident happened just days after a different Colorado man had been arrested while traveling through Nebraska with 122 pounds of marijuana.

- Ann Lauricello, *Neb. Troopers seize 227 pounds of pot days after Colorado man busted with 122 pounds of the drug,* Fox 31 Denver News, January 26th 2018.

Colorado Man Arrested After Indiana Traffic Stop Nets 78 Pounds of Marijuana

In April of 2018, a 51-year-old man of Colorado was found to be traveling along I-70 with a 42-year-old man of Indiana. After initially being stopped for swerving, police discovered the two individuals to be traveling with 78 pounds of marijuana. Police estimate the marijuana to have a $250,000 street value.

- *Colorado man arrested after Indiana traffic stop nets 78 pounds of marijuana,* The Associated Press, April 17th 2018.

3 Plead Guilty to Trying to Ship Colorado Marijuana to Mississippi

In March of 2018, 23-year-old Kristopher Nguyen pleaded guilty to a charge of possession with intent to distribute marijuana. Nguyen explained that he and his two friends, who took similar plea deals, used FedEx for the shipment of 11 pounds of marijuana from Colorado to a Mississippi home.

- *3 plead guilty to trying to ship Colorado marijuana to Mississippi,* The Associated Press, March 22nd 2018.

Man's Attempt to Mail Marijuana Leads to One-Year Sentence

After a Colorado man had mailed multiple packages of marijuana, each containing approximately one kilogram of the drug, authorities searched Mark Koenig's home in Colorado. During the search, 123 plants were discovered and Koenig was arrested. The Arvada man pleaded guilty to possession of a federally controlled substance with intent to distribute.

- *Man's Attempt To Mail Marijuana Leads To One-Year Sentence,* CBS 4 Denver, February 8th 2018

Coloradan Arrested in North Dakota for Having 30 Pounds

In December of 2017, a man from Loveland, CO was arrested in North Dakota. Initially, the 29-year-old Jacob Todd was stopped for speeding. After a police dog indicated that drugs may be in the vehicle, police discovered multiple bags of marijuana. According to the article, the bags totaled 30 pounds and had an approximate $30,000 street value.

- *Coloradan arrested in North Dakota for having 30 pounds,* The Associated Press, December 15th 2017

Denver Man Arrested After Marijuana Seizure during Traffic Stop in Indiana

23-year old Michael Granados Jr. was taken into custody after authorities discovered several packages of marijuana in the SUV he was traveling in. Several packages were hidden in various locations throughout the vehicle, totaling approximately 33 pounds. According to sources, "Troopers said they determined the marijuana had originated in Colorado and was being taken to an unknown location in Ohio."

- David Mitchell, *Denver man arrested after marijuana seizure during traffic stop in Indiana,* Fox 31 Denver News, October 21st 2017.

Laotian Marijuana Operation

Southern Colorado Drug Task Force managed by DEA began an investigation of a Laotian drug trafficking organization that had relocated to Colorado from Arkansas and California. This organization had 12 different cultivation marijuana sites located in 5 different counties in southeast Colorado. Task force officers served search warrants seizing 2,291 marijuana plants, 2,393 pounds of processed marijuana. Also seized were 4 hand guns and 6 long guns.

- Sewell, R. Andrew, James Poling, and Mehmet Sofuoglu, *The Effect of Cannabis Compared with Alcohol on Driving*, The American Journal on Addictions / American Academy of Psychiatrists in Alcoholism and Addictions, February 7th 2017.

Florida Cuban Drug Trafficking Organization

In May 2016, Southern Colorado Drug Task Force executed search warrants at 5 different residential locations operated by a group of Cubans from Florida. These grow operations were in Pueblo County and offices seized a total of 214 marijuana plants, 55 pounds of processed marijuana and over $100,000 in grow equipment.

- Sewell, R. Andrew, James Poling, and Mehmet Sofuoglu, *The Effect of Cannabis Compared with Alcohol on Driving*, The American Journal on Addictions / American Academy of Psychiatrists in Alcoholism and Addictions, February 7th 2017.

71,000 Plants Seized on Colorado Public Lands in 2017

Federal agencies removed more than 71,000 marijuana plants from public lands during last year's growing season. The plants were grown illegally on 38 acres. U.S. Attorney, Robert Troyer said, "Public lands are just that – they're public and belong to all of us. These black marketers abuse our land, our water, our animals and plants. With these prosecutions, we motivate black marketers to make less harmful occupational choices."

- *Federal agencies removed more than 71,000 marijuana plants from Colorado public lands in 2017,* The Denver Post, August 14th 2018.

Illegal Marijuana Home Grow Arrests

Authorities discovered a large home grow after responding to a report of shots fired at a Colorado Springs residents. The home was being used to grow and cultivate marijuana, and authorities found 352 marijuana plants, 1,300 cloned plants, and 33 pounds of refined marijuana. Plants were found growing in the main residence as well as in the oversized two-car garage. Two arrests were made for suspicion of felony cultivation and distribution.

- Ellie Mulder, *2 arrested after large illegal marijuana grow found at Colorado Springs home,* The Gazette, February 23rd 2018.

Two Dead at Illegal Home Grow

Deputies were called to a residence in Elbert County Colorado to discover two men had been shot to death inside a home. The home was the site of an illegal marijuana grow operation which appeared to have played a part in the deaths of the two men.

- *2 men found shot to death at illegal marijuana grow site in Elbert Colorado,* Fox 31 News Denver, November 9th 2017.

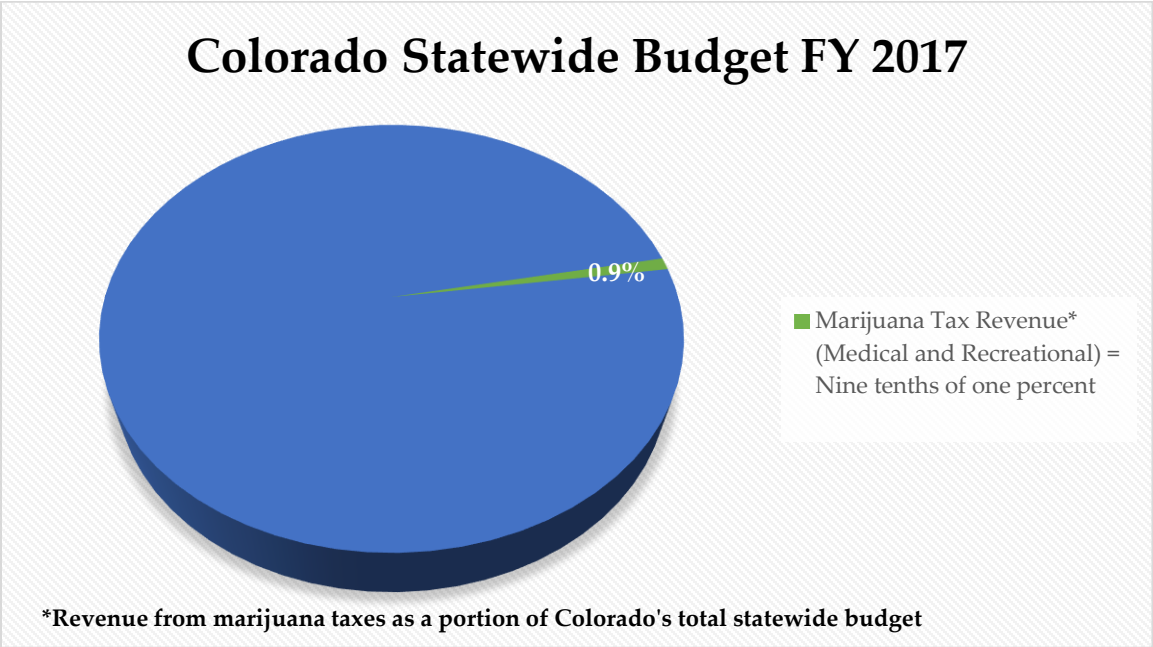
THIS PAGE LEFT INTENTIONALLY BLANK

Section V: Societal Impact

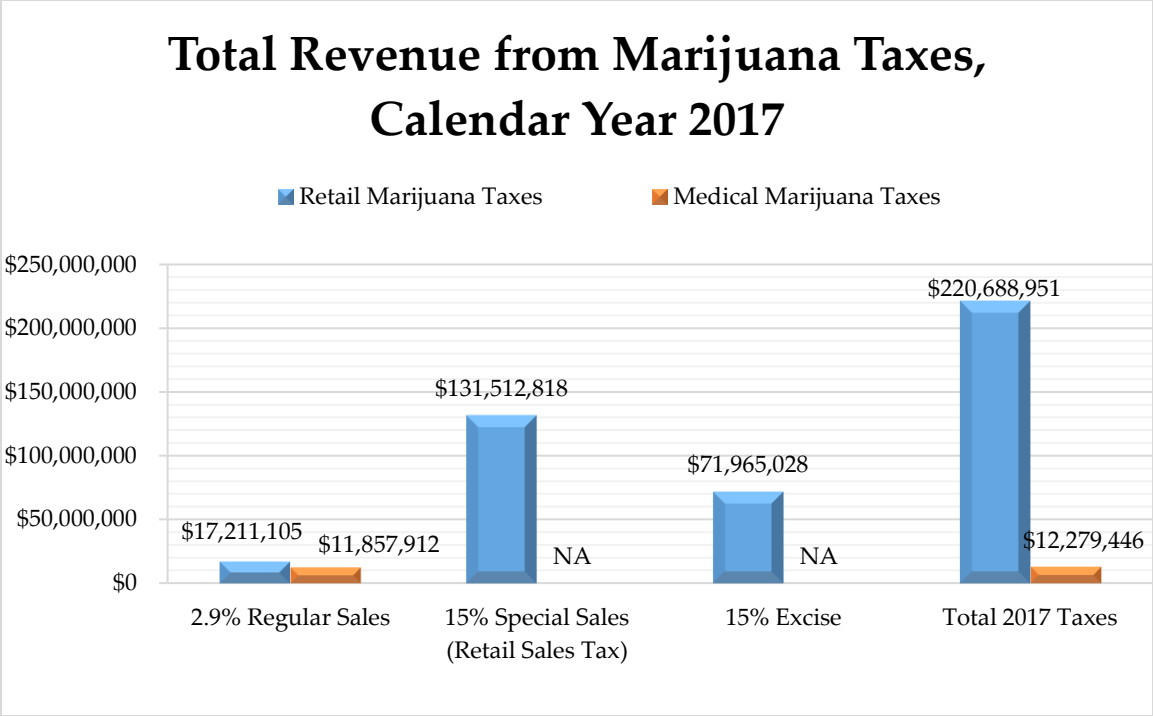
Some Findings

- Marijuana tax revenue represent approximately **nine tenths of one percent** of Colorado's FY 2017 budget.
- Violent crime **increased 18.6 percent** and property crime **increased 8.3 percent** in Colorado since 2013.
- 65 percent of local jurisdictions in Colorado have banned medical and recreational marijuana businesses.

Tax Revenue



SOURCE: **Governor's Office of State Planning and Budgeting**

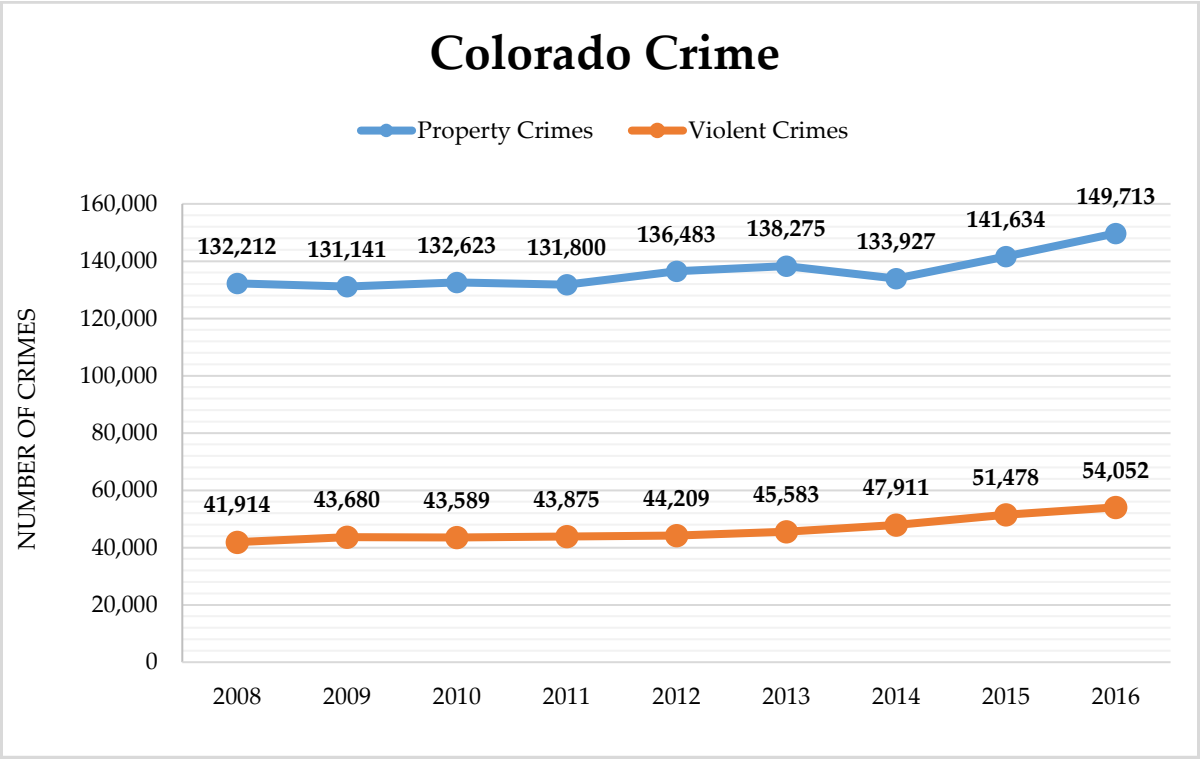


SOURCE: **Department of Revenue, Monthly Marijuana Taxes, Licenses and Fees Transfers and Distribution, 2016**

NOTE:

- **FIGURES DO NOT INCLUDE ANY CITY TAXES; THE STATE DOES NOT ASSESS OR COLLECT THOSE TAXES.**

Crime

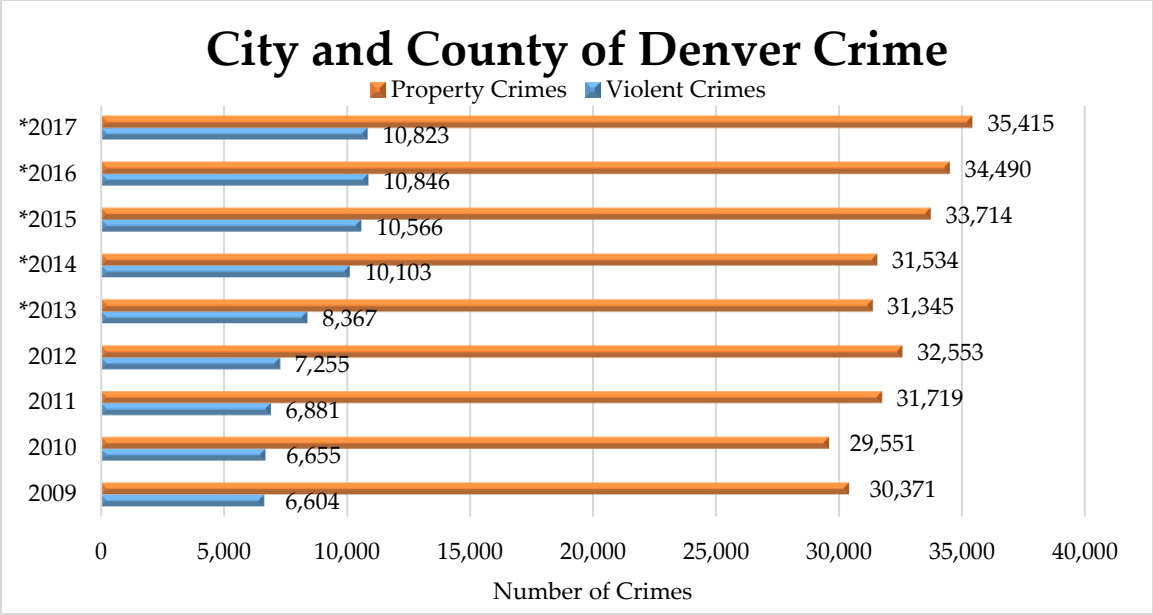


SOURCE: **Colorado Bureau of Investigation, http://crimeinco.cbi.state.co.us/**

NOTE: **2017 data for Colorado crime will not be available until after the publication of this report.**

Colorado Crime	From 2009 to 2012	From 2013 to 2016
Property Crime	Increased 4.1%	Increased 8.3%
Violent Crime	Increased 1.2%	Increased 18.6%
All Crime	Increased 3.4%	Increased 10.8%

SOURCE: **Colorado Bureau of Investigation, http://crimeinco.cbi.state.co.us/**



SOURCE: **City and County of Denver, Denver Police Department, Crime Statistics and Maps, August 2018**

*In May 2013 the Denver Police Department implemented the Unified Summons and Complaint (US&C) process. This process unifies multiple types of paper citations, excluding traffic tickets, into an electronic process. That information is transmitted to the Denver Sheriff, County Court, City Attorney and District Attorney through a data exchange platform as needed. As a result of this process a reported offense is generated which was previously not captured in National Incident Based Reporting System (NIBRS).

Crime in Denver (City and County)				
	2014**	**2015**	**2016**	**2017**
***All Reported Crimes (To include all categories listed below)**	61,276	64,317	65,368	66,000

Denver Crime*	From 2014 to 2017
Crimes Against Persons	7% Increase
Crimes Against Property	12% Increase
Crimes Against Society	33% Increase
All Other Offenses	10% Decrease
All Denver Crimes	8% Increase

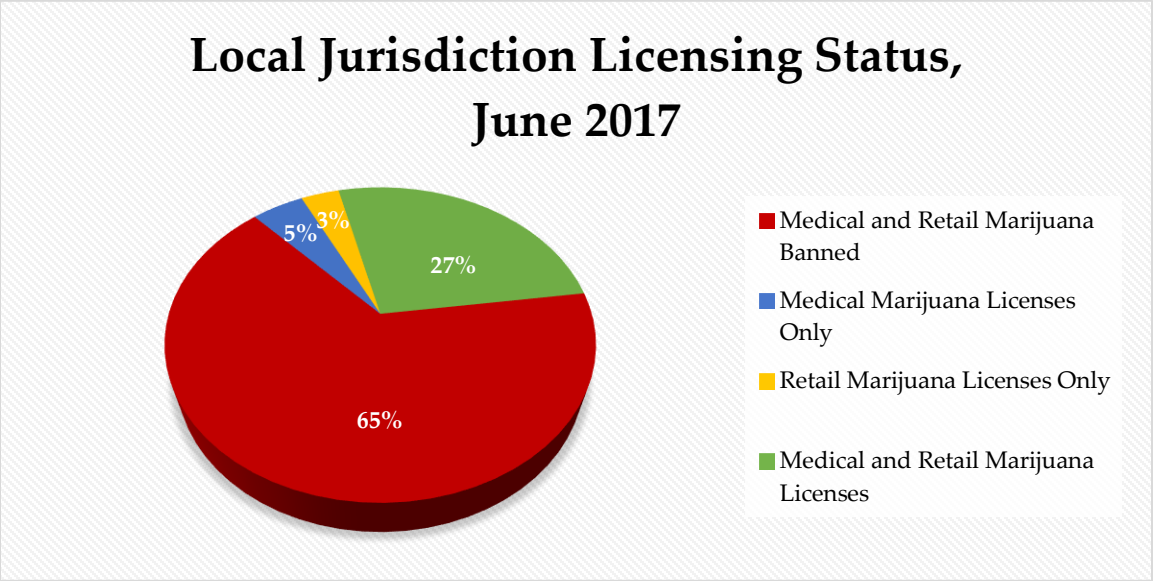
*** Actual number of crimes in Denver**

**** New process began in May 2013 and 2013 data is not comparable to 2014-2016**

SOURCE: **City and County of Denver, Denver Police Department, Crime Statistics and Maps, August 2018**

Local Response

Status of Local Jurisdictions Reporting Marijuana Licensing as of June 30, 2017	
	Number of Jurisdictions
Medical and Retail Marijuana Banned	209
Medical Marijuana Licenses Only	15
Retail Marijuana Licenses Only	11
Medical and Retail Marijuana Licenses	85
Total	320



SOURCE: **Marijuana Enforcement Division, 2017 Mid-Year Update**

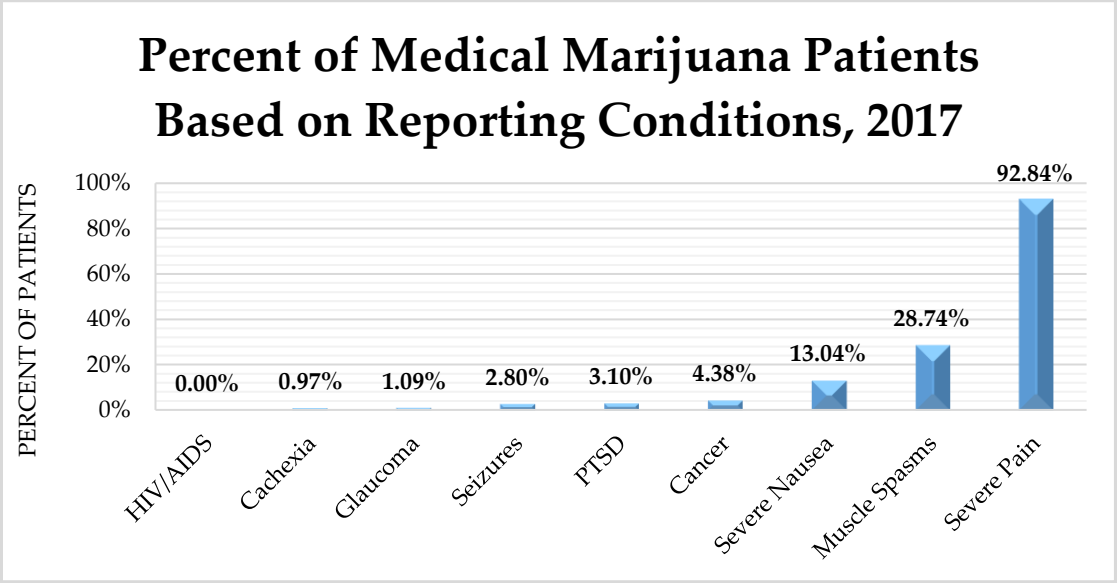
Medical Marijuana Statistics

Medical Marijuana Registry Identification Cards

- December 31, 2009 – 41,039
- December 31, 2010 – 116,198
- December 31, 2011 – 82,089
- December 31, 2012 – 108,526
- December 31, 2013 – 110,979
- December 31, 2014 – 115,467
- December 31, 2015 – 107,534
- December 31, 2016 – 94,577
- December 31, 2017 – 93,372

Profile of Colorado Medical Marijuana Cardholders:

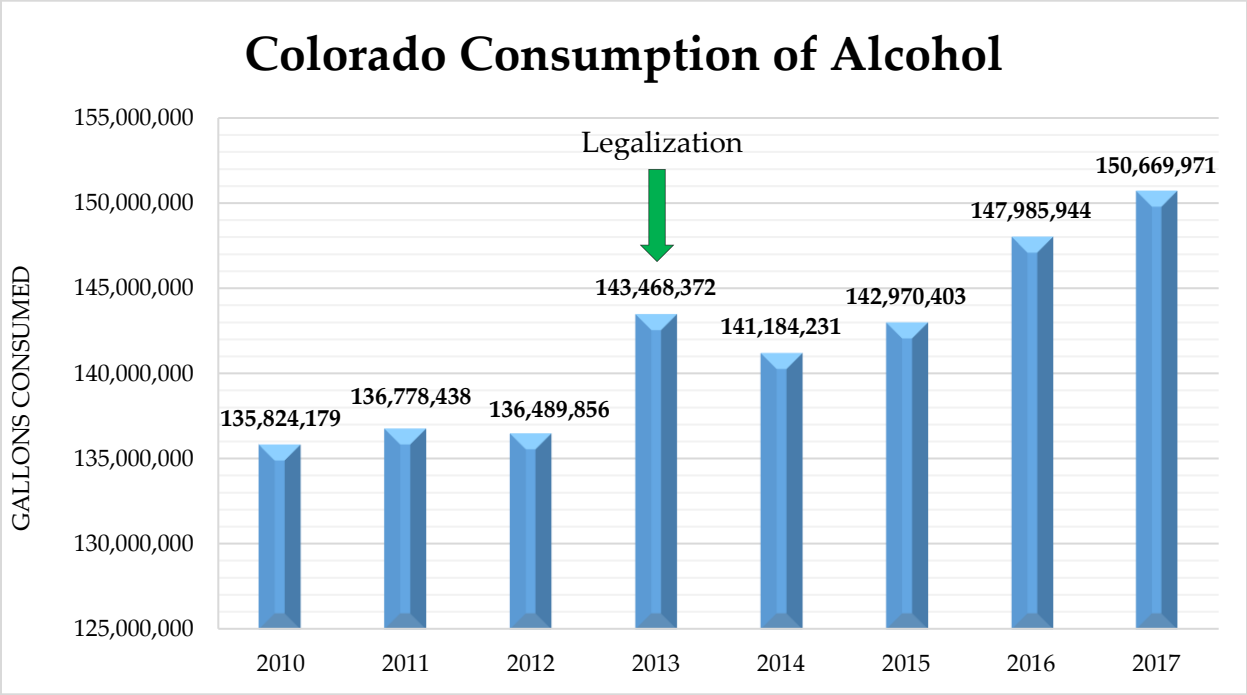
- Age of cardholder
  - 62 percent male, with an average age of 43 years
  - 0.3 percent between the ages of 0 and 17
  - 46 percent between the ages of 18 and 40
    - 21 percent between the ages of 21 and 30
- Reporting medical condition of cardholder
  - 93 percent report severe pain as the medical condition
  - 5 percent collectively report cancer, glaucoma and HIV/AIDS
  - 3 percent report seizures



SOURCE: **Colorado Department of Public Health and Environment, Medical Marijuana Registry Program Update, December 31st, 2017**

Alcohol Consumption

- **It has been suggested that legalizing marijuana would reduce alcohol consumption. Thus far that theory is not supported by the data.**



SOURCE: **Colorado Department of Revenue, Colorado Liquor Excise Tax**

Societal Impact Information

Cannabis Industry Employees Impaired at Work

A large percentage of those employed in the businesses of growing and selling marijuana are getting high before work or during business hours. Researchers at Colorado State University found 63% of cannabis industry workers have shown up to work while high in the past 30 days, and 45% said they have smoked marijuana during business hours. Colorado cannabis workers that consumed before or during work hours expressed little concern about workplace hazards, reported some occupational injuries and exposures, and reported inconsistent training practices.

– Mike Adams, *Too Many Cannabis Industry Employees Impaired At Work,* Forbes.com, April 3rd 2018

From Medical to Recreational Marijuana Sales: Marijuana Outlets and Crime in an Era of Changing Marijuana Legalization

As the debate surrounding the legalization of marijuana for medical and/or recreational use continues, researchers recently took a look at one of the possible adverse effects of legalization: Crime rates. Researchers found that "the density of marijuana outlets [businesses] was related to higher rates of property crime in spatially adjacent areas… However… we found no relationships between the presence of local marijuana outlets and violent crime. The density of medical marijuana outlets in local and spatially adjacent areas were related to higher rates of marijuana-specific crime."

In other words, the potential impact of increased crime may not be felt directly in the immediate areas in which more marijuana dispensaries are opened, but it was clear that surrounding areas experienced an increase in the amount of crime reported.

- Bridget Freisthler, Andrew Gaidus, Christina Tam, William R. Ponicki, and Paul J. Gruenewald, *From Medical to Recreational Marijuana Sales: Marijuana Outlets and Crime in an Era of Changing Marijuana legislation,* Journal of Primary Prevention, April 27th 2017

Homeless Inmates and Marijuana

The most commonly reported reason homeless inmates came to Colorado after 2012 was to get away from a problem (44.2%) followed by family (38.9%). The third most prevalent reason was marijuana (35.1%). "Among those inmates who are not Colorado natives, 41.3% moved here after 2012, the year recreational marijuana was legalized."

- *A Study of Homelessness in Seven Colorado Jails*, Colorado Department of Public Safety, Division of Criminal Justice, June 2018

Section VI: Marijuana Industry

Some Findings

- **According to the Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***:
  - "From 2014 through 2017, average annual adult use flower prices fell 62.0 percent, from $14.05 to $5.34 per gram weighted average."
  - "Adult use concentrate prices fell 47.9 percent, from $41.43 to $21.57 per gram."
  - "The average THC content of all tested flower in 2017 was 19.6 percent statewide compared to 17.4 percent in 2016, 16.6 percent in 2015 and 16.4 percent in 2014."
  - "The average potency of concentrated extract products increased steadily from 56.6 percent THC content by weight in 2014 to 68.6 percent at the end of 2017."
- As of June 2017, there were 491 retail marijuana stores in the state of Colorado compared to 392 Starbucks and 208 McDonald's.

Business

Industry Figures (MED Resources and Statistics webpage)

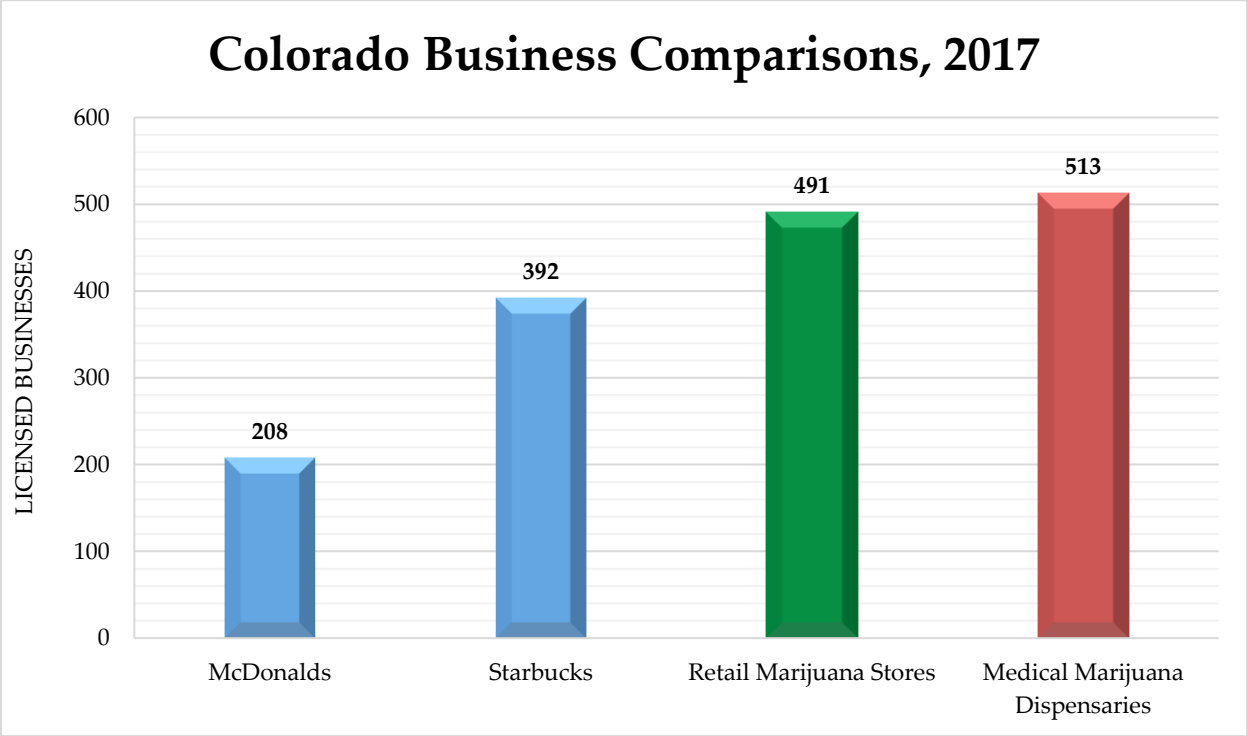
Medical Marijuana Business License Numbers as of August 1, 2018

- 486 Medical Marijuana Centers
- 717 Cultivation Operations
- 249 Infused Product Manufacturers
- 11 Marijuana Testing Facilities

Recreational Marijuana Business License Numbers as of August 1, 2018

- 532 Retail Stores
- 739 Cultivation Operations
- 287 Infused Product Manufacturers
- 11 Marijuana Testing Facilities

❖ **Figures for business comparisons were all acquired by June of 2017 for comparable data.**



SOURCE: **Colorado Department of Revenue; Starbucks Coffee Company, Corporate Office Headquarters; McDonalds Corporation, Corporate Office Headquarters**

Market Size and Demand

Demand

Annual Sales Based on 2017 MED Inventory Tracking Data:

- 186.5 **metric tons** of flower (the flowering buds of a female marijuana plant)
- 19.7 **metric tons** of trim (leftover leaves after the flower has been harvested)
- 4.5 **million units** of packaged concentrates (packaged products of refined marijuana flower into something more clean and potent)
- 15 **metric tons** of concentrate material (products of refined marijuana flower into something more clean and potent.)
- 11.1 **million** infused edible units (a product intended for use or consumption other than by smoking)
- 1.1 **million units** of infused non-edible products (a product not intended for consumption, to include ointments and tinctures

---

  - Total estimate of 301.7* metric tons sold in Colorado

NOTE: *THE MARIJUANA POLICY GROUP DEVELOPED THE "FLOWER EQUIVALENT" MEASURES SPECIFIC TO EACH PRODUCT CATEGORY IN ORDER TO COMPARE THE VARYING UNITS. IN 2017 A TOTAL OF 16.7 MILLION UNITS WERE SOLD OF DIFFERENT NON-FLOWER MARIJUANA PRODUCTS.

- In 2017, the estimated consumption of marijuana by Colorado residents 21 years and older was **189.6 metric tons** (417,996.45 pounds) of marijuana.
- In 2017, the estimated consumption of marijuana by out-of-state visitors 21 years and older was **19.0 metric tons** (41,887.83 pounds).

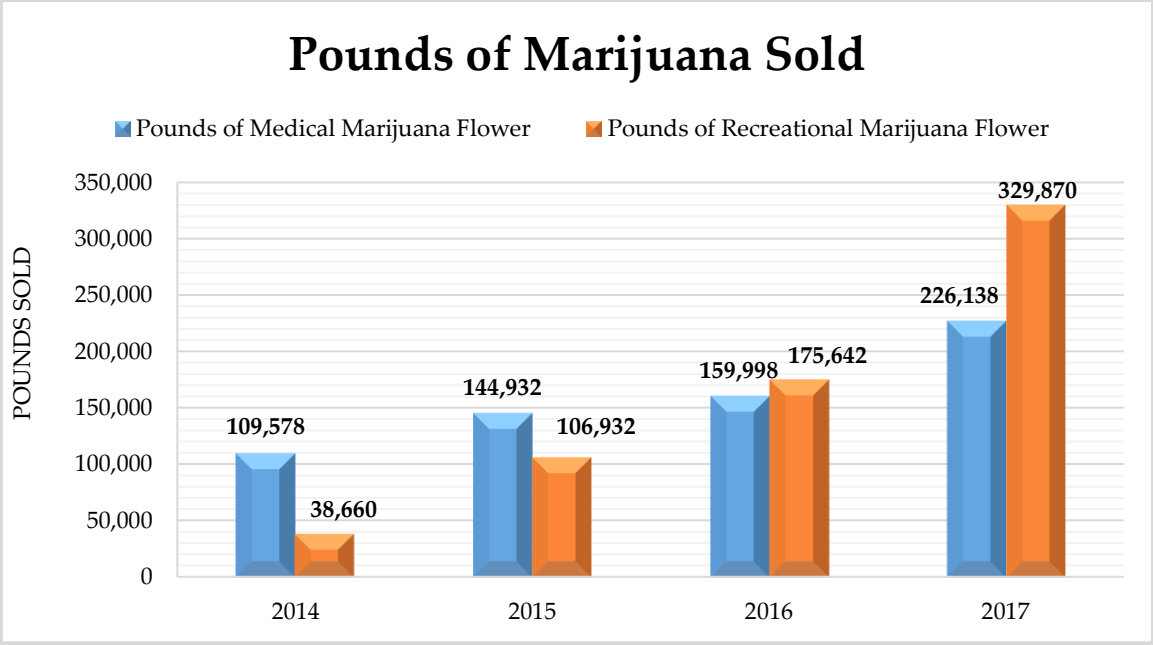
SOURCE: **Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***

Market Size

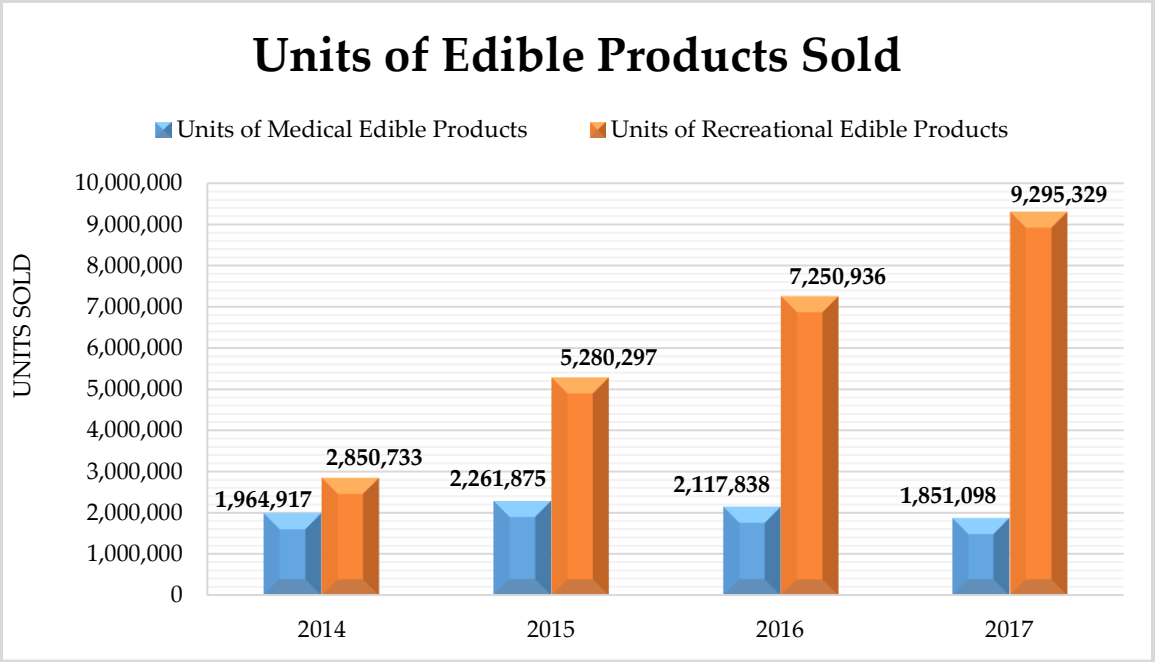
- Heavy users who consume marijuana more than 20 days per month make up **26.8 percent** of the user population but account for **82.1 percent** of the demand for marijuana.
- Light users who consume marijuana 5 times or less per month make up **52.2%** percent of the user populations and account for **3.7%** of the demand for marijuana.
- There are an estimated total of **687,000** Colorado adult regular marijuana users (at least once per month).
    - This represents about **12%** of Colorado's population.

SOURCE: **Marijuana Policy Group**, ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***

Reported Sales of Marijuana in Colorado

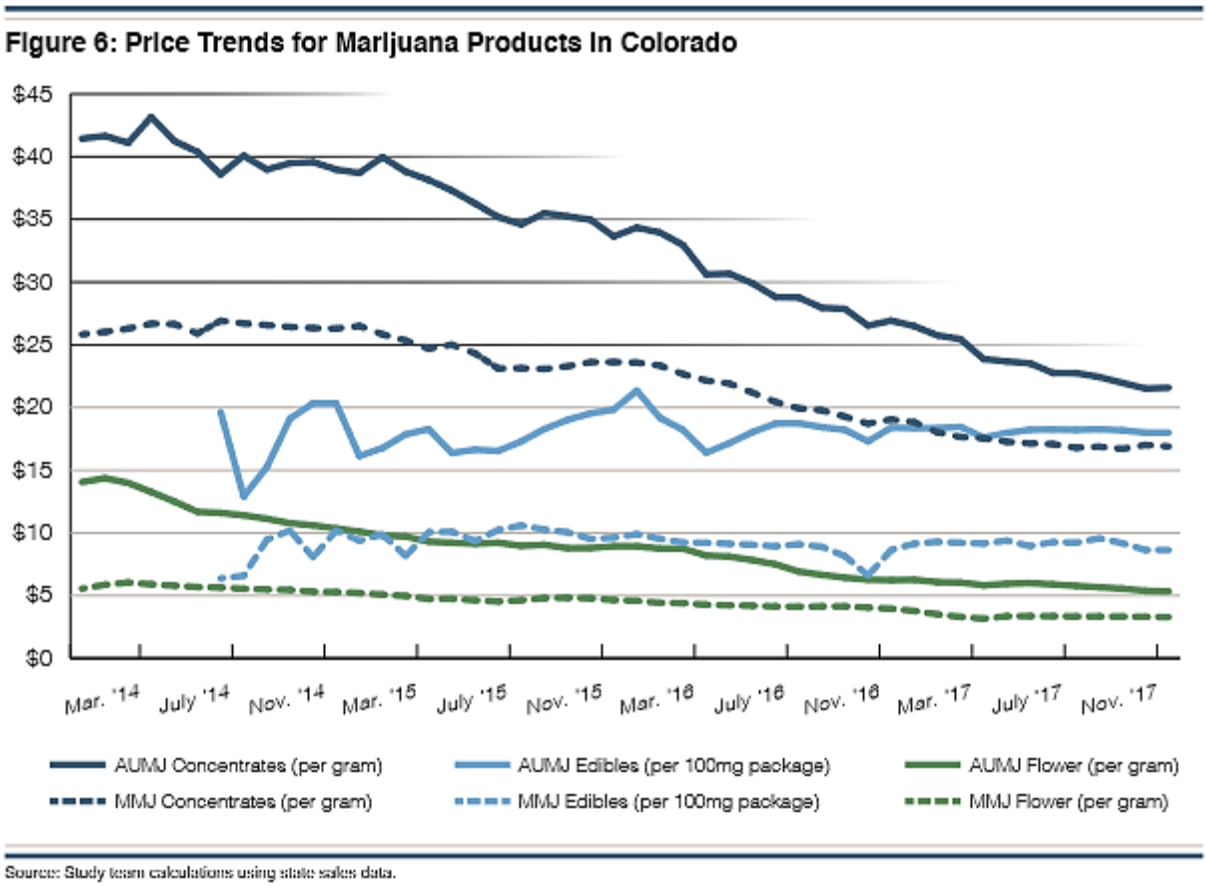


SOURCE: **Colorado Department of Revenue, Marijuana Enforcement Division (MED)**, ***MED 2017 Annual Update***



SOURCE: **Colorado Department of Revenue, Marijuana Enforcement Division (MED),** ***MED 2017 Annual Update***

Pricing and Potency Trends

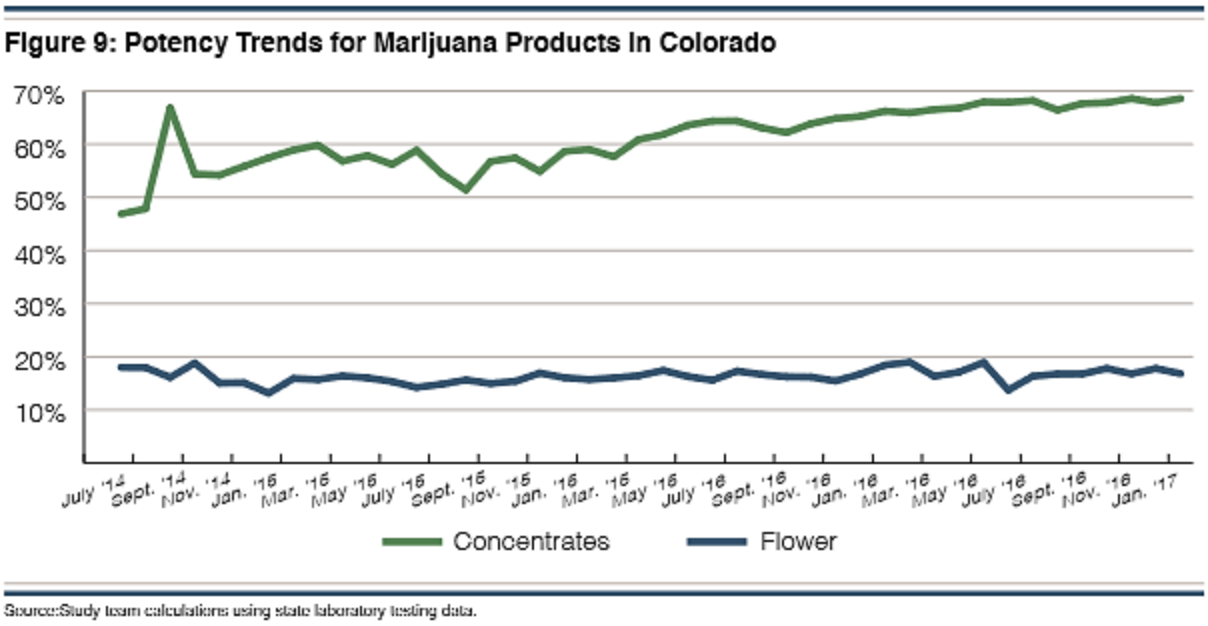


AUMJ – Adult Use Marijuana

MMJ – Medical Marijuana

- "From 2014 through 2017, average annual adult use flower prices fell 62.0 percent, from $14.05 to $5.34 per gram weighted average."
- "Adult use concentrate prices fell 47.9 percent, from $41.43 to $21.57 per gram."

SOURCE: **Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***

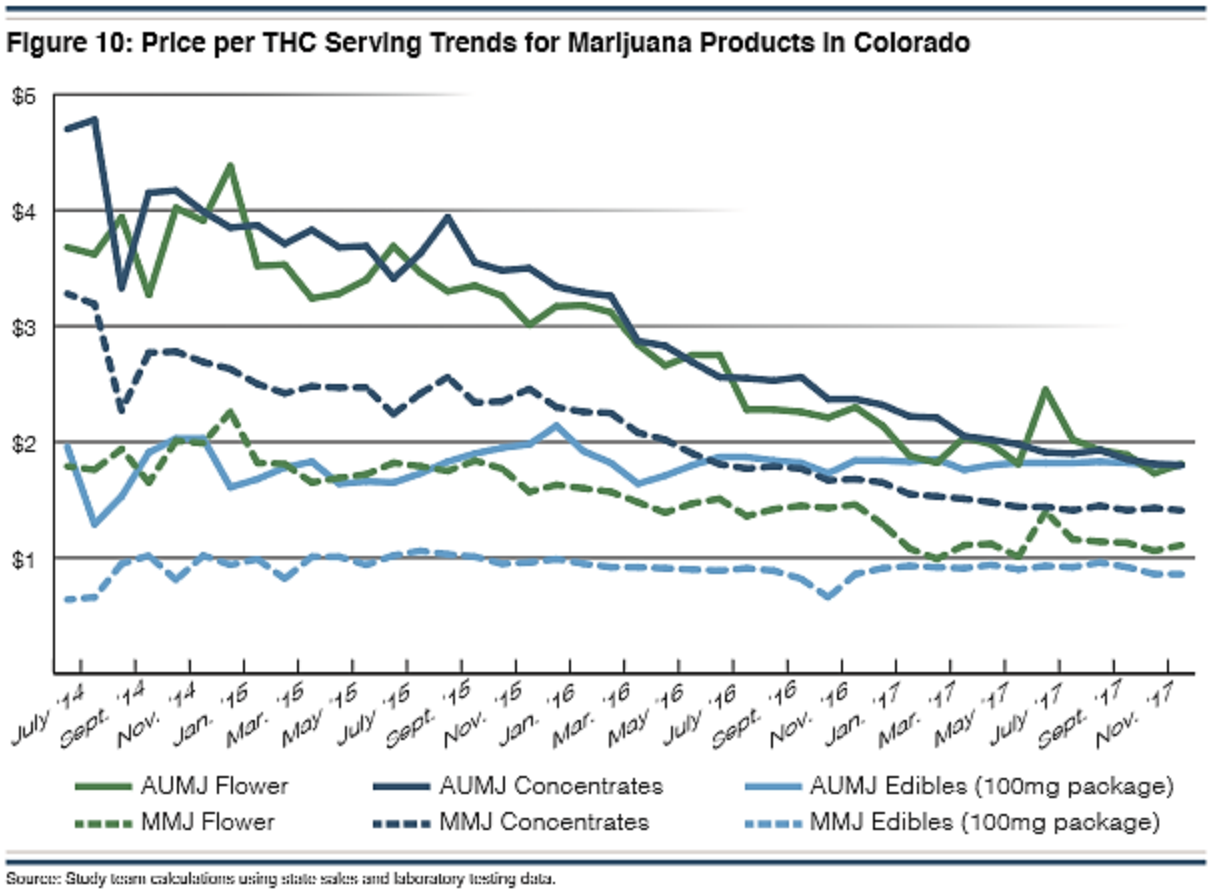


AUMJ – Adult Use Marijuana

MMJ – Medical Marijuana

- "The average THC content of all tested flower in 2017 was 19.6 percent statewide compared to 17.4 percent in 2016, 16.6 percent in 2015 and 16.4 percent in 2014."
- "The average potency of concentrated extract products increased steadily from 56.6 percent THC content by weight in 2014 to 68.6 percent at the end of 2017."
- "In recent years, the proportion of higher-potency concentrates has increased significantly. In 2015, only 5 percent of the testing results for concentrates were higher than 75 percent THC content. However, in 2017 the share of concentrate test results with over 75 percent THC increased to 24.7 percent."

SOURCE: **Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***



AUMJ – Adult Use Marijuana

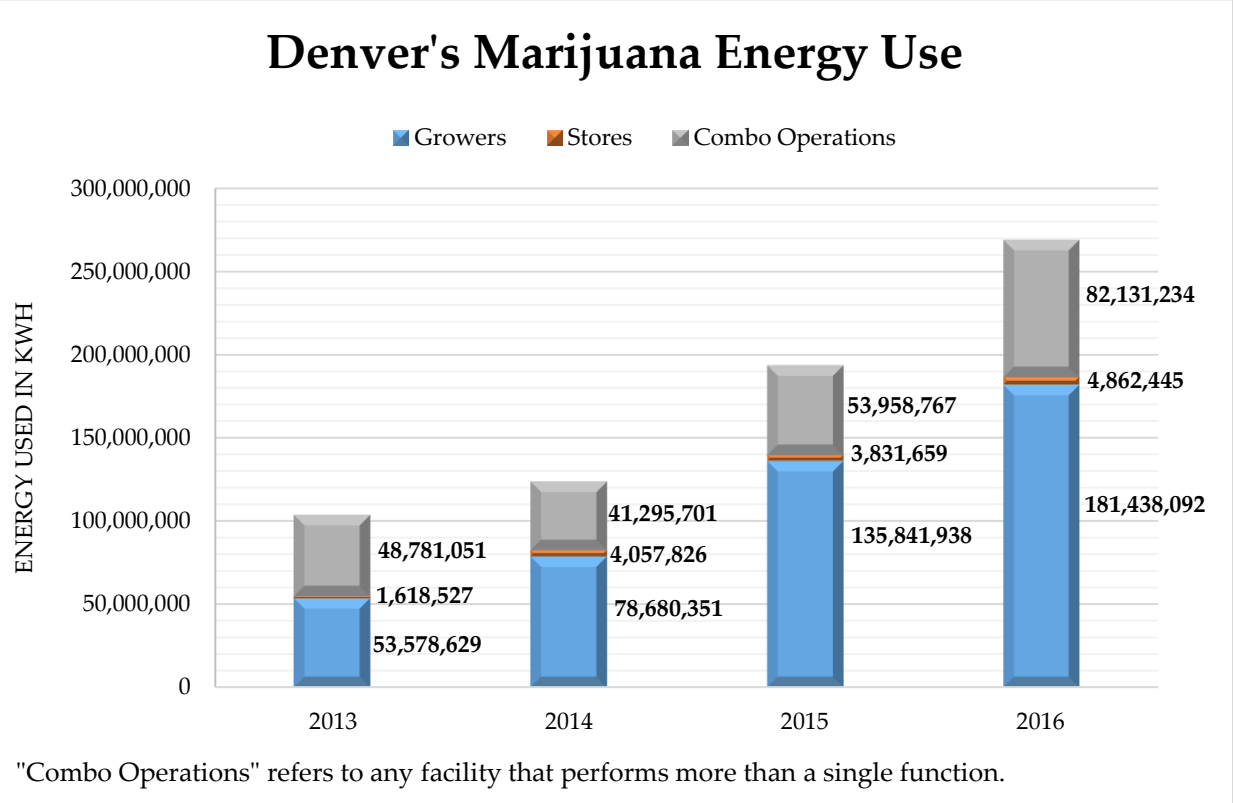
MMJ – Medical Marijuana

- "A new price model – called the 'price per serving' – can reveal more directly how much consumers are paying to achieve the same psychoactive effects across different product types and whether a 'high THC/low price' paradigm is emerging as concentrated products become more popular and as smoking flower marijuana becomes less prevalent."
  - The average price for a serving of marijuana flower **decreased 50.8 percent** and the average price for a serving of concentrate **decreased 61.7 percent** from 2014 to 2017.
- The rate of decline for both marijuana flower and concentrates was due to a combination of decreasing flower and concentrate prices, and a steady increase in THC potency.

SOURCE: **Marijuana Policy Group,** ***Market Size and Demand for Marijuana in Colorado 2017 Market Update***

Resource Consumption

Energy



SOURCE: **City and County of Denver, Xcel Energy, CPR,** ***"Nearly 4 percent of Denver's Electricity is now Devoted to Marijuana."***

- The marijuana industry went from **1.5 percent** of overall Denver Electricity use in 2012 to nearly **4 percent** in 2016.

Marijuana Industry Information

Nearly 4 Percent of Denver's Electricity is Now Devoted to Marijuana

According to an early 2018 article written by Grace Hood of Colorado Public Radio, "In 2016, the marijuana industry comprised 4 percent of Denver's electricity use." While this number may seem small, according to an advisor for the Denver Department of Public Health and Environment - "it's significant." While the industry is striving to become more and more efficient in their energy consumption, "the energy use trajectory continues to plot upward for the industry."

- Grace Hood, *Nearly 4 Percent Of Denver's Electricity Is Now Devoted To Marijuana,* Colorado Public Radio, February 19th 2018.

Medical Marijuana Recommended for Pregnant Women

Approximately 70% of randomly selected medical marijuana centers in Colorado recommended marijuana as a treatment for morning sickness for pregnant women. This recommendation from the employees of the dispensaries clash with "doctors' warnings about the potential harms according to a study published Wednesday in the Journal Obstetrics and Gynecology." Doctors caution that marijuana's effects on a fetus could include low birth rate and developmental problems according to U.S. Centers for Disease Control and Prevention.

- Michael Nedelman, *Marijuana shops recommend products to pregnant women, against doctors' warnings*, CNN May 10th 2018.

Marijuana Cultivation Center fined $2,000 for Odor Problem

In November of 2017, a marijuana cultivation center was fined $2,000 due to complaints received from neighbors that the facility was emitting too strong of a scent. This same location had received similar complaints and had been fined one year prior when it was occupied by another marijuana facility. In total the location was fined $14,000 the first time.

- Alex Burness, *Marijuana odor from cultivation center continues to seep into north Boulder,* Daily Camera, November 26th 2017.

8 Marijuana Retail Locations Raided and 13 Budtenders Arrested in Police Investigation

Eight Sweet Leaf Marijuana Centers were raided in December 2017 and 13 bud tenders were arrested. The bud tenders were arrested for criminal activities that included sales of marijuana in violation of Colorado law stipulating that adults over the age of 21 can buy and possess up to 1 ounce of marijuana at a time. Undercover law enforcement officers "entered a single location multiple times – as few as five times and as many as 16 – during windows of time ranging from 59 minutes to 5 hours and 50 minutes" and would typically purchase 1 ounce of marijuana.

- Alicia Wallace and Alex Pasquariello, *13 Sweet Leaf budtenders swept up in Denver police raids*, The Cannabist, December 15th 2017.

Not-so-Green Greenhouses for Cannabis Hyper-Cultivation

In 2018, Evan Mills, Ph.D. described some of the environmental ramifications of the legalized marijuana industry. The energy analyst and building scientist, who is a Research Affiliate with the U.C. Berkeley's Energy and Resources Group, described many considerations of the marijuana cultivation industry, including the point that "greenhouses are among the most thermally inefficient structures imaginable." Although he admits that estimating the energy use of these "hyper-cultivation" facilities is complex – a theoretical hyper-greenhouse "uses 8-times as much electricity per square foot for *lighting* alone as the average U.S. office building uses for *all* purposes and 17-times as much as the average U.S. home." The publication goes on to describe that "carbon-intensive cannabis will continue to compound climate change unless an array of public policy strategies are assembled."

- Evans Mills, *Not-so-Green Greenhouses for Cannabis Hyper-Cultivation*, Energy Associates, February 26th 2018.

Marijuana Enforcement Division (MED) 2017 Annual Update

The mission of the MED is to "promote public safety and reduce public harm by regulating the Colorado commercial marijuana industry through the consistent administration of laws and regulations and strategic integration of process management, functional expertise, and innovative problem-solving." The 2017 Annual Update details licensing data, number of cultivated plants, volume of marijuana sold to customers, marijuana testing data, and investigation data.

- *MED 2017 Annual Update*, Colorado Department of Revenue, Enforcement Division, May 17th 2018.

ROCKY MOUNTAIN

COLORADO • MONTANA • UTAH • WYOMING

High Intensity Drug Trafficking Area