

Driving Under the Influence of Drugs and Alcohol

A Report Pursuant to House Bill 17-1315

July 2018



Colorado Department of Public Safety
Division of Criminal Justice
Office of Research and Statistics

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EXECUTIVE SUMMARY

Very little is known about drug-involved driving when alcohol is not involved. In part, this is because alcohol is the most common cause of impaired driving. Consequently, much research exists regarding alcohol use and driving, but there is a paucity of information about marijuana-involved driving. Since commercialized recreational marijuana became available in Colorado in 2014, concerns have increased about the impact of driving while high. The Colorado Task Force on Drunk and Impaired Driving identified the lack of data as a serious priority that required the attention of policy makers. The Colorado General Assembly enacted House Bill 17-1315 which mandated that the Division of Criminal Justice (DCJ) in the Colorado Department of Public Safety collect and analyze specific data regarding driving under the influence of drugs and alcohol. Specifically, the bill requires DCJ to report annually to the General Assembly specific information relating to substance-affected driving citations that occurred in the previous year, including the following:

- The number of citations for impaired driving
- The number of cases with indication of impairment by alcohol, marijuana, other drugs, or any combination of the these
- The number of convictions for impaired driving
- The number of convictions with evidentiary test results indicating impairment by alcohol, marijuana, Schedule I drugs (C.R.S., 18-18-203), other drugs, or any combination of these
- The elapsed time from law enforcement stop to biological sample

This report provides insight into the prevalence of drug-involved driving by examining toxicology information associated with individual DUI court cases. Prior to this publication, data regarding impaired driving in Colorado have been available for only the aggregate number of case filings, the presence of Delta-9 THC in some toxicology samples, and impaired driving fatalities. While data on impaired driving fatalities are important, not all drivers involved in a fatal accident are tested and thus this captures only a small subset of impaired driving incidents. The current study provides a comprehensive overview of the scope of DUI cases, the drugs involved, and the court outcome of those cases.

In 2016, there were 27,244 case filings with at least one DUI charge, and 97,066 total charges associated with these cases. At the time of this analysis, 25,519 cases (93.7%) had reached disposition. Of these, 88.1% were convicted of at least one DUI charge. DUI cases with child abuse charges (n=623) had a conviction rate of 31.1%. Additionally, vehicular assault (n=182) and vehicular homicide (n=26) conviction rates were 78.6% and 73.0%, respectively.

Almost two-thirds (65.4%) of case filings were linked to toxicology results (n= 17,824). Not surprisingly, most of these case filings that had an alcohol toxicology test had a Blood Alcohol Concentration (BAC) that was at or above the legal 0.08 *per se* limit (85.5%, n=13,620). Fewer cases (3,946) were screened for the presence of cannabinoids, and 73.1% of these (n=2,885) were confirmed for cannabis metabolites, including the psychoactive component of cannabis, Delta-9 THC. Of the 2,885 THC confirmation screens, approximately half (47.5%, n=1,369) were at or above the legal 5 ng/mL permissible inference level. Toxicology results for alcohol and THC were available for 1,517 case filings. Of these, 70.0% (n=1,063) were found to have traces of both alcohol and Delta-9 THC. This was the most common drug combination found in the analysis (n=829).

Overall, polydrug use was found for 2,264 case filings; only 15.5% (n=352) of these did not include alcohol or THC.

Information on both case disposition and toxicology was available for 16,806 case filings. Not surprisingly, the highest DUI conviction rate for cases with an alcohol test were for those with a BAC at or above the *per se* 0.08 level (95.3%, n=12,283). Likewise, the highest DUI conviction rate for cases that had a THC confirmation test were for those with THC levels at or above the permissible inference level of 5.0 ng/mL (87.5%, n=1,109). Furthermore, case filings with 5.0 ng/mL or more of THC have a dismissal rate of 9.7% while those with THC below 5.0 ng/mL had dismissal rates in the 20.0% range. Case filings with alcohol only at any level had a DUI conviction rate of 91.9% compared to an 68.7% conviction rate for cases with THC only at any level.

It is important to remember that the presence of a drug or drugs does not perfectly correlate with impairment. Impairment is based on the sum of the behavioral testing by law enforcement and toxicological findings.

Additional findings include the following:

- Males age 21 and older comprised 68.4% (n=18,625) of the total case filings.
- 23 year-olds had the highest rate of DUI case filings per 100,000 drivers' licenses.
- A small percentage (3.7%, n=987) of final DUI charges were felonies.
- The more severe the DUI charge, the less likely it was to be amended.
- The most common charge associated with both alcohol and THC was careless driving; speeding charges were more likely to be associated with alcohol only compared to THC only.
- Almost half (46.9%) of all case filings with toxicology results that indicated polydrug use included both alcohol and Delta-9 THC.
- Central Nervous System (CNS) depressants and CNS stimulants were the most common drug types that appeared after alcohol and marijuana.
- According to assessment information, over one-third (37.8%) of defendants had prior DUI convictions. Also, 25.8% were involved in an accident.
- The majority (74.2%) of offenders were not involved in an accident, but when they were it most often was an accident with no injury.
- As the time between the traffic stop and the blood draw increases, the level of Delta-9 THC decreases.
- Conviction rates for cases with and without toxicology results were approximately the same, at 89.4% and 85.7%, respectively.

SECTION ONE BACKGROUND AND OVERVIEW

This section reviews the statutory purpose of this report, summarizes state DUI laws, discusses issues related to the detection of impaired driving, and provides a brief history of marijuana laws in Colorado plus the federal response.

Purpose of this Report

House Bill 17-1315

In 2017, the Colorado General Assembly passed House Bill 1315¹ which directs the Colorado Department of Safety, Division of Criminal Justice, to “analyze the types of DUI offenses being committed by offenders” and issue an annual report. See Appendix A: House Bill 2017-1315 for the full text. The bill calls for the report to include, among other things, the following:

- The number of citations for impaired driving
- The number of cases with indication of impairment by alcohol, marijuana, other drugs, or any combination of the these
- The number of convictions for impaired driving
- The number of convictions with evidentiary test results indicating impairment by alcohol, marijuana, Schedule I drugs (C.R.S., 18-18-203), other drugs, or any combination of these
- The elapsed time from law enforcement stop to biological sample

Data to conduct this analysis include court filings from the Colorado Judicial Branch and the Denver County Courts; forensic toxicology laboratory results from the Colorado Bureau of Investigation, ChemaTox Laboratories, Inc., and the Denver Crime Lab in the Denver Police Department; evidentiary breath-alcohol testing from the Colorado Department of Public Health and Environment (CDPHE); and individual alcohol/drug assessment information about convicted impaired drivers from the Division of Probation Services.

Overview: Driving Under the Influence

Statutes

The statute that governs Driving Under the Influence (DUI) and Driving While Ability Impaired (DWAI) is located in C.R.S. 42-4-1301, and the two definitions are provided below. Note that the statute sets a *per se* limit for DUI at 0.08 and for DWAI at 0.05.²

(f) "Driving under the influence" means driving a motor vehicle or vehicle when a person has consumed alcohol or one or more drugs, or a combination of alcohol and one or more drugs, that affects the person to a degree that the person is substantially incapable, either mentally or physically, or both mentally and physically, to exercise clear judgment, sufficient physical control, or due care in the safe operation of a vehicle.

(g) "Driving while ability impaired" means driving a motor vehicle or vehicle when a person has consumed alcohol or one or more drugs, or a combination of both alcohol and one or more drugs, that affects the person to the slightest degree so that the person is less able than the

person ordinarily would have been, either mentally or physically, or both mentally and physically, to exercise clear judgment, sufficient physical control, or due care in the safe operation of a vehicle.

Colorado's *expressed consent* statute³ states that if an individual is lawfully arrested by an officer who has probable cause to believe that the person has been driving under the influence, then the individual must consent to taking a chemical test of his/her blood or breath for the purpose of determining the blood alcohol content (BAC). Refusal to comply will result in administrative revocation of the driver's license by the Colorado Division of Motor Vehicles and may have other consequences.

Table 1. DUI Law in Colorado, *per se* and presumption of impairment limits

Time Frame	DUI Statute	Illegal <i>per se</i> BAC limit	Illegal presumption limit - DUI	Illegal presumption limit - DWAI
Prior to 1955	13-4-30	None	None	None
1955-1972	13-4-30 (2)(b)	None	.15	.05
1973-1982	42-4-1202(2)(c)	None	.10	.05
1983-1988	42-4-1202(1.5)(a)	.15	.10	.05
1989-2003	42-4-1202(1.5)(a)	.10	.10	.05
2004-Present	42-4-1301(2)(a)	.08	.08	.05

Source: *Session Laws of Colorado, 1953; 1955; 1983; 1989; Colorado Revised Statutes, 1973; 2004.*

Note: Colorado first established an expressed consent to test statute in 1983.

In 2013, the legislature amended the impaired driving statute (C.R.S., 42-4-1301 (6)(a)(IV)) to create a section addressing driving under the influence of marijuana. The law established the following:

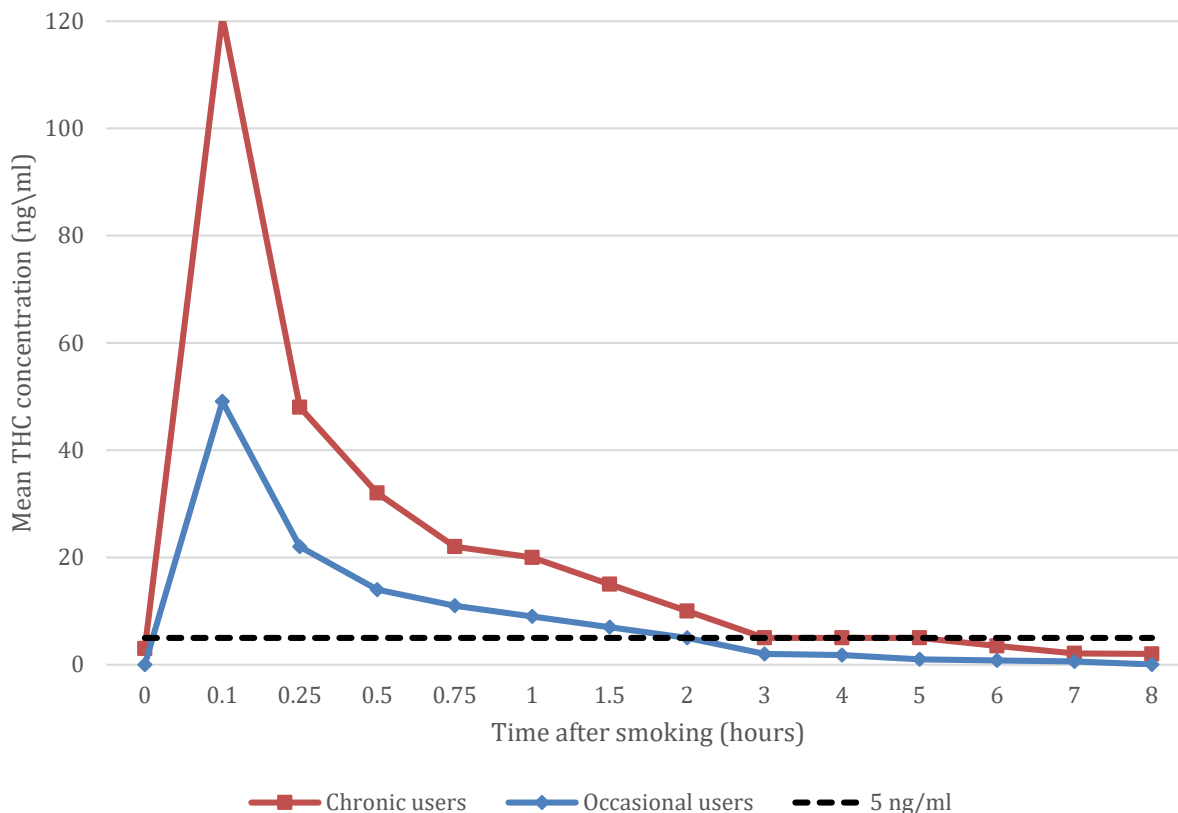
"If at such time the driver's blood contained five nanograms or more of Delta 9-tetrahydrocannabinol per milliliter in whole blood, as shown by analysis of the defendant's blood, such fact gives rise to a permissible inference that the defendant was under the influence of one or more drugs."

Detection Issues

It is difficult to measure the scope of driving under the influence of drugs (DUID) for a number of reasons. First, there is no criminal charge that specifies the driver is impaired by drugs instead of, or in combination with, alcohol. The current statute applies to driving under the influence of alcohol, drugs, or a combination of the two.⁴ Second, there is no central repository of toxicology test results that would allow for an analysis of trends. Information is available from some laboratories but those results cannot be easily linked with court cases. Third, law enforcement may choose not to pursue additional toxicology testing if the driver's blood alcohol content (BAC) is at or above 0.08, which is the *per se* limit above which a driver is considered to be under the influence in Colorado. The additional time and cost required for further toxicology testing may not be considered worthwhile if the burden of proof for impairment is already being met by a BAC level.

Following an arrest for DUI or DWAI, if the officer has probable cause to believe the suspect is impaired by drugs and/or alcohol,⁵ the officer may transfer the suspect to a location where blood can be drawn for further toxicology screening. The Delta-9 THC level in blood decreases rapidly in the first hour after use, then gradually thereafter, making prompt testing critical (Figure 1).⁶

Figure 1. Dissipation of Delta-9 THC over time, adapted from Toennes et al.⁷



Source: Toennes, et al. (2008).⁷

In terms of detection, the number of peace officers who have been trained to identify driving impairment from drugs other than alcohol has increased substantially in recent years. In 2012 there were 129 peace officers statewide trained as Drug Recognition Experts (DREs) and as of May 2018 there were 228. Thousands of additional peace officers have also received training in Advanced Roadside Impaired Driving Enforcement (ARIDE). Trainings are described in detail in Appendix C: Standardized Law Enforcement Training.

Previously Available Data and Limitations

There is very little data that examines the toxicological profiles of those involved in impaired driving cases. The state uses the National Incident-Based Reporting System to collect crime and arrest information, for which DUI and DUID are possible codes. However, there is no field to capture information on BAC or other toxicological testing. There have been efforts by individual law enforcement agencies to collect information on impairment by both alcohol and drugs, but there is no statewide effort. The court system's data are structured to capture BAC level but has no consistent way to capture such information on impairing drugs.

A 2014 publication by Urfer, et al., examined blood samples tested at a large private lab in Colorado, but focused primarily on THC outcomes in potential drug-impaired driving cases.⁸ The Colorado Bureau of Investigation is conducting research examining blood samples in DUI cases that were previously only tested for alcohol to determine the prevalence of other drugs but the results are not yet available.

Traffic fatality data is commonly used to examine the prevalence of drug-impaired driving in addition to alcohol-impaired driving. The Fatality Analysis Reporting System (FARS) is a program administered by the National Highway Traffic Safety Administration (NHTSA) that collects information on many elements of fatal crashes, including the toxicology results of drivers. The Colorado Department of Transportation (CDOT) and Colorado Department of Public Safety (CDPS) have published data examining the toxicology results of drivers using the FARS data.⁹ However, FARS data have important limitations. First, FARS data focus on the subgroup of cases with a fatality. In 2016, for example, Colorado recorded 608 fatalities on roadways¹⁰ compared to 21,953 DUI arrests.¹¹ The second limiting factor is that only about 45% of drivers involved in fatal crashes are tested in any given year; the reasons for this are unclear but vary by state. Finally, while CDOT has improved data collection over the last several years there are still limitations. For example, prior to 2016 the reporting of specific metabolites of THC was sporadic and the Delta 9-THC level—the primary psychoactive metabolite of cannabis—was not consistently captured.

Issues around Toxicology and Law Enforcement Testing

In Colorado, a suspect can choose to be tested for impairing substances by either breath or blood methods. If law enforcement determines through preliminary breath testing that the suspect's BAC will likely be above the *per se* level of 0.08 then they may forego chemical testing for anything other than alcohol. The reasons for avoiding additional testing general come down to money and time. It costs \$100-500 to have drug testing completed, depending on the lab and how many drugs require confirmation testing. It can also make the stop take longer, because the officer has to transport the suspect to a location where blood can be drawn, usually a jail or a police station. Given the prevalence of polydrug use in fatalities (see Grondel, Hoff and Doane, 2018),¹² it is quite likely that the prevalence of drivers impaired by alcohol in combination with other drugs is higher than the estimates provided here.

There is also no standard “panel” of drugs that must be tested for by the lab. If law enforcement only requests a test for alcohol, marijuana, or any other individual drug, some labs only test for what is requested. The Colorado Bureau of Investigation has a standard drug panel applied to all tests, but Chematox Laboratory testing varies depending on the requests from law enforcement or the prosecutor's office.

Detection of Impairment

To assist in the detection of alcohol impairment, the Breathalyzer was invented in 1954 and Colorado adopted a presumption of impairment based on the results of the test in 1955. The techniques and technology of detecting alcohol-impaired driving have continued to improve over the last 60 years. Law enforcement training to detect alcohol impairment is standardized, but the technology for detecting *drug* impairment by the roadside still largely depends on an officer's ability to observe and provide testimony regarding specific indicators of impairment. The technology for detecting drugs at the roadside does exist but has not yet been accepted in the courts as evidence of impairment.¹³

A Brief History of Marijuana Laws

The Federal Controlled Substances Act (CSA)¹⁴ classifies marijuana as a Schedule I drug. Drugs classified as Schedule I are considered the most dangerous class of drugs with no accepted medical use and a high potential for abuse. Some examples of other Schedule I drugs include heroin, MDMA (ecstasy, Molly), LSD (acid), mescaline (peyote), and psilocybin (mushrooms).

The Schedule I classification puts state laws legalizing medical or recreational marijuana at odds with the CSA. As of June 2018, 31 states plus the District of Columbia allow access to medical marijuana, 15 states

allow access to cannabidiol¹⁵ exclusively, and 9 states plus the District of Columbia allow for the sale or personal cultivation of recreational marijuana.¹⁶

Colorado Law

Five distinct eras of marijuana law in Colorado relate to both the legal status and commercial availability of marijuana. These are as follows: strict prohibition (pre-2000), medical access without commercialization (2000–2009), medical access with commercialization (2010–2012), recreational access without commercialization (2013), and recreational access with commercialization (2014–present).¹⁷ These are summarized briefly as follows:

- Prior to 2000: Illegal to possess or grow marijuana.
- 2000–2009: Amendment 20 approved in 2000, and access to medical marijuana is legalized. The Colorado Department of Public Health and Environment issues registry identification cards to individuals who have received recommendations from a doctor that marijuana will help a debilitating medical condition. It is legal to possess up to two ounces and grow six plants (or more with doctor’s recommendation) with a registry identification card. No regulated market exists. Individual grow operations or caregiver grow operations is limited to five patients.
- 2010–2012: Medical marijuana is commercialized and regulated with licensed dispensaries, grow operations, and product manufacturers allowed in jurisdictions that permit these types of businesses.
- 2012: Amendment 64 passes, allowing for personal possession of limited amounts of recreational marijuana for those 21 years and older.
- 2013: Personal possession and grow limits for recreational marijuana are in place but sales are not commercialized. Medical continues as a regulated, commercial market.
- 2014 to present: Recreational and medical marijuana fully regulated and commercialized. Licensed retail stores open on January 1, 2014.

Amendment 20

In 2000, Colorado passed Amendment 20 which allows those suffering from certain debilitating medical conditions to grow and possess a limited amount of marijuana with a doctor’s recommendation.¹⁸ Patients can choose to grow their own marijuana or designate a caregiver to grow it for them. A caregiver was initially limited to growing medical marijuana for five patients plus his/herself if he/she was a medical marijuana cardholder. The justification for this limit was challenged in Denver District Court and was overturned.¹⁹ Consequently, in 2009, the Colorado Board of Health rejected the five-patient limit for caregivers, a first step towards medical commercialization. That same year, the U.S. Department of Justice issued what is known as the Ogden Memo (see APPENDIX D OGDEN MEMO), which gave guidance to U.S. Attorneys regarding the prosecution of marijuana cases, specifically, that they should not “focus federal resources in your States on individuals whose actions are in clear and unambiguous compliance with existing state laws providing for the medical use of marijuana.”²⁰ The combination of the court decision, the Board of Health’s rejection of the five-patient caregiver limit, and the Ogden Memo, set the stage for the commercialization of medical marijuana. In 2010, a medical marijuana code was promulgated by the General Assembly, through the passage of House Bill 10-1284, which established a regulatory structure within the Colorado Department of Revenue (DOR) and the Colorado Department of Public Health and Environment (CDPHE). Additionally, during that same legislative session, Senate Bill 10-109 passed, which clarified the

definition of a “bona fide physician patient relationship.” The Marijuana Enforcement Division (MED) was created within DOR to license and regulate the medical marijuana industry in Colorado.²¹

The commercialization of medical marijuana followed and the number of patients registered with CDPHE increased dramatically, from about 5,000 in 2009 up to almost 119,000 in 2011. In 2018, this number is approximately 89,000.

Amendment 64

In 2012, Colorado voters approved Amendment 64, allowing for individuals 21 years and older to grow up to six plants (3 mature and 3 immature) and keep all of the marijuana produced on the same premises; possess up to one ounce of marijuana; and, give away up to one ounce of marijuana to someone 21 years or older. It also instructed Colorado’s Marijuana Enforcement Division (MED) to create rules, regulations, and licenses to allow for the first recreational marijuana marketplace in the world by July 1, 2013. This included rules for licensing, ownership, security, labeling, production control, reduction of diversion, health and safety standards, advertising, and privacy guarantees. These rules resulted in the Retail Marijuana Code.²²

The MED began accepting applications for retail stores on October 1, 2013. Applicants were required to have a current medical marijuana license to be eligible for a retail license. The first stores opened on January 1, 2014.²³

Additional rule-making has been conducted by the Department of Revenue, Department of Public Health and Environment, Department of Agriculture, and the Department of Regulatory Affairs to clarify a variety of issues that have arisen with the advent of the first legal marijuana marketplace.²⁴ Examples include issues regarding pesticide application, testing for mold and solvents, THC homogeneity in manufactured products, and others.

Federal Response

In the wake of Amendment 64 and other recreational legalization efforts in other states, in 2013, the U.S. Department of Justice (USDOJ) issued the Cole Memo (see Appendix E: Cole Memo),²⁵ giving guidance to U.S. Attorneys across the country. The Cole Memo set forth USDOJ’s enforcement priorities, as follows (emphasis added):

1. Preventing distribution of marijuana to minors
2. Preventing revenue from going to criminal enterprises, gangs, and cartels
3. Preventing diversion of marijuana from states where it is legal under state law in some form to other states
4. Preventing state-authorized marijuana activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity
5. Preventing violence and the use of firearms in the cultivation and distribution of marijuana
6. **Preventing driving under the influence of drugs (DUID) and exacerbation of other adverse public health consequences associated with marijuana use**
7. Preventing growth on public lands with attendant public safety and environmental damages
8. Preventing marijuana possession or use on federal property

In January 2018, Attorney General Jeff Sessions rescinded the Cole memo.

Summary

This section provided an overview of the laws prohibiting alcohol and drug impaired driving, issues surrounding the detection of alcohol and cannabis, the legalization and commercialization of marijuana in Colorado, and the federal response.

Among the most important points to remember pertains to the detection of drugs other than alcohol. Testing for drugs is difficult and time consuming for law enforcement officers. Alcohol is faster, easier and cheaper to screen for compared to other drugs thanks to preliminary roadside breath screenings. Once alcohol is detected, law enforcement generally has enough evidence to reliably achieve a conviction. Therefore, agencies do not consistently spend the additional money and time requesting toxicology blood testing for substances beyond alcohol.

SECTION TWO IMPAIRED DRIVING

Alcohol has historically been the focus of impaired driving policy and research. In fact, there is a wealth of information available on alcohol impaired driving while there is a dearth of research on the problem of drug impaired driving. As the national landscape of marijuana legalization continues to expand, it is critical to gain a better understanding of driving impairment associated with drugs, especially cannabis.

Section Two provides an overview of the myriad of issues associated with the detection of impaired driving. It describes law enforcement training (see Appendix C: Standardized Law Enforcement Training for details), and reviews the research on impaired driving. The section concludes with a description of the traffic stop and the multiple phases of the court process that result from a DUI offense.

Detection and Law Enforcement Training

Two primary methods are used to detect and infer driving impairment, and these are behavioral and toxicological. The former comes in the form of observations by law enforcement officers during psychophysical roadside tests, and the latter comes in the form of chemical tests of breath and bodily fluids. An important item to note here is that individuals typically are not stopped for being impaired. Rather, drivers are most commonly stopped for a traffic infraction and the officer then observes apparent driver impairment. Using information gained in standardized training, the officer investigates specific qualitative indicators of driver impairment.

Law enforcement officers are trained by several methods, including the Standardized Field Sobriety Testing (SFST), Advanced Roadside Impaired Driving Enforcement (ARIDE), and Drug Recognition Expert Training (DRE). The SFST and ARIDE trainings are coordinated by Colorado Peace Officer Standards and Training (POST) and the DRE program is coordinated by CDOT's Highway Safety Office. In addition to these approaches, there is a preliminary breath alcohol test (PBAT) that can be administered as an alcohol screen during a roadside stop. Note that this is only a screen and therefore it is not considered evidentiary and is not admissible in court; officers must follow up with additional testing. However, there is no equivalent and reliable instantaneous screen for impairment associated with other drugs, including cannabis.

As of February 2018, there were 5,674 active SFST operators in Colorado and 1,427 active ARIDE certificate holders. As of May 2018, there were 228 DREs in Colorado. Again, please see Appendix C: Standardized Law Enforcement Training for detailed information about these trainings.

Beyond these standardized classroom trainings there are additional hands-on, practical labs in which law enforcement can participate, hosted by POST and law enforcement agencies. Live alcohol workshops, also known as "wet labs," are an optional component of the SFST. These wet labs are set up so law enforcement can participate in mock contact with a volunteer who has or has not consumed alcohol. The consumption is concealed and occurs in a separate setting from officers. Law enforcement interacts with these volunteers as though they are suspected of impaired driving and implement the battery of tests to detect and assess impairment.

The only *marijuana-focused* practical training lab in Colorado, “The Green Lab,” commenced in September 2015. Chris Halsor of Understanding Legal Marijuana, LLC, developed The Green Lab to provide law enforcement with training to better detect and understand cannabis and cannabis impairment. Similar to wet labs, some of the volunteers consume cannabis in a separate setting from law enforcement. Law enforcement officers then engage with these volunteers to detect and assess impairment. Additionally, these courses are designed to provide officers with training on report writing, understanding toxicology, and testimony preparation, among other topics.²⁶ As of July 2018 there were 410 Colorado law enforcement officers that have participated in The Green Lab.

Training to detect drugged driving impairment is critical for peace officers because there is no equivalent to the preliminary breath alcohol test (PBAT) for other drugs. While not admissible in court, the PBAT allows an officer to quickly and easily assess a person’s BAC. The arresting officer will provide the person with a choice between a subsequent breath and blood test if alcohol is the suspected impairing substance.

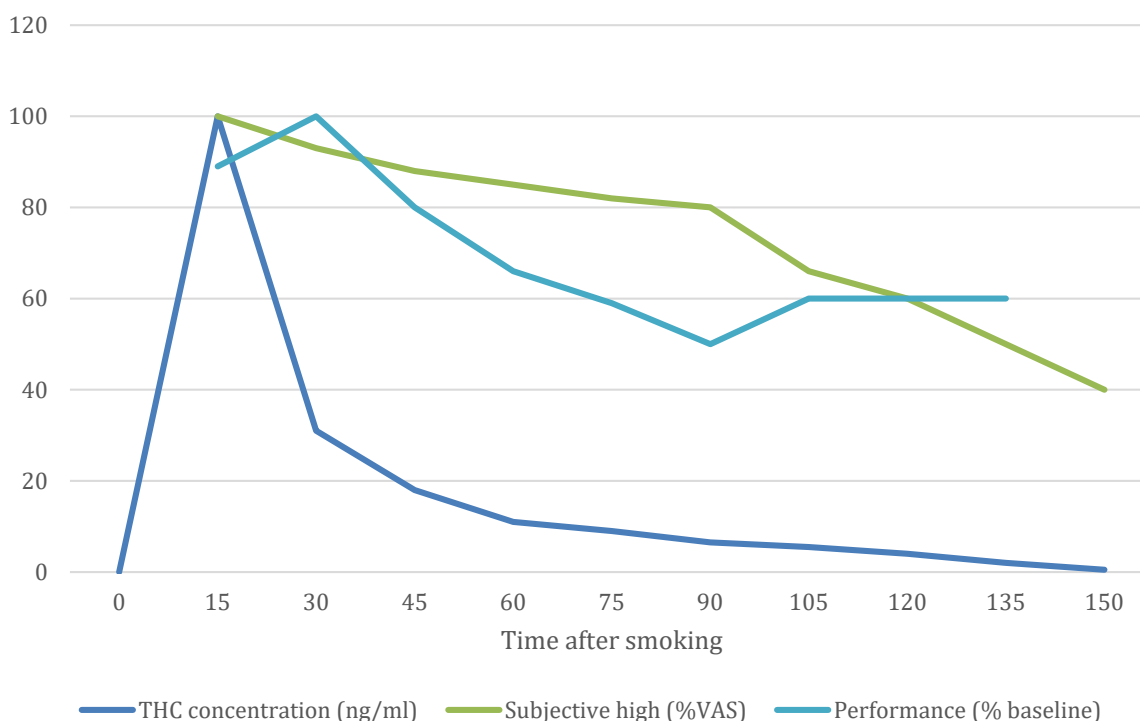
Research

Field Sobriety Efficacy and Delta-THC Levels

The efficacy of field sobriety tests (FSTs) in determining alcohol impairment has been supported by research and these studies are taught in the drug recognition curricula. However, recently Declues et. al (2016) examined the validity of field sobriety tests on the presence of Delta-9 THC.²⁷ Delta-9 THC is the primary psychoactive metabolite in marijuana. Researchers found that HGN (Horizontal Gaze Nystagmus) is not exhibited or expected in cannabis consumers while LOC (Lack of Convergence) was a strong indicator of cannabis presence. Additionally, both the OLS (One Leg Stand) and WAT (Walk and Turn) were sensitive in the assessment of impairment, with the WAT being the most sensitive of all. Despite individuals exhibiting clues of impairment during these standardized roadside tests, no correlation was found between the tests and Delta-9 THC concentration in whole-blood samples. Another study by Hartman et. al (2016) found that pupil dilation, elevated pulse, LOC and the exhibition of impairment clues in two other psychophysical tasks, were best at indicating impairment.²⁸ However, the latter results were only for exams administered by DREs. Again, there was no correlation in this study between test performance and whole-blood THC.

Figure 2 shows results from a study that examined Delta-9 THC concentration, subjective high, and performance of subjects.²⁹ Figure 2 depicts how THC concentration peaks early, but the impairing effects on driving-related performance tasks and subjective high appear long after the peak concentration. This suggests that there are performance deficits that follow the peak of THC concentration. Furthermore, high THC concentration in whole-blood does not perfectly correspond to impairment.

Figure 2. Time course of Delta-9 THC concentration, subjective high, and performance



Source: Berghaus et al. (1998); Sticht and Käferstein (1998); and Robbe (1994) as cited in Compton (2017).

Further compounding the problem of linking whole blood concentrations of THC with impairment is the context of individual consumption. Karschner et al. (2009) found that chronic cannabis users had measurable concentrations of Delta-9 THC during a seven-day abstinence period. The highest level observed at the conclusion of the seven days was 3.0 ng/mL, as a result of THC being stored in fat and its ability to slowly release from the tissue.³⁰ This becomes a problem for frequent and medicinal users who may continuously have THC detected in their blood stream without any impairing effects.

Despite the complicated relationship between the pharmacokinetics of cannabis and impairment, there have been developments in oral fluid (OF) roadside tests to detect cannabis. The benefits to this exam are many, but there are also many caveats. The Society of Forensic Toxicologists indicated that OF concentrations of THC are correlated with blood levels after three hours, and one study found that passive exposure to cannabis may result in a positive OF screen.^{31, 32} In a review of the literature, NHTSA (2017) indicated that these screening devices “have not been shown to be completely reliable and accurate” in its *Marijuana-Impaired Driving* report.³³ THC concentrations in OF fluid are known to have large variability among occasional and heavy users. Furthermore, the peak of THC concentration varies depending on the method of consumption, with higher concentrations and an initial spike in concentration when smoked as opposed to when ingested.

Alcohol impairment

Research has found that alcohol consumption impacts a number of skills that are critical for driving.³⁴ Performance on driving simulators and divided attention tasks can be negatively impacted by BAC levels as low as 0.001. Perception and visual functions are consistently impaired at levels as low as 0.04. At

higher BAC levels, around 0.06, cognitive tasks, psychomotor skills, and choice reaction time are consistently impacted. These skills are critical for the driver to appropriately respond to stimuli on the road including other drivers, pedestrians, traffic signals, and so on. Generally, according to NHTSA's (2017) review of alcohol impaired driving research, "all drivers can be expected to experience impairment in some driving-related skills by 0.08 g/dl or less."

Additionally, much of the epidemiological literature has found that driving under the influence of alcohol increases crash risk. A case-control study found that crash risk is elevated at alcohol concentration levels beginning at 0.05.³⁵ Drivers with BACs of 0.05 and 0.08 were 2 to 4 times as likely to crash when compared to drivers with no alcohol, respectively.³⁶ Furthermore, researchers have found that drivers who are under age 21 exhibit a more pronounced relationship between alcohol and crash risk when compared to those who are 21 and older. In particular, at blood alcohol concentrations of 0.08 or above, underage drivers were 27.4 times as likely to be involved in a crash than their underage peers with no alcohol.³⁷ Finally, crash risk increases exponentially with increasing breath and blood alcohol concentrations.

Marijuana Impairment

The CDPHE's Retail Marijuana Public Health Advisory Committee annually publishes a comprehensive review of relevant marijuana research.³⁸ The 2017 report found substantial evidence in the literature to support the following:

- Recent marijuana use increases a driver's risk of a motor vehicle crash.
- Less-than-weekly marijuana users exhibit meaningful driving impairment with THC levels of 2 - 5 ng/mL or ingestion of 10 mg or more of THC.
- Combining marijuana and alcohol increases impairment and motor vehicle crash risk more than each alone.
- Delaying driving for a minimum of six hours after smoking allows THC-induced impairment to resolve for less-than-weekly users at 18 mg of THC.

In addition to this overview, a number of studies and a 2013 meta-analysis found that cannabis consumption can be detrimental to divided attention, driving, and reaction time.³⁹ However, the meta-analysis found contradictory results on the impact of Delta-9 THC on cognitive tasks. Of two studies that examined the impact of THC on time and distance perception, one found that there was no impairment,⁴⁰ while the other found that there was significant impairment and an interaction between cannabis and alcohol was exhibited.⁴¹ Additionally, two studies found that reaction time increased with THC impairment for both occasional and frequent users,⁴² and another study found that THC did not impact measures of reaction time.⁴³

The impairing effects of cannabis are more pronounced with more difficult tasks. Driving simulator and actual driving performance research has found that the standard deviation of lane position (SDLP), or weaving within a lane, is the most sensitive measure of cannabis impairment, and is commonly exhibited with cannabis impaired driving. SDLP has been demonstrated to be dose-dependent and performance on this measure results in an additive deficit when alcohol is also involved.⁴⁴ However, there are also studies that find the contrary, that is, there is no significant difference observed for SDLP with THC impairment.⁴⁵

There is convergent evidence that alcohol induced impairment increases crash risk, but this is not the case for marijuana. Some studies find that, in comparison to drivers with no cannabis, there is no significant crash risk associated with cannabis impaired driving.⁴⁶ However, other studies find that there is a higher crash risk associated with cannabis consumption,^{47, 48} with odds ratios ranging from 0.85 to 7.16, meaning that the increased crash risk was up to 7 times greater for those who used cannabis compared to those who did not.⁴⁹

Furthermore, there is some evidence that crash risk increases with dose and frequency of use. That is, occasional users are more sensitive to the impairing effects of cannabis.⁵⁰ The lack of consensus in the literature likely stems from a lack of standardization in how researchers define cannabis use—use of a psychoactive versus an inactive metabolite—or a lack of granularity in data collection/analysis. In addition to this, participants that generally choose to participate in experimental studies are likely to be occasional or frequent users. Nevertheless, despite the lack of consensus in the literature, it has been demonstrated that cannabis follows alcohol as the most common drug detected in fatal crashes.⁵¹

Other Drug Impairment

The impact of other drugs on driving and crash risk is even less understood than the impact of alcohol and marijuana. The NHTSA-sponsored Virginia Beach study⁵² (Lacey, 2016) aggregated drugs into a number of categories including antidepressants, narcotic analgesics, and prescription and over-the-counter medicine. The authors found no significant contribution from any of these drugs to increased crash risk when adjusting for gender, age, race/ethnicity, and alcohol.

One study found non-significant weak relationships between crash culpability and opiates and benzodiazepines, but a significant relationship between culpability and psychoactive drugs.⁵³ Another study found a significant association between opioid dose and odds ratio of road trauma with an increased risk 1.42 times higher for high doses, but a smaller increased risk 1.23 higher for very high doses.⁵⁴ Another study of fatally-injured drivers indicated that prescription drugs alone were not associated with a significant crash risk.⁵⁵ Researchers who explored the relationship between drug type and DUID arrests found that THC was the most common illicit drug found, and methamphetamines and amphetamines were the most common drug found for crash-involved DUID drivers.⁵⁶ Additionally, these same researchers found that polydrug use was associated with higher risks of being arrested when compared to single drug use.

There is a need for more research on the topic of drug impaired driving. However, there are barriers to this kind of research, as discussed below.

Challenges in Marijuana Research

Researchers who study Schedule I drugs in the United States must register with the Drug Enforcement Administration by submitting protocols detailing the substances involved, including the amount of each substance, and providing detailed security arrangements intended to prevent diversion of the drug to outside parties. In addition, researchers must obtain authorization from the National Institute on Drug Abuse (NIDA). Since 1968, NIDA has contracted with the University of Mississippi as the single grower for all U.S. marijuana research. Generally, this Mississippi marijuana is of lower Delta-9 THC potency than what is being sold in the legal market with 'High THC' defined as 5 – 10% and 'Very High THC' as above 10% THC.⁵⁷ In comparison, the legal, recreational market has THC potencies that generally hover around 20% or more. This discrepancy makes it difficult to generalize the study findings from impaired

driving experimental protocols to real-world situations.

Researchers likely face other barriers when seeking local approval to conduct research. As an example, the registration process described for the University of Colorado Denver | Anschutz Medical Campus is lengthy (4 - 8 weeks) and elaborate, with a visit or phone interview to review security measures.⁵⁸ Once research is permitted, there is extensive recordkeeping required, and researchers are subject to annual audits by the Environmental Health and Safety Office of the University. Furthermore, there are potentially significant fiscal consequences for researchers and universities involved in marijuana research if there are deviations or mistakes in following the guidelines set forth.

Besides the restrictions described above, there are research consistency issues when considering the variety of methods and metabolites associated with cannabis consumption. While the main psychoactive component of marijuana is Delta-9 THC, many people cite research or statistics that describe the presence of other cannabinoids. High levels of delta-9 THC reflects more recent use, whereas other cannabinoids can be detected many days later and are not necessarily indicative of recent use.⁵⁹ A person can have cannabis metabolites present in their system while having none of the psychoactive effects of cannabis.

In addition to the variety of metabolites and miscommunication that occurs regarding statistics, there are also multiple methods of consumption that have made this a difficult research topic. That is, one potential controversy, even in a well-controlled experimental study, are the many routes of cannabis administration available. Cannabis can be smoked or vaped in its flower form, vaped or dabbed and inhaled in its concentrate form (wax, shatter, oil, resin), ingested in its edible form, and even puffed through an inhaler. The onset of effects from edible cannabis can take from 45 minutes to two hours, while the onset of smoked or vaped cannabis is within the first ten minutes.⁶⁰

In sum, challenges exist to conducting research that involves marijuana, in part because it is a Schedule I drug in federal law and access to the drug is restricted, and because of the variation in study approaches. However, as this review reflects, there is a pressing need for additional research in the area of drug impaired driving.

DUI Charges and the Court Process

What Happens?

Generally, an individual is stopped by peace officers for a traffic infraction and the officer observes physical signs of impairment. Examples of initial observations can include the smell of alcohol or cannabis, the sight of open containers, slurred speech, slowed reaction, or failure to follow instructions.

Once an officer notices an initial sign of impairment and has probable cause to suspect impairment, then he/she may ask the individual to voluntarily perform the battery of divided attention tests and, potentially, a preliminary breath alcohol test (PBAT) if alcohol is the suspected substance of impairment. If other drug impairment is suspected, then the arresting officer may call a Drug Recognition Expert (DRE) to assist, or proceed with toxicological exams. Under Colorado's Expressed Consent law, "any person who drives any motor vehicle upon the streets and highways and elsewhere throughout this state" is required to provide a chemical sample or lose their license upon refusal of provision if the

arresting officer has reasonable grounds to suspect impairment (see Appendix B: C.R.S. § 42-4-1301).

The arresting officer will provide the person with a choice between breath and blood test if alcohol is the suspected impairing substance. Once the choice is made, the person cannot renege and choose the other test. If the individual has a breath alcohol test result at or above 0.08 or refuses the test, the person's license is surrendered to law enforcement and the individual has seven days to request a hearing by the Division of Motor Vehicles. However, if the driver chooses a blood test or the officer has reasonable grounds to suspect a drug-related impairment and requires a blood test, then the license is not automatically surrendered because the results of a blood test are not readily available. Generally, if the PBAT result is above the *per se* limit, the officer may not choose to test for additional drugs as this is costly. This practice likely results in an underrepresentation of drug impaired driving in relevant data sets.

Two possible paths exist when a legal case is initiated. These are described below.⁶¹

Misdemeanor. When the case is a misdemeanor, the arresting officer completes the Uniform Summons and Complaint form that is generated by the law enforcement agency when the defendant is arrested. The original copy is filed with the court, and copies are given both to the defendant and the district attorney's (DA's) office.

The DA can add, amend or dismiss charges, either as part of plea agreement or because such actions better reflect the facts of the case. Because the case is a misdemeanor, the defendant is not entitled to a preliminary hearing. Rather, the defendant will be advised of his/her rights by the judge either while in jail or, if he/she is released on bond before seeing a judge, when he/she returns to court. Thereafter, the case will be set for either an appearance of counsel (for the defendant to hire a lawyer or apply for the services of a public defender) or an arraignment (where the defendant will enter a plea of guilty or not guilty). If the defendant enters a "not guilty" plea, a trial date will be set and, most of the time, a date to litigate constitutional and/or evidentiary motions will be set prior to trial. If the defendant enters a guilty plea (usually as part of a plea agreement), the court may sentence the defendant immediately or, more likely, will set the case for a sentencing hearing and direct the probation department to meet with the defendant and prepare a pre-sentence investigation report in time for the sentencing hearing.

Felony. If the case is a felony, the law enforcement officer will likely arrest the defendant and submit a Warrantless Arrest affidavit to the court and to the DA's office. The judge will advise the defendant of his/her rights, set a bond, and set a return date for filing of charges. If the defendant is unable to bond out, this date will be within three working days. If the defendant is able to bond out, a later date may be set. If the DA determines that misdemeanor charges are appropriate, a misdemeanor complaint will be filed, and the case will thereafter be treated as a misdemeanor. Otherwise, the case will be treated as a felony.

Once the defendant obtains or waives counsel, the case will be set for a preliminary hearing in the county court. Meanwhile, the DA and the defense attorney negotiate an agreement. If they agree to a misdemeanor, the preliminary hearing will likely be vacated and a date(s) for entering a plea and sentencing will likely be set in the county court. If they agree to a felony, the case will be bound over to the district court for an arraignment where the defendant will enter a plea.

Dispositions

There are six common dispositions in impaired driving cases. A *guilty* disposition occurs when the defendant either pleads guilty to the charge or is found guilty at trial. In a *deferred judgment and sentence* the defendant enters a conditional guilty plea but the final judgment is postponed. In these cases, the court sets a period of *probation supervision* which includes written stipulations about the conditions of supervision, before sentencing or the entry of a conviction into the court record. If the supervision term is completed successfully the court may then *dismiss* the charges against the defendant. However, if the defendant does not comply with the terms of the agreement then the individual will appear before the judge for a sentencing hearing, where the judge may choose to sentence the person under the original conditional plea. A *deferred dismissed* disposition is entered into the court record after the successful completion of probation supervision. For the purposes of this report guilty, deferred, and deferred dismissed disposition are considered “guilty” outcomes when discussing conviction rates.

If the prosecution or court does not believe that the evidence will support the charges beyond a reasonable doubt, then charges can be *dismissed*. Dismissal of certain charges is often used as part of a plea deal, where the defendant will plead to guilty to some charges in exchange for the dismissal of other charges. A *not guilty* disposition is entered when a defendant goes to trial and the jury or judge finds that the prosecution did not prove the case beyond a reasonable doubt. Finally, a prosecutor may elect not to prosecute and instead offer a diversion program. This results in no charges being filed as long as the defendant completes the terms of the diversion. For the purposes of this report, dismissed, not guilty, diversion, and not proven are categorized as “not guilty” outcomes.

Probation Assessment

Once convicted, the Alcohol and Drug Driving Safety (ADDS) program, administered by the State Judicial Department’s Division of Probation Services, “provides pre-sentence and post-sentence alcohol and drug evaluations on all persons convicted of” DUI or DWAI.⁶² This includes administering the Adult Substance Use and Driving Survey (ASUDS), a questionnaire that asks about prior substance use, prior impaired driving, demographics, BAC in the present case, and other factors. The findings from the assessment result in a treatment recommendation that is provided to the sentencing judge and, if convicted, the Office of Behavioral Health for use by ADDS treatment providers.

SECTION THREE DATA AND METHODS

Data

House Bill 17-1315 mandated that the Division of Criminal Justice report annually to the General Assembly regarding specific information relating to substance-affected driving citations that occurred in the previous year. The mandate requires linking information across multiple data sets to provide a comprehensive analysis of impaired driving. Data from 2016 were obtained from the following entities:

- Colorado Bureau of Investigation, Toxicology Services
- Chematox Laboratories, Inc.
- Denver Police Department, Denver Crime Lab
- Colorado Department of Public Health and Environment, Laboratory Services Division
- Colorado State Judicial Branch
- Denver County Court
- Colorado Department of Human Services, Office of Behavioral Health

Case Filings

Traffic, misdemeanor, and criminal case filings between 1/1/2016 and 12/31/2016 containing at least one DUI charge were used for analyses. These were obtained from the Colorado Judicial Branch (ICON) and Denver County Court. The Denver County Court tracks misdemeanor cases in its court management system, information that is not available in ICON. Note that the number of case filings presented here will not match with data from reports distributed by Judicial since, among other reasons, its reporting is based on fiscal year and it only reports on traffic cases with a DUI or DWAI case type rather than any case with a DUI charge.

Toxicology

Results from breath alcohol tests conducted on Intoxilyzers, the specific type of breathalyzer device used for evidentiary breath testing in Colorado, were obtained from the Colorado Department of Public Health (CDPHE). Breath alcohol tests were conducted by law enforcement officers, either at a jail or police department, and the data from these tests are maintained by CDPHE.

The Denver Crime Lab, in the Denver Police Department, provided results for blood alcohol tests performed only for Denver cases.

The toxicology results from CDPHE and the Denver Crime Lab included only tests for alcohol. Data regarding further drug toxicology were obtained from the Colorado Bureau of Investigation (CBI) and ChemaTox Laboratory, Inc. Both agencies provided data on a number of marijuana variables including the primary psychoactive component Delta-9 THC. Although both labs provided drug toxicology data, each lab's processes and procedures for DUI toxicology exams differ somewhat. In 2016, CBI provided a 9-panel drug screen on all blood vials that were submitted for a drug screen with supplemental specialty tests upon request. ChemaTox offered drug panels for the arresting officer to choose from, including 5-

panel, 7-panel, and 11-panel screens. CBI included three results pertaining to marijuana whereas ChemaTox provided five results.

Interpreting toxicology results requires understanding that the tests have limits of detection (LoD) and limits of quantitation (LoQ) that vary across metabolites. As a result, some test results did not have quantitative values, such as when the threshold for detection is met but the threshold for quantitation is not. Generally, these test results appeared on toxicology reports as values such as '< 1.0 ng/mL' indicating the presence of a metabolite, but with no corresponding quantitative value.

Individual Assessment Data

The Alcohol/Drugged Driving Safety Coordinated Data System (ADDSCODS), probation assessment data, were obtained from the Office of Behavioral Health (OBH). Due to the sensitive nature of this dataset and its legal protections under 42 CFR Part 2 of the Federal Code, only unidentified data were provided. Consequently, it was not possible to link the OBH dataset to others mentioned above.

Methods

To undertake the analysis required in House Bill 17- 1315, it was necessary to match individuals across data sets. To this end, two phases of data preparation were undertaken: (1) data cleaning and (2) data linking.

Data Cleaning

One primary issue associated with disparate datasets was the lack of identical formatting and a lack of consistent operational definitions of the variables. The open source software R was the primary tool used to perform data cleaning.

Judicial Case Filings

Data obtained from the Colorado Judicial Branch included all charges for case filings that contained at least one DUI charge during calendar year 2016. One case filing, or case, typically contains multiple charges. Any charge of operating a vehicle under the influence or while ability impaired is referred to as DUI unless otherwise specified.

Duplicate cases were common and occurred for a number of reasons including, but not limited to, the following:

1. Cases were erroneously filed twice.
2. DUI misdemeanors were re-filed as felonies.
3. Duplicate tickets were received from law enforcement.
4. Charges from one case were consolidated to a different case.

Cases were matched on name, date of birth, and offense date to identify duplicates. Duplicate cases were removed by matching law enforcement agency (LEA), LEA case numbers, arrest numbers and offense dates. Finally, potential duplicates were manually confirmed. A total of 345 duplicate cases were removed.

Next, initial charges and amended charges were identified; initial charges were mapped to the appropriate final charge. The presence of all charges, charge numbers, and charge sequences permitted the accurate mapping of initial charges to final amended charges.

Finally, age was imputed based on dates of birth from other datasets, if available.

Denver Court Case Filings

The process of identifying and eliminating duplicates was the same as described above. The Denver Court data were similar to the Judicial data in many ways, however, this dataset lacked the critical variable of *charge number*, which complicated the mapping of initial to final charges. Consequently, mapping was accomplished manually.

Selecting Disposition

Cases often contained multiple DUI charges. When this occurred, the most serious disposition was linked to the case.⁶³ For example, if a case had two final DUI charges with two different dispositions of 'dismissed' and 'guilty,' the 'guilty' disposition trumps the former regardless of severity of the charges (see Table 2).

Table 2. Example of selection of maximum finding for multiple DUI charge

Initial Charge	Final Charge	Finding	Selected
DRIVING UNDER THE INFLUENCE	DRIVING WHILE ABILITY IMPAIRED	Guilty	Yes
DRIVING UNDER THE INFLUENCE <i>PER SE</i>	DRIVING UNDER THE INFLUENCE <i>PER SE</i>	Dismissed	No

CDPHE Breath Alcohol Tests

CDPHE provided breath test results from December 2015 through June 2017. This allowed for analysis of DUI cases that were filed in 2016 with tests that occurred just prior to 2016.

Denver Crime Lab Alcohol Tests

Tests with 2016 offense dates were included in this dataset.

CBI Toxicology Tests

The Colorado Bureau of Investigation provided data from toxicology results spanning from 2015 to 2017, ensuring data were available to match cases filed in 2016. As mentioned previously, in 2016, CBI had a 9-panel drug of abuse screen available for officers with specialty tests available upon request. The 9-panel screen included testing for Barbiturates, Benzodiazepines, Cocaine, Carisoprodol and Meprobamate, Opiates, Oxycodone and Oxymorphone, Cannabinoids, Zolpidem, and Methamphetamine. Any values that appeared for prescription drug screens generally appeared in a non-standard format and were manually corrected to better examine DUIs associated with prescription drugs. This dataset also contained results for BAC if requested by the arresting officer.

One critical caveat to the data obtained from CBI is that it did not consistently record drug screens that did not result in a positive finding. Consequently, it is possible to determine the number of tests with positive marijuana metabolites but not the number of tests given for drugs, including cannabinoids. In some cases, results indicated no metabolites, but this information was not present for all samples. Additionally, as a result of multiple blood draws, some cases contained multiple test results for the same substance. In these cases, the maximum value for the tested substance was used in the analysis.

ChemaTox Toxicology Tests

ChemaTox provided data from 2016 toxicology results. ChemaTox provided officers with multiple options for screens including 5-, 7-, and 11-panel screens. These screens did not always include cannabis. This dataset also contained results for BAC testing if the officer requested it.

Similar to the CBI dataset, the ChemaTox dataset also contained multiple results for the same substance due to multiple blood draws. However, when this occurred, the test with the shortest time period between offense time and blood draw was selected for analysis. If this information was not available, the test with the maximum value for the substance was selected for analysis. Unlike the CBI data, it was possible to identify the number of tests for marijuana and the resulting number of positive marijuana metabolites.

Drug Categories used by Drug Recognition Experts

As mentioned in Appendix C: Standardized Law Enforcement Training, seven DRE categories of drugs exist, and these are created based on behavioral effects observed by the officer. The DRE course manuals describe these categories as follows:

Central Nervous System (CNS) Depressants. Causes slowed reaction time, slowed information processing, decreased anxiety and tension, and induced sedation or drowsiness. Examples of drugs in this category include alcohol, barbiturates, and benzodiazepines.

CNS Stimulants. Impairment is exhibited as hyperactivity, increased heart rate, blood pressure, and body temperature, emotional excitement, and restlessness. Examples of drugs in this category include cocaine, methamphetamine, and pseudoephedrine.

Hallucinogens. Distortion of the user's perception, can result in synesthesia and hallucinations. Signs of impairment can include paranoia, body tremors, and disorientation. Examples of drugs in this category are psilocybin, MDMA, and LSD.

Dissociative Anesthetics. Inhibits the brain's perception of pain and can be exhibited as blank stares, disorientation, or a lack of communication. Examples of drugs in this category are ketamine, phencyclidine, and dextromethorphan.

Narcotic Analgesics. Drugs in this group relieve pain and produce euphoria. Signs of impairment include drowsiness, droopy eyelids, and depressed reflexes. Codeine, heroin, and methadone are a few examples of narcotic analgesics.

Inhalants. These are any drugs that can be inhaled and generally produce mind-altering results. There are many subcategories and these produce effects that can be similar to CNS depressants, stimulants, and hallucinogens. Toluene, paint thinners, and gasoline are a few examples of this drug category.

Cannabis. Interferes with the attention process and distorts the perception of time and distance. Signs of impairment can include reddening of conjunctiva, body and eyelid tremors, and relaxed inhibitions.

These seven categories are used to present the toxicology results in the next section. In addition, an additional drug category included in the analyses includes prescription drugs, such as antidepressants or anticonvulsants, among others. It should be noted that some prescription drugs overlap with a DRE drug category. For example, Sertraline is an antidepressant that could be categorized as a CNS depressant, but given that it is not typically abused or impairing, it is categorized in this study as a prescription drug to avoid inflating the detection of potentially impairing CNS depressants. See

APPENDIX F

DRE CATEGORY AND SCHEDULE OF DRUGS for a list of drugs and categories.

Data Linking

To match the datasets, researchers used the Fine-grained Records Integration and Linkage tool (FRIL),⁶⁴ an open source instrument created by Emory University and the Centers for Disease Control and Prevention. FRIL allows the user to specify pre-designated algorithms to better match datasets that lack variable standardization. FRIL was used to match court case filings to toxicology results in two iterations. Judicial and Denver County Court data were matched separately to toxicology data from CDPHE, Denver Crime Lab, CBI, and ChemaTox.

SECTION FOUR RESULTS

This section begins by describing DUI case filings overall and by judicial district and county, followed by a description of the age and gender of those with DUI case filings in 2016. Following this is a discussion of the DUI case classification, charge amendments, and additional information on selected other offenses involved in DUI incidents. Next, court dispositions are provided, followed by toxicology findings, and toxicology plus disposition information. Finally, probation assessment data provides a description of those who received a community sentence with a stipulation for drug treatment.

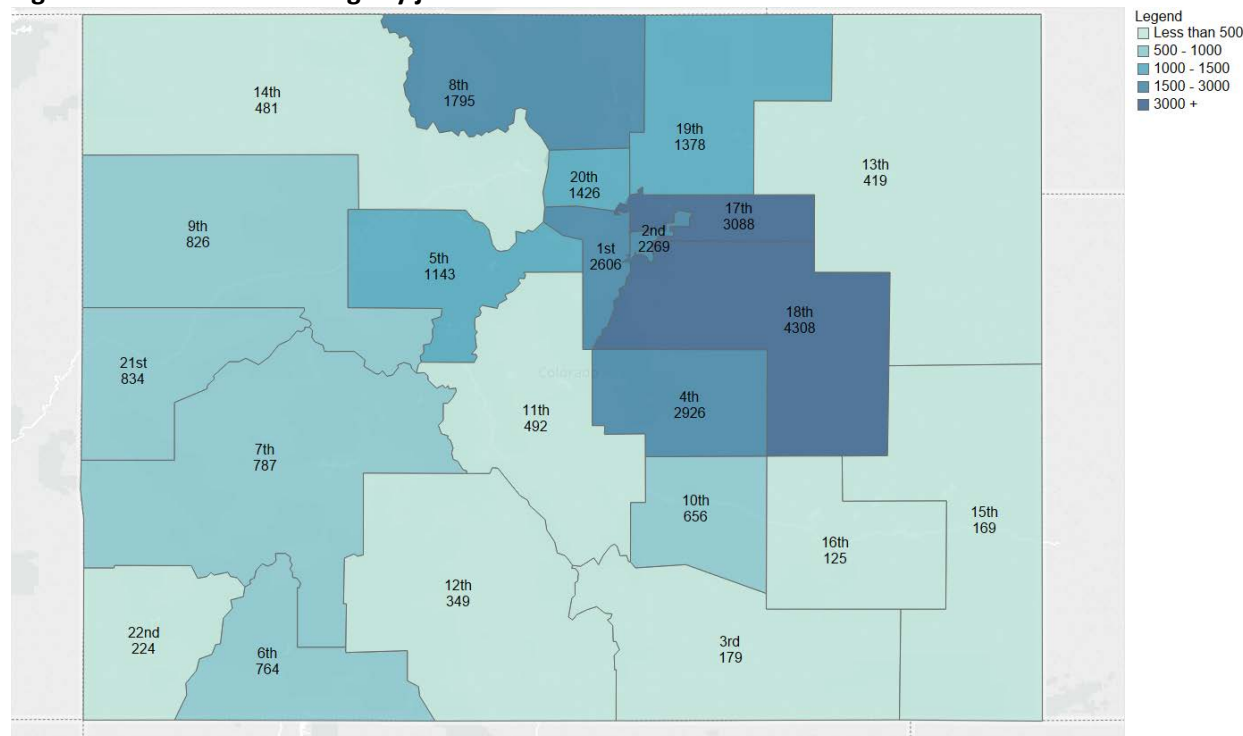
DUI Filings

In 2016, 27,244 cases were filed in court with at least one DUI charge. Most cases have multiple charges; these DUI cases had a total of 97,066 charges.

DUI Cases by Judicial District and County

Not surprisingly, judicial districts with large metropolitan areas had more case filings. Districts with top three numbers of case filings were the 18th (Arapahoe, Douglas, Elbert, and Lincoln Counties), 17th (Adams and Broomfield Counties), and the 4th (El Paso and Teller Counties). See Figure 3 for the number of DUI files by judicial district.

Figure 3. 2016 DUI case filings by judicial district



Source: State Judicial Department and Denver County Court.

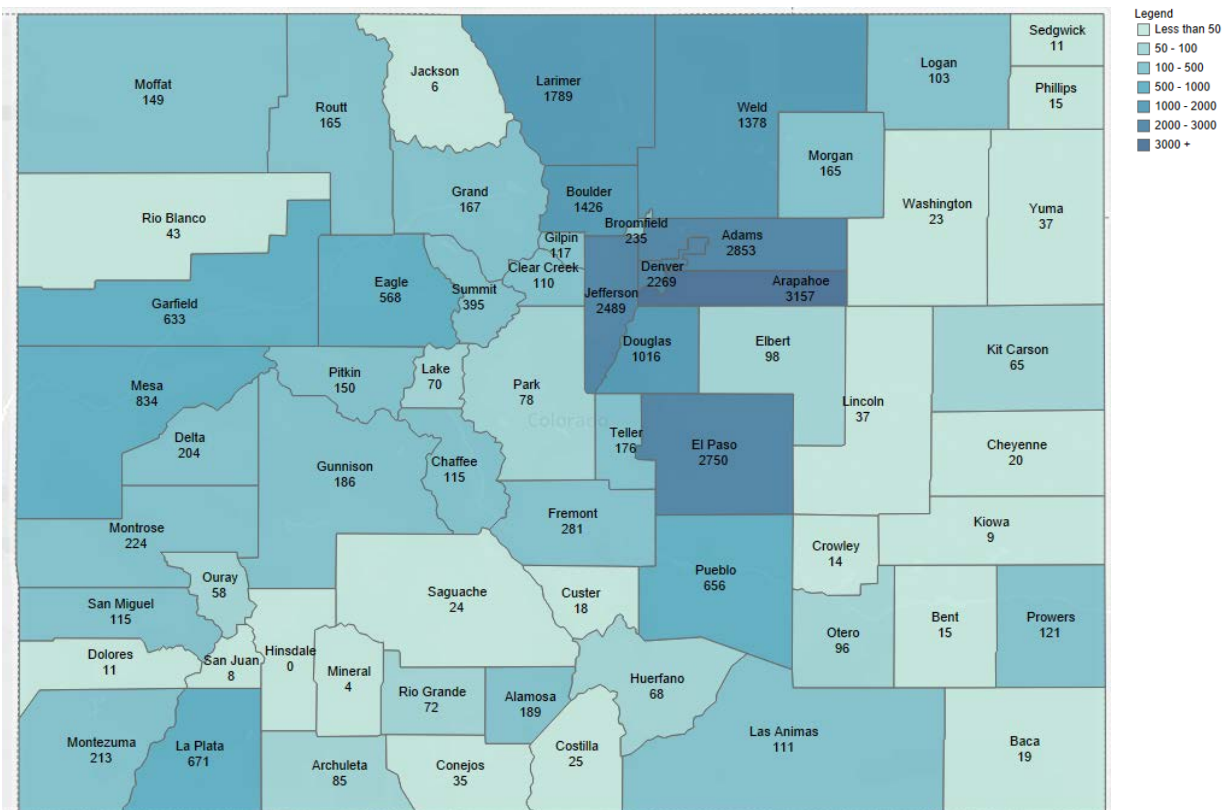
Figure 4 reflects the number of DUI case filings by county. Arapahoe, Adams, and El Paso Counties had the largest number of case filings. Arresting agencies with the most case filings were the Colorado State Patrol (4,586), Denver Police Department (2,296), and Aurora Police Department (2,221). See APPENDIX

G

2016 DUI CASE FILINGS BY JUDICIAL DISTRICT AND COUNTY for the number of cases by county and APPENDIX H

2016 DUI CASE FILINGS BY ARRESTING AGENCY for the number of cases by arresting agency.

Figure 4. 2016 DUI case filings by county



Source: State Judicial Department and Denver County Court.

Description of Individuals with DUI Case Filings

Of 27,244 case filings, 74.6% involved male defendants and 91.9% were age 21 or older at the date of case filing. Men ages 21 or older comprised 68.4% (n=18,625) of the total DUI case filings in 2016. Men in their 20s represented the largest group of DUI defendants (n=8,011). Ages of defendants ranged from 14 to 85; see Table 3 for age and gender information.

Table 3. 2016 DUI case filings by age group and gender

Age group	Female		Male		Total	
	n	%	n	%	n	%
Under 18 years	61	0.9%	227	1.1%	288	1.1%
18 to 20 years	440	6.4%	1,467	7.2%	1,907	7.0%
21 years or older	6,424	92.8%	18,625	91.7%	25,049	91.9%
Total	6,925	100.0%*	20,319	100.0%	27,244	100.0%

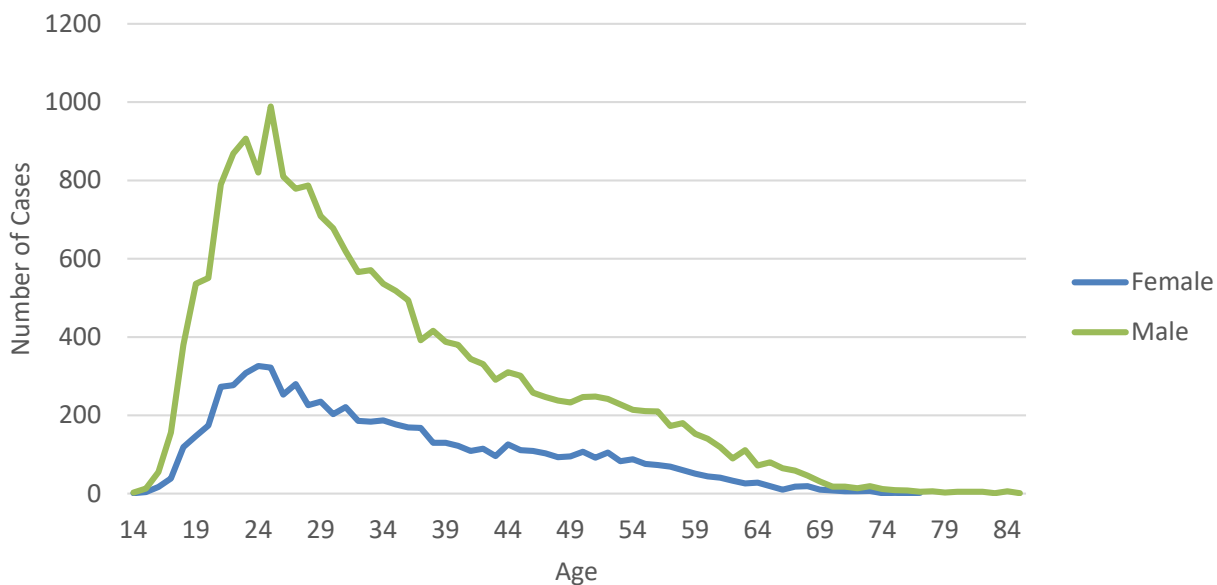
*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department and Denver County Court.

As shown in Figure 5, the number of male defendants, by age, peaks at age 25 and the number of female defendants peaks at age 24. As age increases, the disparity between males and females suspected of

impaired driving increases quickly and then steadily declines hitting almost equivalent levels around age 70.

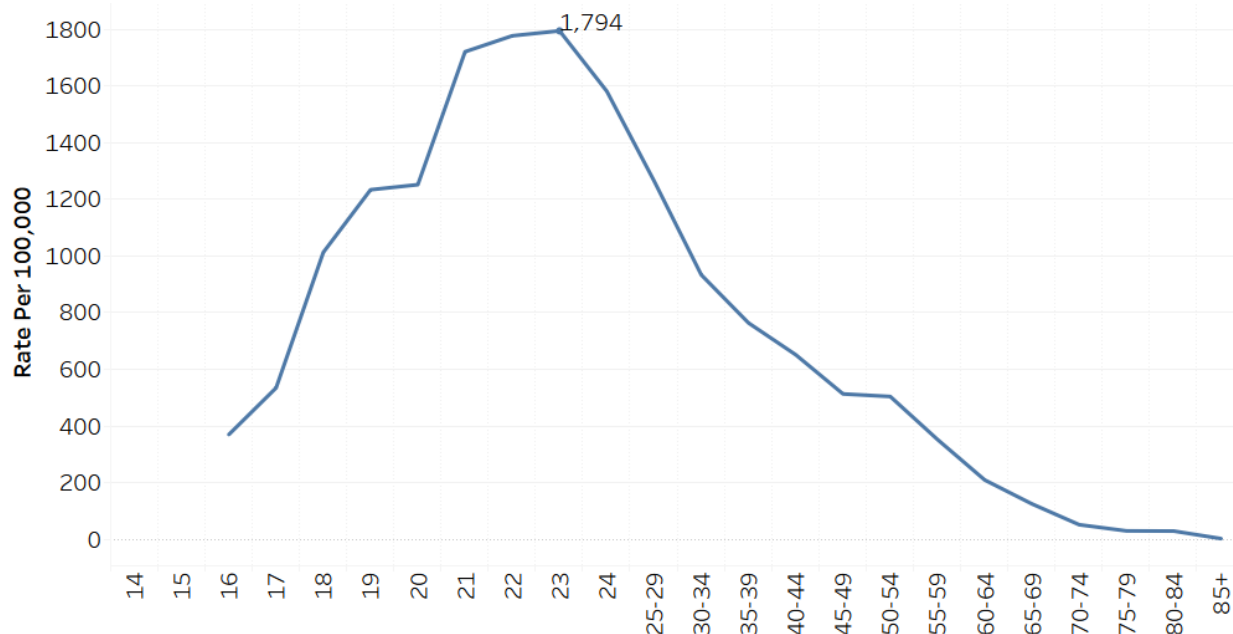
Figure 5. Age and gender distribution of suspects



Source: State Judicial Department and Denver County Court.

The number of active noncommercial adult driver's licenses was obtained from the Department of Revenue (DOR) to determine the rate of DUI cases. Figure 6 shows that the rate of DUI case filings by age and age group ranged from 3 per 100,000 to 1,794 per 100,000. The maximum rate of 1,794 DUI case filings occurred at age 23 and then declined steadily as age increases.

Figure 6. Rate of DUI case filings per 100,000 active licenses by age group



Source: State Judicial Department and Denver County Court.

Case Classification

DUI charges were filed under four case classifications: Traffic, Misdemeanor, Criminal, and Juvenile. The majority of these charges were filed as traffic cases (Table 4). Note that while a DUI charge may be filed as a criminal case, this does not indicate that it was a felony DUI.

Table 4. Case classification of DUI case filings

Case Class	n
Traffic	18,788
Misdemeanor	5,467
Criminal	2,952
Juvenile	37
Total	27,244

Source: State Judicial Department and Denver County Court.

Classification of DUI Charges

Initial charges can be modified later. Table 5 shows the number of charges with the initial law classification compared to the final law classification. There were 79 initial DUI charges classified as a traffic, all of which were underage drinking and driving (UDD) infractions (data not presented here). The majority of charges (n=26,050) were initially classified as misdemeanors while 1,063 charges were initially classified as felonies. Final misdemeanor charges numbered 25,773 compared to 988 final felony charges. Note that these charges did not all begin and end as DUI charges. There were 26,894 final DUI charges, 3.7% (n=987) of which were classified as felonies.

Table 5. Initial and final law class of final DUI and final non-DUI charges

	Initial Law Class	Final Law Class					Total
		Traffic	Misdemeanor	Felony	Petty Offense	Unknown	
Final DUI Charge	Traffic	70	9	0	0	0	79
	Misdemeanor	63	25,636	6	0	0	25,705
	Felony	0	80	981	0	0	1,061
	Petty Offense	1	1	0	0	0	2
	Unknown	0	39	0	0	8	47
Final Other Charge	Traffic	2	0	0	0	0	2
	Misdemeanor	335	7	0	3	0	345
	Felony	0	1	1	0	0	2
	Unknown	1	0	0	0	0	1
Total		472	25,773	988	3	8	27,244

Source: State Judicial Department and Denver County Court.

DUI Charge Amendments

Table 6 provides the number of initial and final DUI charges for the most serious DUI disposition; initial charges that were not amended are in red font. There were initially 22,410 charges that were specifically driving under the influence; 53.5% of these were not amended (n=11,991), 34.9% were amended to a lesser charge and 11.6% were amended to more severe charges, perhaps due to the discovery of prior DUI convictions. The most common final charge was DUI (n=12,093) and it was followed by DWAI (n=10,095).

The more serious the charge, the less likely it was to be amended, as shown in Table 6. For example, 85% of charges with priors (DUI 1-2 Prior) were not amended. In cases with 3 or more priors, 90.8% of charges were not amended.

Finally, there were two initial vehicular assault charges; one was amended to a DWAI 3+ Prior and the other was not amended.

Table 6. Detailed initial charges and final DUI charges

Initial Charge	Final Charge													Total
	UDD	DWAI	DWAID	DUI	DUID	DWAI 1-2 Prior	DWAID 1-2 Prior	DUI 1-2 Prior	DWAI 3+ Prior	DUI 3+ Prior	VEHICULAR ASSAULT	VEHICULAR HOMICIDE	Other	
UDD	70	0	0	0	0	0	0	0	0	0	0	0	2	72
DWAI	6	2,543	0	13	0	32	0	2	1	0	0	0	42	2,639
DWAID	0	0	1	0	0	0	0	0	0	0	0	0	0	1
DUI	57	7,476	1	11,991	0	979	0	1,617	0	4	0	0	285	22,410
DUID	0	23	4	3	50	1	0	11	0	0	0	0	11	103
DWAI 1-2 Prior	0	0	0	0	0	161	0	0	0	0	0	0	2	163
DUI 1-2 Prior	0	35	0	33	0	39	1	650	0	1	0	0	6	765
DWAI 3+ Prior	0	1	0	0	0	0	0	0	28	1	0	0	0	30
DUI 3+ Prior	0	3	0	48	0	3	0	25	14	934	0	0	2	1,029



	Final Charge													Total
	UDD	DWAI	DWAID	DUI	DUID	DWAI 1-2 Prior	DWAID 1-2 Prior	DUI 1-2 Prior	DWAI 3+ Prior	DUI 3+ Prior	VEHICULAR ASSAULT	VEHICULAR HOMICIDE	Other	
VEHICULAR ASSAULT*	0	0	0	0	0	0	0	0	1	0	1	0	0	2
VEHICULAR HOMICIDE*	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Other	1	14	0	5	0	5	0	3	0	1	0	0	0	29
Total	134	10,095	6	12,093	50	1,220	1	2,308	44	941	1	1	350	27,244

*These charges appear here because two cases had DUI charges that were consolidated to Vehicular Assault-DUI and Vehicular Homicide-DUI; these charges do not represent the total number of vehicular assault and vehicular homicide charges filed in 2016. Source: State Judicial Department and Denver County Court.

DUI Charges and Demographics

Most DUI suspects were 21 years or older at the time of case filing. In fact, those suspects in the '21 years or older' age group comprised of 91.9% (n=25,049) of the total case filing population (see Table 7). Those under age 18 had charges in only five charge categories: underage drinking and driving (UDD), driving while ability impaired, driving under the influence, driving while ability impaired with one to two priors, and other non-DUI charges.

Those ages 18 to 20 were most likely, compared to other age groups, to receive UDD charges (71.6%). Those in the '21 years or older' age group were most often charged with DUI (44.4%) and this was followed by DWAI (36.4%). As expected, this group also made up the majority of felony DUI cases, including 'DWAI 3+ Prior,' 'DUI 3+ Prior,' 'Vehicular Assault,' and 'Vehicular Homicide' (n=986).

Table 7. Final DUI charge by age group

	Under 18 years		18 to 20 years		21 years or older		Total	
	n	%	n	%	n	%	n	%
UDD	34	11.8%	96	5.0%	4	0.0%	134	0.5%
DWAI	125	43.4%	865	45.4%	9,105	36.4%	10,095	37.1%
DWAID			2	0.1%	4	0.0%	6	0.0%
DUI	125	43.4%	858	45.0%	11,110	44.4%	12,093	44.4%
DUID			7	0.4%	43	0.2%	50	0.2%
DWAI 1-2 Prior	1	0.4%	23	1.2%	1,196	4.8%	1,220	4.5%
DWAID 1-2 Prior					1	0.0%	1	0.0%
DUI 1-2 Prior			31	1.6%	2,277	9.1%	2,308	8.5%
DWAI 3+ Prior					44	0.2%	44	0.2%
DUI 3+ Prior			1	0.1%	940	3.8%	941	3.5%
VEHICULAR ASSAULT					1	0.0%	1	0.0%
VEHICULAR HOMICIDE					1	0.0%	1	0.0%
Other	3	1.0%	24	1.3%	323	1.3%	350	1.3%
Total	288	100.0%	1,907	100.0%*	25,049	100.0%*	27,244	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department and Denver County Court.

Males comprised the majority of offenders in all DUI charge categories. Small differences by gender can be seen in Table 8. The most common final charge for both genders was DUI with 44.9% and 44.2% of females and males charged, respectively. Percentages by gender for charges associated with a prior offense were consistently higher for males. Felony DUIs comprised 4.3% (n=868) of DUI charges for males and 1.8% (n=119) of charges for females. Given this, males made up 87.9% of defendants charged with a felony DUI.

Table 8. Final DUI charge by gender

	Female		Male		Total	
	n	%	n	%	n	%
UDD	37	0.5%	97	0.5%	134	0.5%
DWAI	2,785	40.2%	7,310	36.0%	10,095	37.1%
DWAID	2	0.0%	4	0.0%	6	0.0%
DUI	3,107	44.9%	8,986	44.2%	12,093	44.4%
DUID	10	0.1%	40	0.2%	50	0.2%
DWAI 1-2 Prior	258	3.7%	962	4.7%	1,220	4.5%
DWAID 1-2 Prior			1	0.0%	1	0.0%
DUI 1-2 Prior	517	7.5%	1,791	8.8%	2,308	8.5%
DWAI 3+ Prior	4	0.1%	40	0.2%	44	0.2%
DUI 3+ Prior	115	1.7%	826	4.1%	941	3.5%
VEHICULAR ASSAULT			1	0.0%	1	0.0%
VEHICULAR HOMICIDE			1	0.0%	1	0.0%
Other	90	1.3%	260	1.3%	350	1.3%
Total	6,925	100.0%	20,319	100.0%	27,244	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department and Denver County Court.

Other Offenses

The three most common initial and final charges associated with DUI case filings were careless driving, lane usage violation, and failure to display proof of insurance. See Table 9 for the frequency of the top three initial and final charges. Appendices Appendix I: Common Initial Charges, Excluding DUI and Appendix J: Common Final Charges, Excluding DUI show the most common initial and final charges associated with DUI case filings.

Table 9. Top three most common initial and final charges associated with DUI case filings

	Initial Count	Final Count
Careless Driving	7,853	7,739
Lane Usage Violation	5,108	5,495
Failure to Display Proof of Insurance	4,884	4,871

Source: State Judicial Department and Denver County Court.

Cases frequently have multiple charges. Drug charges occurred most frequently in DUI cases, with 2,026 cases that had 3,099 charges. Murder charges occurred the least often, with four cases having eight charges. See Table 10 for overall number of cases and the associated charges.

Table 10. Number of cases and charges for other offenses

Charge Type	Case Count	Charge Count
Drug	2,026	3,099
Alcohol	2,595	2,751
Weapon	539	641
Child Abuse	664	898
Vehicular Assault	195	356
Vehicular Homicide	30	53
Murder	4	8

Source: State Judicial Department and Denver County Court.

Drug Charges in DUI Cases

Among the 27,244 DUI cases analyzed, 3,099 had charges that began or ended as drug charges (Table 11). Initial charges associated with a controlled substance (drug type unknown) accounted for 66.0% of drug charges while marijuana accounted for 32.9% (n=1,021) of drug charges. There were 349 final charges for an open marijuana container and 306 final charges for public/possession consumption of marijuana (see Table 11). Of the final marijuana charges, 48.4% were for open containers of marijuana and 30% were for marijuana consumption.

Table 11. Final drug-related charges

Drug Category	Final Charge	n	%
Controlled Substance	CONTROLLED SUB-POSSESSION	1,337	43.1%
	CONTROLLED SUBS-SPECIAL OFF	25	0.8%
	CONTROLLED SUB-DISTRIBUTION	10	0.3%
	CONTROLLED SUBSTANCE-CONSPIRACY	3	0.1%
	CONTROLLED SUBS-MANUFACTURE	3	0.1%
	CONTROLLED SUBS-GIVEN NOT TO PATIENT	1	0.0%
	OTHER DRUG OFFENSE	115	3.7%
Marijuana	MARIJUANA - POSSESS OPEN CONTAINER IN VEHICLE	349	11.3%
	MARIJUANA - POSSESSION/CONSUMPTION	295	9.5%
	MARIJUANA-USE OR CONSUME IN VEHICLE	145	4.7%
	MARIJUANA - POSSESSION	103	3.3%
	MARIJUANA PARAPHERNALIA	95	3.1%
	MARIJUANA--CONC-POSS W/INT	12	0.4%
	MARIJUANA - PUBLIC CONSUMPTION	11	0.4%
	MARIJUANA - CULTIVATION	2	0.1%
	MARIJUANA CONC DISTRIBUTION	2	0.1%
	MARIJUANA-MANUFACTURE	1	0.0%
	OTHER MARIJUANA OFFENSE	2	0.1%
	Non-Drug	ALCOHOL-UNDER 21- POSSESS/CONSUMP	4
DWAI		2	0.1%
DUI		2	0.1%
DUI 3+ Prior		1	0.0%
Other		579	18.7%
Total		3,099	100.00%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department and Denver County Court.

Alcohol Charges in DUI Cases

The majority of initial and final charges associated with alcohol were for possession of an open container in a vehicle. Table 12 shows the final alcohol-related charges in DUI cases. There were 2,009 final charges for open containers, accounting for 73.0% of all final charges associated with alcohol. One alcohol charge was amended to a UDD and one DUI charge was amended to an alcohol charge. Alcohol charges were also amended to included marijuana possession or defective vehicle charges.

Table 12. Final alcohol-related charges

Final Charge	n	%
ALCOHOL - POSSESS OPEN CONTAINER IN VEHICLE	2,009	73.0%
ALCOHOL-UNDER 21- POSSESS/CONSUMP	709	25.8%
ALCOHOL-POSSESSION BY MINOR	17	0.6%
ALCOHOL-PROVIDE TO MINOR	9	0.3%
ALCOHOL-PUBLIC CONSUMPTION	2	0.1%
UDD	1	0.0%
Other	4	0.2%
Total	2,751	100.0%

Source: State Judicial Department and Denver County Court.

Weapon Charges in DUI Cases

Final weapon charges are presented in Table 13. Fewer than 2% of DUI cases had additional weapons charges; 539 cases had 641 weapon charges, and few of these were amended. Two charges of prohibited use of a weapon were amended to a DUI and a DWAI with 1-2 Priors. The majority of final weapon charges were for prohibited use of a weapon (73.0%, n=468).

Table 13. Final weapon-related charges

Final Charge	n	%
WEAPON-PROHIBITED USE	468	73.0%
WEAPON-POSSESSION	103	16.1%
ILLEGAL WEAPON-POSSESSION	67	10.5%
LOADED WEAPON IN VEHICLE	1	0.2%
DWAI 1-2 Prior	1	0.2%
DUI	1	0.2%
Total	641	100.00%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department and Denver County Court.

Child Abuse Charges in DUI Cases

When children are present in the vehicle, child abuse charges may be filed. A total of 898 charges were initial or final child abuse charges. Only 1.7% (n=15) of child abuse charges were amended to a non-child abuse charge (see Table 14). When charges were amended to non-child abuse charges they became the following: defective vehicle-headlights (n=1), disorderly conduct-offensive gesture (n=1), and reckless endangerment (n=13).

Table 14. Final child abuse-related charges

Final Charge	n	%
CHILD ABUSE-KNOWING/RECKLESS	531	59.1%
CHILD ABUSE-NEGLIGENCE	351	39.1%
CHILD ABUSE	1	0.1%
Other	15	1.7%
Total	898	100.0%

Source: State Judicial Department and Denver County Court.

Vehicular Assault Charges in DUI Cases

Vehicular assault DUI and vehicular assault reckless charges were combined; the majority of these charges were not amended. The most common charge that vehicular assault charges were amended to was assault 3-knowingly/reckless causing injury (n=5). See Table 15 for more details on vehicular assault charges.

Table 15. Initial and final vehicular assault-related charges

Initial Charge	Final Charge							Total
	VEHICULAR ASSAULT-DUI	VEHICULAR ASSAULT-RECKLESS	DWAI 3+ Prior	RECKLESS DRIVING	CARELESS DRIVING RESULTING IN INJURY	ASSAULT 3-KNOW/RECKLES S CAUSE INJURY		
VEHICULAR ASSAULT-DUI	220	9	1	1			1	232
VEHICULAR ASSAULT-RECKLESS	2	117				1	4	124
Total	222	126	1	1		1	5	356

Source: State Judicial Department and Denver County Court.

Vehicular Homicide Charges in DUI Cases

A total of 53 charges of vehicular homicide were represented in 30 case filings. As with vehicular assault charges, vehicular homicide DUI and vehicular homicide reckless driving charges were combined. No vehicular homicide charges were amended (data not presented).

Murder Charges in DUI Cases

Four cases had 8 murder charges; none were amended to non-murder charges (data not presented).

Dispositions

Data on dispositions were available for 93.7% (n=25,519) of DUI-related charges. Nearly all cases (n=25,171) were adjudicated with a final DUI charge. Specifically, 889 of 987 felony DUIs had reached disposition and 24,282 of 25,907 other law class DUIs had reached disposition.

DUI Dispositions

Dispositions

Four-fifths (80.5%) of case filings were guilty (see Table 16). Nearly 10% (9.8%) were dismissed. An additional 348 case filings had a DUI charge that was amended to a non-DUI charge and further adjudicated (1.4%). See Appendix K: DUI Final Charge Disposition for more detail on dispositions of final DUI charges.

Table 16. Disposition of DUI Charges

	n	%
Guilty	20545	80.5%
Deferred*	1,182	4.6%
Deferred Dismissed	745	2.9%
Diversion	26	0.1%
Dismissed	2,493	9.8%
Not Guilty	178	0.7%
Not Proven	2	0.0%
Non-DUI Disposition**	348	1.4%
Total	25,519	100.0%

*Only one case had a deferred prosecution.

**Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department and Denver County Court.

Time to Disposition

On average, the time elapsed between case filing and disposition date for DUI charges was 165 days (median time was 133 days). The time to disposition for final DUI charges varied by law class, with felonies taking the longest number of days to resolve (mean=208, median=190) and the traffic charges taking the least amount of time (mean=125, median=100). See Table 17 for more details on time to disposition.

Table 17. Mean and median time to finding for final DUI and non-DUI charges by law class (days)

	Final Law Class	Mean Time to Disposition	Median Time to Disposition	Number of Cases
Final DUI Charge	Traffic	125	100	130
	Misdemeanor	163	132	24,141
	Felony	208	190	888
	Unknown	158	189	5
	Total	164	133	25,164
Final Other Charge	Traffic	188	161	336
	Misdemeanor	207	195	8
	Felony	164	164	1
	Petty offense	67	63	3
	Total	187	161	348
	Overall	165	133	25,512

Source: State Judicial Department and Denver County Court.

Time to disposition was shortest for charges with a 'Diversion' outcome (mean=124, median=119), as shown in Table 18. However, very few had this disposition. 'Deferred Dismissed' dispositions took the longest amount of time with an average of 485 and a median of 479 days. This is because, for the disposition to be changed from 'deferred' to 'deferred dismissed', the defendant must successfully complete the terms of the deferral agreement.

Charges that remained or ended as DUI charges were quicker to have a 'Guilty' disposition than charges with the same disposition that ended up as a non-DUI charge (means of 151 days versus 182 days).

Table 18. Mean and median time to finding for final DUI and non-DUI charges by disposition (days)

		Mean Time to Disposition	Median Time to Disposition	Number of Records
Final DUI Charge	Guilty	151	127	20,539
	Deferred	165	142	1,182
	Deferred Dismissed	485	479	745
	Diversion	124	119	26
	Dismissed	165	137	2,492
	Not Guilty	317	305	178
	Not Proven	168	168	2
	Total	164	133	25,164
Final Other Charge	Guilty	182	159	328
	Deferred	166	152	10
	Deferred Dismissed	479	479	7
	Dismissed	90	94	3
	Total	187	161	348
	Overall	165	133	25,512

Source: State Judicial Department and Denver County Court.

Child Abuse, Vehicular Assault and Homicide, and Murder Dispositions in DUI Cases

The most serious disposition associated with the charges of child abuse, vehicular assault and homicide, and murder was identified for cases in which there was at least one conviction for the specified charge type. As depicted in Table 19, 623 case filings had at least one initial or final child abuse charge and a disposition recorded. Initial child abuse charges that were amended to final non-child abuse charges accounted for 2.4% (n=15) of the dispositions. When combining guilty, deferred, and deferred dismissed dispositions, 31.1% of DUI cases were convicted of a child abuse charge. The majority of the child abuse charges were dismissed (65.3%, n=407).

Most (93.3%, n=182) of the 195 DUI cases with a vehicular assault charge had reached a disposition for the charge and the conviction rate was 78.6%. Five cases had charges that were amended to non-vehicular assault charges. Charges that were amended from vehicular assault included assault 3-knowing/recklessly causing injury, careless driving resulting in injury, driving while ability impaired with three or more priors, and reckless driving (data not presented).

For the 26 cases with vehicular homicide initial charges, none were amended. Nearly three-fourths (73.0%) had a guilty or deferred disposition for the vehicular homicide charge. Finally, three of five cases with murder charges had a disposition available and, of these, one was guilty and the remaining were dismissed.

Table 19. Dispositions of child abuse, vehicular assault, and vehicular homicide, and murder charges

	Child Abuse		Vehicular Assault		Vehicular Homicide		Murder	
	n	%	n	%	n	%	n	%
Guilty	98	15.7%	117	64.3%	16	61.5%	1	33.3%
Deferred	70	11.2%	26	14.3%	3	11.5%		
Deferred Dismissed	26	4.2%						
Diversion	1	0.2%						
Dismissed	407	65.3%	31	17.0%	5	19.2%	2	66.7%
Not Guilty	6	1.0%	3	1.7%	2	7.7%		
Other Charge Disposition**	15	2.4%	5	2.8%				
Total	623	100.0%	182	100.0%*	26	100.0%*	3	100.0%

*Sum is greater than 100.0% due to rounding.

**Where 'Other Charge' indicates any disposition for a charge that did not end up as the charge category specified.

Source: State Judicial Department and Denver County Court.

Toxicology Findings

Nearly two-thirds (65.4%, n=17,824) of total DUI case filings (n=27,244) were linked to at least one toxicology breath or blood test. The majority, 89.3%, included tests for alcohol (n=15,924). A cannabis toxicology screen was available for 3,946 cases, or 22.1% of tests (some cases had both tests). Detailed findings from the analyses of toxicology data are presented below.

Alcohol

DUI case filings were matched with 15,924 alcohol tests obtained from CDPHE, Denver Crime Lab, CBI, or ChemaTox. The majority (85.5%) of case filings with an alcohol toxicology test had a BAC that was 0.08 or more (see Table 20). Only 2.7% tests found no alcohol detected. However, please note that toxicology labs archive findings in various ways; some labs, for example, may keep a "not detected" result while others may delete it. Therefore, it is possible that the number of cases with alcohol "not detected" may

be underrepresented. Consequently, caution should be used when interpreting these toxicology findings.

Table 20. BAC results by group

BAC Groups		
	Number	Percent
Not Detected	429	2.7%
< 0.05	486	3.1%
0.05 - 0.079	1,389	8.7%
0.08 +	13,620	85.5%
Total	15,924	100.0%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

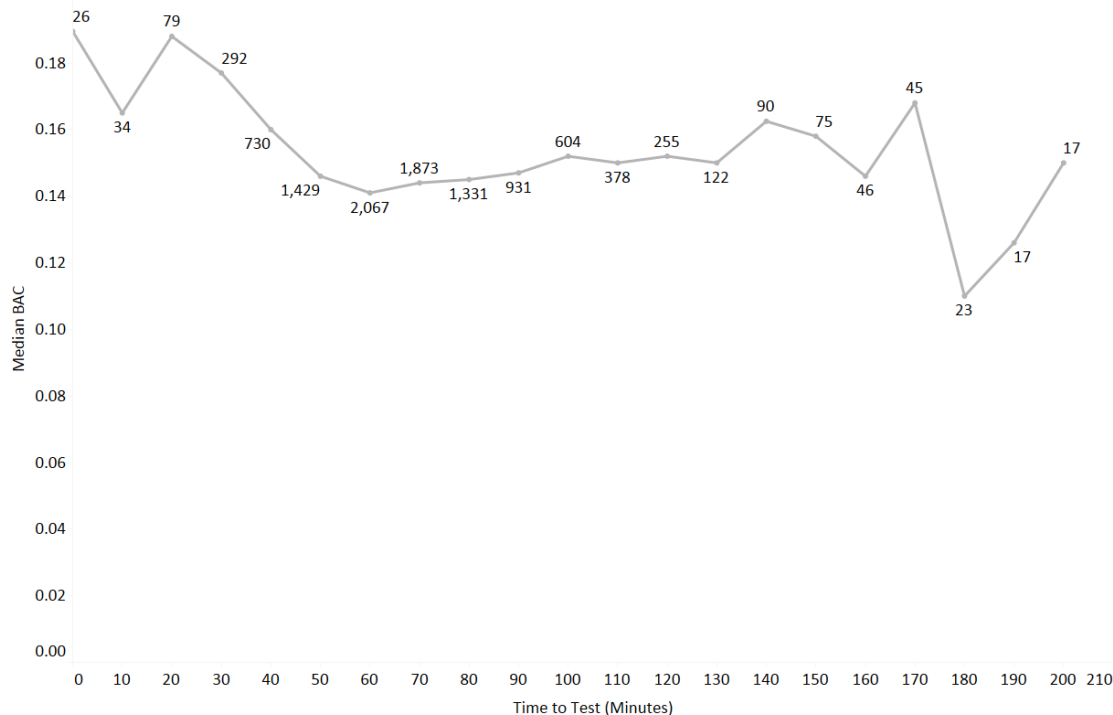
The median BAC for cases with alcohol toxicology tests was 0.152, the mean was 0.158, with a maximum of 0.464.

Time to Alcohol Test

Data were available for 7,376 breath test records to calculate the time between traffic stop and breath test. Data were also available for 4,154 blood test records to calculate the elapsed time between traffic stop and blood draw. The median time from offense to breath test was 76 minutes while the median time elapsed for a blood draw was 64 minutes. Median values are most useful due to outliers.

Figure 7 shows time to alcohol test by BAC level, including the number of cases at each time interval. This analysis excludes cases with an elapsed time of more than 200 minutes. Note the generally steady decline of BAC values over time. The majority of alcohol tests were completed at the 60 and 70 minute time intervals.

Figure 7. Median BAC value by time to test for breath and blood tests and number of cases



Source: State Judicial Department, Denver County Court, CDPHE, and ChemaTox.

Common Charges Associated with the Presence of Alcohol

There were 29,216 non-DUI charges that were associated with the presence of alcohol. The top 20 most common charges associated with the presence of alcohol can be seen in Appendix L: Top 20 Common Final Charges Associated with Alcohol Presence, Excluding DUI. The top three charges were careless driving (n=4,257), lane usage violation (n=3,478), and failure to display proof of insurance (n=2,572). Additionally, 1,891 cases had 1,917 speeding charges, with 91.5% of those charges associated with the presence of alcohol alone (data not presented in tables).

Marijuana

Cannabis screens were conducted for 3,946 of the 27,244 case filings. Of these, about a quarter (26.9%, n=1,061) of test results indicated that no cannabinoids were detected.⁶⁵ However, the 26.5% figure may be an underestimate because there is not always a record that indicates a cannabinoid screen was performed, even if marijuana metabolites were found. For example, in cases when the 9-panel drug screen does not return any positive results, it is not possible to confirm that a drug toxicology screen existed. Efforts are underway to obtain additional data sets to avoid this issue in future analyses.

Among those cases with a positive cannabinoid screen, 73.1% (n=2,885), were further confirmed for cannabis metabolites,⁶⁶ establishing the presence of Delta-9 THC, the primary psychoactive ingredient. The presence of Delta-9 THC typically indicates recent use of cannabis. Quantitative values of Delta-9 THC ranged from 1.0 ng/mL to 73.0 ng/mL with a median of 5.9 and a mean of 8.7 ng/mL.

Table 21 shows that, for those 2,885 cases that had a positive cannabinoid screen and a follow-up confirmation for cannabis metabolites, 13.7% of cannabis metabolite confirmations did not detect Delta-9 THC and 47.5% detected Delta-9 THC at 5.0 ng/mL or above.

Table 21. Delta-9 THC groups for those with THC confirmation tests

THC level	CBI		ChemaTox		Total	
	n	%	n	%	n	%
Not Detected	114	9.1%	282	17.3%	396	13.7%
Present but <1.0	40	3.2%	50	3.1%	90	3.1%
1.0 - 4.9	425	33.9%	605	37.1%	1,030	35.7%
5.0+	674	53.8%	695	42.6%	1,369	47.5%
Total	1,253	100.0%	1,632	100.0%*	2,885	100.0%

*Sum is greater than 100.0% due to rounding.

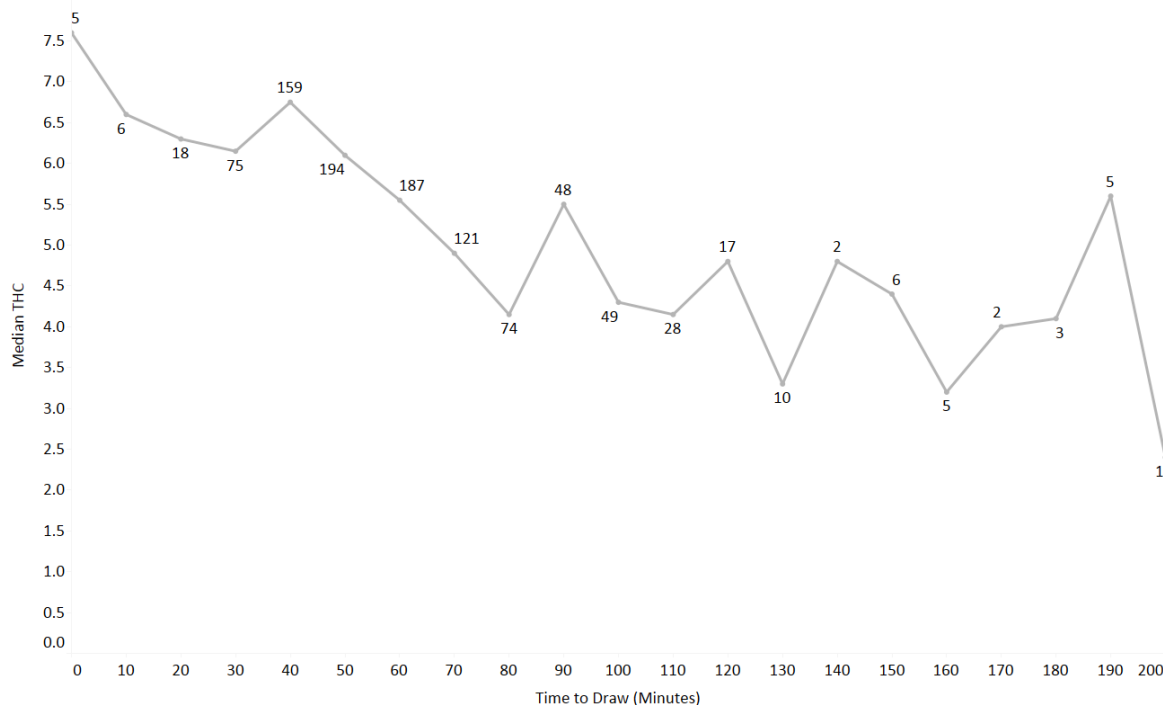
Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

Time to Marijuana Test

Time to blood draw by median Delta-9 THC values can be seen in Figure 8, including the number of cases at each time interval. As with Figure 7, cases with an elapsed time of more than 200 minutes were excluded from the analysis. The majority of tests were completed at the 40 to 60 minute time intervals.

Figure 8 reflects that Delta-9 THC levels are higher when the elapsed time to blood draw is shorter, reflecting the dissipation of Delta-9 THC levels in the blood.

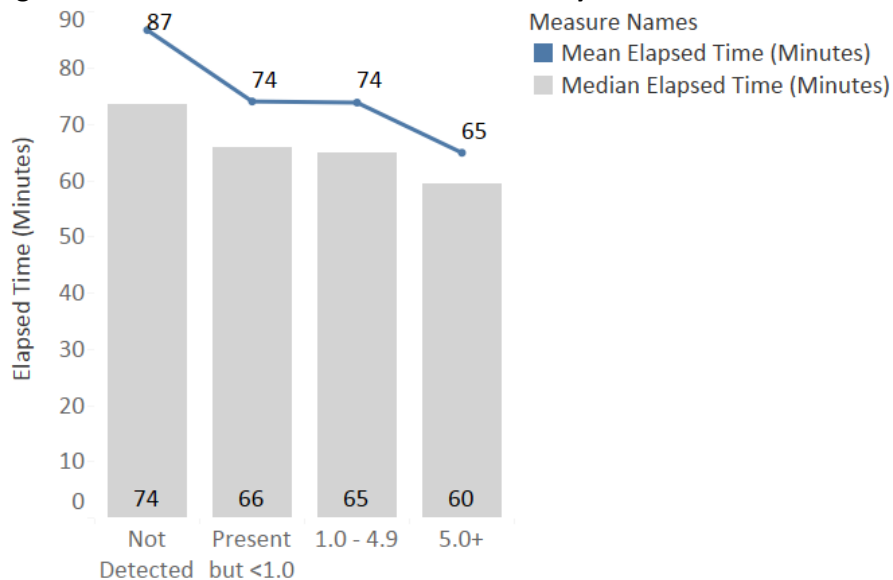
Figure 8. Median Delta-9 THC value by time to test and number of cases



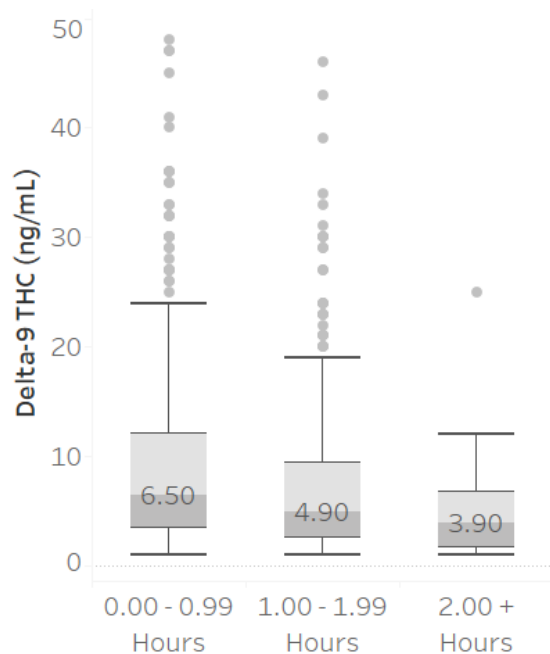
Source: State Judicial Department, Denver County Court, and ChemaTox.

Figure 9 depicts the mean and median elapsed time for cases with a positive cannabinoid screen along with offense time, draw time, and positive values of Delta-9 THC. The median and mean of the elapsed time for each Delta-9 THC bin decreases as the THC values increase. This aligns with evidence in the research literature that suggests Delta-9 THC peaks early and then quickly dissipates, as also reflected in Figure 8. The same pattern is shown in Figure 10.

Figure 9. Mean and median Delta-9 THC value by time-to-test



Source: State Judicial Department, Denver County Court, and ChemaTox.

Figure 10. Boxplot of Delta-9 THC distribution and time-to-test categories

Source: State Judicial Department, Denver County Court, and ChemaTox.

Common Charges Associated with Marijuana.

A total of 5,773 final non-DUI charges were associated with the presence of Delta-9 THC; see Appendix M: Top 20 Common Final Charges Associated with Delta-9 THC Presence, Excluding DUI for the top 20. Similar to those charges associated with alcohol, the top three charges here were careless driving (n=547), failure to display proof of insurance (n=495), and lane usage violation (n=431). Over 400 charges (402) were associated with speeding and, of these, 52.7% (n=212) had only Delta-9 THC present (data not presented here). These speeding charges are contrary to anecdotes that cannabis users drive slower to compensate for deficits in driving-related skills.

Alcohol and Marijuana in Combination

Table 22 shows both BAC cases, cannabinoid screens, and Delta-9 THC cases as a proportion of all DUI case filings, including case filings with no toxicology test match. The latter filings are included in Table 22 to show the frequency that cases are NOT tested when BAC is 0.08+. Specifically, 89.3% (n=12,163) of cases with BAC at 0.08+ were not further screened for cannabinoids while 56.2% (n=273) of cases with BAC < 0.05 were screened for cannabinoids. The most case filings with both alcohol and THC tests fell in the categories with BAC values of 0.08+ and Delta-9 THC values between 1.0 and 4.9 ng/mL (n=431).

Table 22. BAC group, cannabinoid screen, and THC group test outcome

BAC	No Cannabinoid Screen	No Cannabinoid Detected	Delta-9 THC Confirmation Tests				Sum
			Not Detected	Present but <1.0	1.0 - 4.9	5.0+	
Not Detected	49	132	40	6	78	124	429
< 0.05	273	37	18	6	64	88	486
0.05 - 0.079	1,224	42	16	4	64	39	1,389
0.08 +	12,163	482	172	37	431	330	13,620
No BAC test	9,589	363	150	37	393	788	11,320

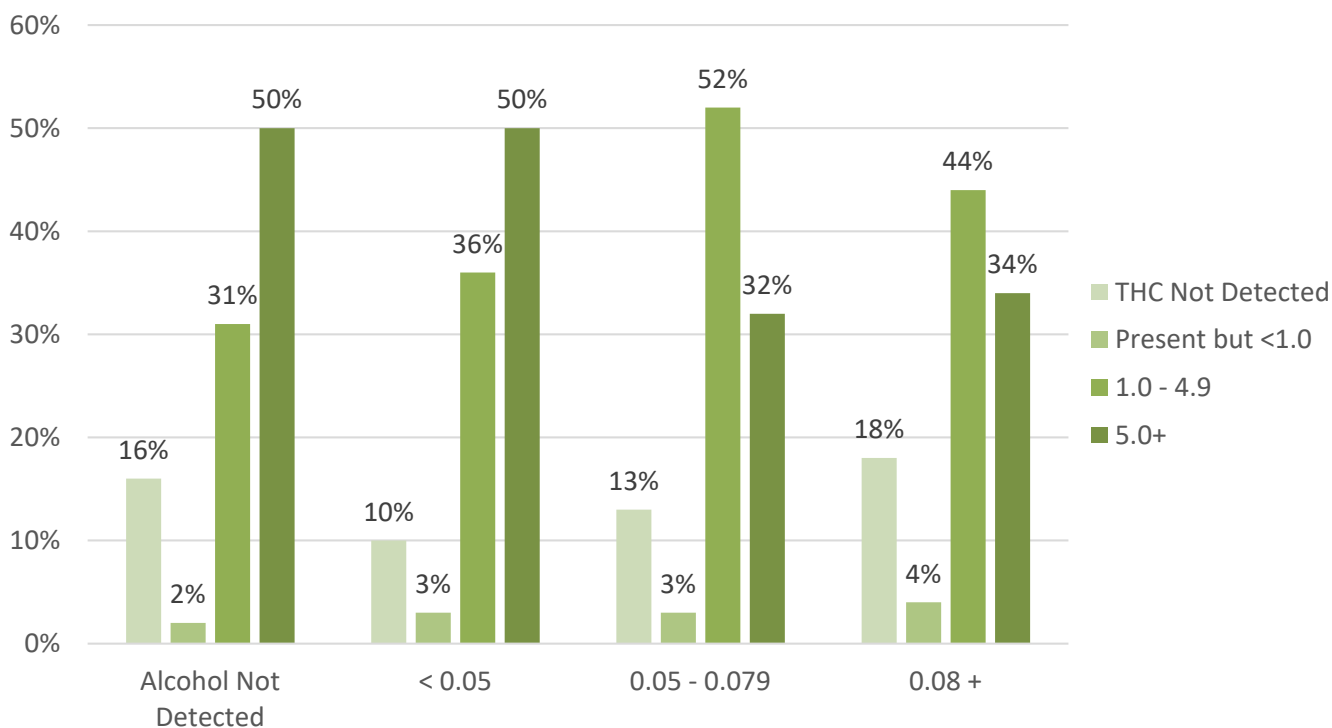
BAC	No Cannabinoid Screen	No Cannabinoid Detected	Delta-9 THC Confirmation Tests				Sum
			Not Detected	Present but <1.0	1.0 - 4.9	5.0+	
Total	23,298	1,061	396	90	1,030	1,369	27,244

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Figure 11 shows only cases that were tested for alcohol and had a THC confirmation (n=1,517). Approximately half (52.0%, n=64) of those with a BAC level between 0.05 and 0.079 had Delta-9 THC values ranging from 1.0 to 4.9 ng/mL, while less than half (44.0%, n=431) with a BAC that was greater than or equal to 0.08 were in that same THC group. Of those with no alcohol detected and a THC confirmation, about 50% (n=124) had 5.0+ ng/mL of Delta-9 THC blood level. The same is true for those with alcohol detected at less than 0.05 (50.0%, n=88).

Overall, the majority (70.0%, n=1,063) of defendants tested positive for both substances. It is important to note again that these figures likely underrepresent the presence of marijuana and other drugs because, during a traffic stop, officers may confirm the presence of alcohol above the *per se* limit and stop further testing at that point.

Figure 11. BAC group by THC group bar graph



Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Other Polydrug Use

Polydrug use is the detection of any amount of two or more drugs in a toxicology test.⁶⁷ Again, please note that polydrug use is likely underrepresented because when alcohol is obviously present, many officers do not request further drug testing due to the cost and time associated with additional testing.

Keeping in mind that this is likely an underestimate, nevertheless, 12.7% (n=2,264) of cases with toxicology findings had more than one drug present (see Table 23). Other drugs included illicit drugs and/or prescription drugs. A very small percentage (0.9%, n=165) of toxicology results showed no drug detected, while 86.4% (n=15,395) of suspects were found to have one drug present.

Alcohol was the primary substance detected for those with one drug present, followed by marijuana and, finally, other drugs. Of those cases with only one drug present, 91.3% of cases had alcohol only present compared to 6.2% of cases with only marijuana present. However, note that not all alcohol tests had a drug screen and not all drugs are included in a drug screen.

When further examining the 12.7% of cases with polydrug use, 36.6% were a combination of alcohol and marijuana and 20.7% involved marijuana and an additional drug. Another 10.3% of polydrug cases involved alcohol, marijuana, and at least one other drug. Almost half (46.9%) of all polydrug records had both alcohol and Delta-9 THC present. Additionally, 15.5% of the 2,264 polydrug cases had no alcohol or marijuana use reported (see Table 23).

Again, these results should be interpreted cautiously because of the practice of limited drug testing when the presence of alcohol is obvious to the arresting officer.

Table 23. Presence of any drug and polydrug use

Drug Count	Drug(s) Detected	n	% Subtotal	% Total
No Drug	None Detected	165	100.0%	0.9%
One Drug	Alcohol Only	14,052	91.3%	78.8%
	THC Only	957	6.2%	5.4%
	Single Other Drug	386	2.5%	2.2%
	Subtotal	15,395	100.0%	
Polydrug	Alcohol and THC	829	36.6%	4.7%
	Alcohol and Other	380	16.8%	2.1%
	THC and Other	469	20.7%	2.6%
	Alcohol, THC, and Other(s)	234	10.3%	1.3%
	Polydrug Not Alcohol or THC	352	15.5%	2.0%
	Subtotal	2,264	100.0%	
Total			17,824	100.0%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Table 24 shows cases with a toxicology finding, by age group. The proportion of the cases in the 'Alcohol Only' category increased with age. Conversely, the proportion of cases in the 'THC only' category decreased with age. A majority (81.1%) of those in the 21 or older age category fell in the 'Alcohol Only' group, whereas less than half (48.3%) of those that were under 18 were in the 'Alcohol Only' group.

Table 24. Presence of any drug and polydrug use regardless of reported level by age group

Drug Count	Drug(s) Detected	Under 18 years		18 to 20 years		21 years or older		Total	
		n	%	n	%	n	%	n	%
No Drug	None Detected	9	4.3%	35	2.5%	121	0.8%	165	0.9%
One Drug	Alcohol Only	102	48.3%	820	57.5%	13,130	81.1%	14,052	78.8%
	THC Only	71	33.7%	277	19.4%	609	3.8%	957	5.4%
	Single Other Drug	4	1.9%	32	2.3%	350	2.2%	386	2.2%
Polydrug	Alcohol and THC	4	1.9%	105	7.4%	720	4.5%	829	4.7%
	Alcohol and Other	2	1.0%	12	0.8%	366	2.3%	380	2.1%
	THC and Other	14	6.6%	96	6.7%	359	2.2%	469	2.6%
	Alcohol, THC, and Other(s)	5	2.4%	34	2.4%	195	1.2%	234	1.3%
	Polydrug Not Alcohol or THC			14	1.0%	338	2.1%	352	2.0%
Total		211	100.0%*	1,425	100.0%	16,188	100.0%*	17,824	100.0%

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Table 25 shows drug use by gender. Males outnumbered females in every drug category. Males and females had similar proportions of case filings in the 'Alcohol Only' group (78.6% versus 79.5%, respectively). Females had higher percentages when compared to males in the following drug categories: 'Alcohol Only', 'Single Other Drug,' 'Alcohol and Other,' and 'Polydrug Not Alcohol or THC.' However, males were in all THC-specific categories at slightly higher proportions than their female counterparts. Finally, the drug category in which there was the smallest difference across gender was 'Polydrug Not Alcohol or THC' with 153 females and 199 males.

Table 25. Presence of any drug and polydrug use regardless of reported level by gender

Drug Count	Drug(s) Detected	Female		Male		Total	
		n	%	n	%	n	%
No Drug	None Detected	50	1.1%	115	0.9%	165	0.9%
One Drug	Alcohol Only	3,794	79.5%	10,258	78.6%	14,052	78.8%
	THC Only	172	3.6%	785	6.0%	957	5.4%
	Single Other Drug	136	2.9%	250	1.9%	386	2.2%
Polydrug	Alcohol and THC	158	3.3%	671	5.1%	829	4.7%
	Alcohol and Other	152	3.2%	228	1.8%	380	2.1%
	THC and Other	104	2.2%	365	2.8%	469	2.6%
	Alcohol, THC, and Other(s)	56	1.2%	178	1.4%	234	1.3%
	Polydrug Not Alcohol or THC	153	3.2%	199	1.5%	352	2.0%
Total		4,775	100.0%*	13,049	100.0%	17,824	100.0%

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Alcohol and Polydrug Use

In cases in which there was an alcohol test and at least one drug detected, the majority of case filings indicated a BAC level of 0.08+, regardless of number of drugs detected (see Table 26). There were 73 case filings that did not have alcohol present and no other drug tested or detected, and 221 cases that did not have alcohol present but did have a drug detected. However, not all of these within the 'One Drug' category had a drug test since alcohol is also considered a drug in this analysis. Only a small

percentage (8.6%, n=135) of those that had multiple drugs detected and an alcohol test did not test positive for alcohol while the majority had a BAC level at or above the *per se* limit of 0.08.

Table 26. BAC groups by polydrug use

BAC level	No Test or No Drug		One Drug		Polydrug	
	n	%	n	%	n	%
Not Detected	73	100.0%	221	1.6%	135	8.6%
< 0.05			293	2.1%	193	12.2%
0.05 - 0.079			1,244	8.7%	145	9.2%
0.08 +			12,515	87.7%	1,105	70.0%
Total	73	100.0%	14,273	100.0%*	1,578	100.0%

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Marijuana and Polydrug Use

Table 27 shows that there were 2,885 case filings where individuals had a THC confirmation test or at least one non-alcohol drug detected in blood tests. More individuals had THC and at least one additional drug detected (n=1,532) compared to individuals that had alcohol and at least one additional drug detected (n=1,443). This could be an artifact of the lack of further drug testing in cases where a BAC is at or above the *per se* level.

When there was at least one additional drug present, most individuals had Delta-9 THC values between 1.0 and 4.9 ng/mL (46.4%, n=774). This was followed by Delta-9 THC levels of 5.0+ ng/mL (41.0%, n=684).

Table 27. THC groups by polydrug use

THC level	No Test or No Drug		One Drug		Polydrug	
	n	%	n	%	n	%
Not Detected	42	100.0%	216	18.4%	138	8.3%
Present but <1.0			16	1.4%	74	4.4%
1.0 - 4.9			256	21.8%	774	46.4%
5.0+			685	58.4%	684	41.0%
Total	42	100.0%	1,173	100.0%	1,670	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Other Drug Categories

Drug Schedules

House Bill 17-1315 mandates analysis by drug schedule, as defined in Colorado Revised Statutes in 2018.⁶⁸ It should be noted that, while THC is considered a Schedule I drug according to Colorado statutes it is not included in this analysis.

The number of drugs found by Schedule and the number of cases that contained these drugs is provided in Table 28. Schedule II drugs (cocaine, methamphetamine, hydrocodone, codeine, methadone, among

others) were most commonly found in blood tests. Schedule IV drugs (phenobarbital, diazepam, alprazolam, phentermine, among others) were the second most commonly found in blood tests. These categories are not mutually exclusive because cases can involve multiple drugs, so if summed these numbers will include duplicate cases.

Table 28. Number of Drugs and Cases by Scheduled Drug Categories

Colorado Drug Schedule	Number of Drugs	Number of Cases
Schedule I	27	27
Schedule II	1,312	1,132
Schedule III	3	3
Schedule IV	1,147	948

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

Drug Recognition Expert Drug Categories

For this analysis, toxicology results were categorized into the seven DRE drug categories. See Appendix F: DRE Category and Schedule of Drugs for a detailed list of every drug by DRE category. DRE drug categories are based on behaviors that are induced by the drug. Prescription drugs are generally not a DRE category (except when the drug is commonly abused), but these are included in this analysis and, when not likely to be abused, are in the prescription drug category. For example, antidepressants can also be classified as a CNS (central nervous system) depressant, and so were placed in the prescription drug category. Finally, cannabis is not included here.

Excluding alcohol (which is a CNS depressant), CNS depressants were the most common drugs detected in toxicology screens (see Table 29). Drugs included in this category are barbiturates, benzodiazepines, and tranquilizers. This prevalence was followed by CNS stimulants which include methamphetamine, cocaine, pseudoephedrine, and similar drugs. Overall, dissociative anesthetics were detected the least frequently out of all the categories (n=3).⁶⁹ Again, please note that this likely underrepresents the number of drugs present in DUIs because frequently many individuals are not tested for additional drugs if alcohol is obviously present.

Table 29. Number of cases and drugs by DRE drug categories, see Table 21 for Delta-9

DRE Drug Category	Number of Cases	Number of Drugs
CNS Depressant	957	1,165
CNS Stimulant	887	939
Hallucinogen	20	20
Dissociative Anesthetic	3	3
Narcotic Analgesic	402	434
Inhalant	9	9
Prescription or Over-the-Counter	183	271

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

DRE Drug Categories and Alcohol Tests

Table 30 includes only cases in which a drug was present and there was also an alcohol test (n=1,045). Across all drug types except inhalants and dissociative anesthetics, the largest proportion of cases fall

into the BAC category of 0.08+. The most common combination is alcohol at 0.08+ and a CNS depressant (n=224). Again, it should be noted that alcohol is a CNS depressant, but it is not included in this analysis.

Approximately 30% of each drug category did not have alcohol present, as shown in the first row of Table 30. However, only 11.6% of case filings with prescription drugs had no alcohol, meaning that the combination of alcohol and prescription drugs is very common among cases with both an alcohol test and prescription drug confirmation. Inhalants were the only drug category that did not overlap with the presence of alcohol, however, data were available for only five cases.

Table 30. BAC groups by DRE Drug Category

BAC level	CNS Depressant		CNS Stimulant		Hallucinogen		Dissociative Anesthetic		Narcotic Analgesic		Inhalant		Prescription	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Not Detected	132	30.4%	105	27.3%	2	28.6%			52	36.1%	5	100.0%	8	11.6%
< 0.05	50	11.5%	39	10.1%			1	100.0%	21	14.6%			7	10.1%
0.05 - 0.079	28	6.5%	31	8.1%					11	7.6%			10	14.5%
0.08 +	224	51.6%	210	54.6%	5	71.4%			60	41.7%			44	63.8%
Total	434	100.0%	385	100.0%*	7	100.0%	1	100.0%	144	100.0%	5	100.0%	69	100.0%

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

DRE Drug Categories and Delta-9 THC

Table 31 includes only cases that had a confirmation test for Delta-9 THC and another drug was present (n=1,197). Most drug categories had at least some Delta-9 THC detected with the exception of Inhalants, however, this represents only two cases.

Similar to the results for the BAC analysis above, CNS depressants with Delta-9 THC was a common drug combination. Over one-third (38.7%) of those with a CNS depressant present and a THC confirmation test were at 5.0+ ng/mL. Cases with CNS stimulants were also commonly found with Delta-9 THC, at or above the 1+ ng/mL of THC. When comparing the information in Table 30 and Table 31, higher rates of prescription drug and alcohol use were found compared to prescription drug and cannabis use (88.4% versus 75.4%, respectively).

Table 31. Delta-9 THC groups by DRE Drug Category

THC level	CNS Depressant		CNS Stimulant		Hallucinogen		Dissociative Anesthetic		Narcotic Analgesic		Inhalant		Prescription	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Not Detected	108	23.4%	118	24.3%	1	7.1%			49	30.8%	2	100.0%	18	24.7%
Present but <1.0	18	3.9%	27	5.6%					6	3.8%			5	6.9%
1.0 - 4.9	157	34.0%	218	45.0%	5	35.7%	1	50.0%	63	39.6%			30	41.1%
5.0+	179	38.7%	122	25.2%	8	57.1%	1	50.0%	41	25.8%			20	27.4%
Total	462	100.0%	485	100.0%*	14	100.0%*	2	100.0%	159	100.0%	2	100.0%	73	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

Toxicology and Dispositions

Table 32 shows court case disposition by the absence or presence of a toxicology test. Most (80%) cases were guilty, regardless of the presence of a toxicology result. Combining guilty, deferred, and deferred/dismissed, there was a very slightly lower conviction rate for cases with no toxicology test (85.7%, n=7,460) when compared to those with a toxicology test (89.4%, n=15,012). For initial to final DUI charge information, based on the presence or absence of a toxicology result, see Appendix O: Amended DUI Charges Based on Presence of Toxicology Data.

Table 32. Disposition by toxicology test presence

Disposition	No Toxicology Test		Toxicology Test	
	n	%	n	%
Guilty	7,005	80.4%	13,540	80.6%
Deferred	293	3.4%	889	5.3%
Deferred Dismissed	162	1.9%	583	3.5%
Diversion	3	0.0%	23	0.1%
Dismissed	1,012	11.6%	1,481	8.8%
Not Guilty	118	1.4%	60	0.4%
Not Proven			2	0.0%
Non-DUI Disposition**	120	1.4%	228	1.4%
Total	8,713	100.0%*	16,806	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Alcohol and DUI Dispositions

Recall that 17,824 toxicology tests were available for 27,244 case filings. Of case filings with toxicology tests, 16,806 DUI charges had reach disposition at the time of data analysis.

Table 33 shows the number of DUI dispositions with an alcohol test (n=15,077). This table includes the disposition for all amended charges with an alcohol test, but does not show the specific disposition of final charges that were not DUI charges (last row of Table 33). The highest proportion of amended charges were cases with BACs less than 0.05 (5.4%) followed by BACs between 0.05 and 0.079 (5.2%). The highest proportion of 'Guilty' dispositions was for the group with the highest BACs (0.08+), at 88.6%, while the highest dismissal rate occurred for those with BACs less than 0.05 (47.0%, n=217). Note that this table shows information on alcohol tests only; the 252 charges with no alcohol detected and a guilty disposition may have had drug test findings.

Table 33. Disposition of DUI Charges by BAC group

Disposition	Not Detected		< 0.05		0.05 – 0.079		0.08+	
	n	%	n	%	n	%	n	%
Guilty	252	63.3%	184	39.8%	649	49.1%	11,421	88.6%
Deferred	17	4.3%	19	4.1%	182	13.8%	500	3.9%
Deferred Dismissed	5	1.3%	16	3.5%	144	10.9%	362	2.8%
Diversion			1	0.2%	4	0.3%	17	0.1%
Dismissed	111	27.9%	217	47.0%	269	20.3%	486	3.8%
Not Guilty	3	0.8%			5	0.4%	35	0.3%
Not Proven							2	0.0%
Non-DUI Disposition*	10	2.5%	25	5.4%	69	5.2%	72	0.6%

Disposition	Not Detected		< 0.05		0.05 – 0.079		0.08+	
	n	%	n	%	n	%	n	%
Total**	398	100.0%*	462	100.0%	1,322	100.0%	12,895	100.0%*

*Aggregated dispositions for final charges that were not DUIs.

**Sum is greater than 100.0% due to rounding.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Marijuana and DUI Dispositions

Table 34 shows the dispositions of DUI charges with a Delta-9 THC confirmation test (n=2,676). As with the previous table, this information includes all other charges that were amended, but does not show the specific disposition of final charges that were not DUI charges. The highest proportion of guilty dispositions occurred for those in the '5.0+ ng' (74.7%, n=947) category.

Overall, more than half of all cases in each THC category had a disposition of guilty. However, three out of the four THC categories had dismissal rates of around 20.0% while one, the '5.0+ ng' group, had a dismissal rate of only 9.7%.

Table 34. Disposition of DUI charges by THC group

Disposition	Not Detected		Present but <1.0ng		1.0 - 4.9ng		5.0+ng	
	n	%	n	%	n	%	n	%
Guilty	266	73.5%	57	65.5%	641	66.8%	947	74.7%
Deferred	8	2.2%	7	8.0%	65	6.8%	120	9.5%
Deferred Dismissed	3	0.8%	1	1.1%	29	3.0%	42	3.3%
Diversion							2	0.2%
Dismissed	79	21.8%	19	21.8%	196	20.4%	123	9.7%
Not Guilty							11	0.9%
Non-DUI Disposition**	6	1.7%	3	3.4%	28	2.9%	23	1.8%
Total	362	100.0%	87	100.0%*	959	100.0%*	1268	100.0%*

*Sum is greater than 100.0% due to rounding.

**Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

Alcohol, Marijuana, and DUI Dispositions

Median BAC and Delta-9 THC values by disposition can be seen in Table 35. A median BAC of 0.15 and a median THC of 5.9 ng/ml were found across dispositions. Guilty dispositions had medians of 0.16 and 6.3 for BAC and THC, respectively. Dispositions of dismissed cases had medians of 0.08 and 3.9 for BAC and THC, respectively.

Table 35. Median BAC and median Delta-9 THC by disposition

Disposition	BAC		Delta-9 THC	
	Median	Case Count*	Median	Case Count**
Guilty	0.16	12,254	6.3	1,583
Deferred	0.10	701	7.2	185
Deferred Dismissed	0.10	522	5.5	71
Diversion	0.13	22	15.5	2
Dismissed	0.08	972	3.9	318

Disposition	BAC		Delta-9 THC	
	Median	Case Count*	Median	Case Count**
Not Guilty	0.17	40	9.7	11
Not Proven	0.12	2		
Non-DUI Disposition***	0.07	166	4.7	51
Overall	0.15	14,679	5.9	2,221

*Includes those with dispositions and a quantitative value for BAC.

** Includes those with dispositions and a quantitative value for Delta-9 THC.

***Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Dispositions of 'Guilty', 'Deferred', and 'Deferred Dismissed' were combined to find overall conviction rates for the various categories of BAC and Delta-9 THC presence (see Table 36). Final non-DUI charges were included in the analysis, but a guilty disposition for a non-DUI charge is not counted as a DUI conviction. This analysis involved of 1,431 case filings with results for both alcohol and Delta-9 THC. Only 38 of these toxicology results indicated no alcohol or marijuana was present. A little over a quarter of all cases that had dispositions and tests for both alcohol and Delta-9 THC fell in the 0.08+ BAC Group and in the 1.0 – 4.9 THC Group (28.2%, n=403).

Generally, conviction rates were the highest for BAC values of 0.08+ (93.2% to 95.9%). This was followed by conviction rates for Delta-9 THC values of 5.0+ ng/mL with rates ranging from 84.3% to 95.9%. These findings suggest that convictions are more common at the *per se* level for alcohol and at the permissible inference level for Delta-9 THC.

Table 36. BAC group and Delta-9 THC group conviction rate of final DUI charges

BAC level	THC level								Grand Total
	Not Detected		Present but <1.0		1.0 - 4.9		5.0+		
	Total Cases	Conviction Rate	Total Cases	Conviction Rate	Total Cases	Conviction Rate	Total Cases	Conviction Rate	
Not Detected	38	63.2%*	6	50.0%	70	57.1%	115	84.3%	229
< 0.05	16	50.0%	5	20.0%	63	60.3%	85	88.2%	169
0.05 - 0.079	14	92.9%	4	75.0%	60	81.7%	34	85.3%	112
0.08 +	162	93.2%	36	94.4%	403	94.8%	320	95.9%	921
Grand Total	230		51		596		554		1431

*Final non-DUI charges were included in the analysis.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Polydrug Use and DUI Dispositions

The proportion of cases with Guilty dispositions for one drug versus polydrug use were identical at 81.1% (see Table 37). Those cases with toxicology results but no drug detected had the highest proportion of dismissed charges, at 75.2%. DUI charges for one drug versus polydrug were dismissed at a rate of 8.0% and 9.5%, respectively. An even smaller proportion of DUI charges within these categories were amended to a non-DUI charge.

Table 37. Disposition of DUI charges by polydrug detection

Disposition	No Drug		One Drug		Polydrug	
	n	%	n	%	n	%
Guilty	31	19.8%	11,805	81.1%	1,704	81.1%
Deferred	3	1.9%	767	5.3%	119	5.7%
Deferred Dismissed	1	0.6%	548	3.8%	34	1.6%
Diversion			22	0.2%	1	0.1%
Dismissed	118	75.2%	1,163	8.0%	200	9.5%
Not Guilty			53	0.4%	7	0.3%
Not Proven			2	0.0%		
Non-DUI Disposition**	4	2.5%	189	1.3%	35	1.7%
Total	157	100.0%	14,549	100.0%*	2,100	100.0%

*Sum is greater than 100.0% due to rounding.

**Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

In Table 38 shows drug categories and conviction rates where guilty, deferred, and deferred dismissed dispositions are combined. Note cases that had ANY amount of THC or ANY amount of alcohol were included in Table 38. Generally, DUI charges with alcohol present had the highest conviction rates. In cases with one drug present, alcohol had the highest conviction rate (91.9%), followed by a single other drug (77.3%), and then marijuana (68.7%). This suggests that DUI cases involving marijuana alone were less likely to be convicted compared to cases with other drugs. Additionally, THC only cases at 5.0+ ng and at 1.0 – 4.9 ng/mL had conviction rates of 81.0% and 40.7%, respectively (data not presented here).

There were 2,100 case filings with evidence of polydrug use (see Table 38). Combining ‘Alcohol and THC’ and ‘Alcohol, THC, and Other,’ almost half (48.1%, n=1,010) of all dispositions with polydrug use contained both alcohol and Delta-9 THC. Polydrug case filings containing both or either of these substances have conviction rates ranging from 89.9% to 91.1%. Polydrug cases that did not include alcohol and/or Delta-9 THC had a lower conviction rate of 75.5%.

Table 38. Detected drug conviction rate of final DUI charges

Drug Count	Drug(s) Detected	Total Cases	Conviction Rate
No Drug	None Detected	157	22.3%
One Drug	Alcohol Only	13,323	91.9%
	THC Only	878	68.7%
	Single Other Drug	348	77.3%
Polydrug	Alcohol and THC	787	91.0%
	Alcohol and Other	346	89.9%
	THC and Other	426	91.1%
	Alcohol, THC, and Other(s)	223	90.6%
	Polydrug Not Alcohol or THC	318	75.5%
Total		16,806	89.3%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Scheduled and DRE Drug Categories and DUI Dispositions

Scheduled Drug Categories and DUI Disposition

The percentage of guilty dispositions by drug Schedule varied from 74.9% to 100.0% (Table 39) (note Schedule III has only three cases). Case filings with a Schedule IV drug present had the lowest proportion of guilty dispositions for DUI charges. Additionally, DUI charges with a Schedule IV drug were the most often amended and adjudicated as non-DUI charges (2.5%, n=22). Note the few numbers of cases in some categories, making interpretation difficult.

Table 39. DUI dispositions by Scheduled drug category

Disposition	Schedule I		Schedule II		Schedule III		Schedule IV	
	n	%	n	%	n	%	n	%
Guilty	25	96.2%	823	80.5%	3	100.0%	654	74.9%
Deferred			59	5.8%			59	6.8%
Deferred Dismissed			8	0.8%			14	1.6%
Dismissed	1	3.8%	109	10.7%			120	13.7%
Not Guilty			9	0.9%			4	0.5%
Non-DUI Disposition**			14	1.4%			22	2.5%
Total	26	100.0%	1,022	100.0%*	3	100.0%	873	100.0%

*Sum is greater than 100.0% due to rounding.

**Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

DRE Drug Categories and DUI Disposition

Table 40 shows dispositions for DRE drug categories. The proportion of guilty dispositions by DRE drug category ranged from 61.2% to 100.0%. However, the 100.0% guilty dispositions are for a small number of cases with a dissociative anesthetic present (n=3).

DUI cases with prescription drugs had the lowest proportion of guilty dispositions, at 61.2% (n=104). This was followed by narcotic analgesics (73.6%, n=271) and then CNS depressants (74.9%, n=660). When looking across the drug categories, CNS stimulants had the highest number of guilty DUI charges (n=668) and CNS depressants had the highest number of dismissed charges (n=121).

Table 40. DUI disposition by DRE drug categories

Disposition	CNS Depressant		CNS Stimulant		Hallucinogen		Dissociative Anesthetic		Narcotic Analgesic		Inhalant		Prescription	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Guilty	660	74.9%	668	83.8%	18	94.7%	3	100.0%	271	73.6%	5	62.5%	104	61.2%
Deferred	59	6.7%	36	4.5%					30	8.2%			19	11.2%
Deferred Dismissed	14	1.6%	5	0.6%					7	1.9%			3	1.8%
Dismissed	121	13.7%	72	9.0%	1	5.3%			50	13.6%	3	37.5%	39	22.9%
Not Guilty	5	0.6%	4	0.5%					5	1.4%			1	0.6%
Non-DUI Disposition**	22	2.5%	12	1.5%					5	1.4%			4	2.4%
Total	881	100.0%	797	100.0%*	19	100.0%	3	100.0%	368	100.0%*	8	100.0%	170	100.0%*

*Sum is greater than 100.0% due to rounding.

**Aggregated dispositions for final charges that were not DUIs.

Source: State Judicial Department, Denver County Court, CBI, and ChemaTox.

Toxicology and Disposition of Other Charges

This analysis examines toxicology results associated with three violent crime charges, including child abuse, vehicular assault, and vehicular homicide. As with prior conviction rate analyses, 'guilty,' 'deferred,' and 'deferred dismissed' dispositions were combined to find conviction rates.

Child abuse Dispositions

There were 375 DUI case filings with at least one child abuse charge, a disposition for that charge, and a toxicology finding (Table 41). Conviction rates for final child abuse charges by drug presence ranged from 0.0% to 60.0%. Of these 375 case filings, more than three-quarters were in the 'Alcohol Only' category (76.0%, n=285). While the 'Alcohol Only' group had the most case filings, these cases had a low conviction rate of 33.7% (n=96).

Table 41. Child abuse conviction rate by drug group

Drug(s) Detected	Total Cases	Guilty Child Abuse Charge	Conviction Rate
None Detected	1	0	0.0%
Alcohol Only	285	96	33.7%
THC Only	21	3	14.3%
Single Other Drug	20	8	40.0%
Alcohol and THC	17	8	47.1%
Alcohol and Other	5	3	60.0%
THC and Other	12	2	16.7%
Alcohol, THC, and Other(s)	4	2	50.0%
Polydrug Not Alcohol or THC	10	1	10.0%
Total	375	123	32.8%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Vehicular Assault Dispositions

There were 142 case filings with at least one vehicular assault charge that had a disposition and toxicology results. The overall conviction rate for charges with a toxicology finding was 77.5% (n=110). The conviction rates by drug category ranged from 20.0% to 100.0%. The highest conviction rates for charges were for the groups 'Alcohol and Other' and 'THC and Other,' but these categories had few cases (see Table 42).

Table 42. Vehicular assault conviction rate by drug group

Drug(s) Detected	Total Cases	Guilty Vehicular Assault Charge	Conviction Rate
None Detected	5	1	20.0%
Alcohol Only	79	59	74.7%
THC Only	5	4	80.0%
Single Other Drug	3	2	66.7%
Alcohol and THC	23	21	91.3%
Alcohol and Other	7	7	100.0%
THC and Other	3	3	100.0%
Alcohol, THC, and Other(s)	12	9	75.0%
Polydrug Not Alcohol or THC	5	4	80.0%
Total	142	110	77.5%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Vehicular Homicide Dispositions

Twenty-one (21) case filings had at least one vehicular homicide charge, a disposition and a toxicology finding (see Table 43). Because of the few cases, the findings must be interpreted with caution. Conviction rates ranged from 50.0% to 100.0% with 'Alcohol, THC, and Other' at 50.0%, and 'No Drug,' 'Alcohol and Other,' and 'Alcohol and THC' at 100.0%. Upon further examination, both case filings in the 'THC Only' category were in the THC group of 1.0 – 4.9 ng/mL and the case filing for 'Single Other Drug' had Lidocaine detected (data not presented here).

Alcohol was involved in 17 of the 21 cases, either alone or in combination with another drug.

Table 43. Vehicular homicide conviction rate by drug group

Drug(s) Detected	Total Cases	Guilty Vehicular Homicide Charge	Conviction Rate
None Detected	1	1	100.0%
Alcohol Only	10	8	80.0%
THC Only	2	0	0.0%
Single Other Drug	1	0	0.0%
Alcohol and THC	2	2	100.0%
Alcohol and Other	1	1	100.0%
Alcohol, THC, and Other(s)	4	2	50.0%
Total	21	14	66.7%

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Toxicology and Time to DUI Disposition

Absence or Presence of Toxicology Tests

Generally, as shown in Table 44, case filings that lacked a toxicology test had a longer time to disposition compared to cases that had a toxicology test. Cases that had no toxicology test and were amended to a non-DUI charge had the longest time to disposition, with an average of 215 days and a median of 186 days. It should be noted that this group had the fewest number of case filings (n=120). Final DUI charges with toxicology matches had the shortest amount of time between case filing to disposition, with an average of 158 days and a median of 128 days.

Table 44. Mean and median time to disposition by final DUI charge, with/without toxicology test (days)

		Mean Days to Disposition	Median Days to Disposition	Total Cases
Final DUI Charge	No Toxicology Test	176	146	8,589
	Toxicology Test	158	128	16,575
	Overall	164	133	25,164
Final Other Charge	No Toxicology Test	215	186	120
	Toxicology Test	172	142	228
	Overall	187	161	348

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Type of Toxicology Test

Table 45 shows the time between case filing and disposition by type of toxicology test, breath or blood. It took less time to disposition for breath tests compared to blood tests. Final DUI charges with breath tests were the quickest to reach a disposition, at an average of 145 days (median=111). This was followed by final non-DUI charges with a breath test, at an average of 148 days (median=123). Non-DUI charges with blood toxicology took the longest amount of time to adjudicate with an average of 193 days (median=174).

Table 45. Mean and median time to disposition by chemical test type (days)

	Toxicology Test	Mean Time to Disposition	Median Time to Disposition	Total Cases
Final DUI Charge	Breath	145	111	8,085
	Blood	171	143	8,490
	Overall	158	128	16,575
Final Other Charge	Breath	148	123	104
	Blood	193	174	124
	Overall	172	142	228

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Drug Category

Table 46 delineates time to disposition by drug category and final charge type. Toxicology tests with no drugs detected had the shortest time to disposition, with a mean of 135 days and a median of 119 days. The presence of multiple drugs that did not include alcohol and cannabis took an average of 212 days (median=179), the longest time to disposition. Overall, charges with multiple drugs present took longer to adjudicate than those with none or those with one drug. Of the charges with a potentially impairing substance present, 'Alcohol Only' had the shortest elapsed time to disposition (mean=151, median=122).

Table 46. Mean and median time to disposition by drug detected (days)

	Drug Category	Drug(s) Detected	Mean Time to Disposition	Median Time to Disposition	Total Cases	
Final DUI Charge	No Drug	None Detected	135	119	153	
	One Drug	Alcohol Only	151	122	13,172	
		THC Only	191	155	846	
		Single Other Drug	184	161	339	
	Polydrug	Alcohol and THC	173	144	776	
		Alcohol and Other	186	161	342	
		THC and Other	191	163	418	
		Alcohol, THC, and Other(s)	183	147	220	
			Polydrug Not Alcohol or THC	212	179	309
		Overall		158	128	16,575
Final Other Charge	No Drug	None Detected	123	108	4	
	One Drug	Alcohol Only	154	135	148	
		THC Only	210	191	32	

Drug Category	Drug(s) Detected	Mean Time to Disposition	Median Time to Disposition	Total Cases
	Single Other Drug	169	123	9
Polydrug	Alcohol and THC	170	184	11
	Alcohol and Other	297	284	4
	THC and Other	241	236	8
	Alcohol, THC, and Other(s)	214	98	3
	Polydrug Not Alcohol or THC	242	246	9
Overall		172	142	228

Source: State Judicial Department, Denver County Court, CBI, CDPHE, ChemaTox, and Denver Crime Lab at DPD.

Probation Assessment Data

Probation assessment data were obtained from the Office of Behavioral Health, Department of Human Services. These data are gathered as part of the probation intake process for individuals who receive a sentence that involves community supervision and who are referred to drug treatment as a condition of supervision. These data provide information on demographics, drug involvement, and DUI history, among other factors. However, this information was de-identified, and consequently could not be linked to any other dataset.

In 2016, 18,956 records were available for analysis from the Alcohol/Drug Driving Safety Coordinated Data System (ADDSCODS). Because of the time lag between case filing, conviction, and the probation assessment, thousands of 2016 DUI case filings had not reached disposition/assessment.

This section begins with an overview of demographic information; later demographic information is combined with other information.

Convicted Offender Demographics and DUI History

Ethnicity

Table 47 provides information on gender and ethnicity. White males represented the largest group of DUI offenders (n=11,030) in treatment in 2016.

Table 47. Offender ethnicity by gender

	Female		Male		Total	
	n	%	n	%	n	%
Asian/Pacific Islander	57	1.1%	162	1.2%	219	1.2%
Black	283	5.5%	856	6.2%	1,139	6.0%
Hispanic	415	8.1%	1,496	10.8%	1,911	10.1%
Native American/Alaskan Native	72	1.4%	119	0.9%	191	1.0%
White	4,258	82.8%	11,030	79.8%	15,288	80.7%
Other	56	1.1%	152	1.1%	208	1.1%
Total	5,141	100.0%	13,815	100.0%	18,956	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: Office of Behavioral Health.

Education

Only 18.7% of DUI offenders receiving treatment did not have a high school diploma or GED (see Table 48). Those that earned a high school diploma or a General Educational Diploma (GED) were the largest group (42.7%). This was followed by the 'Some College/College Graduate' group with 38.1% of all the records.

Table 48. Offender education level

	n	%
No Diploma or GED	3,553	18.7%
High School Diploma or GED	8,099	42.7%
Some College/College Graduate	7,210	38.1%
Unknown	94	0.5%
Total	18,956	100.0%

Source: Office of Behavioral Health.

Prior DUIs

The number of prior DUI offenses were collapsed into three categories (see Table 49). Over one-third of cases (37.8%) had at least one prior DUI; 6.2% had three or more priors. The presence of three or more priors indicates that the charge was likely a felony.

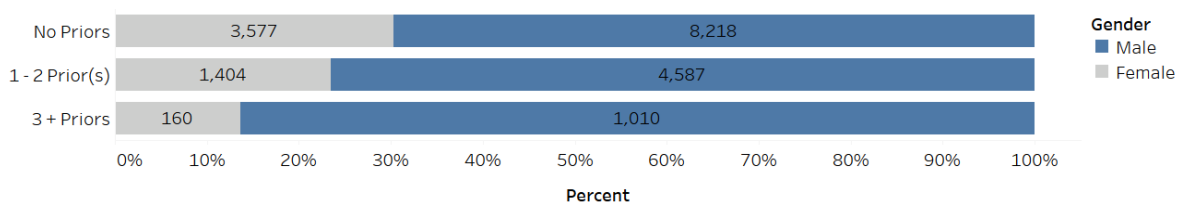
Table 49. Number of prior DUI offenses

	n	%
No Priors	11,795	62.2%
1 - 2 Prior(s)	5,991	31.6%
3 + Priors	1,170	6.2%
Total	18,956	100.0%

Source: Office of Behavioral Health.

Figure 12 shows that, as the number of priors increases, the proportion of male offenders increases. Females comprised of 30.3% of those with no prior DUI/DWAI offenses and 13.7% of those with three or more priors.

Figure 12. Number of priors by gender



Source: Office of Behavioral Health.

Table 50 shows DUI history by ethnicity. The majority (62.2%) of individuals in treatment for DUI had no prior DUIs. However, this varied by race/ethnicity. The proportion without priors ranged from 61.1% for

White offenders to 79.0% for Asian-Pacific Islander offenders (Table 50). Conversely, although the size of the group is small, approximately half (50.3%) of Native American-Alaskan offenders had prior DUIs.

Table 50. Number of prior DUI offenses by ethnicity

Prior convictions	Race/Ethnicity											
	Asian-Pacific Islander		Black		Hispanic		Native American/Alaskan Native		White		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
No Priors	173	79.0%	750	65.9%	1280	67.0%	95	49.7%	9344	61.1%	153	73.6%
1 – 2 Prior(s)	40	18.3%	323	28.4%	547	28.6%	66	34.6%	4965	32.5%	50	24.0%
3+ Priors	6	2.7%	6	5.8%	84	4.4%	30	15.7%	979	6.4%	5	2.4%
Total	219	100.0%	1139	100.0%*	1911	100.0%	191	100.0%	15288	100.0%	208	100.0%

*Sum is greater than 100.0% due to rounding.

Source: Office of Behavioral Health.

Accident involvement

Almost three-quarters (74.2%) of those that received probation assessments in 2016 had no accident reported with the DUI incident (see Table 51). Twenty-one (21) defendants were involved in a fatal accident, and 982 (5.2%) were involved in an accident with injury.

Table 51. Accident Involvement

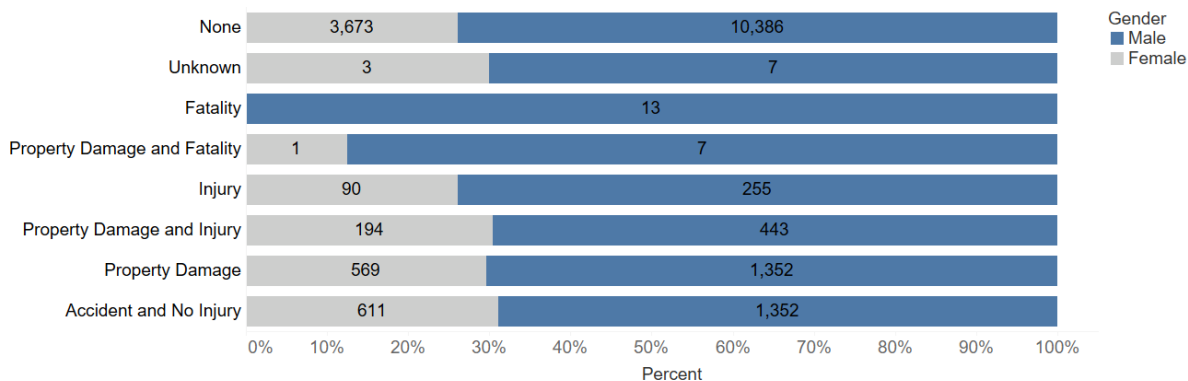
	n	%
None	14,059	74.2%
Unknown	10	0.1%
Fatality	13	0.1%
Property Damage and Fatality	8	0.0%
Injury	345	1.8%
Property Damage and Injury	637	3.4%
Property Damage	1,921	10.1%
Accident and No Injury	1,963	10.4%
Total	18,956	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: Office of Behavioral Health.

Figure 13 shows accident involvement by gender. Females were less likely than males to be involved in an accident. When females were involved in an incident it was most often an accident with no injury or one with only property damage; this was also the case for males. Of the 21 incidents that resulted in a fatality only one female offender was involved.

Figure 13. Accident involvement by gender



Source: Office of Behavioral Health.

Table 52 shows accident involvement by race/ethnicity. Most of DUI cases were not involved in an accident, and this does not vary much across race/ethnicity. White offenders were most likely to be involved in fatal accidents (20 of 21 offenders).

Table 52. Accident involvement by race/ethnicity

Accident Involvement	Race/Ethnicity											
	Asian-Pacific Islander		Black		Hispanic		Native American/Alaskan Native		White		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
None	173	79.0%	854	75.0%	1,442	75.5%	159	83.3%	11,277	73.8%	154	74.0%
Unknown					3	0.2%			7	0.1%		
Fatality			1	0.1%					12	0.1%		
Property Damage and Fatality									8	0.1%		
Injury	3	1.4%	25	2.2%	30	1.6%	3	1.6%	280	1.8%	4	1.9%
Property Damage and Injury	8	3.7%	32	2.8%	62	3.2%	1	0.5%	525	3.4%	9	4.3%
Property Damage	15	6.9%	116	10.2%	216	11.3%	18	9.4%	1,542	10.1%	14	6.7%
Accident and No Injury	20	9.1%	111	9.8%	158	8.3%	10	5.2%	1,637	10.7%	27	13.0%
Total	219	100.0%*	1,139	100.0%*	1,911	100.0%*	191	100.0%	15,288	100.0%*	208	100.0%*

*Sum is greater than 100.0% due to rounding.

Source: Office of Behavioral Health.

SECTION FIVE CONCLUSIONS

Drug impaired driving has tangible impacts on public safety. Nationally, drug detection in fatally-injured drivers with toxicology results has been steadily increasing, from 27.8% in 2005, 32.8% in 2009, 44.0% in

2016.^{70, 71} This increase over time underscores the need to better understand driving under the influence. However, challenges associated with data collection, data quality and completeness, and a lack of research on non-alcohol impairment reflect the complexity of studying drug impaired driving.

Toxicology results are difficult to interpret due to the variation in procedures involved in testing at multiple labs. For cases in which law enforcement officers detect alcohol at or above the *per se* limit, they may not request additional drug testing, particularly since the cost associated with testing blood for drugs can be ten times the cost of testing for alcohol.^{72, 73} The labs providing data for this analysis offered 5-, 7-, 9- and 11-panel drug screens, so the drug information that was available was inconsistent across labs. In addition, an officer unfamiliar with the behavioral manifestations of drugs may find it difficult to request the correct panel.

Alcohol, cannabis, methamphetamine, alprazolam, and cocaine were the five drugs most often detected in toxicology reports associated with case filings, with alcohol leading by a wide margin. However, the fact that law enforcement officers often obtain information on alcohol and do not pursue additional drug testing ensures that information about other drugs is underrepresented.

APPENDIX A

House Bill 2017-1315

TITLE 24. GOVERNMENT - STATE: PRINCIPAL DEPARTMENTS
 ARTICLE 33.5. PUBLIC SAFETY
 PART 5. DIVISION OF CRIMINAL JUSTICE
 C.R.S. 24-33.5-520 (2017) 24-33.5-520.

Study on Drugged Driving - substance-affected driving data-analysis cash fund created - report - definitions

(1) On or before March 1, 2018, and on or before March 1 each year thereafter, the division shall submit a report to the judiciary committees of the house of representatives and senate, or to any successor committees, that includes, to the extent possible, the following information:

- (a) The total number of citations made for suspected substance-affected driving violations during the reporting period;
- (b) Of the total number of citations made for suspected substance-affected driving during the reporting period, the total number of such citations that resulted in the filing of a substance-affected driving charge against the driver, including an indication of how many such cases involved alcohol, one or more drugs, or a combination of alcohol and one or more drugs;
- (c) Of the filed cases, how many resulted in at least one conviction for substance-affected driving;
- (d) Of the cases that resulted in at least one conviction for substance-affected driving, and for which evidentiary test results are available, which drugs, including alcohol, or combination of drugs were present in the defendants' bodies, and, for alcohol and marijuana, the laboratory values;
- (e) The total number of DUI and DWAI cases during the reporting period that involved:
 - (I) Alcohol;
 - (II) Marijuana;
 - (III) Schedule I drugs, as described in section 18-18-203, other than marijuana; or
 - (IV) Other drugs; and
- (f) For those cases in which evidentiary test results are available, for each type of biological sample taken, the time that elapsed between the time that each traffic stop or traffic incident occurred and the time at which the biological sample was taken.

(2) (a) For the purpose of producing the report described in subsection (1) of this section, the division shall collect and analyze substance-affected driving violation data as follows:

- (I) From the state judicial branch and from the Denver county court, the division shall collect case-identifier data, event data, filing dates, data identifying law enforcement agencies, demographic data relating to each defendant, data indicating the cause of each substance-affected driving citation, court findings, and sentences;
- (II) From forensic toxicology laboratories only, and from no other source, the division, to the extent possible, shall collect case-identifier data, event dates and times, collection dates and times, and confirmatory laboratory values from reports created for law enforcement agencies and prosecutors and shall specify the name of each drug that was confirmed and its laboratory value;
- (III) From the department of public health and environment, the division shall collect evidentiary breath alcohol test results, including case-identifier data, event dates and times, and the results obtained on evidentiary breath alcohol testing devices certified by the department of public health and environment; and
- (IV) From the division of probation services, the division shall collect case-identifier data and, to the extent possible, data concerning the classes and types of drugs that were involved in each substance-affected driving incident.

(b) The database compiled by the division containing personal identifying information relating to the test results of persons' biological samples, and all personal identifying information thereof, are not public information and are not subject to the provisions of the "Colorado Open Records Act", part 2 of article 72 of this title 24. The division shall disclose information only by means of the report described in subsection (1) of this section, which must not include any personal identifying information.

(3) A public or private laboratory carrying out analysis of evidentiary samples that were taken by a law enforcement agency and

submitted to the laboratory pursuant to section 42-4-1301.1 shall collect and share test results with the division for the purposes of this section. The division shall not disclose any personal identifying information that is included in such test results.

(4) (a) There is created in the state treasury the substance-affected driving data-analysis cash fund, referred to in this section as the "fund", to include money collected from surcharges assessed pursuant to section 42-4-1307 (10)(e) and any money credited to the fund pursuant to subsection (4)(b) of this section. The money in the fund is subject to annual appropriation by the general assembly to the division for the purpose described in subsection (1) of this section. All interest derived from the deposit and investment of money in the fund remains in the fund. Any unexpended or unencumbered money remaining in the fund at the end of a fiscal year remains in the fund and may not be transferred or credited to the general fund or another fund.

(b) The division may accept any gifts, grants, or donations from any private or public source on behalf of the state for purposes of this section. The division shall transmit all private and public money received through grants, gifts, or donations to the state treasurer, who shall credit the same to the fund.

(c) The division may use money in the fund to reimburse and provide advance payments to state, municipal, and private agencies and laboratories that apply to the division for payment of costs they incur in complying with this section.

(5) Notwithstanding section 24-1-136 (11)(a)(I), the report described in subsection (1) of this section is not subject to the expiration date described in said section 24-1-136 (11)(a)(I).

(6) As used in this section, unless the context requires otherwise:

(a) "Forensic toxicology laboratory" means a forensic toxicology laboratory that is certified by the department of public health and environment to perform testing of samples collected from individuals suspected of DUI, DUI *per se*, or DWAI.

(b) "Reporting period" means the calendar year ending fourteen months before the March 1 due date of the report.

(c) "Substance-affected driving" means driving in violation of section 42-4-1301 (1)(a), (1)(b), or (2)(a); section 18-3-106 (1)(b); or section 18-3-205 (1)(b).

(7) The department of public safety shall include the report described in subsection (1) of this section in the department's annual presentation to the committees of reference pursuant to section 2-7-203.

APPENDIX B

C.R.S. §42-4-1301

42-4-1301. Driving under the influence - driving while impaired - driving with excessive alcoholic content - definitions – penalties

(1) (a) A person who drives a motor vehicle or vehicle under the influence of alcohol or one or more drugs, or a combination of both alcohol and one or more drugs, commits driving under the influence. Driving under the influence is a misdemeanor, but it is a class 4 felony if the violation occurred after three or more prior convictions, arising out of separate and distinct criminal episodes, for DUI, DUI *per se*, or DWAI; vehicular homicide, as described in section 18-3-106 (1)(b), C.R.S.; vehicular assault, as described in section 18-3-205 (1)(b), C.R.S.; or any combination thereof.

(b) A person who drives a motor vehicle or vehicle while impaired by alcohol or by one or more drugs, or by a combination of alcohol and one or more drugs, commits driving while ability impaired. Driving while ability impaired is a misdemeanor, but it is a class 4 felony if the violation occurred after three or more prior convictions, arising out of separate and distinct criminal episodes, for DUI, DUI *per se*, or DWAI; vehicular homicide, as described in section 18-3-106 (1)(b), C.R.S.; vehicular assault, as described in section 18-3-205 (1)(b), C.R.S.; or any combination thereof.

(c) Repealed.

(d) As used in this section, one or more drugs means any drug, as defined in section 27-80-203 (13), C.R.S., any controlled substance, as defined in section 18-18-102 (5), C.R.S., and any inhaled glue, aerosol, or other toxic vapor or vapors, as defined in section 18-18-412, C.R.S.

(e) The fact that any person charged with a violation of this subsection (1) is or has been entitled to use one or more drugs under the laws of this state, including, but not limited to, the medical use of marijuana pursuant to section 18-18-406.3, C.R.S., shall not constitute a defense against any charge of violating this subsection (1).

(f) "Driving under the influence" means driving a motor vehicle or vehicle when a person has consumed alcohol or one or more drugs, or a combination of alcohol and one or more drugs, that affects the person to a degree that the person is substantially incapable, either mentally or physically, or both mentally and physically, to exercise clear judgment, sufficient physical control, or due care in the safe operation of a vehicle.

(g) "Driving while ability impaired" means driving a motor vehicle or vehicle when a person has consumed alcohol or one or more drugs, or a combination of both alcohol and one or more drugs, that affects the person to the slightest degree so that the person is less able than the person ordinarily would have been, either mentally or physically, or both mentally and physically, to exercise clear judgment, sufficient physical control, or due care in the safe operation of a vehicle.

(h) Pursuant to section 16-2-106, C.R.S., in charging the offense of DUI, it shall be sufficient to describe the offense charged as "drove a vehicle under the influence of alcohol or drugs or both".

(i) Pursuant to section 16-2-106, C.R.S., in charging the offense of DWAI, it shall be sufficient to describe the offense charged as "drove a vehicle while impaired by alcohol or drugs or both".

(j) For the purposes of this section, a person is deemed to have a prior conviction for DUI, DUI *per se*, or DWAI; vehicular homicide, as described in section 18-3-106 (1)(b), C.R.S.; or vehicular assault, as described in section 18-3-205 (1)(b), C.R.S., if the person has been convicted under the laws of this state or under the laws of any other state, the United States, or any territory subject to the jurisdiction of the United States, of an act that, if committed within this state, would constitute any of these offenses. The prosecution shall set forth such prior convictions in the indictment or information.

(k) Repealed.

(2) (a) A person who drives a motor vehicle or vehicle when the person's BAC is 0.08 or more at the time of driving or within two hours after driving commits DUI *per se*. During a trial, if the state's evidence raises the issue, or if a defendant presents some credible evidence, that the defendant consumed alcohol between the time that the defendant stopped driving and the time that testing occurred, such issue shall be an affirmative defense, and the prosecution must establish beyond a reasonable doubt that the minimum 0.08 blood or breath alcohol content required in this paragraph (a) was reached as a result of alcohol consumed by the defendant before the defendant stopped driving. DUI *per se* is a misdemeanor, but it is a class 4 felony if the violation occurred after three or more prior convictions, arising out of separate and distinct criminal episodes, for DUI, DUI *per*

se, or DWAI; vehicular homicide, as described in section 18-3-106 (1)(b), C.R.S.; vehicular assault, as described in section 18-3-205 (1)(b), C.R.S.; or any combination thereof.

(a.5) Repealed.

(b) In any prosecution for the offense of DUI *per se*, the defendant shall be entitled to offer direct and circumstantial evidence to show that there is a disparity between what any tests show and other facts so that the trier of fact could infer that the tests were in some way defective or inaccurate. Such evidence may include testimony of nonexpert witnesses relating to the absence of any or all of the common symptoms or signs of intoxication for the purpose of impeachment of the accuracy of the analysis of the person's blood or breath.

(c) Pursuant to section 16-2-106, C.R.S., in charging the offense of DUI *per se*, it shall be sufficient to describe the offense charged as "drove a vehicle with excessive alcohol content".

(d)

(I) It is a class A traffic infraction for any person under twenty-one years of age to drive a motor vehicle or vehicle when the person's BAC, as shown by analysis of the person's breath, is at least 0.02 but not more than 0.05 at the time of driving or within two hours after driving. The court, upon sentencing a defendant pursuant to this subparagraph (I), may order, in addition to any penalty imposed under a class A traffic infraction, that the defendant perform up to twenty-four hours of useful public service, subject to the conditions and restrictions of section 18-1.3-507, C.R.S., and may further order that the defendant submit to and complete an alcohol evaluation or assessment, an alcohol education program, or an alcohol treatment program at such defendant's own expense.

(II) A second or subsequent violation of this paragraph (d) is a class 2 traffic misdemeanor.

(3) The offenses described in subsections (1) and (2) of this section are strict liability offenses.

(4) No court shall accept a plea of guilty to a non-alcohol-related or non-drug-related traffic offense or guilty to the offense of UDD from a person charged with DUI or DUI *per se*; except that the court may accept a plea of guilty to a non-alcohol-related or non-drug-related traffic offense or to UDD upon a good faith representation by the prosecuting attorney that the attorney could not establish a prima facie case if the defendant were brought to trial on the original alcohol-related or drug-related offense.

(5) Notwithstanding the provisions of section 18-1-408, C.R.S., during a trial of any person accused of both DUI and DUI *per se*, the court shall not require the prosecution to elect between the two violations. The court or a jury may consider and convict the person of either DUI or DWAI, or DUI *per se*, or both DUI and DUI *per se*, or both DWAI and DUI *per se*. If the person is convicted of more than one violation, the sentences imposed shall run concurrently.

(6) (a) In any prosecution for DUI or DWAI, the defendant's BAC or drug content at the time of the commission of the alleged offense or within a reasonable time thereafter gives rise to the following presumptions or inferences:

(I) If at such time the defendant's BAC was 0.05 or less, it shall be presumed that the defendant was not under the influence of alcohol and that the defendant's ability to operate a motor vehicle or vehicle was not impaired by the consumption of alcohol.

(II) If at such time the defendant's BAC was in excess of 0.05 but less than 0.08, such fact gives rise to the permissible inference that the defendant's ability to operate a motor vehicle or vehicle was impaired by the consumption of alcohol, and such fact may also be considered with other competent evidence in determining whether or not the defendant was under the influence of alcohol.

(III) If at such time the defendant's BAC was 0.08 or more, such fact gives rise to the permissible inference that the defendant was under the influence of alcohol.

(IV) If at such time the driver's blood contained five nanograms or more of Delta 9-tetrahydrocannabinol per milliliter in whole blood, as shown by analysis of the defendant's blood, such fact gives rise to a permissible inference that the defendant was under the influence of one or more drugs.

(b) The limitations of this subsection (6) shall not be construed as limiting the introduction, reception, or consideration of any other competent evidence bearing upon the question of whether or not the defendant was under the influence of alcohol or whether or not the defendant's ability to operate a motor vehicle or vehicle was impaired by the consumption of alcohol.

(c)

(I) In all actions, suits, and judicial proceedings in any court of this state concerning alcohol-related or drug-related traffic offenses, the court shall take judicial notice of methods of testing a person's alcohol or drug level and of the design and operation of devices, as certified by the department of public health and environment, for testing a person's blood, breath, saliva, or urine to determine such person's alcohol or drug level. The department of public health and environment may, by rule, determine that, because of the reliability of the results from certain devices, the collection or preservation of a second sample of a person's blood, saliva, or urine or the collection and preservation of a delayed breath alcohol specimen is not required.

(II) Nothing in this paragraph (c) prevents the necessity of establishing during a trial that the testing devices used were working properly and were properly operated. Nothing in this paragraph (c) precludes a defendant from offering evidence concerning the accuracy of testing devices.

(III) The database compiled by the department of public health and environment containing personal identifying information relating to the results of tests of persons' breath alcohol content, and all personal identifying information thereof, are not public information. The department of public health and environment shall disclose such information only to:

(A) The individual who is the subject of the test, or to his or her legal representative;

(B) A named interested party in a civil or criminal action in which the test results are directly related, or to his or her legal representative;

(C) Any prosecuting attorney, law enforcement officer, state agency, or state and local public official legally authorized to utilize such information to carry out his or her duties; or

(D) Any party who obtains an order in a pending civil or criminal case if the court finds the party has shown good cause to have the information. In determining whether there is good cause, the court shall consider whether the materials sought exist; whether the materials sought are evidentiary and relevant; whether the materials are not otherwise procurable reasonably in advance of the proceeding by the exercise of due diligence; whether the party cannot properly prepare for the proceeding without such production and inspection in advance of the proceeding, and the failure to obtain such inspection may tend to unreasonably delay the proceeding; and whether the request for the information is made in good faith and is not for the purposes of general discovery.

(IV) The department of public health and environment may release nonpersonal identifying information from the database in accordance with sections 24-72-101 to 24-72-402, C.R.S.(d) If a person refuses to take or to complete, or to cooperate with the completing of, any test or tests as provided in section 42-4-1301.1 and such person subsequently stands trial for DUI or DWAI, the refusal to take or to complete, or to cooperate with the completing of, any test or tests shall be admissible into evidence at the trial, and a person may not claim the privilege against self-incrimination with regard to admission of refusal to take or to complete, or to cooperate with the completing of, any test or tests.

(e) Involuntary blood test - admissibility. Evidence acquired through an involuntary blood test pursuant to section 42-4-1301.1 (3) shall be admissible in any prosecution for DUI, DUI *per se*, DWAI, or UDD, and in any prosecution for criminally negligent homicide pursuant to section 18-3-105, C.R.S., vehicular homicide pursuant to section 18-3-106 (1)(b), C.R.S., assault in the third degree pursuant to section 18-3-204, C.R.S., or vehicular assault pursuant to section 18-3-205 (1)(b), C.R.S.

(f) Chemical test - admissibility. Strict compliance with the rules and regulations prescribed by the department of public health and environment shall not be a prerequisite to the admissibility of test results at trial unless the court finds that the extent of noncompliance with a board of health rule has so impaired the validity and reliability of the testing method and the test results as to render the evidence inadmissible. In all other circumstances, failure to strictly comply with such rules and regulations shall only be considered in the weight to be given to the test results and not to the admissibility of such test results.

(g) It shall not be a prerequisite to the admissibility of test results at trial that the prosecution present testimony concerning the composition of any kit used to obtain blood, urine, saliva, or breath specimens. A sufficient evidentiary foundation concerning the compliance of such kits with the rules and regulations of the department of public health and environment shall be established by the introduction of a copy of the manufacturer's or supplier's certificate of compliance with such rules and regulations if such certificate specifies the contents, sterility, chemical makeup, and amounts of chemicals contained in such kit.

(h) In any trial for a violation of this section, the testimony of a law enforcement officer that he or she witnessed the taking of a blood specimen by a person who the law enforcement officer reasonably believed was authorized to withdraw blood specimens shall be sufficient evidence that such person was so authorized, and testimony from the person who obtained the

blood specimens concerning such person's authorization to obtain blood specimens shall not be a prerequisite to the admissibility of test results concerning the blood specimens obtained.

(i)

(I) Following the lawful contact with a person who has been driving a motor vehicle or vehicle and when a law enforcement officer reasonably suspects that a person was driving a motor vehicle or vehicle while under the influence of or while impaired by alcohol, the law enforcement officer may conduct a preliminary screening test using a device approved by the executive director of the department of public health and environment after first advising the driver that the driver may either refuse or agree to provide a sample of the driver's breath for such preliminary test; except that, if the driver is under twenty-one years of age, the law enforcement officer may, after providing such advisement to the person, conduct such preliminary screening test if the officer reasonably suspects that the person has consumed any alcohol.

(II) The results of this preliminary screening test may be used by a law enforcement officer in determining whether probable cause exists to believe such person was driving a motor vehicle or vehicle in violation of this section and whether to administer a test pursuant to section 42-4-1301.1 (2).

(III) Neither the results of such preliminary screening test nor the fact that the person refused such test shall be used in any court action except in a hearing outside of the presence of a jury, when such hearing is held to determine if a law enforcement officer had probable cause to believe that the driver committed a violation of this section. The results of such preliminary screening test shall be made available to the driver or the driver's attorney on request.

(j) In any trial for a violation of this section, if, at the time of the alleged offense, the person possessed a valid medical marijuana registry identification card, as defined in section 25-1.5-106 (2)(e), C.R.S., issued to himself or herself, the prosecution shall not use such fact as part of the prosecution's case in chief.

(k) In any traffic stop, the driver's possession of a valid medical marijuana registry identification card, as defined in section 25-1.5-106 (2)(e), C.R.S., issued to himself or herself shall not, in the absence of other contributing factors, constitute probable cause for a peace officer to require the driver to submit to an analysis of his or her blood.

(7) Repealed.

(8) A second or subsequent violation of this section committed by a person under eighteen years of age may be filed in juvenile court.

42-4-1301.1. Expressed consent for the taking of blood, breath, urine, or saliva sample - testing - fund - rules - repeal

(1) Any person who drives any motor vehicle upon the streets and highways and elsewhere throughout this state shall be deemed to have expressed such person's consent to the provisions of this section.

(2) (a) (I) A person who drives a motor vehicle upon the streets and highways and elsewhere throughout this state shall be required to take and complete, and to cooperate in the taking and completing of, any test or tests of the person's breath or blood for the purpose of determining the alcoholic content of the person's blood or breath when so requested and directed by a law enforcement officer having probable cause to believe that the person was driving a motor vehicle in violation of the prohibitions against DUI, DUI *per se*, DWAI, or UDD. Except as otherwise provided in this section, if a person who is twenty-one years of age or older requests that the test be a blood test, then the test shall be of his or her blood; but, if the person requests that a specimen of his or her blood not be drawn, then a specimen of the person's breath shall be obtained and tested. A person who is under twenty-one years of age shall be entitled to request a blood test unless the alleged violation is UDD, in which case a specimen of the person's breath shall be obtained and tested, except as provided in subparagraph (II) of this paragraph (a).

(II) Except as otherwise provided in paragraph (a.5) of this subsection (2), if a person elects either a blood test or a breath test, the person shall not be permitted to change the election, and, if the person fails to take and complete, and to cooperate in the completing of, the test elected, the failure shall be deemed to be a refusal to submit to testing. If the person is unable to take, or to complete, or to cooperate in the completing of a breath test because of injuries, illness, disease, physical infirmity, or physical incapacity, or if the person is receiving medical treatment at a location at which a breath testing instrument certified by the department of public health and environment is not available, the test shall be of the person's blood.

(III) If a law enforcement officer requests a test under this paragraph (a), the person must cooperate with the request such that the sample of blood or breath can be obtained within two hours of the person's driving.

(a.5)

(I) If a law enforcement officer who requests a person to take a breath or blood test under paragraph (a) of this subsection (2) determines there are extraordinary circumstances that prevent the completion of the test elected by the person within the two-hour time period required by subparagraph (III) of paragraph (a) of this subsection (2), the officer shall inform the person of the extraordinary circumstances and request and direct the person to take and complete the other test described in paragraph (a) of this subsection (2). The person shall then be required to take and complete, and to cooperate in the completing of, the other test.

(II) A person who initially requests and elects to take a blood or breath test, but who is requested and directed by the law enforcement officer to take the other test because of the extraordinary circumstances described in subparagraph (I) of this paragraph (a.5), may change his or her election for the purpose of complying with the officer's request. The change in the election of which test to take shall not be deemed to be a refusal to submit to testing.

(III) If the person fails to take and complete, and to cooperate in the completing of, the other test requested by the law enforcement officer pursuant to subparagraph (I) of this paragraph (a.5), the failure shall be deemed to be a refusal to submit to testing.

(IV) (A) As used in this paragraph (a.5), "extraordinary circumstances" means circumstances beyond the control of, and not created by, the law enforcement officer who requests and directs a person to take a blood or breath test in accordance with this subsection (2) or the law enforcement authority with whom the officer is employed.

(B) "Extraordinary circumstances" includes, but shall not be limited to, weather-related delays, high call volume affecting medical personnel, power outages, malfunctioning breath test equipment, and other circumstances that preclude the timely collection and testing of a blood or breath sample by a qualified person in accordance with law.

(C) "Extraordinary circumstances" does not include inconvenience, a busy workload on the part of the law enforcement officer or law enforcement authority, minor delay that does not compromise the two-hour test period specified in subparagraph (III) of paragraph (a) of this subsection (2), or routine circumstances that are subject to the control of the law enforcement officer or law enforcement authority.

(b)

(I) Any person who drives any motor vehicle upon the streets and highways and elsewhere throughout this state shall be required to submit to and to complete, and to cooperate in the completing of, a test or tests of such person's blood, saliva, and urine for the purpose of determining the drug content within the person's system when so requested and directed by a law enforcement officer having probable cause to believe that the person was driving a motor vehicle in violation of the prohibitions against DUI or DWAI and when it is reasonable to require such testing of blood, saliva, and urine to determine whether such person was under the influence of, or impaired by, one or more drugs, or one or more controlled substances, or a combination of both alcohol and one or more drugs, or a combination of both alcohol and one or more controlled substances.

(II) If a law enforcement officer requests a test under this paragraph (b), the person must cooperate with the request such that the sample of blood, saliva, or urine can be obtained within two hours of the person's driving.

(3) Any person who is required to take and to complete, and to cooperate in the completing of, any test or tests shall cooperate with the person authorized to obtain specimens of such person's blood, breath, saliva, or urine, including the signing of any release or consent forms required by any person, hospital, clinic, or association authorized to obtain such specimens. If such person does not cooperate with the person, hospital, clinic, or association authorized to obtain such specimens, including the signing of any release or consent forms, such noncooperation shall be considered a refusal to submit to testing. No law enforcement officer shall physically restrain any person for the purpose of obtaining a specimen of such person's blood, breath, saliva, or urine for testing except when the officer has probable cause to believe that the person has committed criminally negligent homicide pursuant to section 18-3-105, C.R.S., vehicular homicide pursuant to section 18-3-106 (1)(b), C.R.S., assault in the third degree pursuant to section 18-3-204, C.R.S., or vehicular assault pursuant to section 18-3-205 (1)(b), C.R.S., and the person is refusing to take or to complete, or to cooperate in the completing of, any test or tests, then, in such event, the law enforcement officer may require a blood test.

(4) Any driver of a commercial motor vehicle requested to submit to a test as provided in paragraph (a) or (b) of subsection (2) of this section shall be warned by the law enforcement officer requesting the test that a refusal to submit to the test shall result in an out-of-service order as defined under section 42-2-402 (8) for a period of twenty-four hours and a revocation of the privilege to operate a commercial motor vehicle for one year as provided under section 42-2-126.

(5) The tests shall be administered at the direction of a law enforcement officer having probable cause to believe that the person had been driving a motor vehicle in violation of section 42-4-1301 and in accordance with rules and regulations prescribed by the department of public health and environment concerning the health of the person being tested and the accuracy of such testing.

(6) (a) No person except a physician, a registered nurse, a paramedic, as certified in part 2 of article 3.5 of title 25, C.R.S., an emergency medical service provider, as defined in part 1 of article 3.5 of title 25, C.R.S., or a person whose normal duties include withdrawing blood samples under the supervision of a physician or registered nurse shall withdraw blood to determine the alcoholic or drug content of the blood for purposes of this section.

(b) No civil liability shall attach to any person authorized to obtain blood, breath, saliva, or urine specimens or to any hospital, clinic, or association in or for which such specimens are obtained as provided in this section as a result of the act of obtaining such specimens from any person submitting thereto if such specimens were obtained according to the rules and regulations prescribed by the department of public health and environment; except that this provision shall not relieve any such person from liability for negligence in the obtaining of any specimen sample.

(7) A preliminary screening test conducted by a law enforcement officer pursuant to section 42-4-1301 (6)(i) shall not substitute for or qualify as the test or tests required by subsection (2) of this section.

(8) Any person who is dead or unconscious shall be tested to determine the alcohol or drug content of the person's blood or any drug content within such person's system as provided in this section. If a test cannot be administered to a person who is unconscious, hospitalized, or undergoing medical treatment because the test would endanger the person's life or health, the law enforcement agency shall be allowed to test any blood, urine, or saliva that was obtained and not utilized by a health care provider and shall have access to that portion of the analysis and results of any tests administered by such provider that shows the alcohol or drug content of the person's blood, urine, or saliva or any drug content within the person's system. Such test results shall not be considered privileged communications, and the provisions of section 13-90-107, C.R.S., relating to the physician-patient privilege shall not apply. Any person who is dead, in addition to the tests prescribed, shall also have the person's blood checked for carbon monoxide content and for the presence of drugs, as prescribed by the department of public health and environment. Such information obtained shall be made a part of the accident report.

(9) (a) There is created in the state treasury the evidential breath-testing cash fund, referred to in this section as the "fund", for the collection of moneys to purchase breath-testing devices for law enforcement agencies. The fund includes any moneys appropriated to the fund by the general assembly and any moneys credited to the fund pursuant to paragraph (c) of this subsection (9). The moneys in the fund are subject to annual appropriation by the general assembly to the department of public health and environment created in section 25-1-102, C.R.S., for the purposes described in this subsection (9).

(b) All interest derived from the deposit and investment of moneys in the fund must remain in the fund. Any unexpended or unencumbered moneys remaining in the fund at the end of a fiscal year must remain in the fund and not be transferred or credited to the general fund or another fund; except that any such unexpended and unencumbered moneys in excess of two million dollars must be credited to the general fund.

(c) The department of public health and environment is authorized to accept any gifts, grants, or donations from any private or public source on behalf of the state for the purposes described in this section. The department of public health and environment shall transmit all such gifts, grants, and donations to the state treasurer, who shall credit the same to the fund.

(d) The state board of health created in section 25-1-103, C.R.S., may promulgate rules for the administration of the fund for the purposes described in this subsection (9).

(e) This subsection (9) is repealed, effective September 1, 2024. Before repeal, the department of regulatory agencies, pursuant to 24-34-104, shall review the use of the fund by the department of public health and environment for the purposes described in this subsection (9).

42-4-1301.3. Alcohol and drug driving safety program - definition

(1) (a) Upon conviction of a violation of section 42-4-1301, the court shall sentence the defendant in accordance with the provisions of this section and other applicable provisions of this part 13. The court shall consider the alcohol and drug evaluation required pursuant to this section prior to sentencing; except that the court may proceed to immediate sentencing without considering such alcohol and drug evaluation:

(I) (A) If the defendant has no prior convictions or pending charges under this section; or

(B) If the defendant has one or more prior convictions, the prosecuting attorney and the defendant have stipulated to such conviction or convictions; and

(II) If neither the defendant nor the prosecuting attorney objects.

(b) If the court proceeds to immediate sentencing, without considering an alcohol and drug evaluation, the alcohol and drug evaluation shall be conducted after sentencing, and the court shall order the defendant to complete the education and treatment program recommended in the alcohol and drug evaluation. If the defendant disagrees with the education and treatment program recommended in the alcohol and drug evaluation, the defendant may request the court to hold a hearing to determine which education and treatment program should be completed by the defendant.

(2) (Deleted by amendment, L. 2011, (HB 11-1268), ch. 267, p. 1217, § 1, effective June 2, 2011.)

(3) (a) The judicial department shall administer in each judicial district an alcohol and drug driving safety program that provides presentence and postsentence alcohol and drug evaluations on all persons convicted of a violation of section 42-4-1301. The alcohol and drug driving safety program shall further provide supervision and monitoring of all such persons whose sentences or terms of probation require completion of a program of alcohol and drug driving safety education or treatment.

(b) The presentence and postsentence alcohol and drug evaluations shall be conducted by such persons determined by the judicial department to be qualified to provide evaluation and supervision services as described in this section.

(c)

(I) An alcohol and drug evaluation shall be conducted on all persons convicted of a violation of section 42-4-1301, and a copy of the report of the evaluation shall be provided to such person. The report shall be made available to and shall be considered by the court prior to sentencing unless the court proceeds to immediate sentencing pursuant to the provisions of subsection (1) of this section.

(II) The report shall contain the defendant's prior traffic record, characteristics and history of alcohol or drug problems, and amenability to rehabilitation. The report shall include a recommendation as to alcohol and drug driving safety education or treatment for the defendant.

(III) The alcohol evaluation shall be conducted and the report prepared by a person who is trained and knowledgeable in the diagnosis of chemical dependency. Such person's duties may also include appearing at sentencing and probation hearings as required, referring defendants to education and treatment agencies in accordance with orders of the court, monitoring defendants in education and treatment programs, notifying the probation department and the court of any defendant failing to meet the conditions of probation or referral to education or treatment, appearing at revocation hearings as required, and providing assistance in data reporting and program evaluation.

(IV) For the purpose of this section, "alcohol and drug driving safety education or treatment" means either level I or level II education or treatment programs approved by the office of behavioral health in the department of human services. Level I programs are short-term, didactic education programs. Level II programs are therapeutically oriented education, long-term outpatient, and comprehensive residential programs. The court shall instruct a defendant sentenced to level I or level II programs to meet all financial obligations of the programs. If the financial obligations are not met, the program shall notify the sentencing court for the purpose of collection or review and further action on the defendant's sentence. Nothing in this section prohibits treatment agencies from applying to the state for money to recover the costs of level II treatment for defendants determined indigent by the court.

(4) (a) There is created an alcohol and drug driving safety program fund in the office of the state treasurer, referred to in this subsection (4) as the "fund". The fund consists of money deposited in it as directed by this subsection (4)(a). The assessment in effect on July 1, 1998, remains in effect unless the judicial department and the office of behavioral health in the department of human services have provided the general assembly with a statement of the cost of the program, including costs of administration for the past and current fiscal year to include a proposed change in the assessment. The general assembly shall then consider the proposed new assessment and approve the amount to be assessed against each person during the following fiscal year in order to ensure that the alcohol and drug driving safety program established in this section is financially self-supporting. Any adjustment in the amount to be assessed must be noted in the appropriation to the judicial department and the office of behavioral health in the department of human services as a footnote or line item related to this program in the general appropriation bill. The state auditor shall periodically audit the costs of the programs to determine that they are reasonable and that the rate charged is accurate based on these costs. Any other fines, fees, or costs levied against a person are not part of the program fund. The court shall transmit to the state treasurer the amount assessed for the alcohol and drug

evaluation to be credited to the fund. Fees charged pursuant to sections 27-81- 106 (1) and 27-82- 103 (1) to approved alcohol and drug treatment facilities that provide level I and level II programs as provided in subsection (3)(c) of this section must be transmitted to the state treasurer, who shall credit the fees to the fund. Upon appropriation by the general assembly, the money must be expended by the judicial department and the office of behavioral health in the department of human services for the administration of the alcohol and drug driving safety program. In administering the alcohol and drug driving safety program, the judicial department is authorized to contract with any agency for any services the judicial department deems necessary. Money deposited in the fund remains in the fund to be used for the purposes set forth in this section and must not revert or transfer to the general fund except by further act of the general assembly.

(b) The judicial department shall ensure that qualified personnel are placed in the judicial districts. The judicial department and the office of behavioral health in the department of human services shall jointly develop and maintain criteria for evaluation techniques, treatment referral, data reporting, and program evaluation.

(c) The alcohol and drug driving safety program shall cooperate in providing services to a defendant who resides in a judicial district other than the one in which the arrest was made. Alcohol and drug driving safety programs may cooperate in providing services to any defendant who resides at a location closer to another judicial district's program. The requirements of this section shall not apply to persons who are not residents of Colorado at the time of sentencing.

(d) Notwithstanding any provision of paragraph (a) of this subsection (4) to the contrary, on March 5, 2003, the state treasurer shall deduct one million dollars from the alcohol and drug driving safety program fund and transfer such sum to the general fund.

(5) The provisions of this section are also applicable to any defendant who receives a diversion in accordance with section 18-1.3-101, C.R.S., or who receives a deferred sentence in accordance with section 18-1.3-102, C.R.S., and the completion of any stipulated alcohol evaluation, level I or level II education program, or level I or level II treatment program to be completed by the defendant shall be ordered by the court in accordance with the conditions of such deferred prosecution or deferred sentence as stipulated to by the prosecution and the defendant.

(6) An approved alcohol or drug treatment facility that provides level I or level II programs as provided in paragraph (c) of subsection (3) of this section shall not require a person to repeat any portion of an alcohol and drug driving safety education or treatment program that he or she has successfully completed while he or she was imprisoned for the current offense.

APPENDIX C

STANDARDIZED LAW ENFORCEMENT TRAINING

Standardized Field Sobriety Test (SFST)

The Standardized Field Sobriety Test training⁷⁴ is a 3-day, 24-hour course. The SFST is comprised of three phases: (1) vehicle in motion, (2) personal contact, and (3) pre-arrest screening. The final phase includes the administration of psychophysical tests which include Horizontal Gaze Nystagmus (HGN), Walk and Turn (WAT), and the One Leg Stand (OLS). These tests are described below.

During the HGN test, an officer has the subject follow the motion of a stimulus (e.g., the tip of a pen) and tracks the movement of the subject's eyes. The officer is specifically looking for a lack of smooth pursuit, sustained nystagmus⁷⁵ at maximum deviation, and onset of nystagmus prior to 45 degrees in each eye.

Divided attention is a critical task in driving, and both the WAT and OLS aim to assess a subject's ability to focus on multiple items simultaneously. The WAT is a two-stage test that includes an instruction and a walking stage. Subjects are to stand in heel-to-toe position on a straight line and balance while listening to instructions. Following this, they then take nine heel-to-toe steps in a straight line while counting these steps out loud and keeping their gaze on their feet. The subject will then turn 360 degrees on the ninth step by taking several small steps around the lead foot and continue to take nine steps down the line. The former stage divides attention on balance while standing in a heel-to-toe position and information processing of task instructions. The latter stage divides attention on balance, muscle control, and short term memory. There are a number of clues associated with impairment during this task, including the following: lack of balance during instruction stage, beginning too soon, stopping while walking, lack of heel-to-toe contact, stepping off the line, using arms to balance, turning improperly, and an incorrect number of steps.

The OLS also consists of two stages, the instruction stage and the balance and counting stage. The subject begins with feet together and arms down while the officer describes the task as hand. Once the officer has completed the instructions, the subject is to keep their legs straight while raising either foot six inches off the ground while maintaining that foot parallel to the ground. During this period the subject should maintain their gaze on the raised foot and count "one thousand one," "one thousand two," until directed to stop by the officer. The former stage divides attention on balance and information processing. The latter stage divides attention on balance and the mental task of counting out loud. There are four clues associated with impairment in this particular test; these are swaying while balancing, using arms to balance, hopping, and putting a foot down.

Three studies validated these tests, occurring in Colorado (1995), Florida (1997), and San Diego (1998). The Colorado study found that law enforcement trained in SFST were 86% accurate in arrest/release decisions at a BAC of 0.05 using HGN, WAT, and OLS and, of these arrest decisions, 93% had BACs at or above 0.05. The study in Florida also validated the full battery with a 95% accurate arrest decision at a BAC of 0.08. Finally, the San Diego study found that law enforcement was 91% accurate in arrest decisions at a 0.08 BAC. Furthermore, the San Diego study found that HGN was 88% accurate, WAT was 79% accurate, and the OLS was 83% accurate in determining alcohol impairment.

In addition to these validated tests, officers are trained how to detect other potential physical signs of impairment and thoroughly articulate cumulative observations of impairment.

Beyond these standardized classroom trainings there are additional hands-on, practical labs in which law enforcement can participate, hosted by POST and law enforcement agencies. Live alcohol workshops, also known as “wet labs,” are an optional component of the SFST. These wet labs are set up so law enforcement can participate in mock contact with a volunteer who has or has not consumed alcohol. The consumption is concealed and occurs in a separate setting from officers. Law enforcement interacts with these volunteers as though they are suspected of impaired driving and implement the battery of tests to detect and assess impairment.

Advanced Roadside Impaired Driving Enforcement (ARIDE)

In 2009, the NHTSA and IACP developed the 2-day, 16-hour, Advanced Roadside Impaired Driving Enforcement training.⁷⁶ Peace officers are required to complete the SFST training prior to participating in the ARIDE program. ARIDE aims to better equip officers to observe, identify, and articulate drug impairment during and after a roadside investigation. The program works in conjunction with the DRE program (described below), but does not substitute for the rigorous training involved in becoming a DRE. ARIDE training reviews the SFST battery of tests, provides additional testing methods, and promotes a deeper understanding of the effects of drugs on the body.

Additional tests include the Vertical Gaze Nystagmus (VGN), Lack of Convergence (LOC), and the Modified Romberg Balance (MRB). VGN, similar to HGN, is a sustained, involuntary jerking of the eyes, but VGN occurs at the maximum elevation of a stimulus. This is typically observed in conjunction with HGN for subjects with a high level of alcohol and some drugs. LOC is manifested as the inability of the subject’s eyes to cross upon a stimulus coming towards the bridge of their nose. In addition to these two eye examinations, ARIDE trains officers to understand the dilation and constriction of pupils and the impact of different drugs on pupil size.

The MRB tests the subject’s balance, presence of tremors, and perception of time. The test consists of an instruction and a balance stage. The subject is first asked to stand with feet together and arms down, and to listen to the full set of instructions. Following this, the subject is to close their eyes, tilt their head back slightly, and internally estimate the passage of 30 seconds until the officer says stop. Clues associated with impairment in this test include the incorrect estimate of time, eyelid or body tremors, and swaying.

A critical component of ARIDE training is the focus on seven categories of drugs, (1) Central Nervous System (CNS) Depressants, (2) CNS Stimulants, (3) Hallucinogens, (4) Dissociative Anesthetics, (5) Narcotic Analgesics, (6) Inhalants, and (7) Cannabis. ARIDE trainees learn indicators of impairments, methods of consumption, and pharmacokinetics associated with each drug type. The training also reviews medical and behavioral conditions that may be mistaken for impairment. Finally, ARIDE highlights the issue of polydrug use and the potential effects associated with combining multiple drugs.

Drug Recognition Expert (DRE)

The most comprehensive driving impairment training available for peace officers is the Drug Recognition Expert (DRE) training^{77, 78} program, also known as the Drug Evaluation and Classification (DEC) program. The DRE training program has been supported by the IACP and NHTSA since the 1980s. The Colorado DRE program began in 1987, and the official standards for the DRE program were adopted in 1992.

Peace officers must be SFST certified prior to participating in the DRE training program. The focus of the program is training officers to recognize driving impairments beyond alcohol only impairment.

The DRE program is comprised of the following three phases.⁷⁹

1. **Phase I.** The Preliminary School consists of 16 hours of instruction during which participants gain an overview/introduction to the seven DRE-defined drug categories, the 12-step protocol known as the *drug influence evaluation*, and the divided attention tasks used in the evaluation process.
2. **Phase II.** The School phase consists of 56 hours of instruction participants learn how to conduct the 12-step standardized drug influence evaluation. The drug influence examination is a 12-step protocol that occurs in a controlled setting and takes approximately 60 to 90 minutes. It consists of the following activities:
 1. Preliminary breath alcohol test
 2. Interview of arresting officer (if not a DRE)
 3. Preliminary exam and first pulse
 4. Eye examinations
 5. Divided attention tasks
 - a. Modified Romberg Balance
 - b. Walk and Turn
 - c. One Leg Stand
 - d. Finger to Nose
 6. Vital signs and second pulse
 7. Dark room examination and ingestion exam
 8. Exam of muscle tone
 9. Injection sites and third pulse
 10. Suspect statements
 11. Opinion of DRE evaluator
 12. Toxicological exam

Trainees learn to document and connect these observations to the seven drug categories, alcohol, polydrug use, and/or medical conditions that may exhibit the same impairments. Successful completion of this phase is dependent on passing a written exam of course material.

3. **Phase III.** The Field Certification phase occurs upon successful completion of the prior phases and must be conducted within the following 60 to 90 days. This is supervised on-the-job training that requires a minimum of 12 evaluations.

At any time during the 12-step protocol, the DRE can transport the suspect to an appropriate site, such as a hospital, to have blood drawn. During the protocol, the DRE specifically observes the suspect behavior and compares it against the seven behavior-based drug category descriptions.

APPENDIX D OGDEN MEMO



U.S. Department of Justice

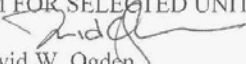
Office of the Deputy Attorney General

The Deputy Attorney General

Washington, D.C. 20530

October 19, 2009

MEMORANDUM FOR SELECTED UNITED STATES ATTORNEYS

FROM: 
David W. Ogden
Deputy Attorney General

SUBJECT: Investigations and Prosecutions in States
Authorizing the Medical Use of Marijuana

This memorandum provides clarification and guidance to federal prosecutors in States that have enacted laws authorizing the medical use of marijuana. These laws vary in their substantive provisions and in the extent of state regulatory oversight, both among the enacting States and among local jurisdictions within those States. Rather than developing different guidelines for every possible variant of state and local law, this memorandum provides uniform guidance to focus federal investigations and prosecutions in these States on core federal enforcement priorities.

The Department of Justice is committed to the enforcement of the Controlled Substances Act in all States. Congress has determined that marijuana is a dangerous drug, and the illegal distribution and sale of marijuana is a serious crime and provides a significant source of revenue to large-scale criminal enterprises, gangs, and cartels. One timely example underscores the importance of our efforts to prosecute significant marijuana traffickers: marijuana distribution in the United States remains the single largest source of revenue for the Mexican cartels.

The Department is also committed to making efficient and rational use of its limited investigative and prosecutorial resources. In general, United States Attorneys are vested with “plenary authority with regard to federal criminal matters” within their districts. USAM 9-2.001. In exercising this authority, United States Attorneys are “invested by statute and delegation from the Attorney General with the broadest discretion in the exercise of such authority.” *Id.* This authority should, of course, be exercised consistent with Department priorities and guidance.

The prosecution of significant traffickers of illegal drugs, including marijuana, and the disruption of illegal drug manufacturing and trafficking networks continues to be a core priority in the Department’s efforts against narcotics and dangerous drugs, and the Department’s investigative and prosecutorial resources should be directed towards these objectives. As a general matter, pursuit of these priorities should not focus federal resources in your States on



Memorandum for Selected United States Attorneys

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Subject: Investigations and Prosecutions in States Authorizing the Medical Use of Marijuana

individuals whose actions are in clear and unambiguous compliance with existing state laws providing for the medical use of marijuana. For example, prosecution of individuals with cancer or other serious illnesses who use marijuana as part of a recommended treatment regimen consistent with applicable state law, or those caregivers in clear and unambiguous compliance with existing state law who provide such individuals with marijuana, is unlikely to be an efficient use of limited federal resources. On the other hand, prosecution of commercial enterprises that unlawfully market and sell marijuana for profit continues to be an enforcement priority of the Department. To be sure, claims of compliance with state or local law may mask operations inconsistent with the terms, conditions, or purposes of those laws, and federal law enforcement should not be deterred by such assertions when otherwise pursuing the Department's core enforcement priorities.

Typically, when any of the following characteristics is present, the conduct will not be in clear and unambiguous compliance with applicable state law and may indicate illegal drug trafficking activity of potential federal interest:

- unlawful possession or unlawful use of firearms;
- violence;
- sales to minors;
- financial and marketing activities inconsistent with the terms, conditions, or purposes of state law, including evidence of money laundering activity and/or financial gains or excessive amounts of cash inconsistent with purported compliance with state or local law;
- amounts of marijuana inconsistent with purported compliance with state or local law;
- illegal possession or sale of other controlled substances; or
- ties to other criminal enterprises.

Of course, no State can authorize violations of federal law, and the list of factors above is not intended to describe exhaustively when a federal prosecution may be warranted. Accordingly, in prosecutions under the Controlled Substances Act, federal prosecutors are not expected to charge, prove, or otherwise establish any state law violations. Indeed, this memorandum does not alter in any way the Department's authority to enforce federal law, including laws prohibiting the manufacture, production, distribution, possession, or use of marijuana on federal property. This guidance regarding resource allocation does not "legalize" marijuana or provide a legal defense to a violation of federal law, nor is it intended to create any privileges, benefits, or rights, substantive or procedural, enforceable by any individual, party or witness in any administrative, civil, or criminal matter. Nor does clear and unambiguous compliance with state law or the absence of one or all of the above factors create a legal defense to a violation of the Controlled Substances Act. Rather, this memorandum is intended solely as a guide to the exercise of investigative and prosecutorial discretion.



Memorandum for Selected United States Attorneys

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Subject: Investigations and Prosecutions in States Authorizing the Medical Use of Marijuana

Finally, nothing herein precludes investigation or prosecution where there is a reasonable basis to believe that compliance with state law is being invoked as a pretext for the production or distribution of marijuana for purposes not authorized by state law. Nor does this guidance preclude investigation or prosecution, even when there is clear and unambiguous compliance with existing state law, in particular circumstances where investigation or prosecution otherwise serves important federal interests.

Your offices should continue to review marijuana cases for prosecution on a case-by-case basis, consistent with the guidance on resource allocation and federal priorities set forth herein, the consideration of requests for federal assistance from state and local law enforcement authorities, and the Principles of Federal Prosecution.

cc: All United States Attorneys

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Assistant Attorney General
Criminal Division

B. Todd Jones
United States Attorney
District of Minnesota
Chair, Attorney General's Advisory Committee

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H. Marshall Jarrett
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Federal Bureau of Investigation



APPENDIX E COLE MEMO



U.S. Department of Justice


Office of the Deputy Attorney General

The Deputy Attorney General

Washington, D.C. 20530

August 29, 2013

MEMORANDUM FOR ALL UNITED STATES ATTORNEYS

FROM: James M. Cole 
Deputy Attorney General

SUBJECT: Guidance Regarding Marijuana Enforcement

In October 2009 and June 2011, the Department issued guidance to federal prosecutors concerning marijuana enforcement under the Controlled Substances Act (CSA). This memorandum updates that guidance in light of state ballot initiatives that legalize under state law the possession of small amounts of marijuana and provide for the regulation of marijuana production, processing, and sale. The guidance set forth herein applies to all federal enforcement activity, including civil enforcement and criminal investigations and prosecutions, concerning marijuana in all states.

As the Department noted in its previous guidance, Congress has determined that marijuana is a dangerous drug and that the illegal distribution and sale of marijuana is a serious crime that provides a significant source of revenue to large-scale criminal enterprises, gangs, and cartels. The Department of Justice is committed to enforcement of the CSA consistent with those determinations. The Department is also committed to using its limited investigative and prosecutorial resources to address the most significant threats in the most effective, consistent, and rational way. In furtherance of those objectives, as several states enacted laws relating to the use of marijuana for medical purposes, the Department in recent years has focused its efforts on certain enforcement priorities that are particularly important to the federal government:

- Preventing the distribution of marijuana to minors;
- Preventing revenue from the sale of marijuana from going to criminal enterprises, gangs, and cartels;
- Preventing the diversion of marijuana from states where it is legal under state law in some form to other states;
- Preventing state-authorized marijuana activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity;



Memorandum for All United States Attorneys
Subject: Guidance Regarding Marijuana Enforcement

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- Preventing violence and the use of firearms in the cultivation and distribution of marijuana;
- Preventing drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use;
- Preventing the growing of marijuana on public lands and the attendant public safety and environmental dangers posed by marijuana production on public lands; and
- Preventing marijuana possession or use on federal property.

These priorities will continue to guide the Department's enforcement of the CSA against marijuana-related conduct. Thus, this memorandum serves as guidance to Department attorneys and law enforcement to focus their enforcement resources and efforts, including prosecution, on persons or organizations whose conduct interferes with any one or more of these priorities, regardless of state law.¹

Outside of these enforcement priorities, the federal government has traditionally relied on states and local law enforcement agencies to address marijuana activity through enforcement of their own narcotics laws. For example, the Department of Justice has not historically devoted resources to prosecuting individuals whose conduct is limited to possession of small amounts of marijuana for personal use on private property. Instead, the Department has left such lower-level or localized activity to state and local authorities and has stepped in to enforce the CSA only when the use, possession, cultivation, or distribution of marijuana has threatened to cause one of the harms identified above.

The enactment of state laws that endeavor to authorize marijuana production, distribution, and possession by establishing a regulatory scheme for these purposes affects this traditional joint federal-state approach to narcotics enforcement. The Department's guidance in this memorandum rests on its expectation that states and local governments that have enacted laws authorizing marijuana-related conduct will implement strong and effective regulatory and enforcement systems that will address the threat those state laws could pose to public safety, public health, and other law enforcement interests. A system adequate to that task must not only contain robust controls and procedures on paper; it must also be effective in practice. Jurisdictions that have implemented systems that provide for regulation of marijuana activity

¹ These enforcement priorities are listed in general terms; each encompasses a variety of conduct that may merit civil or criminal enforcement of the CSA. By way of example only, the Department's interest in preventing the distribution of marijuana to minors would call for enforcement not just when an individual or entity sells or transfers marijuana to a minor, but also when marijuana trafficking takes place near an area associated with minors; when marijuana or marijuana-infused products are marketed in a manner to appeal to minors; or when marijuana is being diverted, directly or indirectly, and purposefully or otherwise, to minors.



Memorandum for All United States Attorneys
Subject: Guidance Regarding Marijuana Enforcement

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must provide the necessary resources and demonstrate the willingness to enforce their laws and regulations in a manner that ensures they do not undermine federal enforcement priorities.

In jurisdictions that have enacted laws legalizing marijuana in some form and that have also implemented strong and effective regulatory and enforcement systems to control the cultivation, distribution, sale, and possession of marijuana, conduct in compliance with those laws and regulations is less likely to threaten the federal priorities set forth above. Indeed, a robust system may affirmatively address those priorities by, for example, implementing effective measures to prevent diversion of marijuana outside of the regulated system and to other states, prohibiting access to marijuana by minors, and replacing an illicit marijuana trade that funds criminal enterprises with a tightly regulated market in which revenues are tracked and accounted for. In those circumstances, consistent with the traditional allocation of federal-state efforts in this area, enforcement of state law by state and local law enforcement and regulatory bodies should remain the primary means of addressing marijuana-related activity. If state enforcement efforts are not sufficiently robust to protect against the harms set forth above, the federal government may seek to challenge the regulatory structure itself in addition to continuing to bring individual enforcement actions, including criminal prosecutions, focused on those harms.

The Department's previous memoranda specifically addressed the exercise of prosecutorial discretion in states with laws authorizing marijuana cultivation and distribution for medical use. In those contexts, the Department advised that it likely was not an efficient use of federal resources to focus enforcement efforts on seriously ill individuals, or on their individual caregivers. In doing so, the previous guidance drew a distinction between the seriously ill and their caregivers, on the one hand, and large-scale, for-profit commercial enterprises, on the other, and advised that the latter continued to be appropriate targets for federal enforcement and prosecution. In drawing this distinction, the Department relied on the common-sense judgment that the size of a marijuana operation was a reasonable proxy for assessing whether marijuana trafficking implicates the federal enforcement priorities set forth above.

As explained above, however, both the existence of a strong and effective state regulatory system, and an operation's compliance with such a system, may allay the threat that an operation's size poses to federal enforcement interests. Accordingly, in exercising prosecutorial discretion, prosecutors should not consider the size or commercial nature of a marijuana operation alone as a proxy for assessing whether marijuana trafficking implicates the Department's enforcement priorities listed above. Rather, prosecutors should continue to review marijuana cases on a case-by-case basis and weigh all available information and evidence, including, but not limited to, whether the operation is demonstrably in compliance with a strong and effective state regulatory system. A marijuana operation's large scale or for-profit nature may be a relevant consideration for assessing the extent to which it undermines a particular federal enforcement priority. The primary question in all cases – and in all jurisdictions – should be whether the conduct at issue implicates one or more of the enforcement priorities listed above.



Memorandum for All United States Attorneys
Subject: Guidance Regarding Marijuana Enforcement

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As with the Department's previous statements on this subject, this memorandum is intended solely as a guide to the exercise of investigative and prosecutorial discretion. This memorandum does not alter in any way the Department's authority to enforce federal law, including federal laws relating to marijuana, regardless of state law. Neither the guidance herein nor any state or local law provides a legal defense to a violation of federal law, including any civil or criminal violation of the CSA. Even in jurisdictions with strong and effective regulatory systems, evidence that particular conduct threatens federal priorities will subject that person or entity to federal enforcement action, based on the circumstances. This memorandum is not intended to, does not, and may not be relied upon to create any rights, substantive or procedural, enforceable at law by any party in any matter civil or criminal. It applies prospectively to the exercise of prosecutorial discretion in future cases and does not provide defendants or subjects of enforcement action with a basis for reconsideration of any pending civil action or criminal prosecution. Finally, nothing herein precludes investigation or prosecution, even in the absence of any one of the factors listed above, in particular circumstances where investigation and prosecution otherwise serves an important federal interest.

cc: Mythili Raman
Acting Assistant Attorney General, Criminal Division

Loretta E. Lynch
United States Attorney
Eastern District of New York
Chair, Attorney General's Advisory Committee

Michele M. Leonhart
Administrator
Drug Enforcement Administration

H. Marshall Jarrett
Director
Executive Office for United States Attorneys

Ronald T. Hosko
Assistant Director
Criminal Investigative Division
Federal Bureau of Investigation



APPENDIX F

DRE CATEGORY AND SCHEDULE OF DRUGS

DRE Category	Drug Category	Drug	Schedule
CNS Depressant	Anesthetic	GHB	I
	Barbiturates	Butalbital	
	Barbiturates	Phenobarbital	IV
	Benzodiazepines	Alprazolam	IV
	Benzodiazepines	Clonazepam	IV
	Benzodiazepines	Diazepam or Chlordiazepoxide	IV
	Benzodiazepines	Etizolam	
	Benzodiazepines	Lorazepam	IV
	Benzodiazepines	Midazolam	IV
	Benzodiazepines	Nordiazepam	IV
	Benzodiazepines	Oxazepam	IV
	Benzodiazepines	Temazepam	IV
	Benzodiazepines	Triazolam	IV
	Benzodiazepines	Zolpidem	IV
	Benzodiazepines	Zopiclone	
	Tranquilizer	Carisoprodol	IV
	Tranquilizer	Meprobamate	IV
CNS Stimulant	Stimulant	Cocaine	II
	Stimulant	Modafinil	IV
	Sympathomimetic amine	Amphetamine	II
	Sympathomimetic amine	Methamphetamine	II
	Sympathomimetic amine	Phentermine	IV
	Sympathomimetic amine	Pseudoephedrine	
Dissociative Anesthetic	Anesthetic	Ketamine	III
Hallucinogen	Sympathomimetic amine	Methylenedioxyamphetamine (MDA)	I
	Sympathomimetic amine	Methylenedioxymethamphetamine (MDMA)	I
Inhalant	Inhalant	Polyfluorinated ethane	
	Inhalant	Toluene	
Narcotic Analgesic	Opioid	Buprenorphine	
	Opioid	Codeine	II
	Opioid	Fentanyl	II
	Opioid	Heroin	I
	Opioid	Hydrocodone	II
	Opioid	Hydromorphone	II
	Opioid	Methadone	II
	Opioid	Morphine	II
	Opioid	Oxycodone	II
	Opioid	Oxymorphone	II
	Opioid	Tramadol	
Cannabis	Cannabis	Cannabis	



DRE Category	Drug Category	Drug	Schedule
Prescription Drug	Anesthetic	Bupivacaine	
	Anesthetic	Lidocaine	
	Anesthetic	Propofol	
	Antibiotic	Trimethoprim	
	Anticholinergic	Dicyclomine	
	Anticonvulsant	Carbamazepine	
	Anticonvulsant	Lacosamide	
	Anticonvulsant	Lamotrigine	
	Anticonvulsant	Levetiracetam	
	Anticonvulsant	Phenytoin	
	Anticonvulsant	Topiramate	
	Anticonvulsant	Valproic Acid	
	Antidepressant	Amitriptyline	
	Antidepressant	Bupropion	
	Antidepressant	Cyclobenzaprine	
	Antidepressant	Doxepin	
	Antidepressant	Duloxetine	
	Antidepressant	Mirtazapine	
	Antidepressant	Trazodone	
	Antifungal	Fluconazole	
	Antihistamine	Cetirizine	
	Antihistamine	Chlorpheniramine	
	Antihistamine	Diphenhydramine	
	Antihistamine	Doxylamine	
	Antihistamine	Hydroxyzine	
	Antihistamine	Promethazine	
	Antihypertensive	Diltiazem	
	Antihypertensive	Metoprolol	
	Antiplatelet	Ticlopidine	
	Antipsychotic	Olanzapine	
	Antipsychotic	Quetiapine	
	Antitussive	Dextromethorphan	
	SSRI	Citalopram	
	SSRI	Fluoxetine	
	SSRI	Sertraline	
	SSRI	Venlafaxine	

Source: CBI, ChemaTox, DRE Manual, CRS 18-18-203.

APPENDIX G

2016 DUI CASE FILINGS BY JUDICIAL DISTRICT AND COUNTY

District	County	Case Filings
1	Gilpin	117
1	Jefferson	2489
2	Denver	2268
2	Denver Juvenile	1
3	Huerfano	68
3	Las Animas	111
4	El Paso	2750
4	Teller	176
5	Clear Creek	110
5	Eagle	568
5	Lake	70
5	Summit	395
6	Archuleta	85
6	La Plata	671
6	San Juan	8
7	Delta	204
7	Gunnison	186
7	Montrose	224
7	Ouray	58
7	San Miguel	115
8	Jackson	6
8	Larimer	1789
9	Garfield	633
9	Pitkin	150
9	Rio Blanco	43
10	Pueblo	656
11	Chaffee	115
11	Custer	18
11	Fremont	281
11	Park	78
12	Alamosa	189
12	Conejos	35
12	Costilla	25
12	Mineral	4
12	Rio Grande	72
12	Saguache	24
13	Kit Carson	65
13	Logan	103



District	County	Case Filings
13	Morgan	165
13	Phillips	15
13	Sedgwick	11
13	Washington	23
13	Yuma	37
14	Grand	167
14	Moffat	149
14	Routt	165
15	Baca	19
15	Cheyenne	20
15	Kiowa	9
15	Prowers	121
16	Bent	15
16	Crowley	14
16	Otero	96
17	Adams	2853
17	Broomfield	235
18	Arapahoe	3157
18	Douglas	1016
18	Elbert	98
18	Lincoln	37
19	Weld	1378
20	Boulder	1426
21	Mesa	834
22	Dolores	11
22	Montezuma	213

Source: State Judicial Department and Denver County Court.

APPENDIX H

2016 DUI CASE FILINGS BY ARRESTING AGENCY

Arresting Agency	Count
Adams County Sheriff's Office	576
Adams State Public Safety	4
Alamosa Police Dept	79
Alamosa Sheriff's Office	22
Alma Police Dept	2
Antonito Police Dept	8
Arapahoe County Sheriff's Office	280
Arapahoe District Attorney	5
Archuleta County Sheriff's Office	19
Arvada Police Dept	459
Aspen Police Dept	41
Ault Police Dept	8
Aurora Police Dept	2,221
Avon Police Dept	101
Baca County Sheriff's Office	4
Basalt Police Dept	47
Bayfield Police Dept	9
Bent County Sheriff's Office	5
Berthoud Police Dept	2
Black Hawk Police Dept	31
Boulder County Sheriff's Office	217
Boulder District Attorney	1
Boulder Police Dept	479
Breckenridge Police Dept	62
Brighton Police Dept	233
Broomfield County Sheriff's Office	234
Brush Police Dept	32
Buena Vista Police Dept	27
Burlington Police Dept	18
CO Div Parks Law Enf	8
CO Div of Wildlife	2
CO Div of Wildlife Central Cty	1
CO Div of Wildlife Pueblo	2
CO MH Institute at Pueblo	2
CO School of Mines PD	6
CO Springs Police Dept	1,614
CO State University PD	181
Colorado State Patrol	4,586
Calhan Town Marshal	6
Campo Police Department	1
Canon City Police Dept	52
Carbondale Police Dept	86
Castle Rock Police Dept	181
Cedaredge Marshall Office	3
Centennial Police Dept	280
Center Police Dept	10
Chaffee County Sheriff's Office	22
Chatfield State Park Rangers	1
Cherry Creek State Park-Aurora	2
Cherry Hills Police Dept	34
Cheyenne County Sheriff's Office	19
Clear Creek Sheriff's Office	21
Colorado Attorney General	1

Arresting Agency	Count
Collbran Town Marshall	3
Columbine Valley Police Dept	16
Commerce City Police Dept	201
Conejos County Sheriff's Office	12
Cortez Police Dept	133
Costilla County Sheriff's Office	19
Craig Police Dept	75
Creede Police Dept	1
Crested Butte Marshal	18
Cripple Creek Police Dept	12
Crowley County Sheriff's Office	11
Custer County Sheriff's Office	16
Dacono Police Dept	70
DeBeque Police Dept	6
Del Norte Police Dept	16
Delta County Sheriff's Office	20
Delta District Attorney	1
Delta Police Dept	50
Denver Police Dept	2,269
Dillon Police Dept	39
Dolores County Sheriff's Office	7
Douglas County Sheriff's Office	397
Douglas District Atty	1
Durango Police Dept	280
Eagle County Drug Task Force	1
Eagle Police Dept	73
Eagle Sheriff's Office	96
Eaton Police Dept	11
Edgewater Police Dept	194
El Paso County Sheriff's Office	424
El Paso District Attorney	23
Elbert County Sheriff's Office	76
Elizabeth Police Dept	11
Englewood Police Dept	180
Erie Police Dept	83
Estes Park Police Dept	58
Evans Police Dept	90
Fairplay Police Dept	3
Federal Heights Police Dept	37
Firestone Police Dept	21
Florence Police Dept	22
Fort Lupton Police Dept	112
Fort Morgan Police Dept	52
Fountain Police Dept	141
Fowler Police Dept	14
Frederick Police Dept	52
Fremont County Sheriff's Office	150
Fremont District Attorney	1
Frisco Police Dept	48
Fruita Police Dept	20
Ft Collins Police Dept	464
Ft Lewis St College Security	3
Garfield County Sheriff's Office	107
Garfield District Attorney	5
Georgetown Police Dept	8
Gilpin County Sheriff's Office	48
Glendale Police Dept	23

Arresting Agency	Count
Glenwood Springs Police Dept	155
Golden Police Dept	131
Granby Police Department	15
Grand County Sheriff's Office	55
Grand District Attorney	1
Grand Junction Police Dept	400
Greeley Police Dept	350
Green Mountain Falls Marshall	2
Greenwood Village Police Dept	136
Gunnison County Sheriff's Office	38
Gunnison Police Dept	58
Haxtun Police Dept	2
Hayden Police Dept	1
Highline State Park -Loma	1
Holyoke Police Dept	10
Hotchkiss Police Dept	1
Hudson Police Dept	2
Huerfano County Sheriff's Office	2
Huerfano District Attorney	3
Hugo Marshal	1
Idaho Springs Police Dept	25
Ignacio Police Dept	5
Jackson County Sheriff's Office	5
Jefferson County Sheriff's Office	313
Johnstown Police Dept	32
Keenesburg Police Dept	3
Kersey Police Dept	5
Kiowa City Police Dept.	2
Kiowa County Sheriff's Office	8
Kit Carson County Sheriff's Office	26
Kremmling Police Dept	4
La Jara Police Dept	3
La Junta Police Dept	18
La Plata County Sheriff's Office	198
LaSalle Police Dept	33
Lafayette Police Dept	81
Lake County Sheriff's Office	38
Lakeside Police Dept	6
Lakewood Police Dept	606
Lamar Police Dept	67
Larimer County Sheriff's Office	487
Larimer District Attorney	2
Las Animas County Sheriff's Office	11
Leadville Police Dept	18
Limon Police Dept	6
Lincoln County Sheriff's Office	7
Littleton Police Dept	126
Lochbuie Police Dept	33
Log Lane Police Dept	4
Logan County Sheriff's Office	46
Lone Tree Police Dept	92
Longmont Police Dept	380
Louisville Police Dept	65
Loveland Police Dept	359
Mancos Police Dept	2
Manitou Springs Police Dept	60
Meeker Police Dept	8

Arresting Agency	Count
Mesa County Sheriff's Office	158
Metro Auto Theft Task Force	1
Milliken Police Dept	38
Mineral County Sheriff's Office	1
Moffat County Sheriff's Office	28
Moffat District Attorney	1
Monte Vista Police Dept	29
Montezuma County Sheriff's Office	31
Montrose County Sheriff's Office	39
Montrose County Sheriff's Office-Nucla	4
Montrose Police Dept	84
Monument Police Dept	21
Morgan County Sheriff's Office	32
Morrison Police Dept	20
Mountain View Police Dept	22
Mountain Village Police Dept	4
Mt. Crested Butte Police Dept	33
Nederland Marshal's Office	8
New Castle Police Dept	18
North Metro Task Force	2
North Sterling Res State Park	1
Northglenn Police Dept	258
Nunn Police Dept	1
Oak Creek Police Dept	1
Olathe Police Dept	7
Otero County Sheriff's Office	7
Ouray Police Dept	5
Ouray Sheriff's Office	21
Pagosa Springs Police Dept	37
Palisade Police Dept	17
Palmer Lake Police Dept	4
Paonia Police Dept	2
Parachute Police Dept	43
Park County Sheriff's Office	50
Parker Police Dept	189
Phillips County Sheriff's Office	1
Pitkin County Sheriff's Office	58
Pitkin District Attorney	1
Platteville Police Dept	32
Prowers County Sheriff's Office	31
Pueblo Community College PD	1
Pueblo County Sheriff's Office	173
Pueblo Police Dept	334
Pueblo State Park Rangers	3
Rangely Police Dept	16
Red Rocks Community College Police Dept	3
Ridgway Marshall's Office	3
Rifle Gap/Falls St Pk Rangers	1
Rifle Police Dept	63
Rio Blanco County Sheriff's Office	14
Rio Grande County Sheriff's Office	9
Rocky Ford Police Dept	8
Routt County Sheriff's Office	21
Sagauche County Sheriff's Office	8
Salida Police Dept	39
San Juan County Sheriff's Office	6
San Miguel County Sheriff's Office	16

Arresting Agency	Count
San Miguel District Attorney	1
Sedgwick County Sheriff's Office	7
Sheridan Police Dept	74
Silt Police Dept	8
Silverthorne Police Dept	29
Simla Police Dept	2
Snowmass Village Police Dept	16
Southern Ute Tribal Police	1
Springfield Police Dept	8
Steamboat Springs Police Dept	74
Sterling Police Dept	34
Stratton Police Dept	2
Summit County Sheriff's Office	84
Teller County Sheriff's Office	80
Teller District Attorney 4th	2
Telluride Marshal	81
Thornton Police Dept	455
Timnath Police Dept	6
Trinidad Police Dept	31
Univ CO Health Sciences PD-Denver	6
Univ CO at CO Springs	1
Univ Hlth Scien PD Fitzsimmons	7
Univ of CO Police	65
Univ of Northern CO PD	3
Vail Police Dept	61
Walsenburg Police Dept	12
Washington County Sheriff's Office	13
Weld County Sheriff's Office	134
West Metro Task Force	40
Westminster Police Dept	341
Wheat Ridge Police Dept	121
Windsor Police Dept	44
Winter Park/Fraser Police Dept	55
Woodland Park Police Dept	48
Wray Police Dept	1
Yuma County Sheriff's Office	6
Yuma Police Dept	14

Source: State Judicial Department and Denver County Court

APPENDIX I

COMMON INITIAL CHARGES, EXCLUDING DUI

Initial Charge	Count
CARELESS DRIVING	7,853
LANE USAGE VIOLATION	5,108
FAILURE TO DISPLAY PROOF OF INSURANCE	4,884
DRIVING UNDER RESTRAINT	2,911
ALCOHOL-OPEN CONTAINER/DRINK IN VEHICLE	2,001
DRIVER'S LICENSE-DRIVING W/OUT	1,972
SPEEDING 10-19 OVER LIMIT	1,706
RECKLESS DRIVING	1,476
DRIVING UNDER RESTRAINT-ALCOHOL-RELATED	1,020
FAILING TO REPORT ACCIDENT-CALL POLICE	965
NO INSURANCE-DRIVER	931
CONTROLLED SUB-POSS SCH 1/2/FL/KT/CT	885
HEADLAMPS-FAILURE TO DISPLAY	735
LEAVING SCENE/ACCIDENT-DAMAGE ONLY	708
DRIVING AFTER REVOCATION PROHIBITED (HTO	651
ALCOHOL-UNDER 21- POSSESS/CONSUMP	631
VIOLATION P/O-CRIMINAL	606
SIGNALING VIOLATION	601
NO INSURANCE-OWNER	573
DRUG PARAPHERNALIA-POSSESS	571
LEAVING SCENE/ACCIDENT-UNATTENDED VEH	570
RED LIGHT-FAIL TO STOP	551
CHILD ABUSE-KNOWINGLY/RECKLESS-NO INJURY	493
LICENSE PLATES-EXPIRED	473
TURNING IMPROPERLY	440
SEAT BELT NOT USED	438
CARELESS DRIVING RESULTING IN INJURY	435
FAIL OBEY TRAFFIC CONTROL DEVICE	398
SPEEDING 20-24 OVER LIMIT	384
WEAPON-PROHIBITED USE-DRUNK W/GUN	379
OBSTRUCTING A PEACE OFFICER	376
RESISTING ARREST	365
SPEEDING 25-39 OVER LIMIT	358
MARIJUANA-POSSESS OPEN CONTAINER IN VEH	347
CONTROLLED SUBSTANCE-POSS SCH 3/4/5	342
REGISTRATION-FICTITIOUS PLATE	329
NO INSURANCE - OWNER	324
STOP SIGN-FAIL TO STOP	309
TURNING W/O SIGNALING	302

Source: State Judicial Department and Denver County Court.

APPENDIX J COMMON FINAL CHARGES, EXCLUDING DUI

Final Charge	Count
CARELESS DRIVING	7,739
LANE USAGE VIOLATION	5,495
FAILURE TO DISPLAY PROOF OF INSURANCE	4,871
DRIVING UNDER RESTRAINT	2,845
ALCOHOL-OPEN CONTAINER/DRINK IN VEHICLE	2,003
DRIVER'S LICENSE-DRIVING W/OUT	1,970
RECKLESS DRIVING	1,707
SPEEDING 10-19 OVER LIMIT	1,657
DRIVING UNDER RESTRAINT-ALCOHOL-RELATED	1,059
FAILING TO REPORT ACCIDENT-CALL POLICE	960
NO INSURANCE-DRIVER	926
CONTROLLED SUB-POSS SCH 1/2/FL/KT/CT	846
HEADLAMPS-FAILURE TO DISPLAY	724
LEAVING SCENE/ACCIDENT-DAMAGE ONLY	703
DRIVING AFTER REVOCATION PROHIBITED (HTO	650
ALCOHOL-UNDER 21- POSSESS/CONSUMP	631
SIGNALING VIOLATION	593
NO INSURANCE-OWNER	574
VIOLATION P/O-CRIMINAL	573
LEAVING SCENE/ACCIDENT-UNATTENDED VEH	572
DRUG PARAPHERNALIA-POSSESS	567
RED LIGHT-FAIL TO STOP	538
LICENSE PLATES-EXPIRED	472
CHILD ABUSE-KNOWINGLY/RECKLESS-NO INJURY	465
SEAT BELT NOT USED	436
TURNING IMPROPERLY	431
CARELESS DRIVING RESULTING IN INJURY	415
FAIL OBEY TRAFFIC CONTROL DEVICE	398
WEAPON-PROHIBITED USE-DRUNK W/GUN	380
OBSTRUCTING A PEACE OFFICER	370
SPEEDING 20-24 OVER LIMIT	368
CONTROLLED SUBSTANCE-POSS SCH 3/4/5	367
RESISTING ARREST	363
MARIJUANA-POSSESS OPEN CONTAINER IN VEH	349
SPEEDING 25-39 OVER LIMIT	346
REGISTRATION-FICTITIOUS PLATE	332
NO INSURANCE - OWNER	321
CHILD ABUSE-NEGLIGENCE-NO INJURY	313
TURNING W/O SIGNALING	303

Source: State Judicial Department and Denver County Court.

APPENDIX K DUI FINAL CHARGE DISPOSITION

	Guilty	Deferred	Deferred Dismissed	Diversion	Dismissed	Not Guilty	Not Proven	Awaiting Disposition	Sum		
Final DUI Charge	DUI	7,487	537	288	23	2,127	145	2	1,484	12,093	
	DUI 1-2 Prior	2,174	10	1		53	9		61	2,308	
	DUI 3+ Prior	759	14			58	14		96	941	
	DUID	31	1			4	1		13	50	
	DWAI	8,764	591	447	3	227	9		54	10,095	
	DWAI 1-2 Prior	1,186	21	1		3			9	1,220	
	DWAI 3+ Prior	31	4			7			2	44	
	DWAID	6								6	
	DWAID 1+ Prior	1								1	
	UDD	104	4	8		14			4	134	
	VEHICULAR ASSAULT-DUI	1								1	
	VEHICULAR HOMICIDE-DUI	1								1	
	Final Other Charge	ALCOHOL-UNDER 21- POSSESS/CONSUMP	1								1
		CARELESS DRIVING	78	1	3						82
CONTROLLED SUBSTANCE-POSS SCH 3/4/5				1						1	
CONTROLLED SUBSTANCE-UNLAWFUL USE		1								1	
DEFECTIVE VEHICLE		1								1	
DEFECTIVE VEHICLE - HEADLIGHTS		1								1	
DISORDERLY CONDUCT-FIGHTING IN PUBLIC		1								1	
DISORDERLY CONDUCT-UNREASONABLE NOISE		1								1	
DRIVER'S LICENSE-DRIVING W/OUT PERSON/DR		1								1	
DRIVER'S LICENSE-PERMIT UNAUTH PERSON/DR		1								1	
DRIVING TOO SLOWLY		1								1	
DRIVING UNDER RESTRAINT-ALCOHOL-RELATED						1				1	
FALSE REPORTING-FAKE CRIME		2								2	
FALSE REPORTING-FALSE INFORMATION		1								1	
FOLLOWING TOO CLOSELY		1								1	
IMPROPER MOUNTAIN DRIVING		2								2	
LANE USAGE VIOLATION		18								18	
LEAVING SCENE/ACCIDENT-DAMAGE ONLY		1								1	
MARIJUANA-POSSESS OPEN CONTAINER IN VEH		2								2	
RECKLESS DRIVING		203	8	3		1			2	217	
RECKLESS DRIVING-2D OFFENSE		2	1							3	
RECKLESS DRIVING-BICYCLE/ELEC BICYCLE		2								2	
SNOWMOBILE-CARELESS OPERATION						1				1	
SPEEDING 10-19 OVER LIMIT		1								1	
SPEEDING TOO FAST FOR CONDITIONS		1								1	
TRESPASS 1-AUTO-W/INTENT TO COMMIT CRIME		1								1	
UNSAFE BACKING		1								1	
UNSAFE OR DEFECTIVE VEHICLE VIOLATION P/O-CRIMINAL		2								2	
VIOLATION P/O-CRIMINAL		1								1	
Total		20,873	1,192	752	26	2,496	178	2	1,725	27,244	

Source: State Judicial Department and Denver County Court.

APPENDIX L
TOP 20 COMMON FINAL CHARGES ASSOCIATED WITH ALCOHOL PRESENCE,
EXCLUDING DUI

Final Charge	Count
CARELESS DRIVING	4,257
LANE USAGE VIOLATION	3,478
FAILURE TO DISPLAY PROOF OF INSURANCE	2,572
DRIVING UNDER RESTRAINT	1,307
DRIVER'S LICENSE-DRIVING W/OUT	1,155
ALCOHOL-OPEN CONTAINER/DRINK IN VEHICLE	1,145
SPEEDING 10-19 OVER LIMIT	1,061
RECKLESS DRIVING	787
DRIVING UNDER RESTRAINT-ALCOHOL-RELATED	463
FAILING TO REPORT ACCIDENT-CALL POLICE	462
NO INSURANCE-DRIVER	437
ALCOHOL-UNDER 21- POSSESS/CONSUMP	432
HEADLAMPS-FAILURE TO DISPLAY	421
SIGNALING VIOLATION	357
LEAVING SCENE/ACCIDENT-DAMAGE ONLY	326
RED LIGHT-FAIL TO STOP	305
NO INSURANCE-OWNER	294
TURNING IMPROPERLY	278
LICENSE PLATES-EXPIRED	270
LEAVING SCENE/ACCIDENT-UNATTENDED VEH	269

Source: Judicial, Denver Court, CBI, CDPHE, ChemaTox, Denver Crime Lab at DPD.

APPENDIX M
TOP 20 COMMON FINAL CHARGES ASSOCIATED WITH DELTA-9 THC PRESENCE,
EXCLUDING DUI

Final Charge	Count
CARELESS DRIVING	547
FAILURE TO DISPLAY PROOF OF INSURANCE	495
LANE USAGE VIOLATION	431
DRIVING UNDER RESTRAINT	272
SPEEDING 10-19 OVER LIMIT	235
MARIJUANA-UNDER21- POSSESS/CONSUMP	184
RECKLESS DRIVING	181
MARIJUANA-POSSESS OPEN CONTAINER IN VEH	178
ALCOHOL-OPEN CONTAINER/DRINK IN VEHICLE	149
DRUG PARAPHERNALIA-POSSESS	146
DRIVER'S LICENSE-DRIVING W/OUT	138
CONTROLLED SUB-POSS SCH 1/2/FL/KT/CT	97
ALCOHOL-UNDER 21- POSSESS/CONSUMP	92
SEAT BELT NOT USED	80
NO INSURANCE-OWNER	76
NO INSURANCE-DRIVER	73
MARIJUANA-USE OR CONSUME IN VEHICLE	60
SIGNALING VIOLATION	59
LICENSE PLATES-EXPIRED	55
VEHICULAR ASSAULT-DUI	53

Source: Judicial, Denver Court, CBI, CDPHE, ChemaTox, Denver Crime Lab at DPD.

APPENDIX N COUNT OF DRUGS

Drug	Count
Alcohol	15,495
Marijuana (Delta-9 THC)	2,489
Methamphetamine	567
Alprazolam	481
Cocaine	337
Clonazepam	206
Diazepam or Chlordiazepoxide	163
Morphine	145
Oxycodone	125
Lorazepam	115
Zolpidem	107
Tramadol	49
Hydrocodone	49
Carisoprodol	41
Methadone	33
Citalopram	33
Amphetamine	33
Trazodone	29
Venlafaxine	23
Lamotrigine	20
MDMA	17
Codeine	16
Quetiapine	15
Diphenhydramine	15
Butalbital	15
Fluoxetine	14
Topiramate	13
Hydroxyzine	13
Midazolam	12
Sertraline	11
Meprobamate	10
Lidocaine	9
Polyfluorinated ethane	8
Heroin	7
Cyclobenzaprine	7
Amitriptyline	7
Promethazine	6
Mirtazapine	6
Fentanyl	6

Drug	Count
Phenobarbital	5
Dextromethorphan	5
Bupropion	5
Trimethoprim	4
Cetirizine	4
Valproic Acid	3
Temazepam	3
MDA	3
Levetiracetam	3
Ketamine	3
Buprenorphine	3
Zopiclone	2
Propofol	2
Phenytoin	2
Nordiazepam	2
Etizolam	2
Diltiazem	2
Triazolam	1
Toluene	1
Pseudoephedrine	1
Oxymorphone	1
Olanzapine	1
Modafinil	1
Lacosamide	1
Fluconazole	1
Doxylamine	1
Dicyclomine	1
Chlorpheniramine	1
Carbamazepine	1
Bupivacaine	1

Source: Judicial, Denver Court, CBI, CDPHE, ChemaTox, Denver Crime Lab at DPD.

APPENDIX O AMENDED DUI CHARGES BASED ON PRESENCE OF TOXICOLOGY DATA

Initial to Final DUI Charges for Cases without Toxicology Data

Initial Charge	Final Charge												Total
	UDD	DWAI	DWAID	DUI	DUID	DWAI 1-2 Prior	DWAID 1-2 Prior	DUI 1-2 Prior	DWAI 3+ Prior	DUI 3+ Prior	Other		
UDD	8												8
DWAI		610		3		5		1	1		2		622
DUI	12	2,318	1	4,095		460		704		4	113		7,707
DUID		8			12			5			4		29
DWAI 1-2 Prior						82							82
DUI 1-2 Prior		16		15		17	1	305		1	2		357
DWAI 3+ Prior		1							18				19
DUI 3+ Prior		1		23		1		16	4	531	1		577
Other		8		4		4		2		1			19
Total	20	2,962	1	4,140	12	569	1	1,033	23	537	122		9,420

Source: State Judicial Department and Denver County Court.

Initial to Final DUI Charges for Cases with Toxicology Data

Initial Charge	Final Charge													Total
	UDD	DWAI	DWAID	DUI	DUID	DWAI 1-2 Prior	DUI 1-2 Prior	DWAI 3+ Prior	DUI 3+ Prior	VEHICULAR ASSAULT	VEHICULAR HOMICIDE	Other		
UDD	62											2	64	
DWAI	6	1,933		10		27	1					40	2,017	
DWAID			1										1	
DUI	45	5,158		7,896		519	913					172	14,703	
DUID		15	4	3	38	1	6					7	74	
DWAI 1-2 Prior						79						2	81	
DUI 1-2 Prior		19		18		22	345					4	408	
DWAI 3+ Prior								10	1				11	
DUI 3+ Prior		2		25		2	9	10	403			1	452	
VEHICULAR ASSAULT								1		1			2	
VEHICULAR HOMICIDE											1		1	
Other	1	6		1		1	1						10	
Total	114	7,133	5	7,953	38	651	1,275	21	404	1	1	228	17,824	

Source: State Judicial Department and Denver County Court.

ENDNOTES

¹ Colorado Revised Statutes, 24-33.5-520.

² See Appendix B: C.R.S. § 42-4-1301 for the complete statute and Table 1 for a brief history of *per se* and presumption of impairment limits.

³ Colorado Revised Statutes, 42-4-1301.1

⁴ Colorado Revised Statutes, 42-4-1301.

⁵ An officer may also transport a suspect for blood screening in cases where alcohol is the only substance suspected. There are evidentiary breath alcohol testers available to law enforcement that are easy to administer and available in jails and some police stations.

⁶ Atha, M. (2000). *Blood and urine drug testing for cannabinoids*, available at: <http://www.idmu.co.uk/pdfs/drugtest.pdf>.

⁷ For more information, see Toennes, S., Ramaekers, J., Theunissen, E., Moeller, M., & Kauert, G. (2008). Comparison of cannabinoid pharmacokinetic properties in occasional and heavy users smoking a marijuana or placebo joint. *Journal of Analytical Toxicology*, 32, 470-477.

⁸ Urfer, S., Morton, J., Beall, V., Feldmann, J. & Gunesch, J. (2014). Analysis of Δ^9 -tetrahydrocannabinol driving under the influence of drugs cases in Colorado from January 2011 to February 2014. *Journal of Analytical Toxicology*, 38, 575-581.

⁹ The full report can be found here: <https://cdpsdocs.state.co.us/ors/docs/reports/2016-SB13-283-Rpt.pdf>. Reed, J. (2016). *Marijuana legalization in Colorado: Early findings*. Report Pursuant to Senate Bill 13-283. Office of Research and Statistics, Division of Criminal Justice, Colorado Department of Public Safety.

¹⁰ Colorado Department of Transportation (2018), Colorado Fatalities since 2002. Available at https://www.codot.gov/library/traffic/safety-crash-data/fatal-crash-data-city-county/Colorado_Historical_Fatalities_Graphs.pdf/view.

¹¹ Colorado Bureau of Investigation (2017), *Crime in Colorado, 2016*. Available at <http://crimeinco.cbi.state.co.us/cic2k16/index.php>.

¹² Grondel, D., Hoff, S. & Doane, D. (2018). *Marijuana use, alcohol use, and driving in Washington state: Emerging issues with poly-drug use on Washington roadways*. Olympia, WA: Washington Traffic Safety Commission.

¹³ The Colorado State Patrol conducted a pilot test of five oral fluid testing devices, which can detect drugs of abuse such as such as amphetamines, designer amphetamines, opiates, cocaine and metabolites, benzodiazepines, cannabinoids, and methadone. These devices are used in other countries but have not been widely adopted in the United States.

¹⁴ 21 U.S.C. § 811.

¹⁵ Cannabidiol (CBD) is a nonpsychoactive substance derived from cannabis with potential medical uses. For a review of some relevant research, see Scuderi, C. et al. (2009). Cannabidiol in medicine: a review of its therapeutic potential in CNS disorders, *Phytotherapy Research*, 23 (5), 597-602.

¹⁶ National Conference of State Legislatures, *State Medical Marijuana Laws* (2016), <http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>, retrieved 2/3/2016.

¹⁷ Others group 2010–2013 as the era of medical commercialization and do not differentiate 2013 as it did not increase the availability of marijuana in the commercial market.

¹⁸ Colo. Const. Art. XVIII, § 14. Additional information can be accessed at Ballotpedia, Colorado Medical Use of Marijuana, Initiative 20 (2000), [https://ballotpedia.org/Colorado_Medical_Use_of_Marijuana,_Initiative_20_\(2000\)](https://ballotpedia.org/Colorado_Medical_Use_of_Marijuana,_Initiative_20_(2000)), retrieved 2/3/2016.

A detailed review of the history of medical marijuana in Colorado and the recent status of the medical marijuana code may be found in the Colorado Department of Regulatory Agencies' 2014 Sunset Review: *Colorado Medical Marijuana Code*, available at <https://drive.google.com/a/state.co.us/file/d/0B8bNvcf083ydTFpkdVRwdnhTazQ/view>, retrieved 1/29/2016.

¹⁹ *Lagoy v. Colorado*, 2007 CV 6089 (Denver County District Court, 2nd Judicial District, November 15, 2007; Denver County District Court, 2nd Judicial District, November 5, 2009).

²⁰ U.S. Department of Justice (2009). Ogden memo: Investigations and prosecutions in states authorizing the medical use of marijuana, <http://www.justice.gov/sites/default/files/opa/legacy/2009/10/19/medical-marijuana.pdf>, retrieved 2/1/2016.

²¹ Medical Marijuana Code: C.R.S. 12-43.3-101 *et seq.* For additional information on the MED see <https://www.colorado.gov/enforcement/marijuanaenforcement>.

²² Retail Marijuana Code: C.R.S. 12-43.4-101 *et seq.* and <https://www.colorado.gov/pacific/enforcement/laws-constitution-statutes-and-regulations-marijuana-enforcement>.

²³ For a detailed review of the history of the regulation of retail marijuana, see Department of Regulatory Agencies (2015), 2015 sunset review: *Colorado retail marijuana code*, available at <https://drive.google.com/file/d/0B8bNvcf083yd5lh4NWtHTjFoa2s/view>, retrieved 2/4/2016.

²⁴ A compendium of amendments, statutes, and rules is available in the *Colorado Marijuana Laws and Regulations 2018* (2018). LexisNexis: Charlottesville, VA. This publication is updated annually to reflect changes in statutes and rules.

²⁵ U.S. Department of Justice (2013). *Cole memo: Guidance regarding marijuana enforcement*, available at <http://www.justice.gov/iso/opa/resources/3052013829132756857467.pdf>, retrieved 1/29/2016.

²⁶ Chris Halsor is a former Traffic Safety Resource prosecutor for Colorado. For more information on The Green Lab visit <https://www.understanding420.com/Default.aspx>.

²⁷ FSTs are sensitive to cannabis induced impairment, but there is no correlation to whole-blood levels of Delta-9 THC see Declues, K., Perez, S., & Figueroa, A. (2016): A 2-year study of delta 9-tetrahydrocannabinol concentrations in drivers: Examining driving and field sobriety test performance. *J Forensic Sci*, 61(6), 1664-1670. doi: 10.1111/1556-4029.13168.

²⁸ FSTs are sensitive to cannabis induced impairment, but no significant difference in test results between Delta-9 THC < 5.0 ng/mL and ≥ 5.0 ng/mL groups. See Hartman, R. L., Richman, J. E., Hayes, C. E., & Huestis, M. A. (2016). Drug Recognition Expert (DRE) examination characteristics of cannabis impairment. *Accident Analysis and Prevention*, 92(2016), 219-229.

²⁹ Berghaus et al. 1998, Sticht and Käferstein 1998, and Robbe 1994 as cited in Compton, R. (2017, July). Marijuana-Impaired Driving - A Report to Congress. (DOT HS 812 440). Washington, DC: National Highway Traffic Safety Administration.

³⁰ Experimental protocol with abstinence monitored, not self-reported, on 25 subjects. See Karschner, E. L., Schwilke, E. W., Lowe, R. H., Darxin, D., Pope, H. G., Herning, R., Lud Cadet, J., & Huestis, M. A. (2009). Do Δ⁹-tetrahydrocannabinol concentrations indicate recent use in chronic cannabis users? *Addiction*, 104(12), 2041-2048. doi: 10.1111/j.1360-0443.2009.02705.x.

³¹ See Oral Fluid FAQs document from the Society of Forensic Toxicologists at http://www.soft-tox.org/files/2017_OF_FAQ.pdf.

³² Passive, non-smoking, participants showed some presence of THC in OF, but at much lower levels than observed for actively smoking participants and under extreme secondhand exposure. See Cone, E. J., Bigelow, G. E., Hermann, E. S., Mitchell, J. M., LoDico, C., Flegel, R., & Vandrey, R. (2015). Nonsmoker exposure to secondhand cannabis smoke. III. Oral fluid and blood drug concentrations and corresponding subjective effects. *Journal of Analytical Toxicology*, 39, 497-509. doi:10.1093/jat/bkv070.

³³ Compton, R. (2017, July). Marijuana-Impaired Driving - A Report to Congress. (DOT HS 812 440). Washington, DC: National Highway Traffic Safety Administration. See <https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812440-marijuana-impaired-driving-report-to-congress.pdf>.

³⁴ For full literature review with experimental tasks and respective BAC level that demonstrates impairment, see Moskowitz, H. & Fiorentino, D. (2000). *A review of the literature on the effects of low doses of alcohol on driving-related skills*. Washington D.C.: National Highway Traffic Safety Administration.

³⁵ NHTSA and US DOT funded case-control study in Long Beach, CA and Fort Lauderdale, FL with 2,871 crashes with 4,919 crash drivers and 10,066 control drivers. See Blomberg, R. D., Peck, R. C., Moskowitz, H., Burns, M., & Fiorentino, D. (2005). Crash risk of alcohol involved driving: A case-control study. *Proceedings of the International Council on Alcohol, Drugs, and Traffic Safety Conference 2002*; 2002, 39-44.

³⁶ NHTSA-funded study with data collected in Virginia Beach, VA with approximately 3,000 crash drivers and 6,000 control drivers. Odds ratios were adjusted for age and gender. See Lacey, J. H., Kelley-Baker, T., Berning, A., Romano, E., Ramirez, A., Yao, J., Moore, C., Brainard, K., Carr, K., Pell, K., & Compton, R. (2016). *Drug and alcohol crash risk: A case-control study*. (Report No. DOT HS 812 355). Washington, DC: National Highway Traffic Safety Administration.

³⁷ Case control data from previous study (Blomberg, Peck, and Moskowitz et al., 2005) reanalyzed to determine age and crash risk interactions. See Peck, R. C., Gebers, M. A., Voas, R. B., & Romano, E., (2008). The relationship between blood alcohol concentration (BAC), age, and crash risk. *Journal of Safety Research*, 39(2008), 311-319. doi:10.1016/j.jsr.2008.02.030.

³⁸ The full report on marijuana use trends and health effects is available at <https://www.colorado.gov/pacific/cdphe/marijuana-health-report>.

³⁹ For a meta-analysis of marijuana and its impact on driving performance and skills associated with driving, see Hartman, R. L. & Huestis, M. A. (2013). Cannabis effects on driving skills. *Clinical Chemistry*, 59(3), 478-492. doi: 10.1373/clinchem.2012.194381.

⁴⁰ Weinstein A., Brickner O., Lerman H., Gremland M., Bloch M., Lester H., Chisin, R., Sarne, Y., Mechoulam, R., Bar-Hamburger, R., Freedman, N., & Even-Sapir, E. (2008). A study investigating the acute dose-response effects of 13 mg and 17 mg Δ^9 -tetrahydrocannabinol on cognitive-motor skills, subjective and autonomic measures in regular users of marijuana. *Journal of Psychopharmacology*, 22(4), 441-451. doi: 10.1177/0269881108088194.

⁴¹ Chait L. D. & Perry J. L. (1994). Acute and residual effects of alcohol and marijuana, alone and in combination, on mood and performance. *Psychopharmacology*, 115(3), 340-349.

⁴² Ramaekers J. G., Kauert G., Theunissen E. L., Toennes S. W., Moeller M. R. (2009). Neurocognitive performance during acute THC intoxication in heavy and occasional cannabis users. *Journal of Psychopharmacology*, 23(3): 266 – 77. doi: 10.1177/0269881108092393 and Ramaekers J. G., Moeller M. R., van Ruitenbeek P., Theunissen E. L., Schneider E., Kauert G. (2006) Cognition and motor control as a function of Δ^9 -THC concentration in serum and oral fluid: limits of impairment. *Drug and Alcohol Dependence*, 85(2), 114-122.

⁴³ Ramaekers J. G., Theunissen E. L., de Brouwer M., Toennes S. W., Moeller M. R., Kauert G. (2011). Tolerance and cross-tolerance to neurocognitive effects of THC and alcohol in heavy cannabis users. *Psychopharmacology*, 214(2), 391 – 401. doi: 10.1007/s00213-010-2042-1.

⁴⁴ Simulator driving study with occasional smokers with only 18 participants. See Hartman, R. L., Brown, T. L., Milavetz, G., Spurgin, A., Pierce, R. S., Gorelick, D. A., Gaffney, G., & Huestis, M. A. (2015). Cannabis effects of driving lateral control with and without alcohol. *Drug Alcohol Dependence*, 1(154), 27-37. doi: 10.1016/j.drugalcdep.2015.06.015.

⁴⁵ Ronen et al., (2010). The effect of alcohol, THC and their combination on perceived effects, willingness to drive and performance of driving and non-driving tasks. *Accident Analysis and Prevention*, 42(6), 1855-1865; Anderson, B., Rizzo, M., Block, R., Pearlson, G., & O'Leary, D. (2010). Sex differences in the effects of marijuana on simulated driving performance. *Journal of Psychoactive Drugs*, 42(1), 19-30.

⁴⁶ Based on a subset of 2006 - 2008 FARS data and 2007 National Roadside Survey responses; see Romano, E., Torres-Saavedra, P., Voas, R. B., & Lacey, J. H. (2014). Drugs and alcohol: Their relative crash risk. *Journal of Studies on Alcohol and Drugs*, 75(1), 56-64.

⁴⁷ Odds ratio of crash risk associated with marijuana use reported in one study is 1.83. See Li, G., Brady, J. E., & Chen, Q. (2013). Drug use and fatal motor vehicle crashes: A case-control study. *Accident Analysis & Prevention*, 60, 205-210. doi: 10.1016/j.aap.2013.09.001.

⁴⁸ Odds ratio of crash risk associated with marijuana use in meta-analysis of observational studies was found to be 1.92. This varied according to the type of study with higher odds ratios for case-control (2.79) and fatal collision studies (2.10) when compared to culpability (1.65) and non-fatal collision studies (1.74). The latter two were not significant at the 0.05 alpha-level. See Asbridge, M., Jayden, J. A., & Cartwright, J. L. (2012). Acute cannabis consumption and motor vehicle collision risk: Systematic review of observational studies and meta-analysis. *BJM*. doi: 10.1136/bmj.e536.

⁴⁹ This meta-analysis included nine observational studies. The small number of studies is due to criteria set forth by the authors. Since 1990 there were only 831 studies that were potentially relevant and very few of those contained data to assess crash risk. See Li, M., Brady, J. E., DiMaggio, C. J., Lusardi, A. R., Tzong, K.Y., & Li, G. (2012). Marijuana use and motor vehicle crashes. *Epidemiologic Reviews*, 34(1), 65 -72.

⁵⁰ Khiabani, H., Bramness, J., Bjerneboe, A., & Morland, J. (2006). Relationship between THC concentration in blood and impairment in apprehended drivers. *Traffic Injury Prevention*, 7(2), 111-116.

⁵¹ Governors Highway Safety Association (2018). *Drug-impaired driving: Marijuana and opioids raise critical issues for states*. Washington, DC: Governors Highway Safety Association.

⁵² See endnote 36 for full citation of Lacey et al., 2016.

⁵³ Case-control study completed in Australia with 3,398 driver fatalities. See Drummer, O. H., Gerostamoulos, J., Batziris, H., Chu, M., Coplehorn, J., Robertson, M. D., & Swann, P. (2004). The involvement of drugs in drivers of motor vehicles killed in Australian road traffic crashes. *Accident Analysis & Prevention*, 36(2), 239-248. doi: 10.1016/S0001-4575(02)00153-7.

⁵⁴ Here a high dose is 100 – 199 Morphine Equivalents (MEQ) and very high ≥ 200 MEQ; 10 mg of hydrocodone is 10 MEQ. There was no significant relationship between opioid prescription and trauma when dose level was removed. Population-based study conducted in Canada based on number of patients that had a publicly funded opioid prescription. 5,300 were involved in road trauma and a control group with the same N was used. See Gomes, T., Redelmeier, D. A., & Juurlink, D. N. (2013). Opioid dose and risk of road trauma in Canada. *JAMA Internal Medicine*, 172(3), 196-201.

⁵⁵ Culpability of crash study based in Australia. See Drummer, O. H. & Yap, S. (2016). The involvement of prescribed drugs in road trauma. *Forensic Science International*, 265(2016), 17-21. doi: 10.1016/j.forsciint.2015.12.050.

⁵⁶ Case-control study done in Norway with 2,738 drug suspected drivers and 9,375 control drivers with BACs below legal limit (0.2 g/L). See Bogstrand, S. T. and Gjerde, H. (2014). Which drugs are associated with highest risk for being arrested for driving under the influence? A case-control study. *Forensic Science International*, 240(2014), 21-28. doi: 10.1016/j.forsciint.2014.03.02.7.

⁵⁷ See NIDA Drug Supply Program Catalog, 25th Edition at https://www.drugabuse.gov/sites/default/files/ndsp_catalog_25th_v3_2016.pdf.

⁵⁸ For more information on CU Denver's processes for researchers engaging in research involving drugs under the CSA, refer to <http://www.ucdenver.edu/research/EHS/hazmat/Pages/DEA.aspx>.

⁵⁹ Studies cited in factsheet produced by the National Drug Court Institute range from 25 days to 67 days for maximum cannabinoid detection times. See the fact sheet at https://www.ndci.org/sites/default/files/ndci/THC_Detection_Window_0.pdf.

⁶⁰ Vandrey, R., Herrmann, E. S., Mitchell, J. M., Bigelow, G. E., Flegel, R., LoDico, C., & Cone, E. J. (2017). Pharmacokinetic profile of oral cannabis in humans: blood and oral fluid disposition and relation to pharmacodynamic outcomes. *Journal of Analytical Toxicology*, 41(2), 83-99. and Hartman, R. & Huestis, M. (2013). Cannabis effects on driving skills. *Clinical Chemistry*, 59(3), 478-492.

⁶¹ This summary was provided by attorney Han Ng and Colorado Traffic Safety Resource prosecutor Jennifer Knudsen.

⁶² Colorado Revised Statutes, 42-4-1301.3.

⁶³ Dispositions were ranked from highest to lowest in the following order: guilty; deferred; deferred dismissed; diversion; not guilty; not proven; and dismissed.

⁶⁴ For more information on FRIL see <http://fril.sourceforge.net/>.

⁶⁵ This an enzyme-linked immunosorbent assay (ELISA) screen which primarily targets THC-COOH.

⁶⁶ The confirmation test is done via liquid chromatography tandem mass spectrometry.

⁶⁷ The findings presented here reflect drugs detected and not the number of metabolites.

⁶⁸ See C.R.S. § 18-18-203 for Schedule I drugs as defined by the state of Colorado.

⁶⁹ Following the detection of alcohol and cannabis in the toxicology results, the most common drugs detected for 2016 case filings were methamphetamine (n = 567), alprazolam (n = 481), and cocaine (n = 337). See Appendix N: Count of Drugs for the list of individual drugs and case counts.

⁷⁰ NHTSA, 2010 and FARS, 206 as cited in Governors Highway Safety Association's (GHSA) Drug Impaired Driving: A Guide for States see https://www.ghsa.org/sites/default/files/2017-07/GHSA_DruggedDriving2017_FINAL_revised.pdf

⁷¹ 2016 number released May 31, 2018 by GHSA. See press release at the following: <https://www.ghsa.org/resources/news-releases/DUID18>.

⁷² See costs for CBI DUI testing services here: <https://www.colorado.gov/pacific/cbi/toxicology-services>.

⁷³ Costs for ChemaTox testing services available at <https://www.chematox.com/forms/chematox%20request%20for%20analysis%20instructions.pdf>.

⁷⁴ For SFST training see https://www.wsp.wa.gov/breathtest/docs/dre/manuals/SFST/SFST_basic_dwidetect/2015/student_SFSTbasic_oct2015.pdf

⁷⁵ Nystagmus is rapid, involuntary movement of the eyes.

⁷⁶ For ARIDE training see https://www.wsp.wa.gov/breathtest/docs/dre/manuals/ARIDE/2015/ARIDE_Participant_10-2015.pdf

⁷⁷ For DRE Pre-School training see https://www.wsp.wa.gov/breathtest/docs/dre/manuals/pre-school_dre/2015_pre_dre/student_pre_oct2015.pdf

⁷⁸ For DRE School training see https://www.wsp.wa.gov/breathtest/docs/dre/manuals/7day/2015/student_7day_oct2015.pdf

⁷⁹ Training to become a DRE is time-intensive and requires the agency to pay (often overtime) another officer to take the place of the trainee while he/she is in training. Agencies have access to the Marijuana Tax Cash Fund to reimburse these workforce costs.