

A Baseline Evaluation of Cannabis Enforcement Priorities in Oregon

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Table of Contents

Section I: [Executive Summary and Strategic Findings from Research](#)

Section II: [State Compliance on Cannabis Diversion](#)

Section III: [State Compliance on Cannabis Distribution to Minors and Associated Adverse Public Consequences](#)

Section IV: [State Compliance on the Growing of Cannabis on Public Lands and the Attendant Public Safety and Environmental Dangers](#)

Section V: [State Compliance on Prevention of Exploitation of State-Authorized Cannabis Activities for Illicit Activity and Violence in the State's Cannabis Industry](#)

Section VI: [Conclusion](#)

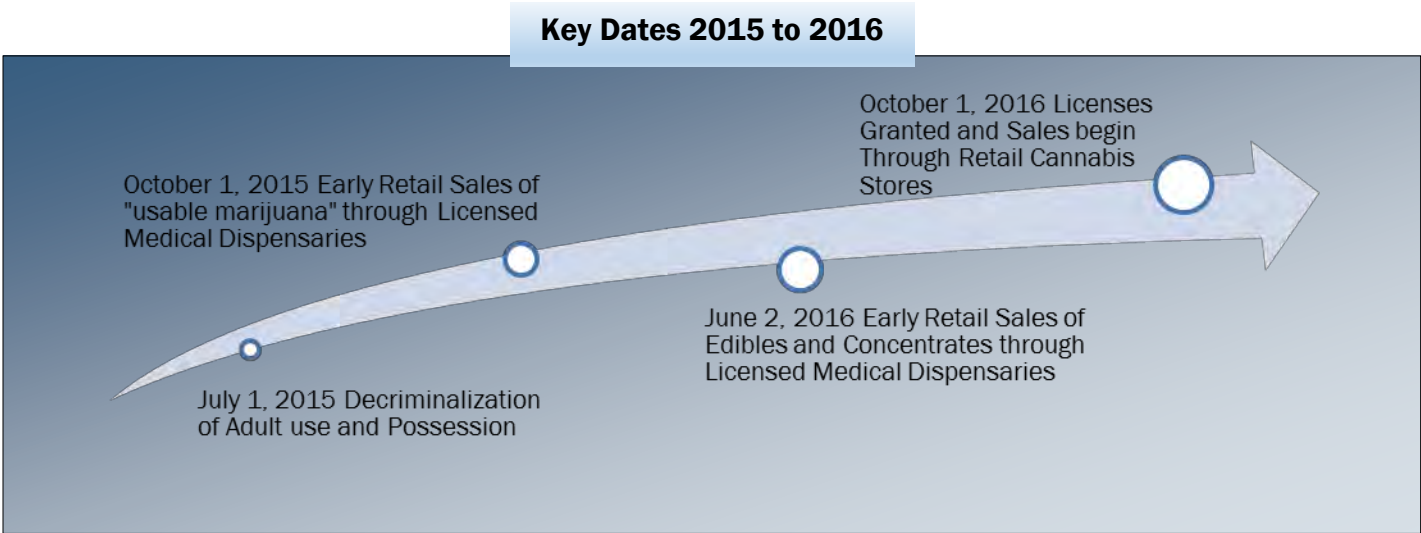
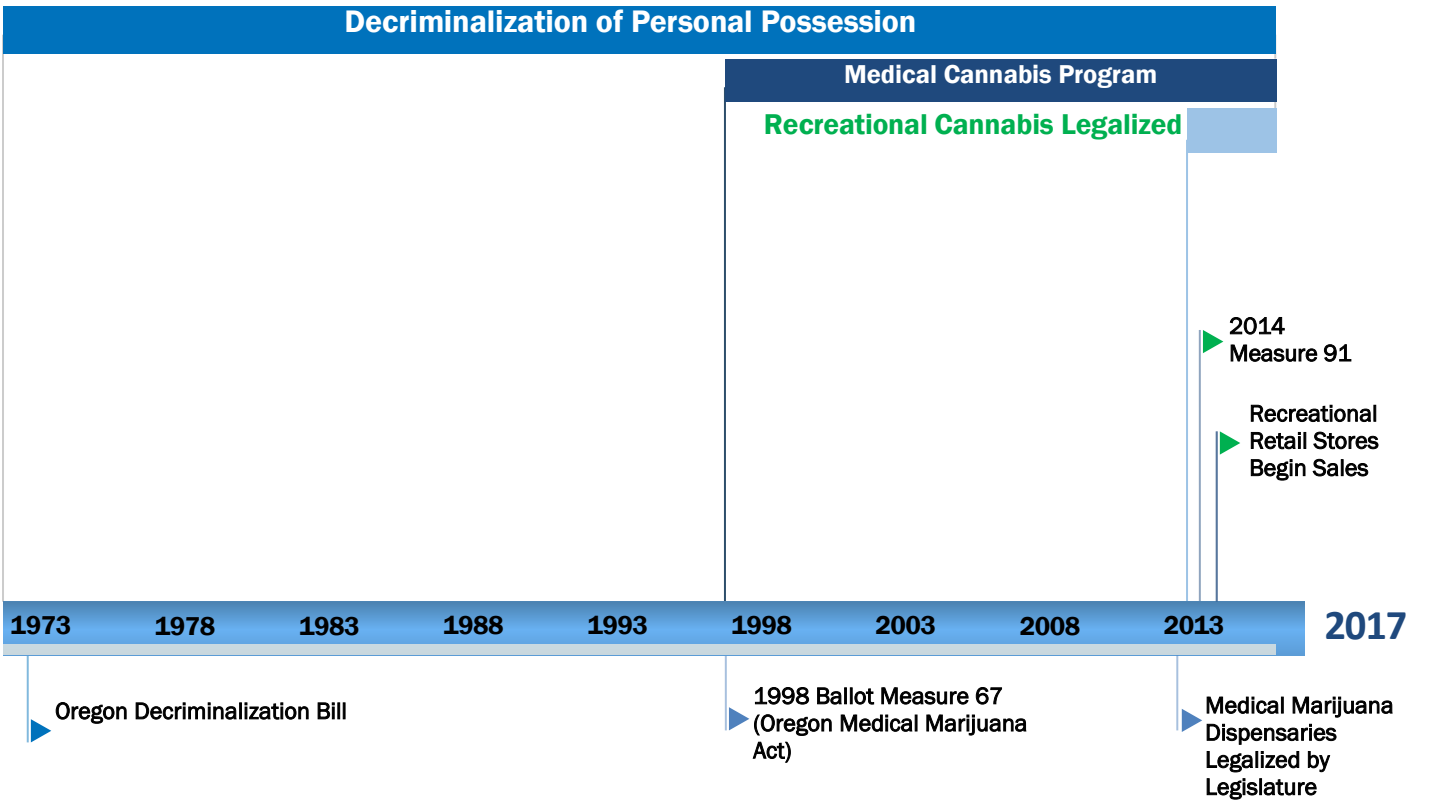
Executive Summary and Purpose

Oregon has had a state-authorized medical cannabis system since 1998, and in November 2014, Oregon voters approved the Control, Regulation, and Taxation of Marijuana and Industrial Hemp Act, commonly known as Measure 91 to legally commercialize non-medical retail cannabis in the state. The Drug Enforcement Section at the Oregon State Police created this report to survey currently available data in an effort to evaluate state compliance with the federal guidance for enforcement priorities, issued by former Federal Department of Justice Deputy Attorney General James M. Cole, on -

- *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;*
- *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.*

To this end, this report examines Oregon's compliance on mitigating these threats and analyzes areas of concern specifically related to these enforcement priorities.

History of Cannabis Legality in Oregon



Enforcement Priorities

Strategic Findings from this Assessment

Cannabis Diversion

- Diverted Oregon cannabis has an expansive geographic footprint and has been detected outside of the United States.
- Six Oregon counties are tied to the majority of diversion activity in the state, accounting for 76 percent of diversion seizures by weight and 81 percent of diversion incidents; these counties were also tied to the majority of destinations.
- Oregon originated cannabis is trafficked to known distribution hubs across the Southeastern, Midwestern, and Northeastern United States. Specifically, the states of Illinois, Minnesota, New York, and Florida represent statistically significant destinations.
- There is a geographic relationship between the state-authorized Oregon Medical Marijuana Program (OMMP) registrants and dominant diversion counties (originating counties of diversion activity).

Accompanying Public Health & Safety

- Historically, an annual average of two percent of Oregon's traffic fatalities were associated solely with cannabis; this rate has not changed significantly since legalization. As of 2015, 60 percent of 11th graders reported that acquiring cannabis was "easy".
- The cost and rate of cannabis extraction burn victims has increased substantially since legalization, with \$7.6 million in federal government entitlement programs used to cover the cost of treatment.
- Currently, 63 percent of Oregon drivers do not know when it is legal to drive after using cannabis.
- Males 16 to 28 are a high-risk demographic for cannabis impaired driving and account for the majority of the activity in the state.

Cultivation on Public Lands

- To date, legalization has not affected the rate of illicit cannabis cultivation on public land.
- The Illinois, Applegate, and combined Rogue Watersheds are particularly vulnerable to environmental damage from illicit cannabis grow sites.
- Illicit cannabis grows have consumed 1.04 billion gallons of water since 2004 and consume roughly 442,200 gallons of water daily during the growth season.
- Eradication and enforcement efforts have a high return on investment; an average of 1,266.55 dollars' worth of illicit cannabis is returned for every dollar spent.

Strategic Findings from this Assessment

Enforcement Priorities

Violence and Illicit Activates

- Criminals are exploiting Oregon's cannabis industry for financial crimes and fraud.
- Legal entities in Oregon's cannabis industry have been targeted by violent criminals and armed robberies.

Recommended Enforcement Priorities

- These enforcement priorities require on-going performance monitoring and continual analysis to gauge the efficacy of the state's regulatory regime and enforcement system.
- To properly evaluate these areas of concern there should be dedicated personnel to collect, analyze, and disseminate information to enforcement forces.
- Collaborative strategies should be developed to enhance data collection on these enforcement priorities to better evaluate Oregon's compliance with federal guidance.
- These enforcement priorities and baseline analyses should be core to the development of a state-wide enforcement model.

State Compliance on Cannabis Diversion

Executive Summary and Purpose

The focal points of this section are derived from the federal guidance, issued by former DOJ Deputy Attorney General James M. Cole, on -

- *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*¹

To this end, this section examines Oregon's role in the informal cannabis economy by measuring relative diversion rates and the connection between over-production and external markets. Additionally, geographic concentrations of diversion activity are identified.

Strategic Findings

- Diverted Oregon cannabis has an expansive geographic footprint and has been detected outside of the United States.
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- There is a geographic relationship between the state-authorized Oregon Medical Marijuana Program (OMMP) registrants and dominant diversion counties (originating counties of diversion activity).

¹ Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202014%2014%20%282%29.pdf>.

Note to readers, the following terms are used throughout this section:

Informal Economy: the illicit trade in goods and services all of which are outside state regulation and whose economic relationships are marred by violence.^{2, 3, 4, 5}

Cannabis: any of the preparations of the flowering tops or other parts of the cannabis plant, which include the psychoactive compound tetrahydrocannabinol (THC), this does not include “Industrial Hemp” as defined in ORS 571.300.^{6, 7}

Cannabis Diversion: the illicit exportation of cannabis from states where the substance has been legalized.^{8, 9}

Cannabis Laundering: the process by which cannabis products and proceeds are channeled through the legal marketplace to conceal their origin or destination.

2 Cambridge Dictionary. 2016. *Cambridge English Dictionary*. Accessed September 28, 2016. <http://dictionary.cambridge.org/us/dictionary/english/black-market>.
3 Crawford, Seth S. 2014. "Estimating the Quasi-Underground: Oregon's Informal Marijuana Economy." *Humboldt Journal of Social Relations* (36): 120.
4 Schneider, Friedrich, and Colin C Williams. 2013. *The Shadow Economy*. Economic Report, London, Great Britain: The Institute of Economic Affairs: 9-27.
5 World Bank. 2007. *The Informal Sector: What Is It? Why Do We Care, and How Do We Measure It?* Economic Report, World Bank. <http://siteresources.worldbank.org/INTLAC/Resources/CH1.pdf>.
6 Oxford Dictionary. 2016. *English Oxford Living Dictionaries*. Accessed September 26, 2016. <https://en.oxforddictionaries.com/definition/cannabis>.
7 Association of Oregon Counties. 2016. "Selected Oregon Marijuana Laws." *AOC Marijuana*. April 5. Accessed September 26, 2016. https://drive.google.com/file/d/0B94ywUpCLn9_TWZiQjV0T0V3bXM/view: 9.
8 Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202%2014%2014%20%282%29.pdf>.
9 Association of Oregon Counties. 2016. "Selected Oregon Marijuana Laws." *AOC Marijuana*. April 5. Accessed September 26, 2016. https://drive.google.com/file/d/0B94ywUpCLn9_TWZiQjV0T0V3bXM/view: 7.

“Whatever the effects of drug legalization, declines in nationwide drug trafficking are not among them.”

--David W. Murray, Hudson Institute Center for Substance Abuse Policy Research¹⁰

Historically, Oregon has been the source of high-grade cannabis with a production rate that saturates the state’s domestic market.¹¹ According to statistics from the Drug Enforcement Administration (DEA) the state consistently ranks near the top for plant seizures with 39,198 plants or 47,038 kg (103,700 lb) of raw plant product seized in 2015 alone.¹² Estimating Oregon’s total market output for cannabis is problematic as activities in the informal economy and illicit market are not monitored. However, one can obtain an approximation by combining production information from the Oregon Liquor Control Commission (OLCC), publicly available registrant data from OMMP, and illicit grow sites’ statistics with health survey data to approximate state consumption.^{13, 14, 15, 16} Thus, assuming a single annual plant yield of 1.2 kg (2.64 lb), this mixed-source estimate would place total state production between 289,000 and 911,500 kg (637,100 to 2 million lb). Using consumption models from the Oregon Health Authority, National Survey on Drug Use and Health, among others would mean that Oregon

consumes roughly 84,400 to 169,000 kg (186,100 to 372,600 lb) annually (See Figure 1).¹⁷ This would leave approximately 120,300 to 827,000 kg (265,200 to 1.8 million lb) of cannabis above what Oregonians can conceivably consume. At maximum production capacity, this annual surplus is worth between 4.7 billion and 9.4 billion dollars, at end-user street prices, on the national informal economy (See Figure 2).

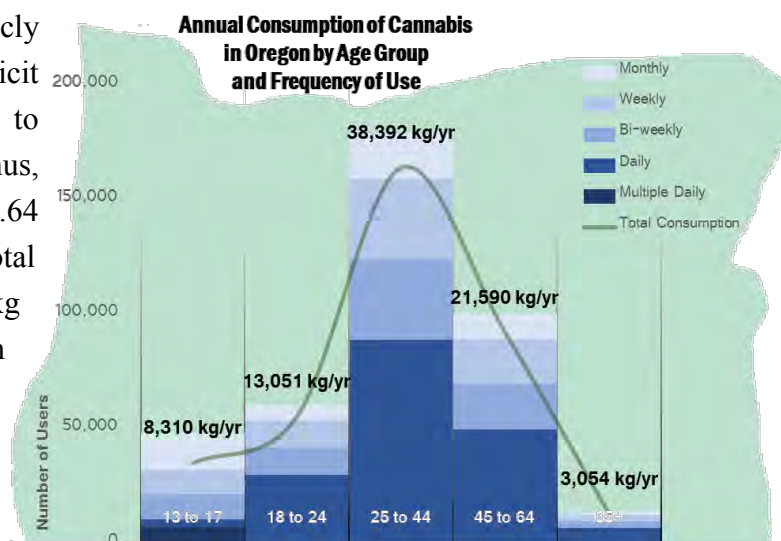


Figure 1: Calculated Annual Cannabis Consumption in Oregon by Age and Frequency 2016¹⁷

10 Murray, David W. 2016. "Declining Under President Obama?" *Hudson Institute*. August 5. Accessed September 28, 2016. <http://www.hudson.org/research/12707-is-marijuana-smuggling-declining-under-president-obama>.

11 Investopedia. 2016. *Market Saturation*. Accessed October 6, 2016. <http://www.investopedia.com/terms/m/marketsaturation.asp>.

12 Drug Enforcement Administration. 2015. 2015 Domestic Cannabis Eradication/Suppression Program

13 Statistical Report. Accessed July 21, 2016. https://www.dea.gov/ops/cannabis_2015.pdf.

14 Crawford, Seth S. 2014. "Estimating the Quasi-Underground: Oregon's Informal Marijuana Economy." *Humboldt Journal of Social Relations* (36): 131.

15 Hall, Shaun. 2016. "Report: Over-production of medical pot feeds black market in Oregon." *Mail Tribune*. July 25. Accessed August 7, 2016. <http://www.mailtribune.com/news/20160725/report-over-production-of-medical-pot-feeds-black-market-in-oregon>.

16 Oregon Liquor Control Commission. 2016. "Dispensary Survey Results: A Snapshot of Current Practices and Conditions." Accessed September 21, 2016. http://www.oregon.gov/olcc/docs/commission_minutes/2015/DispensarySurveyResults.pdf.

17 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana use, attitudes and health effects in Oregon." *Marijuana Report* (Oregon Health Authority - Oregon Public Health Division) 48. <https://public.health.oregon.gov/PreventionWellness/marijuana/Documents/oha-8509-marijuana-report.pdf>.

Oregon has been characterized as an epicenter of cannabis production and the state's crop yields are worth more than any other agricultural commodity.^{18, 19} Consequently, Oregon's cannabis market continues to operate largely outside the formal economy, and according to the Portland based consulting firm ECONorthwest, only 30 percent of the market activity is captured in legal transactions.²⁰ Supporting this appraisal, OLCC examined cannabis consumption trends in the state prior to legalization sales, and concluded that heavy consumers would likely remain outside of the legal market.²¹

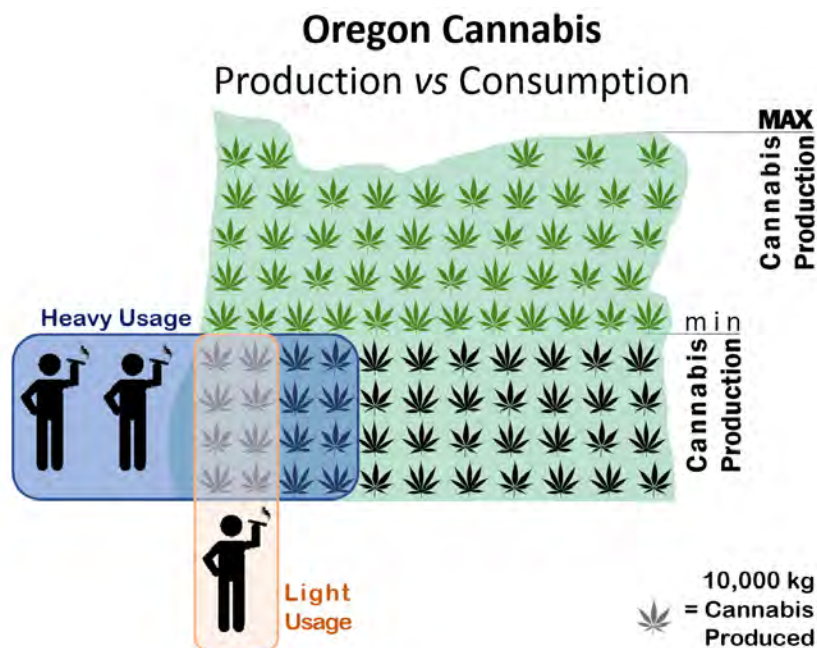
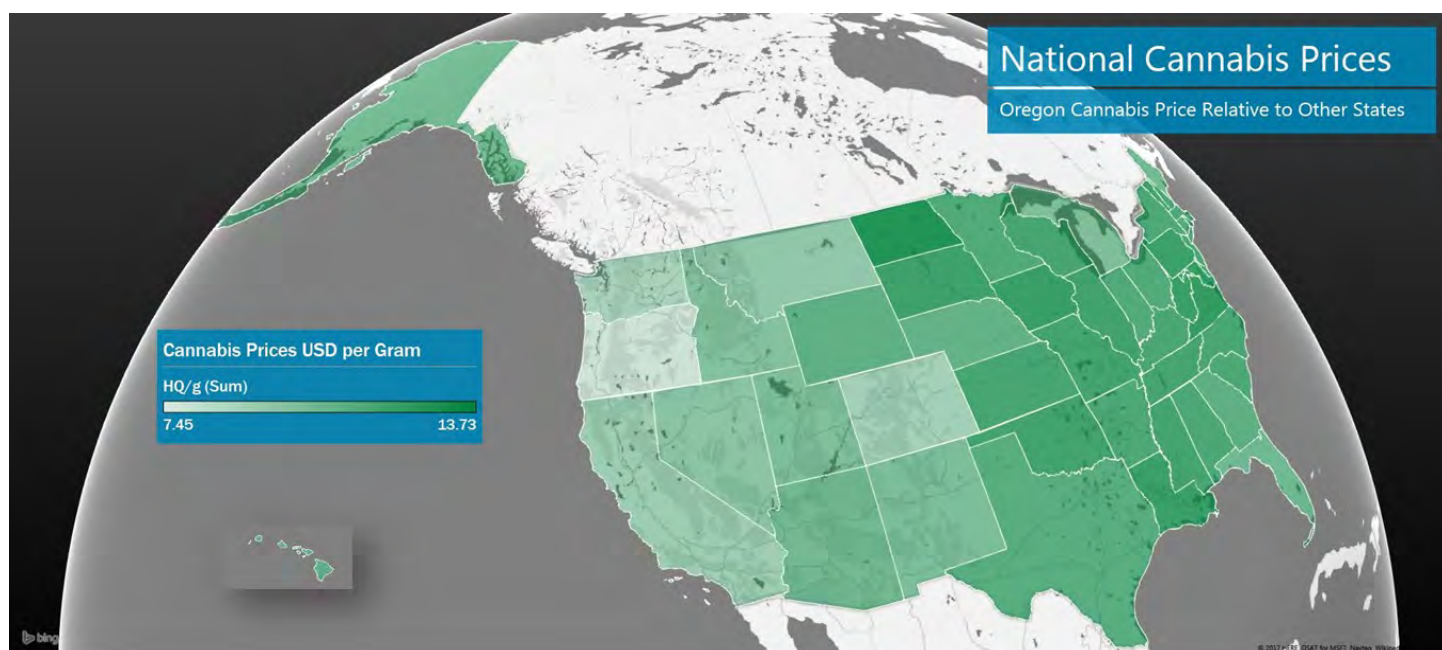


Figure 1: Comparing Potential Annual Production against Potential Annual Consumption and the Resulting Surplus Cannabis

In Oregon, price catalyzes diversion as the state's abundant crop yields cause the value of licit cannabis to plummet, mirroring basic supply and demand, giving Oregon the cheapest cannabis in the nation (See Map 1).^{22, 23, 24} Oregon's informal economy offers considerable savings over the legal market and inherent trust

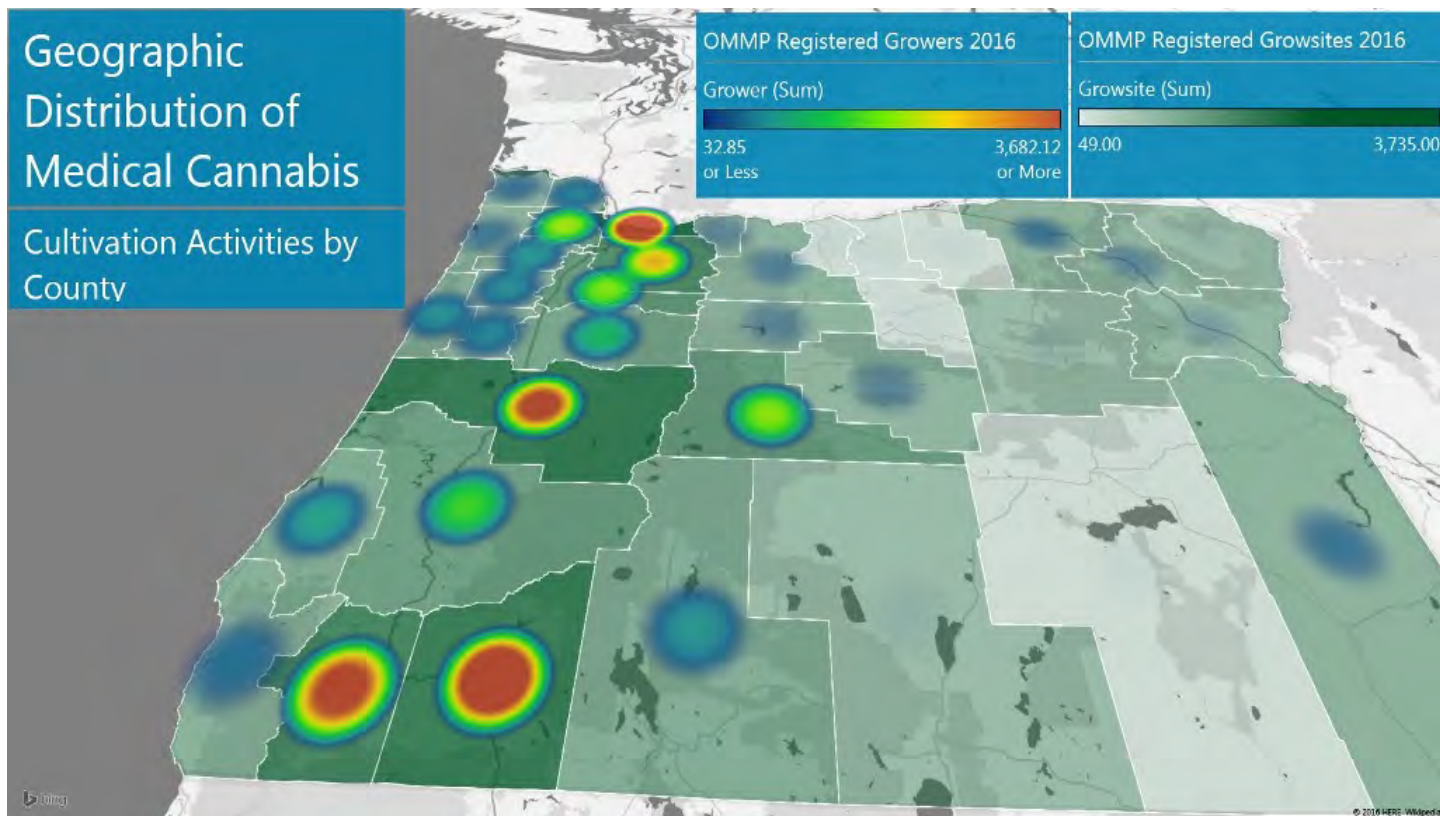


Map 1: Oregon Relative to National Cannabis Prices 2017³⁰

18 Mapes, Jeff. 2015. "Oregon's big marijuana harvests: How do you bring all that pot into the legal market?" *Oregonlive/the Oregonian*. May 23. Accessed September 22, 2016. http://www.oregonlive.com/mapes/index.ssf/2015/05/oregons_big_marijuana_harvests.html.
19 Oregon Department of Agriculture. 2016. "Oregon Agriculture Facts & Figures ." United States Department of Agriculture - National Agricultural Statistics Service. August. Accessed February 8, 2017. https://www.nass.usda.gov/Statistics_by_State/Oregon/Publications/facts_and_figures/facts_and_figures.pdf.
20 Hall, Shaun. 2016. "Report: Over-production of medical pot feeds black market in Oregon." *Mail Tribune*. July 25. Accessed August 7, 2016. <http://www.mailtribune.com/news/20160725/report-over-production-of-medical-pot-feeds-black-market-in-oregon>.
21 Crombie, Noelle. 2015. "Heavy Marijuana Consumers Likely to Stay Away from Regulated Retail Market, OLCC Report Concludes." *The Oregonian/Oregonlive*. February 26. Accessed August 9, 2016.
22 Bi, Frank. 2015. "Forbes." *All 50 States Ranked by the Cost of Weed (Hint: Oregon Wins)*. May 12. Accessed April 5, 2016. <http://www.forbes.com/sites/frankbi/2015/05/12/the-most-and-least-expensive-states-to-buy-marijuana/#2097a6fc27ed>.
23 Price of Weed. 2016. *Price of Weed, a Global Price Index for Marijuana*. Accessed January 3, 2017. <http://www.priceofweed.com/>.
24 Green, Johnny. 2012. "Why is Oregon Marijuana So Cheap?" *The Weed Blog*. January 20. Accessed September 21, 2016. <http://www.theweetblog.com/why-is-oregon-marijuana-so-cheap/>.

forged upon long-term social ties.^{25, 26} The state's informal cannabis economy thrives on a surplus of high-quality products and the lucrative profits reaped from a strong external state market. As Dr. Seth Crawford asserts, "We can't consume anywhere near what's produced here. Three to five times what's consumed is leaving here."²⁷

Oregon's overproduction is linked to the state's distinct cultivation preferences. According to the consulting firm ECONorthwest, an estimated 72 percent of Oregon's cannabis is cultivated outdoors, while 28 percent is cultivated indoors.²⁸ Data from an OLCC dispensary survey on medical cannabis cultivation methods indicates that in the southwestern region of the state, roughly 32 percent is sourced from outdoor cultivation, which is well above the 7 percent national average.²⁹



Map 2: Geographic Projection of OMMP July 2016 Statistical Snapshot³⁰

Indeed, southwestern Oregon, particularly the counties of Jackson and Josephine, provides amenable environmental conditions for outdoor cannabis cultivation due to soil composition, temperate climate, and altitude.³⁰ Accordingly, current OMMP information from the Oregon Health Authority (OHA) shows a plethora of registered cultivation sites within Oregon's agricultural breadbasket (See Map 2).³¹

25 Priceonomics. n.d. "The United States of Marijuana." *Priceonomics*. Accessed January 5, 2017. <http://priceonomics.com/the-most-expensive-and-cheapest-cities-to-buy/>.

26 Crawford, Seth S. 2014. "Estimating the Quasi-Underground: Oregon's Informal Marijuana Economy." *Humboldt Journal of Social Relations* (36): 132.

27 Hall, Shaun. 2016. "Report: Over-production of medical pot feeds black market in Oregon." *Mail Tribune*. July 25. Accessed August 7, 2016. <http://www.mailtribune.com/news/20160725/report-over-production-of-medical-pot-feeds-black-market-in-oregon>

28 ECONorthwest. 2014. *Oregon Cannabis Tax Revenue Estimate*. Economic Forecasting, Portland, Oregon: ECONW, 7.

29 Oregon Liquor Control Commission. 2015. "Dispensary Survey Results." *Oregon.gov*. Accessed June 30, 2016. http://www.oregon.gov/olcc/docs/commission_minutes/2015/DispensarySurveyResults.pdf.

30 Olson, Becky. 2015. "Chart of the Week: Cannabis Cultivation Methods in Oregon vs. National Breakdown." *Marijuana Business Daily*. June 8. Accessed June 30, 2016. <https://mjbizdaily.com/chart-week-outdoor-greenhouse-cannabis-cultivation-common-oregon/>

31 Oregon Health Authority. 2016. "The Oregon Medical Marijuana Program Statistical Snapshot July 2016." *Oregon Health Authority*. April. Accessed August 27, 2016.

Correspondingly, criminal entrepreneurs, operating within this space generate significant profit by exploiting surplus medical cannabis and clandestinely diverting it out-of-state.³² For example in 2014, an investigation into two central Oregon residents' OMMP operation found evidence of medical cannabis diversion to eastern states, which netted them \$200,000 in profit.³³

Further analysis indicates that there is an association between OMMP registrants and source diversion counties.³⁴ When compared to seizure data from the El Paso Intelligence Center (EPIC), geographic concentration of registrants' sites are collocated with dominant diversion centers,

thereby proximity and shared space are critical features to understanding diversion activities.^{35, 36} Moreover, the discretionary grower recordkeeping exemption under OMMP is an easily exploited loophole, which renders the program into a conduit for cannabis diversion.³⁷

Available cannabis seizure data from EPIC, indicates varied but persistent diversion activity.³⁸ While it is problematic to get direct information on clandestine activities, the extent of diversion activity becomes evident by combining out-of-state seizure information with estimates of in-state annual crop surplus.³⁹

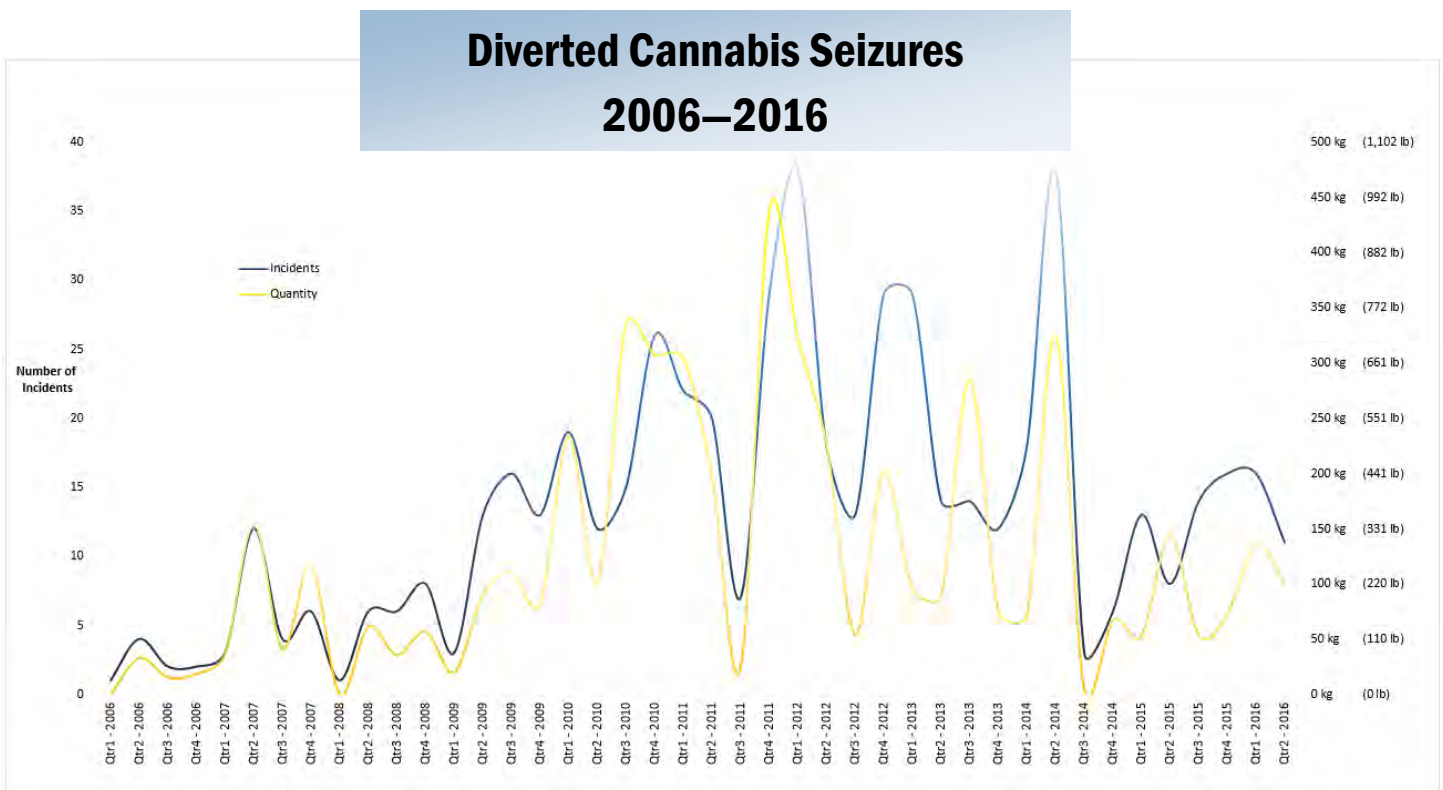


Figure 3: Chronological Trend Calculated Using Normalized Data from EPIC; See Technical Appendix i for Normalization Procedures³⁷

32 Crombie, Noelle. 2012. "Drug Traffickers Exploit Oregon Medical Marijuana Program's Lax Oversight and Loose Rules." *OregonLive/ the Oregonian*. September 22. Accessed April 4, 2016. http://www.oregonlive.com/health/index.ssf/2012/09/drug_traffickers_exploit_orego.html.

33 Lerten, Barney. 2014. "PD: Redmond 'Medical Grow' a Cover for Shipping Operation." KTVZ. November 1. Accessed January 31, 2017. <http://www.ktvz.com/news/deschutes-county/pd-redmond-medical-grow-a-cover-for-shipping-operation/68668785>

34 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>. See Appendix i for technical notes.

35 Ibid

36 Oregon Health Authority. 2016. "The Oregon Medical Marijuana Program Statistical Snapshot July 2016." *Oregon Health Authority*. April. Accessed August 27, 2016.

37 Westfall, Chris. 2016. *Oregon Health Authority Medical Marijuana*. Portland, OR, May 12.

38 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>.

39 Childress, Michael. 1994. *A System of Description of the Marijuana Trade*. Research Summary, Santa Monica: RAND Corporation - Arroyo Center Drug Policy Research Center: 2.

Information from the DEA Domestic Cannabis Eradication and Suppression Program (DCE/SP) indicates pervasive illicit cannabis cultivation in the state; it is done without environmental consideration, pushing production far beyond satiation of local demand.⁴⁰ While DCE/SP enforcement efforts and subsequent data collection have dwindled since legalization, out-of-state trafficking continues.⁴¹

Relative to other legalized states, Oregon has a per-capita diversion rate that is comparable to much larger states. Oregon has a per capita diversion rate of 13 events or 180 kg (397 lb) per 100,000 residents; nearly twice that of Washington state (See Table 1).⁴²

Per Capita Diversion Rate as of 2016			
State	Weight in kg (lb)	Number of Seizures	Population
COLORADO	238 (525)	28	5,456,574
CALIFORNIA	486 (1071)	23	39,530,000
OREGON	180 (397)	13	4,028,977
WASHINGTON	97 (214)	7	7,170,351

Table 1: Selected States Ranked by per capita Diversion Rate; Calculated using EPIC data 2006 to 2016

Despite having a relatively small population, Oregon outpaces Washington and has been the confirmed source of 5,177 kg (11,413 lb) of highway cannabis diversion alone.⁴³ This provides a strong indication that surplus cannabis is not discarded, but is in fact trafficked out-of-state and sold for a huge profit margin.⁴⁴

Oregon shares significant diversion destinations with other established cannabis production states such as Colorado, Northern California, and Washington.⁴⁵ Seizure data portrays consistent trafficking activity among legalized West Coast States heading to destinations in the Eastern United States.^{46, 47}

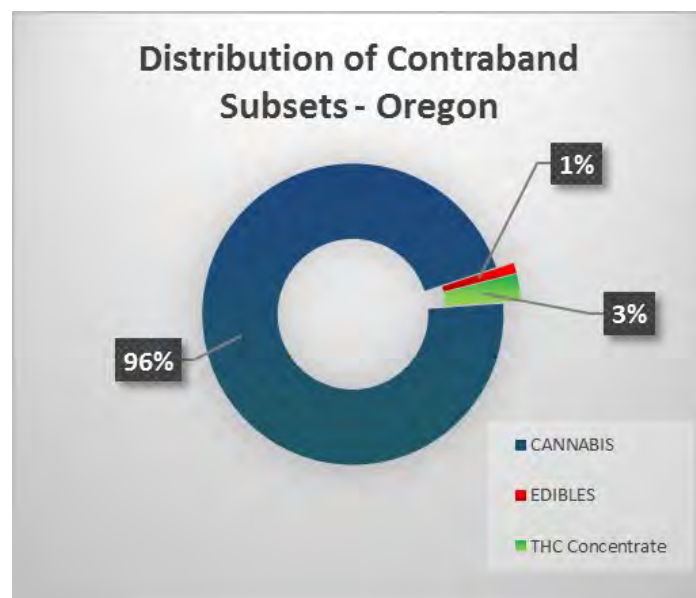


Figure 4: Distribution of Cannabis Contraband Subsets, EPIC 2006 to 2016

40 Drug Enforcement Administration (DEA). 2016. "Oregon Domestic Cannabis Eradication and Suppression Program (DCE/SP)." DEA. Accessed September 25, 2016. <https://www.dea.gov/ops/cannabis.shtml>.

41 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>.

42 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>. See technical appendix i for analytic methodology used to normalize data and calculate *per capita* rate.

43 Ibid

44 Crombie, Noelle. 2012. "Drug Traffickers Exploit Oregon Medical Marijuana Program's Lax Oversight and Loose Rules." *OregonLive/ the Oregonian*. September 22. Accessed April 4, 2016. http://www.oregonlive.com/health/index.ssf/2012/09/drug_traffickers_exploit_orego.html.

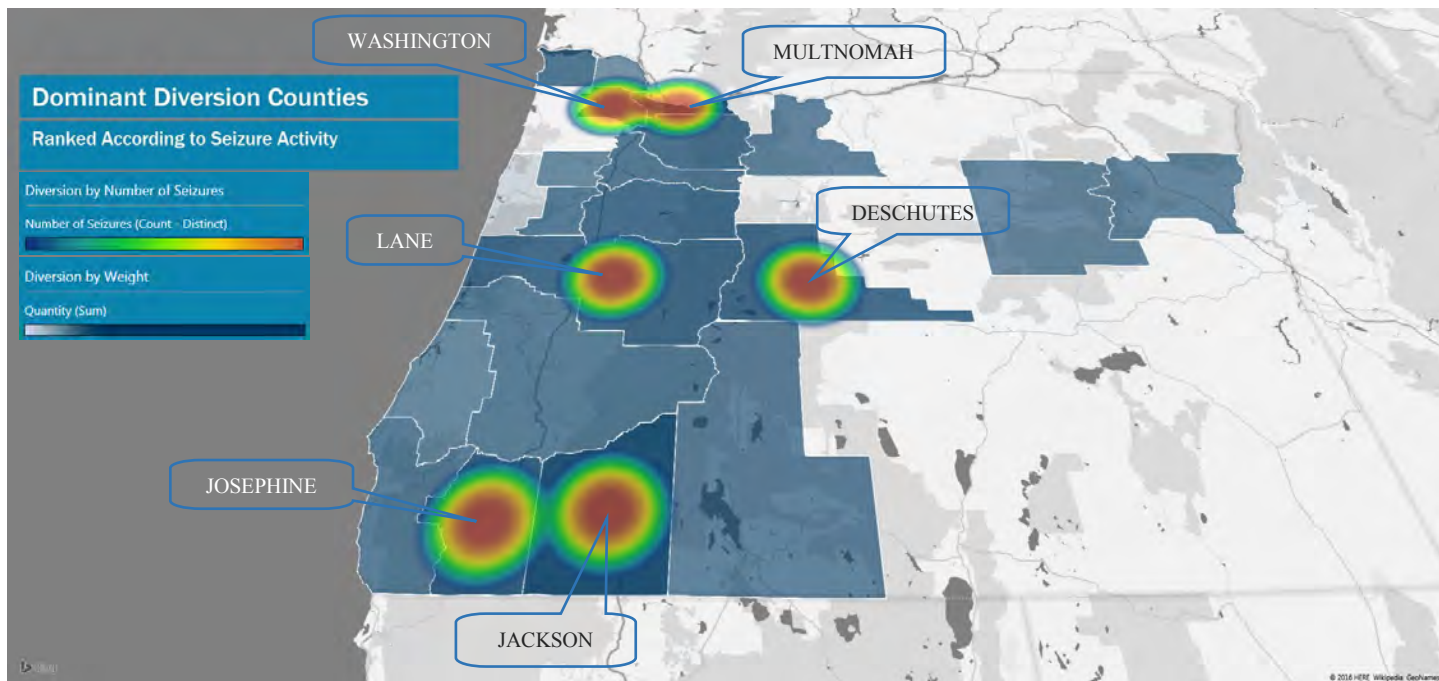
45 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>.

46 Maben, Scott. 2013. "Interstate 90 a Major Route for Traffickers Heading East." *The Spokesman - Review*. January 6. Accessed August 17, 2016. <http://www.spokesman.com/stories/2013/jan/06/drug-pipeline/>.

47 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>.

A review of Oregon interdiction data indicates diversion destinations across the continental United States, Alaska, and British Columbia. For Oregon, the Dominant Diversion Counties (DDCs) of Jackson, Multnomah, Josephine, Lane, Deschutes, and Washington (listed in descending order), lead the way

in illicit exportation of cannabis (See Map 3).⁴⁸ Collectively, over the course of ten years these counties have been the confirmed source for 3,912 kg (8,625 lb) of diverted cannabis, conservatively valued between \$13,440,625 to \$19,292,961 at West Coast wholesale prices.⁴⁹



Map 3: Localized Geographic Projection of Diversion Source Counties According to EPIC Seizure Data 2006 – 2016⁴⁷

The most frequent destinations for cannabis originating from the DDCs include Illinois, Minnesota, New York, Connecticut, Florida, Georgia, Pennsylvania, Wisconsin, and Idaho; an additional evidence that external demand fuels diversion.⁵⁰ Additionally New Economy Consulting, which monitors cannabis in Oregon estimates that nearly 80 percent of the state's cannabis ends up leaving for the East Coast.⁵¹ This estimate parallels seizure data, which shows concentrations of diversion activity in the Mid-West and along the Eastern Seaboard.⁵²

Importantly, Lane and Multnomah counties are connected to nearly half of all destinations (See Map 4).⁵³ Deeper review indicates the cities Portland, Eugene, Medford, and Grants Pass have the greatest level of connection to diversion destinations.⁵⁴

In closing, law enforcement is unable to keep pace with out-of-state cannabis diversion.⁵⁵ Cannabis legalization has not eliminated the black market, rather it has changed Oregon's established informal economy. Evidence indicates U.S. based cannabis trafficking networks have replaced transnational cartel operations. Now, there are

48 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>.

49 Cannabis Benchmarks. 2016. *Cannabis Benchmarks: Weekly Report*. October 21. Accessed October 26, 2016. <https://www.cannabisbenchmarks.com/weekly-report.html#Weekly%20cannabis%20price%20report>.

50 Ibid

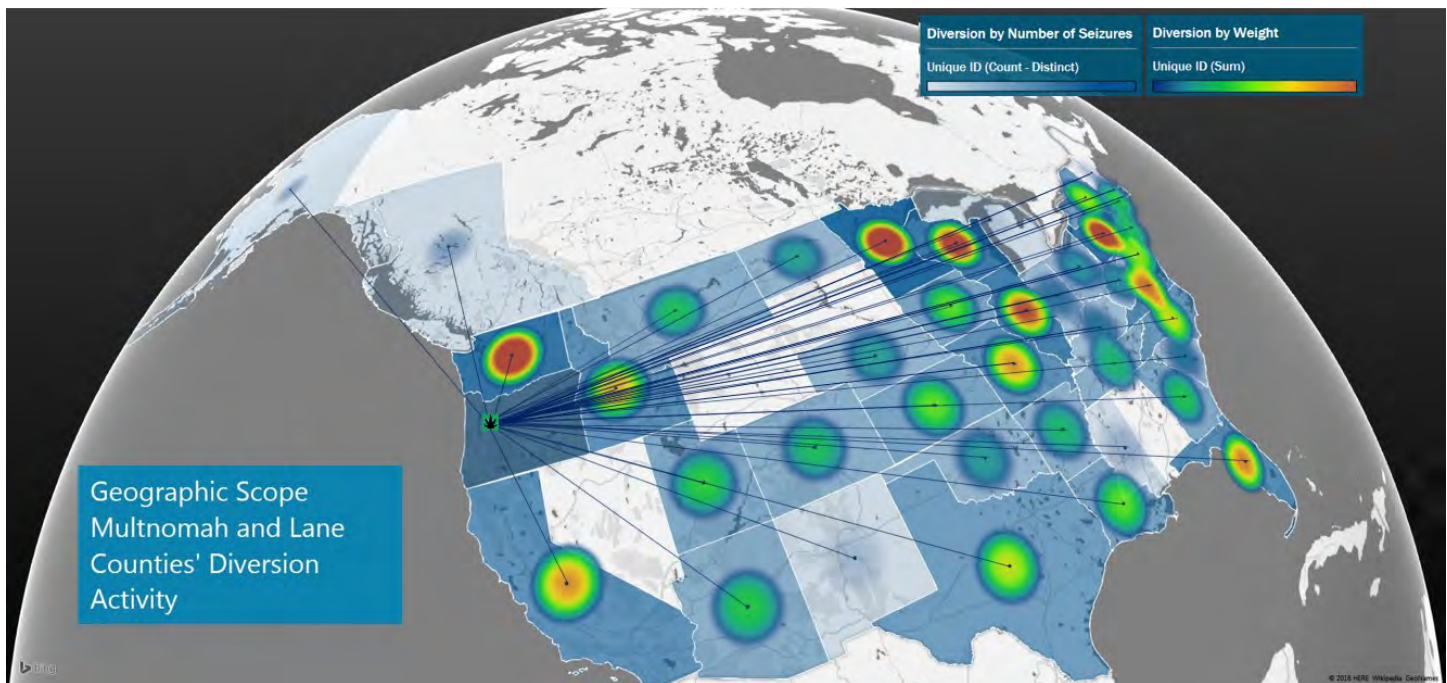
51 Ellis, James. 2016. "Pot is Still Lighting up the Black Market." *Newsweek*. February 14. Accessed September 26, 2016. <http://www.newsweek.com/weed-black-market-424706>.

52 El Paso Intelligence Center. n.d. *El Paso Intelligence Center*. Accessed June 18, 2016. <https://www.dea.gov/ops/intel.shtml#EPIC>

53 Ibid For network analysis used to calculate centrality see appendix ii.

54 Ibid

55 Ibid For network analysis used to calculate centrality see appendix ii.



Map 4: Mixed Methods Geographic Projection of Diversion Activity Composed Using Degree Centrality, Volume, and Frequency⁵²

indications that some are working within the informal economy to circumvent the regulated market to preserve their market share.⁵⁶ In fact, various social media and online forums have sprung up to provide guidance on how to avoid the regulated market.⁵⁷ Thus, the reality of legalization is that it has provided an effective means to launder cannabis products and proceeds, where in essence, actors can exploit legal mechanisms to obscure products' origin and conceal true profits, thereby blurring the boundaries of the legal market and complicating enforcement efforts.

The illicit exportation of cannabis must be stemmed as it undermines the spirit of the law and the integrity of the legal market.⁵⁸ Crime, especially large scale underground trade, is difficult to measure and distorts economic data and, consequently, complicates governance over economic issues.⁵⁹ Indeed, there are tangible negative socioeconomic effects from cannabis diversion, paramount among them is that as a form of illicit trade it steals economic power from the market, the government, and the citizens of Oregon, and furnishes it to criminals, thereby tarnishing state compliance efforts.⁶⁰

⁵⁶ James, Tom. 2016. "The Failed Promise of Legal Pot." *The Atlantic*. May 9. Accessed September 26, 2016. <http://www.theatlantic.com/politics/archive/2016/05/legal-pot-and-the-black-market/481506/>

⁵⁷ Davis, Steve. 2016. "Black Market Marijuana Growing Success Secrets ." *Big Buds: Grow Your Best Marijuana Ever!* Accessed September 26, 2016. <http://bigbudsmag.com/black-market-marijuana-growing-success-secrets/>.

⁵⁸ McDowell, John, and Gary Novis. 2001. "The Consequences of Money Laundering and Financial Crime." *Economic Perspectives - An Electronic Journal of the U.S. Department of State* 6-8.

⁵⁹ Quirk, Peter J. 1997. "Money Laundering: Muddying the Macroeconomy." *International Monetary Fund*. March. Accessed September 26, 2016. <https://www.imf.org/external/pubs/ft/fandd/1997/03/pdf/quirk.pdf>.

⁶⁰ McDowell, John, and Gary Novis. 2001. "The Consequences of Money Laundering and Financial Crime." *Economic Perspectives - An Electronic Journal of the U.S. Department of State* 6-8.

State Compliance on Cannabis Distribution to Minors and Associated Adverse Public Health Consequences

Executive Summary and Purpose

The focal points of this section are derived from the federal guidance, issued by former DOJ Deputy Attorney General James M. Cole, on -

- *Preventing the distribution of marijuana to minors*
- *Preventing drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use*¹

To this end, this section examines impaired driving rates, treatment and associated financial fallout from cannabis extraction, and use rates and methods by which minors acquire cannabis in the post-legalization period.

Strategic Findings

- Historically, an annual average of two percent of Oregon's traffic fatalities were associated solely with cannabis; this rate has not changed significantly since legalization.
- As of 2015, 60 percent of 11th graders reported that acquiring cannabis was "easy".
- The cost and rate of cannabis extraction burn victims has increased substantially since legalization, with \$7.6 million in federal government entitlement programs used to cover the cost of treatment.
- Currently, 63 percent of Oregon drivers do not know when it is legal to drive after using cannabis.
- Males 16 to 28 are a high-risk demographic for cannabis impaired driving and account for the majority of the activity in the state.

¹ Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202%2014%2014%20%282%29.pdf>.

Note to readers, the following terms are used throughout this section:

Cannabis: any of the preparations of the flowering tops or other parts of the cannabis plant, which include the psychoactive compound tetrahydrocannabinol (THC), this does not include “Industrial Hemp” as in defined in ORS 571.300.^{2,3}

Cannabinoid: any of the chemical compounds that are the active constituents of marijuana (cannabis).^{4,5}

DUIC: Driving Under the Influence of Cannabis⁶

Initiators and Light Users: new experimental cannabis users or users who consume small doses on a very infrequent basis.

Heavy Users: Individuals who consume on a near daily basis or who meet DSM-IV criteria for dependence or abuse.

Current Use: Current use of cannabis means any use of cannabis derivatives, in any form, within the past 30 days.⁷

Poly-Drug Use: Simultaneous use of multiple substances.

Terpenes: A diverse class of organic compounds, produced by a variety of plants, but in the context of this writing referring exclusively to compounds present in cannabis, primarily alpha and beta pinene, myrcene, limonene, caryophyllene, and linalool.⁸

Delta 9-Tetrahydrocannabinol (THC): The primary psychoactive compound in marijuana.⁹

Underage: Cannabis users younger than age 21.

2 Association of Oregon Counties. 2016. "Selected Oregon Marijuana Laws." *AOC Marijuana*. April 5. Accessed September 26, 2016. https://drive.google.com/file/d/0B94ywUpCLn9_TWZiQjV0T0V3bXM/view: 9.

3 Oxford Dictionary. 2016. *English Oxford Living Dictionaries*. Accessed September 26, 2016. <https://en.oxforddictionaries.com/definition/cannabis>.

4 Association of Oregon Counties. 2016. "Selected Oregon Marijuana Laws." *AOC Marijuana*. April 5. Accessed September 26, 2016. https://drive.google.com/file/d/0B94ywUpCLn9_TWZiQjV0T0V3bXM/view.

5 Oxford English Living Dictionary. 2016. *Oxford Dictionaries*. Accessed October 26, 2016. <https://en.oxforddictionaries.com/definition/cannabinoid>.

6 Hartman, Rebecca L, and Marilyn A Huestis. 2013. "Cannabis Effects on Driving Skills." *Clinical Chemistry* 479.

7 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana Use, Attitudes and Health Effects in Oregon." Marijuana Report (Oregon Health Authority - Oregon Public Health Division): 3. <https://apps.state.or.us/Forms/Served/le8509b.pdf>.

8 Rahn, Bailey. 2016. "Terpenes: The Flavors of Cannabis Aromatherapy." *Leafly*. Accessed October 27, 2016. <https://www.leafly.com/news/cannabis-101/terpenes-the-flavors-of-cannabis-aromatherapy>.

9 European Monitoring Centre for Drugs and Drug Addiction. 2017. *Cannabis Drug Profile*. Lisbon, Portugal, January 27.

“Why has government been instituted at all? Because the passions of man will not conform to the dictates of reason and justice without constraint.”

*-Alexander Hamilton*¹⁰

Cannabis Related Acute Public Health Threats

After legalization, Oregon’s adult cannabis use rate remains higher than the national average, but has not changed significantly.¹¹ Additionally, the percentage of Oregonians who have tried cannabis did not change significantly between 2014 and 2015 among any age group.¹² However, since legalization there has been a significant increase in the level of consumption among current adult cannabis users from 29 percent in 2014 to 36 percent in 2015.¹³ Data from a 2016 state survey supports this trend indicating that about 28 percent of adults self-reported more frequent cannabis use since legalization.¹⁴ Although cannabis use is related to less than one percent of total Emergency Department (ED) visits, there has been a notable rise since legalization in the number of ED cannabis-involved visits (See Figure 1).¹⁵ Independent of changes in user rates, certain activities and actions related to cannabis use pose a hazard to public health and safety. Paramount among these are cannabis impaired driving, explosions and burns caused from cannabinoid extraction, and the use of cannabis products by minors.^{16, 17, 18, 19}

10 Hamilton, Alexander. 1787. "Deficiencies of the Confederation." *The Founders' Constitution*. December 1. Accessed January 30, 2017. <http://press-pubs.uchicago.edu/founders/documents/v1ch5s21.html>.

11 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana Use, Attitudes and Health Effects in Oregon." Marijuana Report (Oregon Health Authority - Oregon Public Health Division) 1-89 **NEED PAGE**. <https://apps.state.or.us/Forms/Served/le8509b.pdf>.

12 Ibid

13 Ibid

14 The Oregon Public Health Division. 2016. "Prevention Panel Survey, Health Prevention & Chronic Disease Prevention Section." Oregon Health Authority, October.

15 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana Use, Attitudes and Health Effects in Oregon." Marijuana Report (Oregon Health Authority - Oregon Public Health Division): vii. <https://apps.state.or.us/Forms/Served/le8509b.pdf>.

16 Black, Bobby. 2015. "To Dab or Not to Dab?" *High Times*. January 2. Accessed October 21, 2016. <http://hightimes.com/culture/to-dab-or-not-to-dab/>.

17 Chang, Hetty. 2015. "Danger Next Door: Butane Honey Oil 'Fires Off Like a Bomb'." *NBC Los Angeles*. April 23. Accessed October 21, 2016. <http://www.nbclosangeles.com/news/local/Danger-Next-Door-An-Emerging-Drug-Crisis-301179201.html>.

18 Compton, Richard P, and Amy Berning. 2015. *Drug and Alcohol Crash Risk*. Summary of Behavioral Safety Research, Washing DC: National Highway Traffic Safety Administration (NHTSA) U.S. Department of Transportation.

19 Centers for Disease Control and Prevention. 2016. *Impaired Driving: Get the Facts*. April 15. Accessed October 21, 2016. http://www.cdc.gov/motorvehiclesafety/impaired_driving/impaired-driv_factsheet.html.

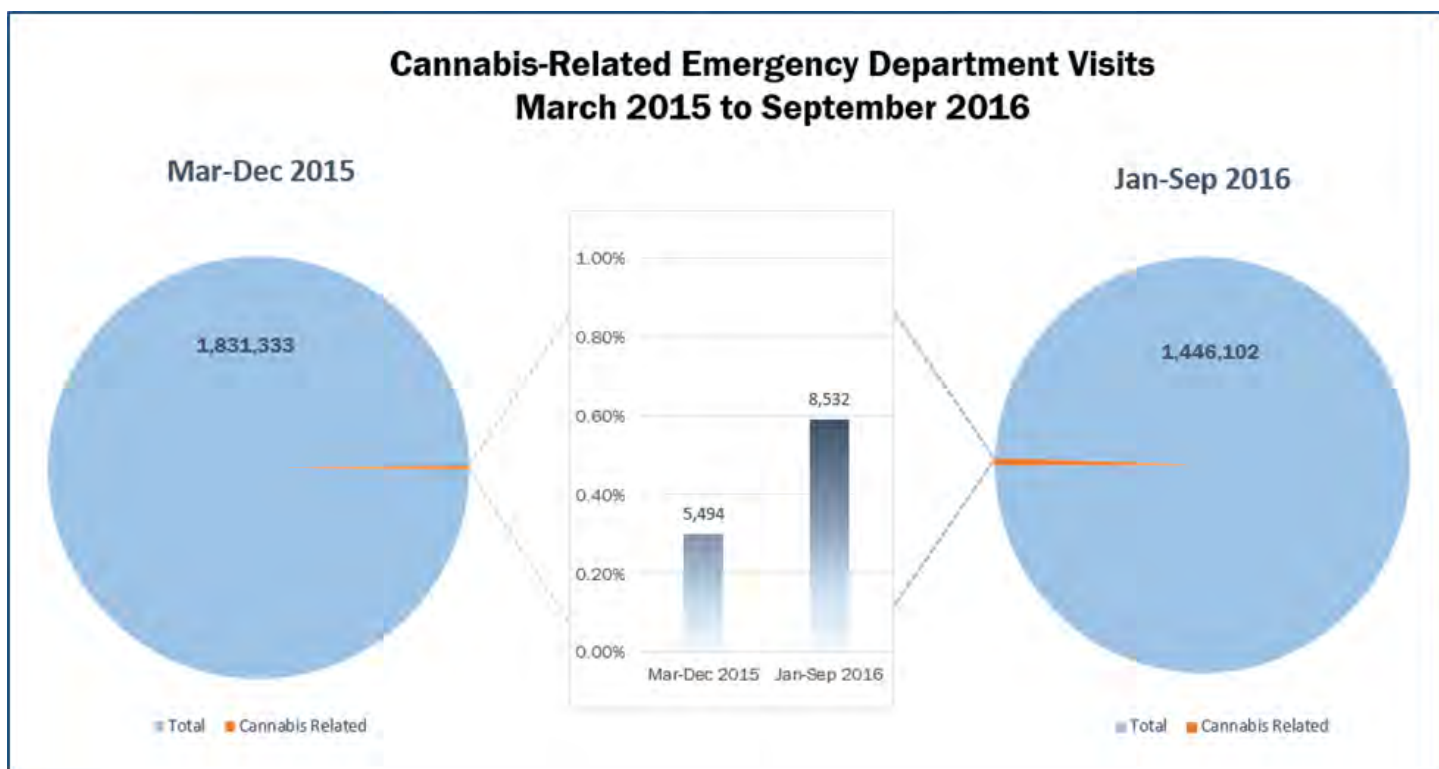


Figure 1: Cannabis Related Emergency Department Visits 2015 to 2016 as Reported by the Oregon Health Authority

Cannabis impaired driving remains a persistent threat to Oregon. Operating a motor vehicle in Oregon is an activity inherently fraught with risk, impaired, distracted, or not, and the state has annually had roughly 5 deaths per 100,000 people (approximately half that of the national average), mostly related to alcohol (See Map 1).^{20, 21, 22} Cannabis impedes reaction time, perception, attention, motor skills, tracking, and skilled activities, all which are fundamental to safe driving.²³ Indeed, the architecture of the brain as it relates to

tetrahydrocannabinol (THC) is integral to understanding cannabis impairment. Three areas of the brain that have the highest density of CB1 receptors (cannabinoid receptors), sites where THC can bond to the brain, include locations responsible for motor coordination, sensory perception, and those tasked with interpreting impulses from the body; essential to operating a vehicle.^{24, 25} Additionally, THC has been shown to diminish executive functions, which are used to prioritize external stimuli and environmental activities(See Table 1).^{26, 27}

20 Centers for Disease Control and Prevention 2012. *Injury Prevention and Control: Motor Vehicle Safety*. Accessed October 12, 2016. http://www.cdc.gov/motorvehiclesafety/states/occupant_death_rate.html.

21 National Highway Traffic Safety Administration. n.d. *Fatality Analysis Reporting System (FARS)*. Accessed June 16, 2016. <http://www.nhtsa.gov/FARS>. 2004 to 2014. *Fatality Analysis Reporting System Encyclopedia*. <http://www-fars.nhtsa.dot.gov/Main/index.aspx>.

22 Insurance Institute for Highway Safety Highway Loss Data Institute. 2015. "General Statistics." *IIHS HLDI*. Accessed December 21, 2016. <http://www.iihs.org/iihs/topics/t/general-statistics/fatalityfacts/state-by-state-overview>.

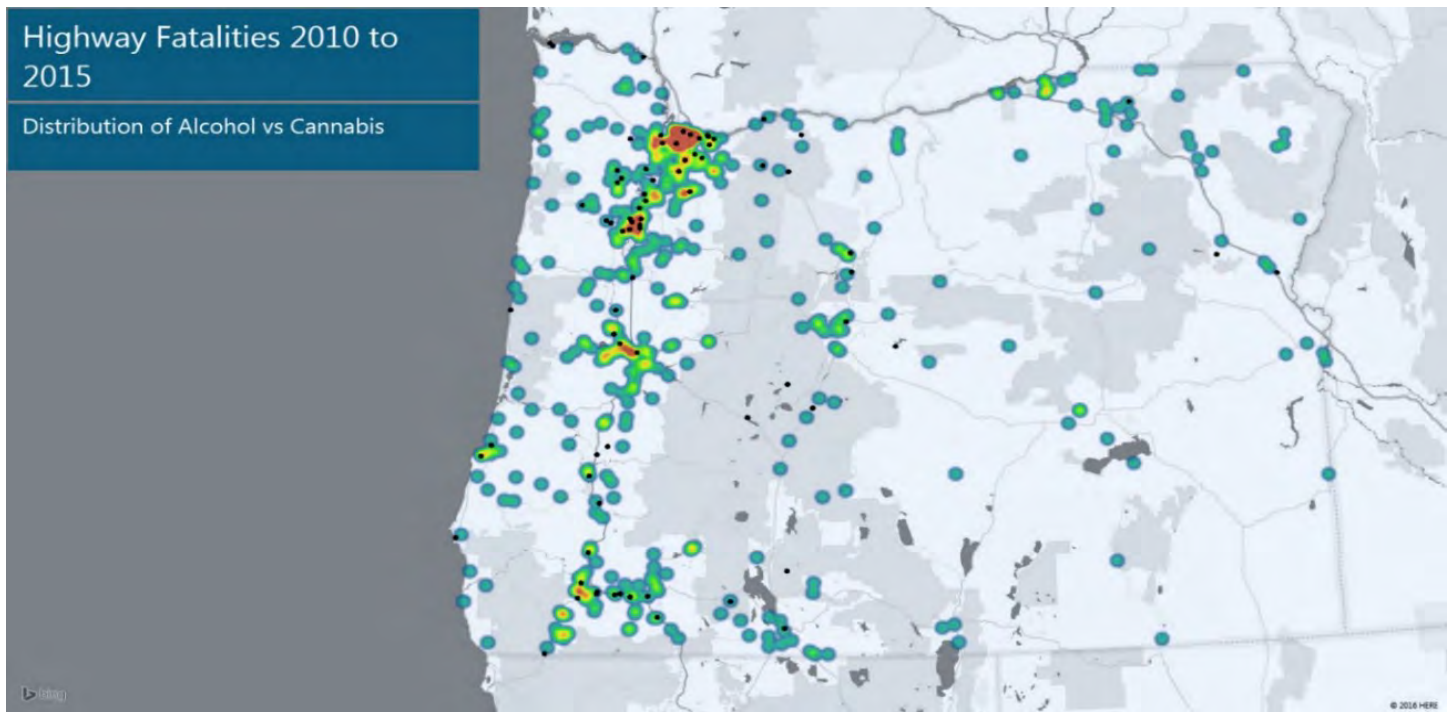
23 Hartman, Rebecca L, and Marilyn A Huestis. 2013. "Cannabis Effects on Driving Skills." *Clinical Chemistry* 479

24 National Institute on Drug Abuse . 2016. *Mechanism of Action*. October 13. Accessed October 13, 2016. <https://teens.drugabuse.gov/teachers/mind-over-matter/teachers-guide/marijuana/mechanism-action>.

25 Mackie, K. 2008. "Cannabinoid Receptors: Where Are They and What They Do." *Journal of Neuroendocrinology* 1365-2826.

26 Diamond, Adele. 2013. "Executive Functions." *Annual Review of Psychology* 135-168.

27 Crean, Rebecca D, Susan F Tapert, Arpi Minassian, Kai MacDonald, Natania A Crane, and Barbara J Mason. 2012. "Effects of Chronic, Heavy Cannabis Use on Executive Functions." *Journal of Addictive Medicine* 9-15.



Map 1: Geographic Projection of Substance Involved Fatal Crashes 2010 to 2015 ²¹

Adverse Effects of Short-Term Cannabis Use and Long-Term Cannabis Use	
Effects of Short-Term Use	Effects of Long-Term or Heavy Use
Impaired Short-Term Memory	User-Rate Dependent Addiction
Impaired Motor Coordination; Stimuli Prioritization	Altered Brain Development
Altered Judgement for Calculating Risk	Diminished Social Mobility
In high doses, Paranoia or Psychosis ²⁸	Chronic Bronchitis

Table 1: Summary of the Short-Term and Long-Effects of Cannabis Use

28 Blanco, Carlos MD, PhD, Deborah S. PhD Hasin, Melanie M. PhD Wall, Ludwig MD Florez-Salamanca, Nicolas MD, MPH Hoertel, Shuai PhD Wang, Bradley T. PhD Kerridge, and Mark MD, MPH Olsson. 2016. "Cannabis Use and Risk of Psychiatric Disorders: Prospective Evidence from a US National Longitudinal Study." *JAMA Psychiatry* 388-395.

The available epidemiological evidence on cannabis intoxication strongly suggests that users who drive while impaired increase their risk of motor vehicle crashes 2-3 times.^{29, 30, 31} Contributing to these rates, evidence suggests that light users experience heightened driver impairment compared to heavier users.³² Information from Oregon Health Authority indicates that between 21 to 34 percent of adult users drove within 3 hours of using cannabis and 63 percent of Oregon adults do not know when

it is legal to drive after using cannabis.^{33, 34}

According to data from the National Highway Traffic Safety Administration (NHTSA), between 2010 and 2015, Oregon drivers who tested positive for cannabis were involved in an average of six fatal crashes annually; this trend has persisted post-legalization.³⁵ However, collection gaps exist, as nearly one third of fatal crashes in the state are not subject to toxicology screening (See Figure 2).³⁶

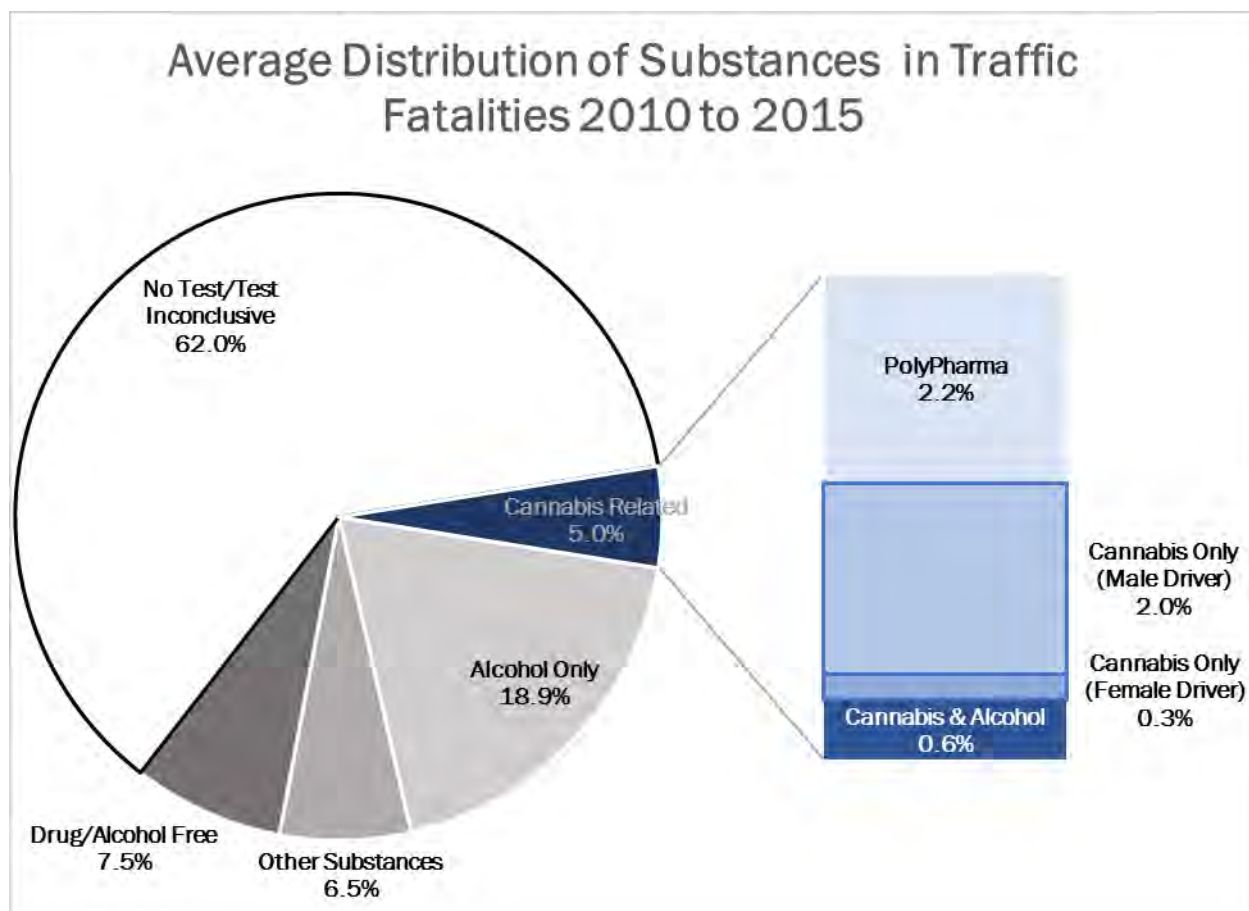


Figure 2: Average Distribution of Substances involved in Fatal Crashes 2010 to 2015 from NHTSA FARS³⁵

29 Cerda, Magdalena, Terrie E. Moffitt, Madeline H. Meier, HonaLee Harrington, Renate Houts, Sandhya Ramrakha, Sean Hogan, Richie Poulton, and Avshalom Caspi. 2016. *Persistent Cannabis Dependence and Alcohol Dependence Represents Risks for Midlife Economic and Social Problems: A Longitudinal Cohort Study*. Empirical Article, Association for Psychological Science.

30 Hall, Wayne. 2014. "What has Research over the past two decades Revealed about the Adverse Health Effects of Recreational Cannabis Use?" *Society for the Study of Addiction* 21.

31 Volkow, Nora D, Ruben D Baler, Wilson M Compton, and Susan R B Weiss. 2014. "Adverse Health Effects of Marijuana Use." *New England Journal of Medicine* 2219-2227.

32 Hartman, Rebecca L, and Marilyn A Huestis. 2013. "Cannabis Effects on Driving Skills." *Clinical Chemistry* 490.

33 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana use, attitudes and health effects in Oregon." *Marijuana Report* (Oregon Health Authority - Oregon Public Health Division) 48. <https://public.health.oregon.gov/PreventionWellness/marijuana/Documents/oha-8509-marijuana-report.pdf>.

34 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana Use, Attitudes and Health Effects in Oregon." *Marijuana Report* (Oregon Health Authority - Oregon Public Health Division): 1-89. <https://apps.state.or.us/Forms/Served/le8509b.pdf>.

35 National Highway Traffic Safety Administration. n.d. *Fatality Analysis Reporting System (FARS)*. Accessed October 23, 2016. <http://www.nhtsa.gov/FARS>.

2004 to 2014. *Fatality Analysis Reporting System Encyclopedia*. Accessed June 16, 2016. <http://www-fars.nhtsa.dot.gov/Main/index.aspx>.

36 Tefft, Brian C, Lindsay S Arnold, and Jurek G Grabowski. 2016. *Prevalence of Marijuana Involvement in Fatal Crashes: Washington 2010 - 2014*. Meta-Analysis Report, Washington DC: AAA Foundation for Traffic Safety: 5.

Nevertheless, studies indicate that after alcohol, cannabis is the most common recreational drug found in dead or injured drivers and data from 2010 through 2015 indicates that more than half of Oregon's cannabis related fatalities involve cannabis and another substance.^{37, 38} This is not surprising given regular cannabis users possess a higher probability for alcohol, tobacco, and illicit narcotics use, and are found to have a higher propensity for risk-taking behavior.³⁹ Nationally, the largest segment of cannabis users share demographic characteristics with risk-taking males 18 to 25, who also have a high drunk driving incidence.^{40, 41, 42} As an illustration of this tendency, statistics from Oregon Department of Transportation in 2014 indicate that nearly 16 percent of all crashes in 2012 involved drivers aged 15 to 20 (See Figure 3).⁴³ Available Fatality Analysis Reporting System (FARS) data indicates that in Oregon, drivers in cannabis-related fatalities are predominantly male (see Figure 4).⁴⁴

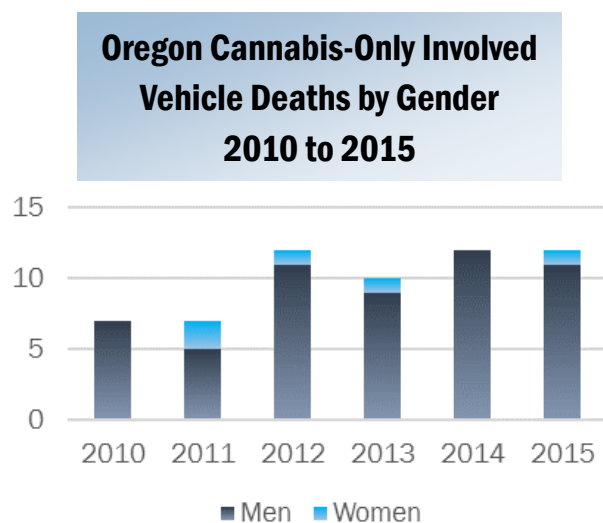


Figure 4: Distribution by Gender of Cannabis-Exclusive Drivers Involved in Fatal Crashes 2010 to 2015

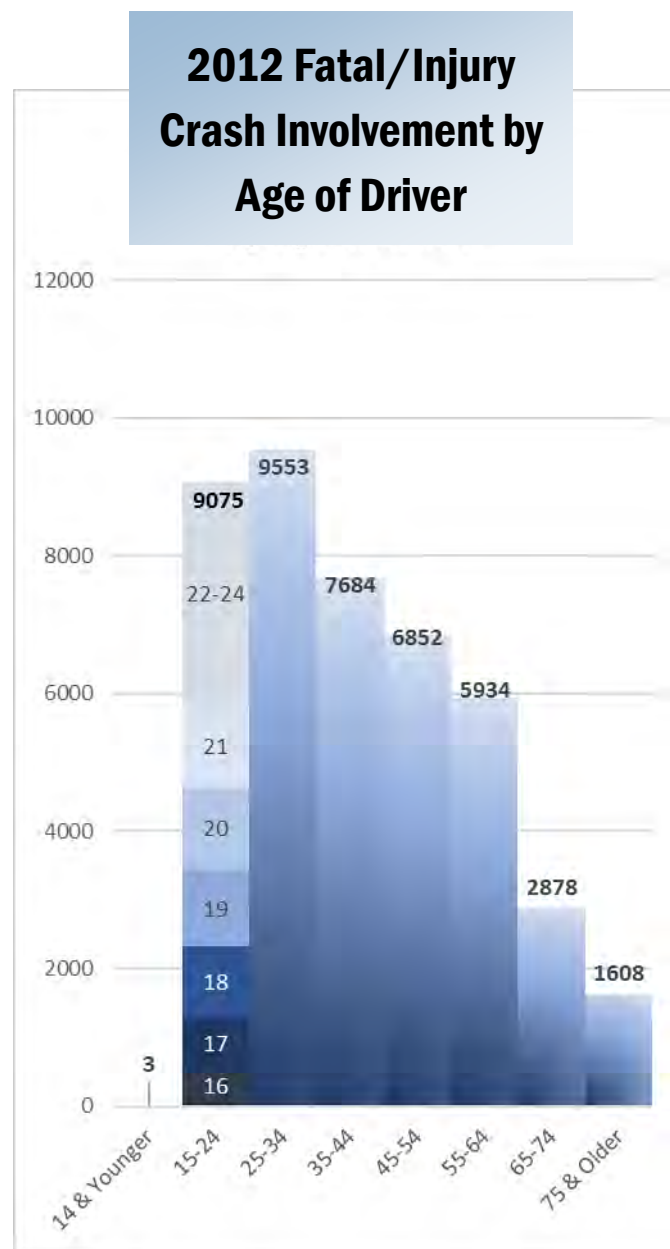


Figure 3: 2012 Distribution of Age in Crashes Oregon Department of Transportation⁴³

37 National Highway Traffic Safety Administration. 2004 to 2014. *Fatality Analysis Reporting System Encyclopedia*. Accessed June 16, 2016. <http://www-fars.nhtsa.dot.gov/Main/index.aspx>.

38 Agic, Branka, Gina Stoduto, Gillian Sayer, Anca Ialomiteanu, Christine M Wickens, Robert E Mann, Bernard LeFoll, and Bruna Brands. 2013. *Characteristics of People who Report Both Driving after Drinking and Driving after Cannabis Use*. Medical Research Report, Toronto, Canada: Center for Addiction and Mental Health, Toronto, Canada: 1.

39 Hall, Wayne. 2014. "What has Research over the past two decades Revealed about the Adverse Health Effects of Recreational Cannabis Use?" *Society for the Study of Addiction* 22.

40 Lacey, John H, Tara Kelly-Baker, Debra Furr-Holden, Robert B Voas, Eduardo Romano, Anthony Ramirez, Katharine Brainard, Christine Moore, Pedro Torres, and Amy Berning. 2009. *2007 National Roadside Survey of Alcohol and Drug Use by Drivers*. Technical Report, Washington D.C.: National Highway Traffic Safety Administration.

41 Hartman, Rebecca L, and Marilyn A Huestis. 2013. "Cannabis Effects on Driving Skills." *Clinical Chemistry* 479.

42 Substance Abuse and Mental Health Services Administration. 2004 to 2014. *National Survey On Drug Use and Health (NSDUH)*. Accessed October 2016. <http://datafiles.samhsa.gov/study-series/national-survey-drug-use-and-health-nsduh-nid13517>.

43 Oregon Department of Transportation (ODOT). 2015. *2014 Oregon Motor Vehicle Traffic Crashes Quick Facts*. Technical Summary, Salem: ODOT.

44 37 National Highway Traffic Safety Administration. 2004 to 2014. *Fatality Analysis Reporting System Encyclopedia*. Accessed June 16, 2016. <http://www-fars.nhtsa.dot.gov/Main/index.aspx>.

Since THC is roughly associated with a doubled crash risk enforcement requires accurate detection, though the polydrug use of cannabis poses a challenge.^{45, 46} Statewide rates of Drug Recognition Expert (DRE) Examinations remain high while cannabis related fatalities have been low (See Figure 5). Furthermore, DRE data from 2013 to 2015 indicates that the majority of cases related to cannabis impairment involved under-aged users, who are in a particularly vulnerable stage of brain development (See Figure 6).^{48, 49}

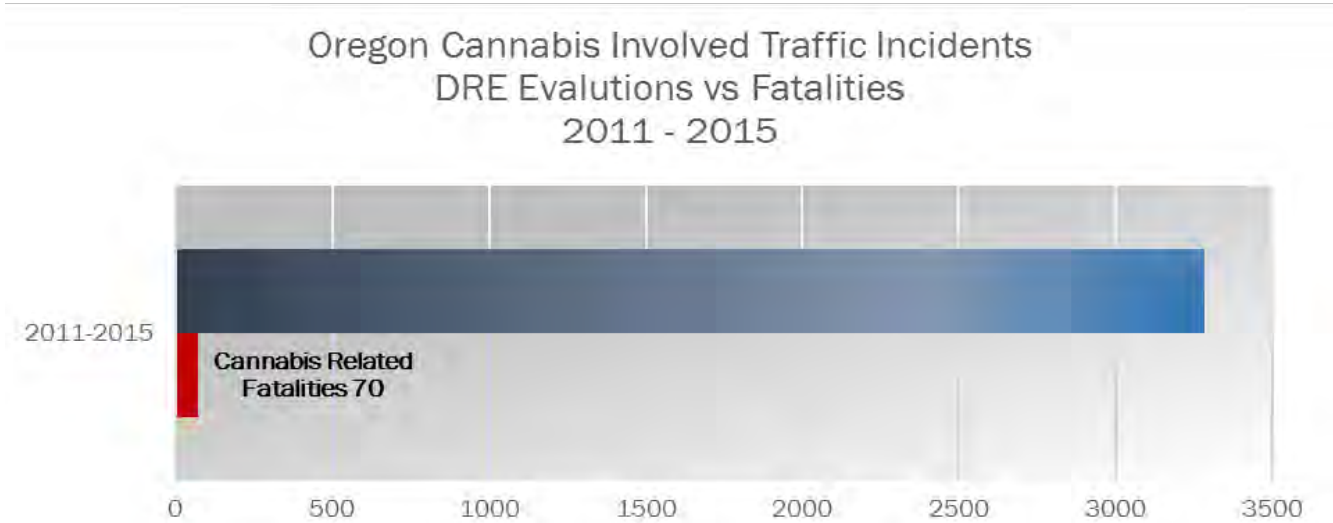


Figure 5: Comparative Distribution of Cannabis Involved DRE Examinations and Cannabis Related Fatal Crashes 2011 to 2015 ⁴⁷

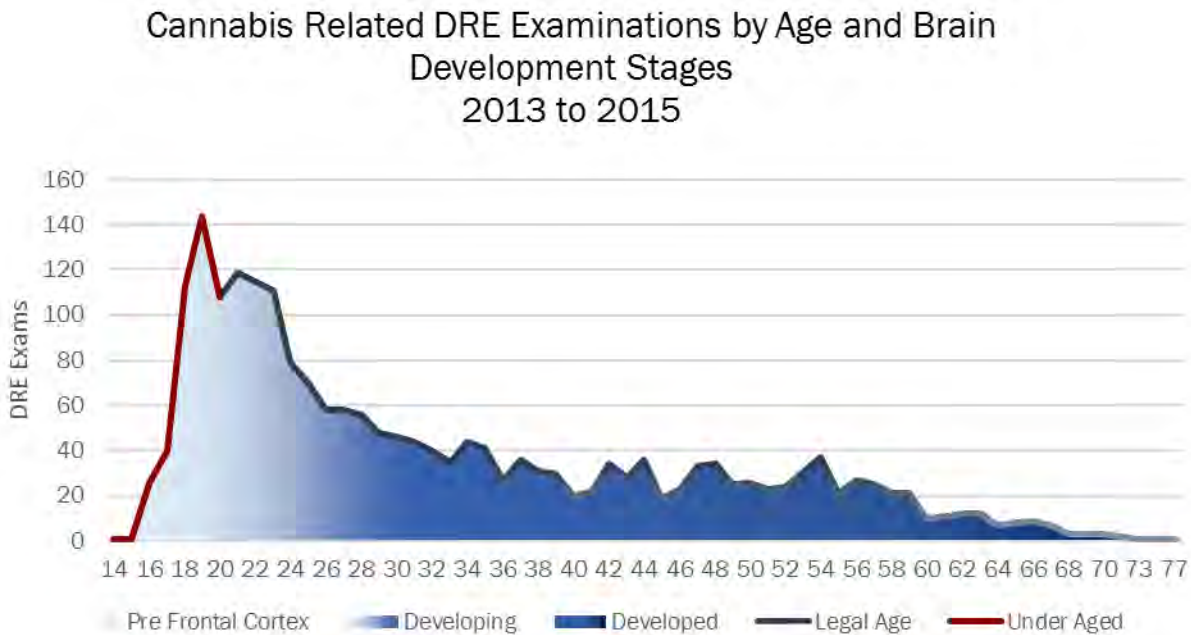


Figure 6: DRE Examinations Distribution 2013 to 2015 Broken out by Age Group and Brain Development Stages ^{54,55}

45 Hartman, Rebecca L, Jack E Richman, Charles Hayes, and Marilyn A Huestis. 2016. "Drug Recognition Expert (DRE) Examination Characteristics of Cannabis Impairment." *Accident Analysis and Prevention* 220.

46 Asbridge, Mark, Jill Hayden, and Jennifer Cartwright. 2012. "Acute Cannabis Consumption and Motor Vehicle Collusion Risk: A Systematic Review of Observational Studies." *The BMJ* 344-536.

47 Oregon State Police. 2010 to 2015. "Drug Recognition Expert Examinations." OSP.

48 Ibid

49 Jackson, Nicholas J, Joshua D Isen, Rubin Khoddam, Daniel Irons, Catherine Tuvblad, William G Iacono, Matt McGue, Adrian Raine, and Laura A Baker. 2016. "Impact of Adolescent Marijuana use on Intelligence: Results from Two Longitudinal Twin Studies." *Proceedings of the National Academy of Sciences* E508.

In spite of overwhelming empirical evidence to the contrary, most cannabis users believe they are able to compensate for performance decrements while driving, which renders education ineffective.^{50, 51} Currently the state does not have a *per se* limit (a set legal threshold) for cannabis impairment, making DRE examinations all the more critical to combating DUIC and minimizing the associated traffic fatalities. Arguably, consideration could be given to adopting zero-tolerance policy towards young driver and novice drivers when it comes to THC.^{52, 53}

While DUIC remains a persistent problem, the illicit production of cannabis extracts and concentrates presents a complex emergent threat.^{54, 55} These novel cannabis substances pose a two-fold threat for public health and safety as they not only possess all of the same adverse health effects of cannabis, but their manufacture is innately dangerous.^{56, 57} Here again the catalyzing effect of lucrative profits on the Eastern Seaboard drive in-state manufacturing.⁵⁸ These substances are particularly suitable for out-of-state smuggling, since concentrates can be virtually odorless, unlike plant material, and are more easily concealed.⁵⁹

These cannabis substances are made by forcing butane, or another petroleum based solvent, into a reaction chamber with cannabis, which results in a liquid mixture of cannabis and solvent.^{60, 61, 62} This process yields a highly potent, 70 to 90 percent pure THC, semi-liquid mixture of THC and solvent that can be further refined. Among the most common cannabis concentrates is what has come to be known as “*Butane Hash Oil*” or “*Butane Honey Oil*” (BHO).⁶³ Often, the process takes place in an enclosed area, resulting in the solvent silently filling the space. Once exposed to an ignition source, the solvent violently explodes, burning and maiming anyone in its path (See Image 1 and Image 2).⁶⁴

50 Hartman, Rebecca L, and Marilyn A Huestis. 2013. "Cannabis Effects on Driving Skills." *Clinical Chemistry* 489.

51 Terry, P, and K.A. Wright. 2005. "Self-Reported Driving Behaviour and Attitudes Towards Driving Under the Influence of Cannabis Among Three Different User Groups in England." *Addictive Behaviors* 619-626.

52 Logan, Barry PhD, Sherri PhD Kacinko, and Douglas PhD Beirness. 2016. An Evaluation of Data from Drivers Arrested for Driving Under the Influence in Relation to Per Se Limits for Cannabis. Research Report, Washington DC: AAA Foundation for Traffic Safety.

53 Hall, Wayne. 2014. "What has Research over the past two decades Revealed about the Adverse Health Effects of Recreational Cannabis Use?" *Society for the Study of Addiction* 19.

54 Crombie, Noelle. 2016. "Blast Rocks Legal Marijuana Business in Astoria, sends 2 to Burn Unit." *The Oregonian/Oregonlive*. October 20. Accessed October 26, 2016. http://www.oregonlive.com/marijuana/index.ssf/2016/10/blast_rocks_legal_marijuana_bu.html.

55 Hallett, Alison. 2013. "How Hash Oil is Blowing Up Across the U.S. - Literally." *Wired*. February 20. Accessed October 26, 2016. <https://www.wired.com/2013/02/hash-oil-explosion/>

56 Horey, Jonathan. 2016. "The Dangers of Dabbing: The Health Risks Posed by the Latest Marijuana Trend." *The Huffington Post*. August 12. Accessed October 27, 2016. http://www.huffingtonpost.com/dr-jonathan-horey/the-dangers-of-dabbing-th_b_11391686.html

57 Romanowski, Kathleen MD, Alura FNP-C Barsun, Peter MD Kwan, Esther MD Teo, Tina MD, FACS, FCCM Palmieri, Soman MD, FACS Sen, Pirko MD, FACS Maguina, and David MD, FACS Greenhalgh. 2016. *Butane Hash Oil Burns: A 7-Year Perspective on a Growing Problem*. Medical Report, Sacramento: American Burn Association: 1.

58 Jackson, Tom. 2015. "'Shatter,' Super-High Potency Pot, Now Appearing on East-Coast." *Chicago Tribune*. December 23. Accessed October 27, 2016. <http://www.chicagotribune.com/news/nationworld/ct-shatter-super-high-potency-pot-20151223-story.html>

59 Rubio, James. 2015. Does Vaping Really Smell? (Plus, Sneaky Ways to Deal with Vape Odor). May 25. Accessed October 28, 2016. <https://blog.smokazon.com/does-vaping-really-smell-plus-sneaky-ways-to-deal-with-vape-odor/>

60 Seattle Cannabis Co. 2015. "Cannabis Concentrates - Oils, Wax, Hash and More." *Seattle Cannabis Co*. February 1. Accessed October 27, 2016. <http://seattlecannabis.co/cannabis-concentrates-oils-wax-hash/>

61 Grasscity Forums. 2016. How to Make BHO to Pass Testing. Really Nice Wax/Shatter. August 11. Accessed October 27, 2016. <https://forum.grasscity.com/threads/how-to-make-bho-to-pass-testing-really-nice-wax-shatter.1122034/>

62 Abad-Santos, Alexander. 2013. "The Amateur's Guide to Dabs." *The Atlantic*. May 13. Accessed October 26, 2016. <http://www.theatlantic.com/national/archive/2013/05/amateurs-guide-dabs/315221/>

63 Seattle Cannabis Co. 2015. "Cannabis Concentrates - Oils, Wax, Hash and More." *Seattle Cannabis Co*. February 1. Accessed October 27, 2016. <http://seattlecannabis.co/cannabis-concentrates-oils-wax-hash/>

64 Ryan, Jim. 2017. "Firefighters Find BHO Lab inside Burned Oregon City Building." *The Oregonian/OregonLive*. January 6. Accessed January 23, 2017. http://www.oregonlive.com/clackamascounty/index.ssf/2017/01/firefighters_find_bho_lab_insi.html



Image 1 and Image 2: Damage from Clandestine BHO Lab in Oregon City, 2017 ⁶⁴

Notwithstanding the relative safety of the professional systems compared to the ad-hoc apparatuses, both have been the cause of deadly explosions and flash fires across Oregon, making the clandestine BHO lab arguably the most immediate cannabis threat facing the state. ⁶⁵ Even professional outfits experience catastrophic failures as was the case in Astoria in October 2016. ⁶⁶ Additionally, Aside from production hazards, the resulting substance contains high concentrations of THC that can exaggerate recognized adverse effects. ^{67, 68}

Unfortunately, the manufacture of cannabinoid concentrates has become widespread, and if escalation continues unimpeded, the incidence of BHO labs may approach the level of the methamphetamine lab epidemic that the state once faced. According to information from the Oregon Burn Center (OBC), there were at least 30 confirmed burn victims between July 2015 to July 2016 alone, costing the center \$5,154,202 to treat. ⁶⁹ Further analysis indicates the rate of victims has increased substantially since recreational cannabis was legalized, the majority of which were covered under Medicaid and Medicare (See Figure 8 and Figure 9). ⁷⁰

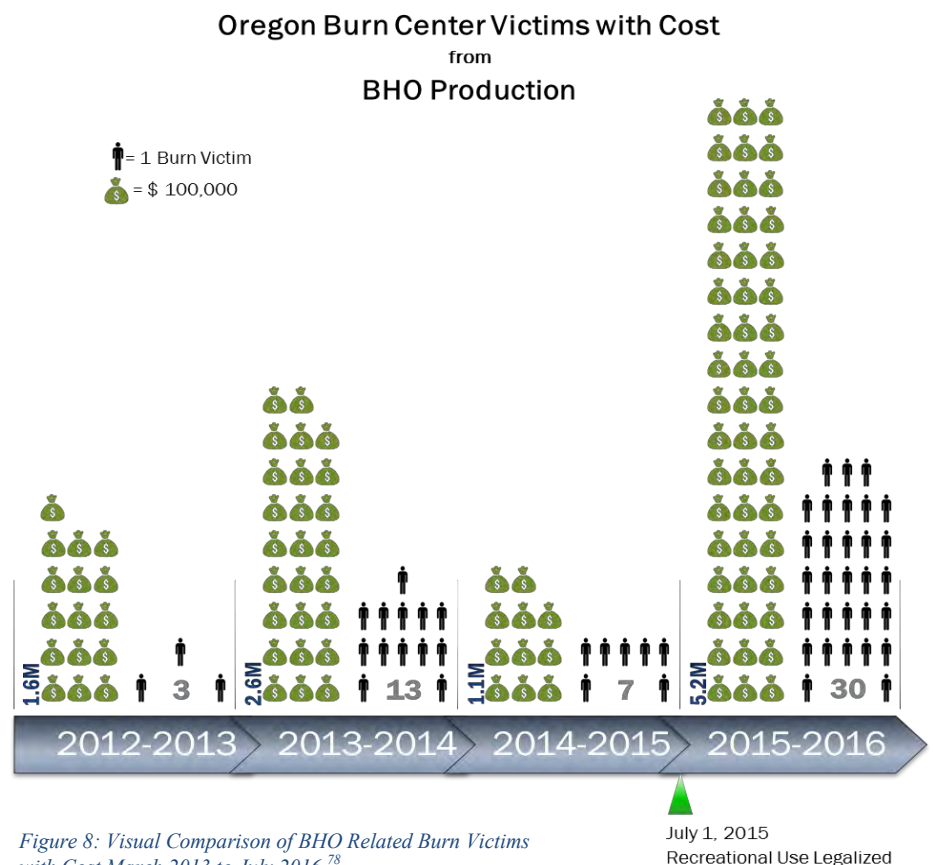


Figure 8: Visual Comparison of BHO Related Burn Victims with Cost March 2013 to July 2016 ⁷⁸

65 Crombie, Noelle. 2014. "Butane Hash Oil: A Quick and Powerful Marijuana High Feeds Demand, but Home Manufacturing Leads to Explosions." The Oregonian/OregonLive. May 12. Accessed October 27, 2016. http://www.oregonlive.com/marijuana/index.ssf/2014/05/butane_hash_oil_overview_1.html.

66 Crombie, Noelle. 2016. "Blast Rocks Legal Marijuana Business in Astoria, Sends 2 to Burn Unit." The Oregonian/Oregonlive. October 20. Accessed October 26, 2016. http://www.oregonlive.com/marijuana/index.ssf/2016/10/blast_rocks_legal_marijuana_bu.html.

67 Weinberg, Bill. 2014. "Hash Oil Explosions in the News." *Global Ganja Report*. May 8. Accessed October 27, 2016. <http://globalganjareport.com/node/848>.

68 Horey, Jonathan. 2016. "The Dangers of Dabbing: The Health Risks Posed by the Latest Marijuana Trend." *The Huffington Post*. August 12. Accessed October 27, 2016. http://www.huffingtonpost.com/dr-jonathan-horey/the-dangers-of-dabbing-th_b_11391686.html

69 Legacy Oregon Burn Center. 2013-2016. "BHO Burn Victims." Legacy Emanuel Oregon Burn Center. Accessed 2016.

70 Ibid

Insurance Status & Cost for BHO Burn Victims 2013 - 2016

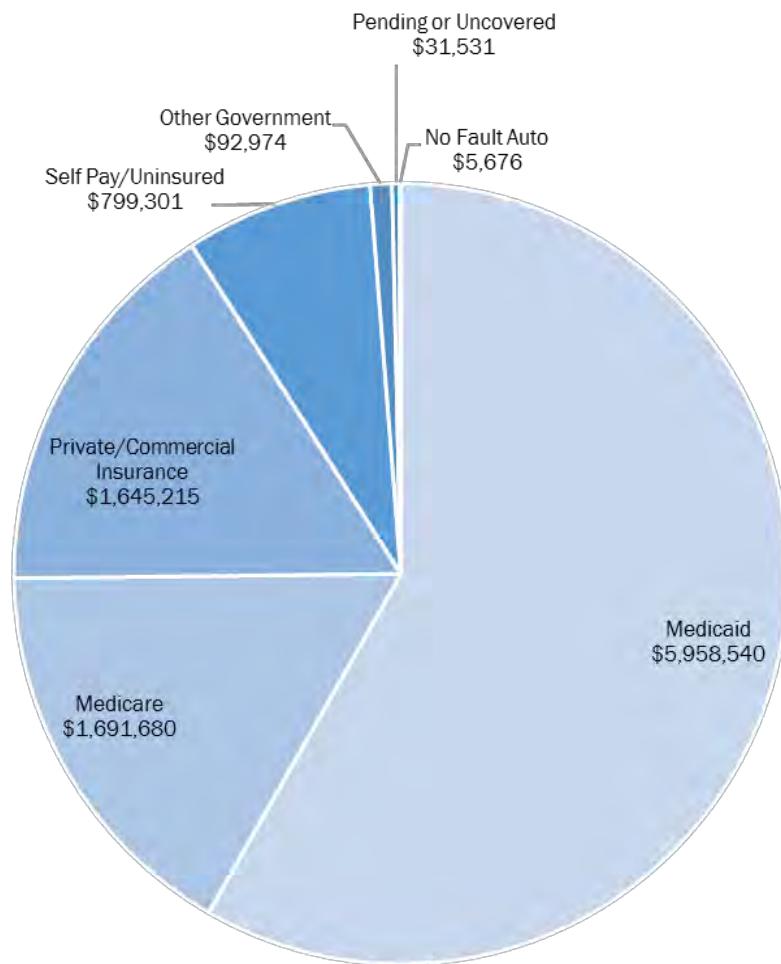


Figure 9: Insurance Status and Cost of Treatment for Initial Admission at Oregon Burn Center for BHO Related Burns ⁷³

On average, a BHO burn victim costs \$192,922 for initial treatment, spending 15 days in the hospital and 13 days in the intensive care unit. Typically, the victims are males near the age of 29 who have an average of 22 percent of their bodies burnt. These characteristics are consistent with findings from the University of California Davis Burn Center on BHO burns, which found that most of the patients were males with a mean age of 29 who had sustained a mean Total Burn Surface Area (TBSA) of 24.1 to 26.8 percent. (See Figure 9).

Unlike DUIC rates, the frequency of BHO operation explosions has increased substantially since recreational cannabis legalization, resulting in dozens of victims. Consequently, the unconventional production of cannabis concentrates poses an evident threat to the public health and safety of Oregonians.

⁷¹ Ibid

⁷² Romanowski, Kathleen MD, Alura FNP-C Barsun, Peter MD Kwan, Esther MD Teo, Tina MD, FACS, FCCM Palmieri, Soman MD, FACS Sen, Pirko MD, FACS Maguina, and David MD, FACS Greenhalgh. 2016. Butane Hash Oil Burns: A 7-Year Perspective on a Growing Problem. Medical Report, Sacramento: American Burn Association: 2.

⁷³ Legacy Oregon Burn Center. 2013-2016. "BHO Burn Victims." Legacy Emanuel Oregon Burn Center. Accessed 2016.

Preventing the distribution of cannabis to minors is a threat that is more complex and nuanced than those discussed above. Prior to legalization, the rate of cannabis use in the state was higher than the national average among adults (26 and older) and young adults (18 to 25). Data from the Oregon Behavioral Risk Factor Surveillance System (BRFSS) indicates that since legalization there has not been a significant change in the rates of use among adults.⁷⁴ Concurrently, according to Oregon Student Wellness Survey (OSWS), there have not been notable changes in use frequency among Oregon's 8th and 11th graders between 2014 and 2016, as they remain higher than the national average.⁷⁵ Yet, according to the 2016 OSWS, 11th graders in Oregon reported that acquiring cannabis would be easier than cigarettes.⁷⁶ Interestingly, since legalization there has not been a significant shift in cannabis risk perception among 8th and 11th graders, with nearly 39 percent of 11th graders and 59 percent of 8th graders reporting they were at “moderate-to-great” risk of harming themselves from cannabis.⁷⁷

Specifically, OSWS data indicates the risk perception of weekly cannabis use decreased slightly among both 8th and 11th graders, although the change was not statistically significant (See Figure 10).⁷⁸ Additional information from the 2015 Oregon Healthy Teens Survey (OHTS) indicates that current cannabis use among 8th and 11th graders was higher than current cigarette use, but lower than alcohol use.⁷⁹ OSWS information indicates that higher frequency use, defined as a more than 40 times a month, is more common among 11th graders than 8th graders.⁸⁰

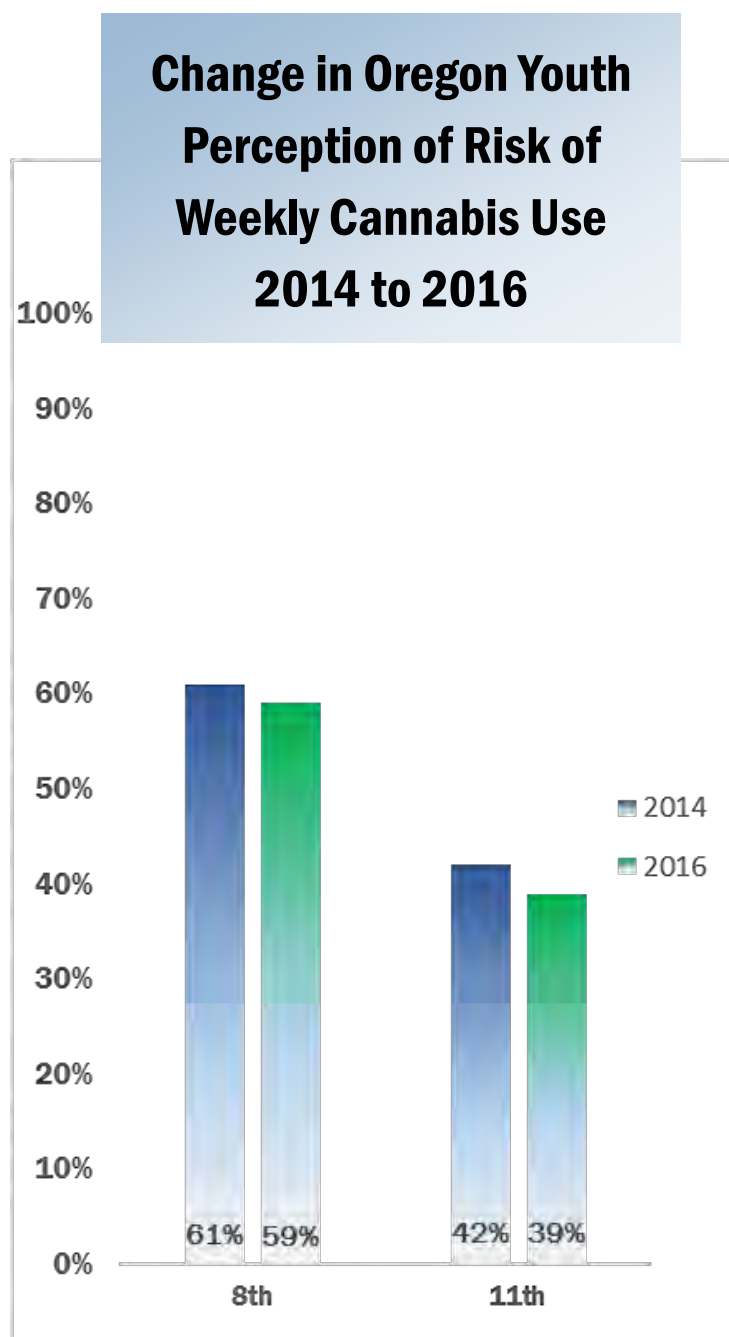


Figure 10: Risk Perception among 8th and 11th Graders 2014 to 2016 about Weekly Cannabis Use

74 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana use, attitudes and health effects in Oregon." Marijuana Report (Oregon Health Authority - Oregon Public Health Division) 22. <https://apps.state.or.us/Forms/Served/1e8509b.pdf>.

75 Ibid **NEED PAGE**.

76 Oregon Health Authority. 2016. *2016 Oregon Student Wellness Survey*. Annual Public Health Survey Results, Portland: Oregon Health Authority.

77 Ibid

78 Dilley, Ph.D., M.E.S., Julia, Caislin Firth, M.P.H., Erik Everson, M.P.H., and Julie Maher, Ph.D. 2016. "Marijuana use, attitudes and health effects in Oregon." Marijuana Report (Oregon Health Authority - Oregon Public Health Division): 41. <https://apps.state.or.us/Forms/Served/1e8509b.pdf>.

79 Ibid: 28-29.

80 Oregon Health Authority. 2016. *2016 Oregon Student Wellness Survey*. Annual Public Health Survey Results, Portland: Oregon Health Authority.

Tempering social norms to reduce cannabis use among the youth is difficult to accomplish solely through policing practices. Yet, according to research published in the Case Western Reserve Law Review “...imposing a threat of criminal risk sufficient to deter youth from attempting to access,” remains a feasible part of an enforcement model.⁸¹ In this context, deterring illicit cannabis distribution would require consistent application of sanctions.⁸² Successful deterrence strategy within the legal marketplace hinges upon severe and swift license

penalties for selling to minors should rapidly escalate to license revocation.⁸³ Within the informal economy, standard counter-narcotics techniques can be used against the peer-to-peer acquisition of cannabis among minors. Targeting these mechanics would likely prove effective as data from the National Survey on Drug Use and Health (NSDUH) indicates a significant portion of younger users acquire cannabis through trade or purchase from friends, i.e. through localized distribution networks (See Figure 11).⁸⁴

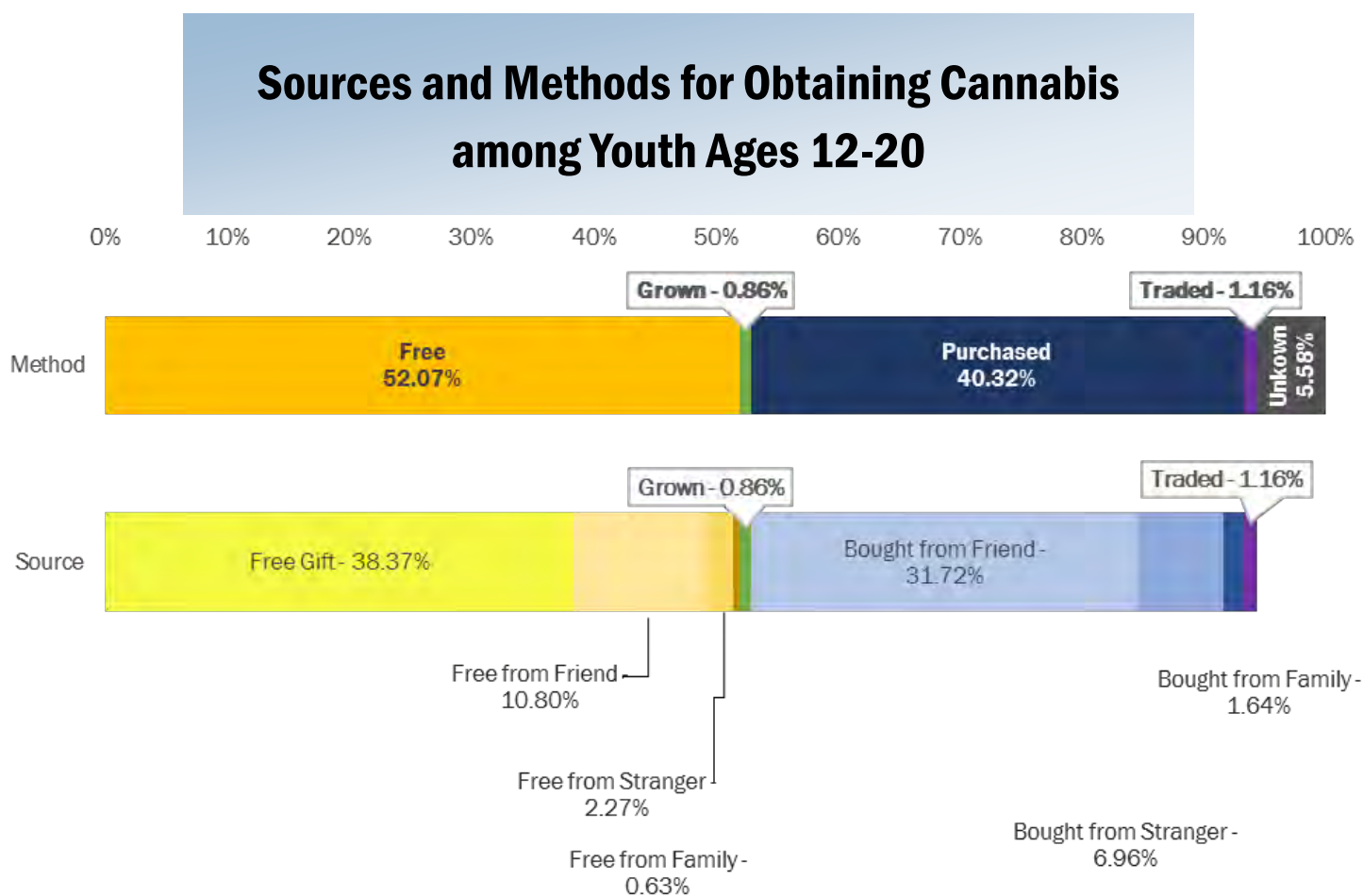


Figure 11: Sources and Methods of Obtaining Cannabis among Ages 12 through 20, taken from National Data Provided by NSDUH⁸⁴

81 Davenport, Steven, Jonathan P Caulkins, and Mark A.R. Kleiman. 2015. "Controlling Underage Access to Legal Cannabis." *Case Western Reserve Law Review*: 556.

82 Ibid: 560.

83 Ibid

84 Substance Abuse and Mental Health Services Administration. 2004 to 2014. *National Survey On Drug Use and Health (NSDUH)*. Accessed October 2016. <http://datafiles.samhsa.gov/study-series/national-survey-drug-use-and-health-nsduh-nid13517>.

The immediate acute health effects reviewed above challenge Oregon's public health and safety, but there are also threats that have yet to arise from long-term cannabis use among vulnerable age groups. According to an article published in the Journal of the American Medical Association, "Use of cannabis... increases the likelihood of use of other substances and the risk of abuse or dependence on those substances."⁸⁵ Since smoking and alcohol use are, respectively, the first and third leading causes of preventable death in the nation, recognizing the association of substance

abuse disorders with cannabis is key to the preservation of public health.⁸⁶ Additionally, recently published findings demonstrate that long-term cannabis dependence is "more strongly linked to financial difficulties" than alcohol dependence.⁸⁷ In closing, cannabis use and availability pose multiple distinct threats to the health and well-being of Oregonians, which ought to be monitored throughout the state to ensure compliance with the existing federal guidance.

85 Blanco, Carlos MD, PhD, Deborah S. PhD Hasin, Melanie M. PhD Wall, Ludwig MD Florez-Salamanca, Nicolas MD, MPH Hoertel, Shuai PhD Wang, Bradley T. PhD Kerridge, and Mark MD, MPH Olsson. 2016. "Cannabis Use and Risk of Psychiatric Disorders: Prospective Evidence from a US National Longitudinal Study." *JAMA Psychiatry*: 393.

86 Mokdad, AH, JS Marks, DF Stroup, and JL Gernerding. 2004. "Actual Causes of Death in the United States, 2000." *JAMA* 1238-1245.

87 Cerda, Magdalena, Terrie E. Moffitt, Madeline H. Meier, HonaLee Harrington, Renate Houts, Sandhya Ramrakha, Sean Hogan, Richie Poulton, and Avshalom Caspi. 2016. *Persistent Cannabis Dependence and Alcohol Dependence Represents Risks for Midlife Economic and Social Problems: A Longitudinal Cohort Study*. Empirical Article, Association for Psychological Science: 15.

State Compliance on the Growing of Cannabis on Public Lands and the Attendant Public Safety and Environmental Dangers

Executive Summary and Purpose

The focal points of this section are derived from the federal guidance, issued by former DOJ Deputy Attorney General James M. Cole, on -

- *Preventing the growing of marijuana on public lands and the attendant public safety and environmental dangers posed by marijuana production on public lands*¹

To this end, this section provides an examination of current illicit cultivation on public lands in Oregon and details research on the environmental impact of this activity.

Strategic Findings

- To date, legalization has not affected the rate of illicit cannabis cultivation on public land.
- The Illinois, Applegate, and combined Rogue Watersheds are particularly vulnerable to environmental damage from illicit cannabis grow sites.
- Illicit cannabis grows have consumed 1.04 billion gallons of water since 2004 and consume roughly 442,200 gallons of water daily during the growth season.
- Eradication and enforcement efforts have a high return on investment; an average of 1,040.38 dollars' worth of illicit cannabis is returned for every dollar spent

¹ Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202%2014%2014%20%282%29.pdf>.

“The earth provides enough to satisfy every man’s needs, but not every man’s greed.”

-Mahatma Gandhi²

During the late nineties, Mexican National Drug Trafficking Organizations (DTOs) began cultivating cannabis in Southern California and spread north into Oregon. Due to the tightening of border security in the post 9/11 period in conjunction with increased domestic production, transnational cannabis smuggling became less profitable for Mexican DTOs and has all but been supplanted by growing and distributing cannabis within the United States.³ To date in Oregon, cannabis legalization has not had a noticeable influence on Mexican National DTOs’ illicit cannabis cultivation operations on public lands, (see Figure 1). In fact, a review of Domestic Cannabis Eradication and Suppression Program (DCE/SP) data from 2004 to 2016 portrays an erratic trend among the annual totals of cannabis plant seizures on public lands.⁴ The fluctuations in the number of annual plant seizures appear to have a stronger correlation with climatic events, enforcement models, and prosecutorial changes, than specific legislative changes.

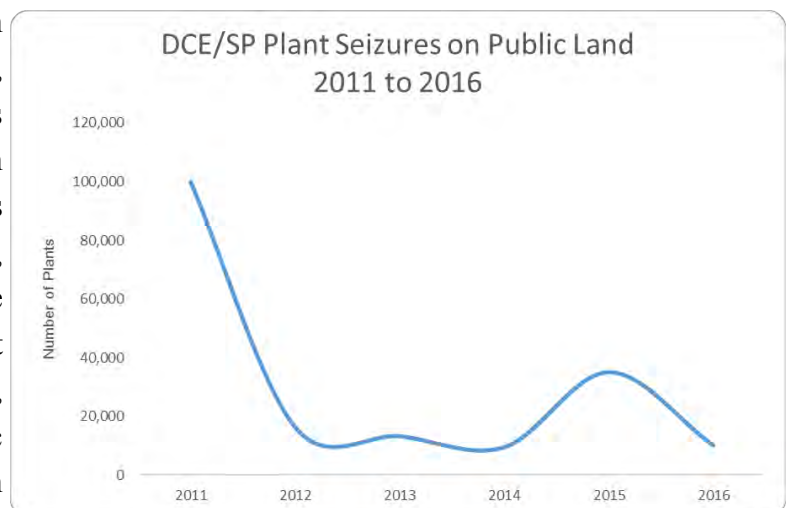


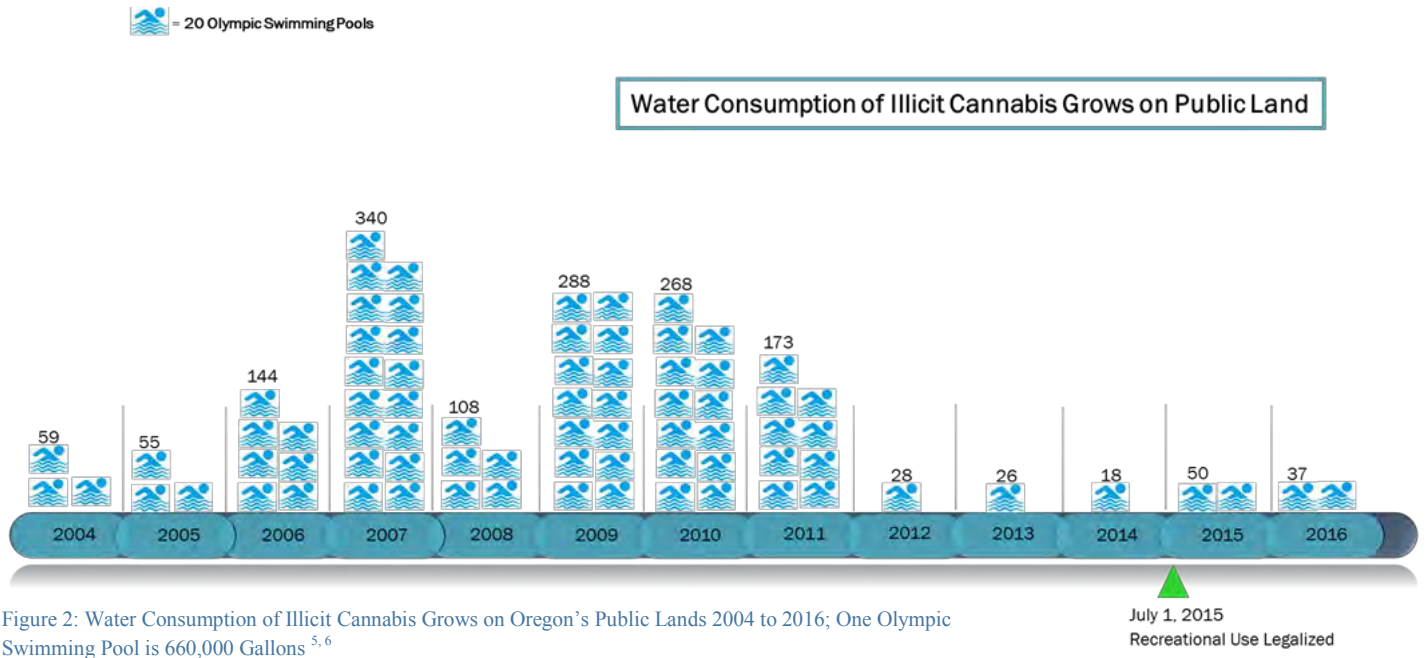
Figure 1: Illicit Cannabis Grows on Public Lands 2011 through 2016 According to DCE/SP Records

2 Pisupati, Balakrishna. 2011. "Environment, Biodiversity and Gandhiji." The Hindu. October 2. Accessed January 3, 2017. <http://www.thehindu.com/news/national/environment-biodiversity-and-gandhiji/article2504124.ece>.

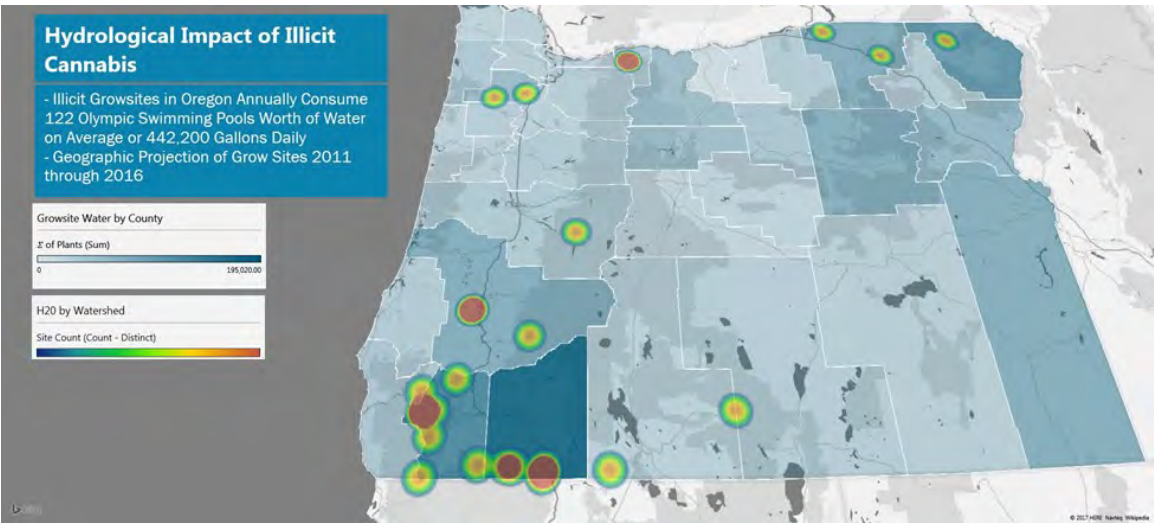
3 Milestone, Jim F, Kevin Hendricks, Alan Foster, Jim Richardson, Sean Denniston, Athena Demetry, Matt Ehmann, Charles Covelier, David Schifsky, and David Fireman. 2011. "Continued Cultivation of Illegal Marijuana in the U.S. Western National Parks." *George Wright Society Conference on Parks, Protected Areas, and Cultural Sites*. Hancock, Michigan: The George Wright Society. 209-216.

4 Drug Enforcement Administration (DEA). 2016. "Oregon Domestic Cannabis Eradication and Suppression Program (DCE/SP)." Reported Statistics 2011 to 2016. DEA. Accessed November 18, 2016. <https://www.dea.gov/ops/cannabis.shtml>

Independent of fluctuations in annual seizure volume, illicit grow operations leave a lasting scar on Oregon’s unique ecosystems. Illicit cannabis grows employ excessive amounts of pesticides, rodenticides, and herbicides, thereby threatening local wildlife habitats. Additionally, many illicit grow sites clear-cut timber, furthering soil erosion and water contamination. Research on the environmental impact of illicit cannabis grows indicates that grows tend to be bunched near water sources, resulting in disproportionate impacts on ecologically important areas.⁵ Calculating water consumption using DCE/SP data of illicit grows indicates that Oregon is robbed of roughly 122 Olympic swimming pools worth of water annually, or roughly 442,200 gallons of water daily during the growth season, typically May through October (see Figure 2).^{6, 7}



This activity results in acute water stress in some of the state’s most environmentally sensitive areas. Concentrated and prolonged illicit cannabis cultivation is particularly prevalent in the Applegate, Illinois, and combined Rogue Watersheds (see Map 1). Compared to the regulated cannabis DTOs retain a



5 Butsic, Van, and Jacob C Brenner. 2016. *Cannabis (Cannabis Sativa or C. Indica) Agriculture and the Environment: A Systematic, Spatially-Explicit Survey and Potential Impacts*. Environmental Impact Summary, IOP Science: 1-2.

6 Drug Enforcement Administration (DEA). 2016. "Oregon Domestic Cannabis Eradication and Suppression Program (DCE/SP)." Reported Statistics 2011 to 2016. DEA. Accessed November 18, 2016. <https://www.dea.gov/ops/cannabis.shtml>

7 O'Neill, Casey. 2015. "How Much Water Does it Take to Grow Cannabis?" The Ganjier. July 2. Accessed December 22, 2016. <http://www.theganjier.com/2015/07/02/how-much-water-does-one-marijuana-plant-need-to-grow/>

competitive advantage as their profits are tax-free and there is a relatively low operating cost. Additionally, due to the rapid evolution in the legal cannabis market DTOs may exploit chaos to their advantage and use the licit market as a pretext to commingle their activities. None the less the massive combined scope of cannabis agriculture, licit or not, in the state demands that it be regulated and researched on par with a conventional agricultural commodity.⁸

DCE/SP information from 2011 to 2016 shows that the majority of cultivation activity takes place predominately on U.S. Forest Service lands (see Figure 2).⁹ Further analysis indicates that the majority of large-scale grow operations, those over one thousand plants, were found above 1400 feet in elevation, near the headwaters of many water systems. While the statistics

offered in this section are from wholly illicit cultivation activities, there are parallel environmental concerns about legal operations pilfering water as has been the case in the Lower Rogue Watershed.¹⁰ There is no debating that water is a finite resource and unregulated cannabis cultivation consumes the state's reserves.

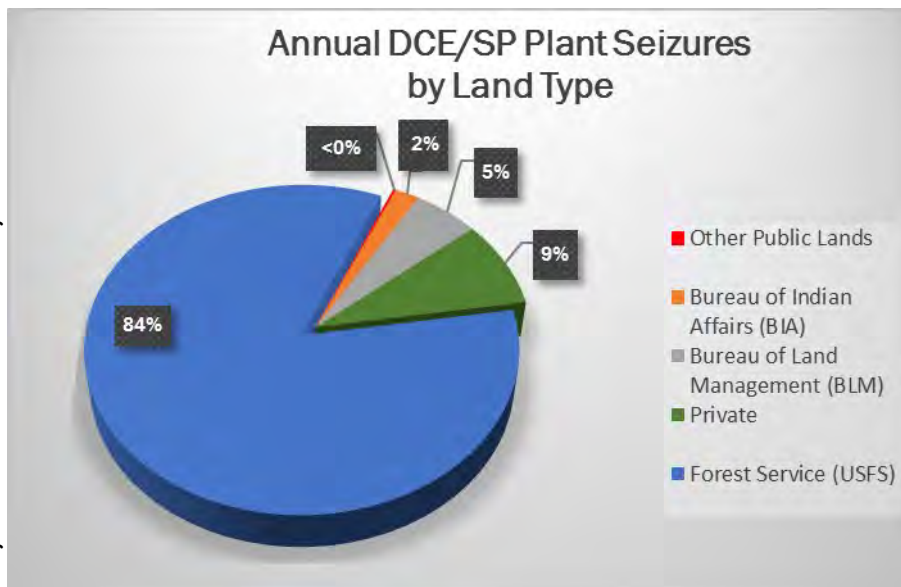


Figure 2: Distribution of Land Types of Illicit Cannabis Grows 2011 to 2016⁸

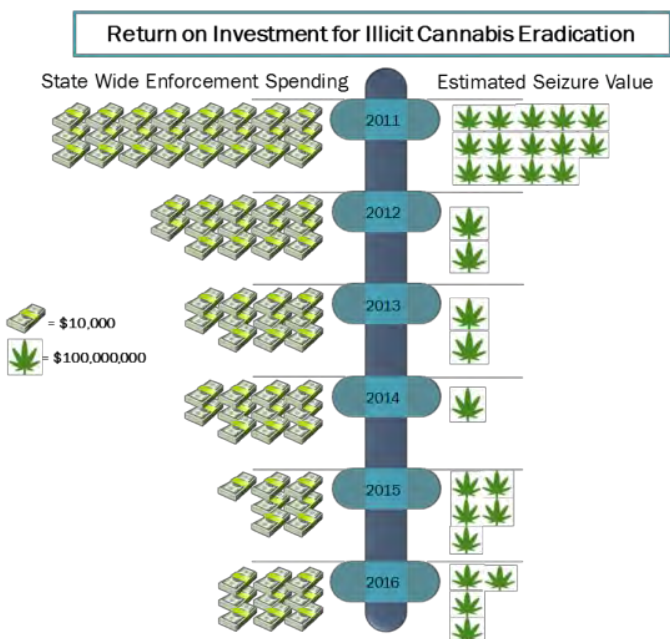


Figure 3: State-Wide Return on Investment for Cannabis Eradication

Given the available information, legalization does not appear to have any noticeable impact on illicit cannabis cultivation on public lands. Illicit cannabis cultivation continues to be a threat to Oregon's environment, and as these activities destroy local ecology they are by extension a threat to public safety. As has been previously discussed, the allure of profit motivates excessive production. Conversely, mitigating this threat requires spending and resource allocation for enforcement and eradication. Indeed, there is a limited relationship between spending and subsequent seizure sizes, with a statewide return on investment of 1,155 dollars' worth of cannabis for every dollar spent on enforcement (see Figure 3).¹¹

⁸ Butsic, Van, and Jacob C Brenner. 2016. Cannabis (Cannabis Sativa or C. Indica) Agriculture and the Environment: A Systematic, Spatially-Explicit Survey and Potential Impacts. Environmental Impact Summary, IOP Science: 9.

⁹ Drug Enforcement Administration (DEA). 2016. "Oregon Domestic Cannabis Eradication and Suppression Program (DCE/SP)." Reported Statistics 2011 to 2016. DEA. Accessed November 18, 2016. <https://www.dea.gov/ops/cannabis.shtml>.


¹⁰ Mann, Damian. 2016. "Officials Worry Water Will Go to Pot." Mail Tribune. December 19. Accessed December 26, 2016. <http://www.mailtribune.com/news/20161219/officials-worry-water-will-go-to-pot>.


¹¹ Oregon State Police. 2016. "DCE/SP Budgetary Spending 2011 to 2016." Salem, Oregon: OSP, December 27.

The size of cannabis agriculture in the state, legal or not, requires data collection and analysis to understand the environmental impact. Consideration should be given to researching adequate production thresholds, which will diminish surplus cannabis and minimize available product for diversion. It is difficult to prove that simply spending more money will eliminate illicit public lands' cannabis grows. Yet, it is safe to say that dedicated enforcement personnel, access to aerial assets, public outreach, and prosecutorial resolve play significant roles in combating illicit cannabis grows (See Figure 3).

Average Seizure Return on Flight Hours



 = 10 Cannabis Plants

 = 1 Hour Flight Time

*Figure 3: Average Seizure Return for Flight
time According to HIDTA Data 2007 to 2015*

State Compliance on Prevention of Exploitation of State-Authorized Cannabis Activities for Illicit Activity and Violence in the State's Cannabis Industry

Executive Summary and Purpose

The focal points of this section are derived from the federal guidance, issued by former DOJ Deputy Attorney General James M. Cole, on -

- *Preventing revenue from the sale of marijuana from going to criminal enterprises, gangs, and cartels*
- *Preventing violence and the use of firearms in the cultivation and distribution of marijuana*
- *Preventing marijuana possession or use on federal property.*

To this end, this section provides a survey of recent events that typify the exploitation of the state-authorized cannabis industry for illicit activities.



Strategic Findings

- Criminals are exploiting Oregon's cannabis industry for financial crimes and fraud.
- Legal entities in Oregon's cannabis industry have been targeted by violent criminals and armed robberies.

¹ Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202%2014%2014%20%282%29.pdf>.

“Intelligence is the ability to adapt to change.”

- Dr. Stephen Hawking²

There are several high-profile cases in which criminals have exploited Oregon’s abundant cannabis supplies for illicit gain. One method commonly used to facilitate illicit gain from the state’s cannabis surplus is to use the Postal Service to ship cannabis products and proceeds. According to former Attorney General Eric Holder, “The Postal Service is being used to facilitate drug dealing...”, a clear violation of federal law and a violation of the sanctity of the U.S. Mail.³

As a cannabis supply center, Oregon has been a source state in multi-state cannabis trafficking networks. As indicated by court records from 2016, Stevenson Tran, Loc Bui, Quan Tran, and Peter Nguyen of Portland shipped at least 318 kg (700 lb.) of cannabis to

Wisconsin, where the at least 2.5 million dollars of proceeds were structured and laundering in Wisconsin

banks.^{4, 5} In Eugene a coffee kiosk served as a shell for comingling funds from cannabis diversion by Eric Leighton Scully and his multi-state cannabis trafficking network. Scully and his associated secured more than a million dollars from their diversion activities, which they subsequently converted into other tangible assets.⁶

Oregon’s cannabis industry has become a high-risk sector for investment fraud. Tisha Silver of Cannacea Medical Marijuana Dispensary falsified licensing to solicit investors and worked with Green Rush Consulting to locate unwitting investors.⁷ Silver exploited the burgeoning cannabis industry in the state to entice investors to back an illegitimate company, securing a quarter of million dollars in fraudulent gains. According to some analysts, cannabis investors fell prey to “pump and dump” schemes and lost up to 23.3 billion dollars in 2014 alone.⁸

2 The Telegraph. n.d. "Professor Stephen Hawking: 13 of His Most Inspirational Quotes." *The Telegraph*. Accessed January 28, 2017. <http://www.telegraph.co.uk/news/science/stephen-hawking/12088816/Professor-Stephen-Hawking-13-of-his-most-inspirational-quotes.html?frame=3544129>.

3 Postal Reporter. 2014. "Holder: Postal Service Mail Used for 'Shocking' Amount of Drug Dealing." *Postal Reporter*. April 4. Accessed December 22, 2016. <http://www.postal-reporter.com/blog/holder-postal-service-mail-used-for-shocking-amount-of-drug-dealing/>

4 IRS. 2016. "Examples of Money Laundering Investigations - Fiscal Year 2017." IRS. December 28. Accessed February 6, 2017. <https://www.irs.gov/uac/examples-of-money-laundering-investigations-for-fiscal-year-2017>.

5 The United States Attorney's Office Western District of Wisconsin. 2016. "Final Defendant Sentence in Marijuana Distribution and Money Laundering Case." United States Department of Justice. December 14. Accessed January 22, 2017. <https://www.justice.gov/usao-wdwi/pr/final-defendant-sentenced-marijuana-distribution-and-money-laundering-case>.

6 Moran, Jack. 2016. "Business Used as Front for Drug Ring." *The Register-Guard*. May 14. Accessed February 6, 2017. <http://projects.registerguard.com/rg/news/local/34367153-75/eugene-coffee-kiosk-owner-admits-money-laundering-charge-his-mother-also-pleads-guilty.html.csp>.

7 Crombie, Noelle. 2016. "State Slaps Portland Dispensary Owner with \$40,000 Fine in Fraud Inquiry." *The Oregonian/OregonLive*. July 29. Accessed February 6, 2017. http://www.oregonlive.com/marijuana/index.ssf/2016/07/state_slaps_portland_dispensar.html.

8 Sapient Investigations Inc. 2015. "High Times for Fraud." *Sapient Investigations Newsletters*. February 10. Accessed November 22, 2016. <https://sapientinvestigations.com/spi-news/high-times-for-fraud/>.

Financial crimes notwithstanding, cannabis is a lucrative target for robbery and as recently as December 2016 a state-licensed cannabis producer was targeted for a violent armed robbery.⁹ In the aforementioned case, a well-known cannabis grower in Jackson County was assaulted, bound, and his harvest was taken by armed assailants.

Oregon's new cannabis industry is filled with hype and great deal of market volatility; appealing environmental conditions to financial criminals and fraudsters.¹⁰ These cases exemplify the range of crimes taking root in Oregon's cannabis sector. Oregon's cannabis businesses are cash intensive operations, and as such are easy targets for robbery and financial exploitation. The ever expanding myriad of cannabis related support services and specialties poses a challenge to enforcement.

Other prominent cannabis production states have had cases of sexual exploitation and forced labor linked to cannabis grows. In California's Emerald Triangle so-called "bud-trimmers or trimmigrants" have been raped, trafficked, and abused by cannabis growers.¹² While there is no credible indication that this form of human trafficking is happening in Oregon, preventing it from taking root should be a priority.


9 Crombie, Noelle. 2016. "Masked Intruders Hit Legal Marijuana Grow -- First Violent Crime at Licensed Pot Farm." *The Oregonian/OregonLive*. December 29. Accessed January 27, 2017. http://www.oregonlive.com/marijuana/index.ssf/2016/12/authorities_investigating_assa.html.

10 Consumer Reports. 2015. "Why Marijuana Stocks Might Go Up in Smoke." *Consumer Reports Money*. June 28. Accessed January 15, 2017. <http://www.consumerreports.org/cro/news/2015/06/why-marijuana-stocks-might-go-up-in-smoke/index.htm>.

Conclusion and Recommendations for Enhanced Compliance with Enforcement Priorities

Executive Summary and Purpose

The conclusions and recommendations of this section are derived from the research and analysis focused the state's compliance with the federal enforcement priorities issued by former DOJ Deputy Attorney General James M. Cole.¹



Strategic Conclusions

- These enforcement priorities require on-going performance monitoring and continual analysis to gauge the efficacy of the state's regulatory regime and enforcement system.
- To properly evaluate these areas of concern there should be dedicated personnel to collect, analyze, and disseminate information to enforcement forces.
- Collaborative strategies should be developed to enhance data collection on these enforcement priorities to better evaluate Oregon's compliance with federal guidance.
- These enforcement priorities and baseline analyses should be core to the development of a state-wide enforcement regime.

¹ Cole, James M. 2014. "Guidance Regarding Marijuana Financial Crimes." *U.S. Department of Justice*. February 14. Accessed September 26, 2016. <https://www.justice.gov/sites/default/files/usao-wdwa/legacy/2014/02/14/DAG%20Memo%20-%20Guidance%20Regarding%20Marijuana%20Related%20Financial%20Crimes%202%2014%2014%20%282%29.pdf>.

“Change is the law of life. And those who look only to the past or present are certain to miss the future.”

- John F. Kennedy²

Former DOJ Deputy Attorney General James M. Cole established clear requirements and expectations for states who have chosen to legalize cannabis. This report is strictly an initial evaluation Oregon’s relative position to the federal enforcement expectations using readily available information. As such, there remains a knowledge deficit when it comes to cannabis’ long-term interplay with society and which requires future analysis to improve upon the existing body of knowledge.

A comprehensive review of Oregon’s position relative to federal expectations will require continuing evaluation and new information collection. To facilitate future research into cannabis enforcement efficacy and public health, reporting state agencies must agree standardize and centralize data collection. It is advisable to conduct periodic data maintenance to limit erroneous information in the meta-data related to cannabis diversion. Greater accuracy of the size of the illicit cannabis market could be obtained if drug use questionnaires were revised to better gauge self-reported consumption. Improving existing data sources, will facilitate on-going evaluation and future assessments on the impact of cannabis legalization on Oregonians. In the

state only one third of traffic fatalities are tested for drugs or alcohol, making it difficult to gauge the totality of cannabis impaired driving. Some enforcement priorities cannot currently be evaluated, such as possession of cannabis on federal property; there is not an effective method to evaluate state compliance on preventing cannabis possession on federal property.

Oregon’s successful deployment of a comprehensive enforcement system ought to be developed on empirically sound data and objective analysis. Yet, analysis cannot be performed without information. In turn, information, devoid of standardization and aggregation is not easily retrievable or readily analyzed. A balance needs to be struck between the number of analysts required to process and analyze raw data with the collectors of information on cannabis related issues. Policies ought to be developed that promote uniform reporting, data retention, and facilitate third party access to cannabis related data for evaluations of performance measures.

OSP will continue to evaluate the state’s relative position to the cannabis enforcement expectations.

² Kennedy, John F. 1963. "Address in the Assembly Hall at the Paulskirche in Frankfurt." *The American Presidency Project*. June 25. Accessed January 26, 2017. <http://www.presidency.ucsb.edu/ws/?pid=9303>.

