

# CANNABIS

## THE CONUNDRUM:

*Medical Mystery; Environmental Enigma; Neighborhood Nightmare*

A study into the social and environmental impacts of policy governing marijuana production and processing operations in rural residential areas of Washington State

By  
Michelle L. Horkings-Brigham

A Thesis  
Submitted in partial fulfillment of the requirements for the degree  
Master of Environmental Studies  
The Evergreen State College  
June 2018

© by Michelle Horkings-Brigham. All rights reserved.

This Thesis for Master of Environmental Studies Degree

by

Michelle L. Horkings-Brigham

has been approved for

The Evergreen State College

by

---

Kathleen M. Saul, Ph.D.  
Member of the Faculty

---

Date

---

## ABSTRACT

### *CANNABIS THE CONUNDRUM:*

*Medical Mystery; Environmental Enigma; Neighborhood Nightmare.*

A study into the social and environmental impacts of policy governing marijuana production and processing operations in rural residential areas of Washington State.

Michelle L. Horkings-Brigham

Washington State voters approved I-502 in 2012, an initiative that legalized the commercial production of recreational marijuana in the state. Since then, in Thurston County, eleven interim ordinances regulating marijuana production and processing have been in place, at times leading to a confused situation between marijuana business owners, neighboring communities, public officials, and enforcement agencies.

This thesis presents material sourced from peer reviewed academic papers, reports in the mass media including newspaper journals and niche media outlets, government publications, interviews, personal experience, surveys, and testimony provided at Thurston County Public Hearings. It highlights not only the benefits of legalizing medical marijuana, but also addresses environmental issues and social concerns resulting from the legalization of marijuana cultivation and recreational marijuana sales.

Thurston County Long Range Planning has stated their mission is “to plan for sustainable land use and development within the unincorporated areas of the county so communities can thrive in a healthy environment.”<sup>1</sup> However, research suggests environmental degradation and social disruptions to neighborhoods have been occurring within the vicinity of large-scale marijuana operations located in rural residential areas of the county. Therefore, more appropriate zoning, greater communication between government agencies overseeing marijuana licensing and land use, stronger enforcement of regulations, closure of regulatory loopholes that allow for unlawful activity, more thorough and regular site and property inspections, neighborhood consultations, and a detailed environmental impact statement determining water sources and usage for a marijuana operation, are all warranted before a marijuana production or processing license is issued. Such requirements would minimize the potential harm to ecosystem functioning, human health and safety, and potential loss in property values, as a result of this rapidly developing, and still inadequately regulated industry in Washington State.

---

1. Thurston County Long Range Planning (2018). Welcome to the Community Planning Division. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncounty.wa.gov>

*Cannabis is a conundrum.*

*How so, you might ask?*

*It took years for a solution,*

*an arduous task.*

*A solution to what?*

*you might reply.*

*An environmental enigma,*

*I painfully sigh.*

*Painful! It's a medical mystery,*

*wouldn't you shout?*

*Perhaps...*

*but it's the neighborhood nightmare*

*I sadly found out.*

---

## TABLE OF CONTENTS

|   |      |
|---|------|
| LIST OF FIGURES.....  | vii  |
| LIST OF TABLES .....  | viii |
| LIST OF ACRONYMS.....   | ix   |
| ACKNOWLEDGEMENTS.....   | x    |
| PREFACE .....   | xi   |
| INTRODUCTION.....   | 1    |
| CH. 1 MARIJUANA POLICY—ENVIRONMENTAL & SOCIAL IMPACTS.....                | 5    |
| 1.1 MARIJUANA’S FOOTPRINT .....   | 5    |
| <i>Legalization’s Impact on My Family</i> .....                           | 5    |
| <i>Thurston County’s Interim Marijuana Ordinance</i> .....                | 9    |
| <i>Marijuana Licensing and Special Land Use</i> .....                     | 15   |
| <i>Marijuana Cultivation</i> .....  | 16   |
| <i>Environmental Impacts of Marijuana Production and Processing</i> ..... | 19   |
| Industrial Hazardous Waste .....  | 19   |
| Water Usage.....  | 21   |
| Chemicals and Pollutants in Cultivation.....                              | 27   |
| Solid Waste Disposal .....  | 29   |
| Mercury Contamination .....   | 33   |
| Energy Consumption .....  | 33   |
| Greenhouse Gas Emissions (GHGs).....                                      | 35   |
| Land Conversion and Storm Runoff.....                                     | 37   |
| 1.2 MARIJUANA POLICY—MEDICAL TO RECREATIONAL .....                        | 48   |
| <i>Marijuana’s Medical Mystery</i> .....                                  | 48   |
| <i>The Endocannabinoid System</i> .....                                   | 49   |
| <i>Marijuana Health-Safety Concerns</i> .....                             | 52   |
| <i>Marijuana Legalization – Medical to Recreational</i> .....             | 56   |
| <i>WSLCB and State Regulations</i> .....                                  | 59   |
| 1.3 SOCIAL IMPACTS OF MARIJUANA COMMERCIALIZATION.....                    | 75   |
| <i>Marijuana Policy Loopholes</i> .....                                   | 75   |
| <i>Thurston County Ordinance Deliberations</i> .....                      | 78   |

|  |     |
|--|-----|
| <i>Criminal Behavior Following Legalization</i> .....              | 80  |
| <i>Community Impacts</i> .....                                     | 86  |
| Guard Dogs .....   | 87  |
| Noise Pollution.....   | 88  |
| Light, Odor, and Air Pollution.....                                | 90  |
| Security and Neighborhood Character.....                           | 93  |
| Fire and Chemical Hazards.....                                     | 95  |
| Traffic .....  | 98  |
| <i>Marijuana Grower Concerns</i> .....                             | 99  |
| <i>Misrepresentation of Facts</i> .....                            | 100 |
| <i>Vested Interests</i> .....                                      | 105 |
| <i>NIMBY</i> .....   | 108 |
| <i>WSLCB Loopholes</i> .....                                       | 109 |
| <b>CH. 2 COLLECTING THE DATA</b> .....                             | 119 |
| 2.1 STUDY OBJECTIVES & DESIGN.....                                 | 119 |
| <i>My Personal Conquest</i> .....                                  | 119 |
| <i>Research Overview</i> .....                                     | 121 |
| <i>Research Design</i> .....                                       | 122 |
| <i>Phase I – Washington State Survey</i> .....                     | 122 |
| <i>Phase II – Interviews</i> .....                                 | 124 |
| <i>Phase III – Thurston County Survey</i> .....                    | 124 |
| <b>CH. 3 RESULTS</b> .....   | 126 |
| 3.1 STUDY OVERVIEW .....   | 127 |
| 3.2 PHASE I: WASHINGTON STATE SURVEY ANALYSIS.....                 | 128 |
| 3.3 PHASE II: INTERVIEWS WITH STAKEHOLDERS .....                   | 137 |
| <i>Marijuana and Water Rights</i> .....                            | 138 |
| <i>The Environment and People—Marijuana and Contaminants</i> ..... | 143 |
| <i>Air Quality and Odor</i> .....                                  | 148 |
| <i>Community Impacts and Enforcement</i> .....                     | 154 |
| <i>Marijuana Entrepreneurs Impacted by Policy</i> .....            | 168 |
| <i>Thurston County Residents: Jack and Cary – Rochester</i> .....  | 176 |
| <i>Thurston County Resident: Ira Holman – Yelm</i> .....           | 180 |
| <i>Conclusion</i> .....  | 189 |
| 3.4 PHASE III: THURSTON COUNTY SURVEY ANALYSIS .....               | 190 |

|   |     |
|---|-----|
| CH. 4 CURBING THE CONUNDRUM .....                                   | 201 |
| 4.1 POLICY OPTIONS TO CONSIDER.....                                 | 201 |
| 4.2 POLICY IMPLICATIONS AND RECOMMENDATIONS.....                    | 206 |
| <i>Marijuana Policy—Environmental and Social Improvements</i> ..... | 206 |
| <i>Zoning as a Practical Solution</i> .....                         | 213 |
| <i>Additional Recommendations</i> .....                             | 215 |
| 4.3 AN ALTERNATIVE SCENARIO .....                                   | 216 |
| <i>Marijuana versus Old-growth Forest</i> .....                     | 217 |
| CH. 5 IN CONCLUSION.....  | 221 |
| BIBLIOGRAPHY .....  | 224 |
| APPENDICES .....  | 238 |
| APPENDIX I—Letter to Survey Participant .....                       | 238 |
| APPENDIX II—Interview Schedule .....                                | 239 |
| APPENDIX III—Survey Questions .....                                 | 240 |
| APPENDIX IV—House Bill 2630 .....                                   | 241 |

---

## LIST OF FIGURES

|   |     |
|---|-----|
| Figure 1: Unlicensed marijuana operations. ....                                   | 13  |
| Figure 2: Regulatory Guidance for Cannabis Operations. ....                       | 20  |
| Figure 3: Marijuana water diversions. ....  | 22  |
| Figure 4: Trash and burning at a marijuana facility. ....                         | 30  |
| Figure 5: Hantavirus Cases and Deaths 1994 – 2017. ....                           | 31  |
| Figure 6: Marijuana’s carbon footprint. ....                                      | 36  |
| Figure 7: Unpermitted land conversion for two marijuana operations. ....          | 38  |
| Figure 8: Medical marijuana product compliance logos. ....                        | 55  |
| Figure 9: Shipping containers fence a Tier 3. ....                                | 65  |
| Figure 10: Marijuana facilities in eastern Washington. ....                       | 66  |
| Figure 11: Unlawful transport of marijuana. ....                                  | 82  |
| Figure 12: Multiple dogs to guard marijuana. ....                                 | 87  |
| Figure 13: Discarded generators used in illicit marijuana production. ....        | 89  |
| Figure 14: Marijuana operations in Tonasket. ....                                 | 95  |
| Figure 15: Degraded easement from increased traffic. ....                         | 98  |
| Figure 16: Misleading information in marijuana site plans. ....                   | 102 |
| Figure 17: Unpermitted Tier 2 and Tier 3 marijuana operations. ....               | 104 |
| Figure 18: Unlicensed marijuana cultivation in 2016. ....                         | 104 |
| Figure 19: Flights over unpermitted marijuana facility. ....                      | 120 |
| Figure 20: Tier 3 - Marijuana facility overall impact. ....                       | 129 |
| Figure 21: Tier 3 - Marijuana facility odor and noise impact. ....                | 130 |
| Figure 22: Tier 3 - Marijuana facility garbage and pollution impact. ....         | 130 |
| Figure 23: Tier 3 - Marijuana facility traffic and other impacts. ....            | 130 |
| Figure 24: Tier 3 - Marijuana facility safety and crime concerns. ....            | 131 |
| Figure 25: Tier 3 - Notified about facility / Tried to prevent facility. ....     | 131 |
| Figure 26: Tier 3 - Considered moving / Prefer not in neighborhood. ....          | 132 |
| Figure 27: Marijuana legalization five years later. ....                          | 176 |
| Figure 28: Thurston County - Overall impact from Tiers 1, 2, or 3. ....           | 191 |
| Figure 29: Thurston County - Impact from odor and noise. ....                     | 191 |
| Figure 30: Thurston County - Impact from garbage and pollution. ....              | 191 |
| Figure 31: Thurston County - Impact from traffic. ....                            | 192 |
| Figure 32: Thurston County - Safety concerns and crime. ....                      | 192 |
| Figure 33: Thurston County - Notified about marijuana facility. ....              | 192 |
| Figure 34: Thurston County - Considered moving / Prefer not in neighborhood. .... | 193 |

---

LIST OF TABLES

Table 1: WSLCB estimates of marijuana water consumption ..... 24  
Table 2: Comparison of Washington & Thurston County Section I survey results ..... 198  
Table 3: Comparison of Washington & Thurston County Section II survey results .... 198

---

## LIST OF ACRONYMS

ADAI – Alcohol and Drug Abuse Institute  
ASUP – Administrative Special Use Permit  
BHO – Butane Hash Oil  
BoCC – Board of County Commissioners  
CBD – Cannabidiol  
CHS – Cannabinoid Hyperemesis Syndrome  
DOE – Department of Ecology  
DOH – Department of Health  
GHG – Greenhouse Gas Emission  
HID – High Intensity Discharge  
HIDTA – High Intensity Drug Trafficking Area  
IERC – Integral Ecology Research Center  
IPM – Integrated Pest Management  
IRAC – Interagency Resource for Achieving Cooperation  
NIMBY – Not-In-My-Backyard  
ORCAA – Olympic Region Clean Air Agency  
OVMA – Oregon Veterinary Medical Association  
PCHB – Pollution Control Hearings Board  
PSE – Puget Sound Energy  
RCW – Revised Code of Washington  
SRCAA – Spokane Regional Clean Air Agency  
THC – Delta-9-tetrahydrocannabinol  
USBR – United States Bureau of Land Reclamation  
VOC – Volatile Organic Compound  
WAC – Washington Administrative Code  
WAPC – Washington State Poison Center  
WASPC – Washington Association of Sheriffs and Police Chiefs  
WSDA – Washington State Department of Agriculture  
WSLCB – Washington State Liquor and Cannabis Board

---

## ACKNOWLEDGEMENTS

I wish to express my deepest gratitude to MES faculty for their supportive instruction throughout this thesis project. In particular my heartfelt appreciation goes to Kathleen Saul, my fabulous reader and advisor, who not only provided outstanding feedback and guidance in my writing and research, but gave her warm support through some challenging times as I pursued and personally experienced much of the subject matter.

Thank you to the government representatives, business owners, and private residents who responded to interview requests and provided valuable insight into marijuana policy in Washington State.

A special thank you to the many quiet individuals who responded to my surveys. Your willingness to share, in part, your experience has contributed much to this research.

Without the rock, best friend, and joy of my life, my husband James, this project would never have been possible. Your love, strength, patience, adventures, and wonderful dinners supported me through the adversity to fulfill an outrageous dream.

My love and appreciation to my mum and dad, Doreen and Ray; 2<sup>nd</sup> mom Betty; daughter Julie; courageous example JZ; my closest friends; my colleagues; and my beloved pets Yoda, Pippin, Zeus, and Zella. Without your encouragement and the delight of your company, this would have been a much lonelier and more difficult process.

Finally, to Zephyr, I dedicate this to you gentle breeze, and to my greatest teacher, The Wind, thank you for the wisdom gained through an incredible journey in making known this unknown.

---

## PREFACE

El Portal means doorway. I interpreted that as an omen to a new opportunity as we were welcomed by a frothing, swollen river turbulent from the heavy winter snow pack at the entrance to Yosemite near El Portal, California. Rafting had to be exciting this year. Four large busses were parked beside our campground, ready to take enthusiasts on a wild river adventure. What impressed me though, as we pulled in, was the name “Zephyr” boldly written across the front of each bus. “That’s odd synchronicity,” I thought. During the long drive from the California Redwoods I’d been pondering the changes to our neighborhood and our property, as impacted by the marijuana operations next door. “How can I ever tell this story?” I wondered. “Where do I begin?” Cruising through Southern Oregon and Humboldt County, windows wide open to enjoy the forest air, I had caught occasional whiffs of a skunk-like odor that had triggered my contemplations.

After settling into our campground, I perched on a rock nearby to enjoy the hilltops turning golden then rose. Lost in thought, I hadn’t noticed the inquisitive skunk sniffing at my feet, curious about the intrusion. “That’s even odder,” I thought, as I cautiously backed off the rock to avoid its ire. My ninety-one year old mother-in-law, Betty, chuckled at my encounter. As we drifted into conversation and I brought up the concerns I had for my thesis, I volunteered “I’ve thought about it for days and I just don’t know where to begin.” Still sharp as a tack she responded “Start with Zephyr. Tell them what happened. It sets the stage for what you’ve been dealing with these past three years.” I was dumbfounded. She hadn’t even seen Zephyr’s name on the busses. But the

more I thought about it, the more I knew she was right. That's how this body of research, motivated and validated through personal experience, and prompted by Betty and my three "omens" at El Portal, came about.

---

## INTRODUCTION

Medical marijuana was legalized in Washington State in 1998. Four years later, in 2012, approximately 56% of voters approved I-502, an initiative that legalized the production and processing of commercial marijuana in the state. Following the legalization of recreational use, state and county governments introduced policy to regulate this rapidly developing industry. Within just a few months of I-502 passing, marijuana production and processing applications were being submitted to the newly titled Washington State Liquor and Cannabis Board (WSLCB), the agency assigned to implement and oversee the state's marijuana regulations. At the same time, county officials, like those in Thurston County, worked to create ordinances to adapt to the potential influx of marijuana growers in their area, often implementing interim regulations until a final decision could be reached on appropriate zoning and county policy.<sup>1</sup>

Since 2013, in Thurston County, the main focus of this research, the Board of County Commissioners has enacted eleven interim marijuana ordinances.<sup>2</sup> A final ordinance has yet to be determined. Throughout the decision-making process, media reports, public testimony, and legal proceedings have demonstrated social and environmental impacts resulting from hastily implemented legislation. Changes in policy in county ordinances have, at times, led to confusion and confrontation among marijuana entrepreneurs, neighboring communities, public officials, and law enforcement agencies. Inappropriate land use zoning and inadequate regulatory oversight have impacted Washington State property owners neighboring marijuana facilities. Unfortunately,

individuals attempting to bring awareness to government officials regarding the injustices they have experienced have been labeled NIMBYs (“Not-In-My-Back-Yard” opponents to a marijuana operation) and left to their own resources to tackle the associated social and environmental problems.

Today, NIMBY appears to be an all too common label applied to citizens who attempt to stand against a social and/or environmental injustice. Protest against the allocation of rural land use to large-scale marijuana facilities—those established without adequate studies to assess the potential environmental or neighborhood impact to communities—brings to the forefront a new element of Washington’s frontier spirit that can potentially favor marijuana operations while harming unsuspecting residents. Public records, surveys, and interviews indicate that some property owners neighboring industrial marijuana installations were left with few choices. Some have had to sell their homes and move elsewhere; some have had to reconcile themselves with the loss of neighborhood character; while others, such as my family, have endeavored to fight the intrusion by means of the justice system and incurred significant expense in the lengthy legal battle that ensued.<sup>3</sup> This research is prompted by my personal experience fighting two unpermitted, industrial-scale marijuana operations that began construction, without notice or land use permit, next door to my ten-acre rural residential property in 2014. I recount the plight of the NIMBY and the policies that fail to consider impacts to property owners neighboring marijuana facilities.

Although reports of the problems surrounding marijuana legalization in Washington State have appeared in periodicals such as *The Seattle Times*,<sup>4</sup> and *The News Tribune*,<sup>5</sup> there has not been an extensive investigation into the impacts of commercial

marijuana operations on the environment or neighboring residents. Therefore, my research will ask the following: How has policy regulating the production and processing of large-scale, commercial marijuana operations impacted neighborhoods and the environment in rural areas of Washington State? Do policy flaws exist in state marijuana regulations that might overlook illicit behavior? Can more be done, from a policy perspective, to alleviate potential harm to rural communities and the environment?

We need to assess policies regulating the commercial production and processing of marijuana in Washington State to help inform regulations and practices for other areas considering legalization. In this thesis, I disclose weak points that still exist in the state's efforts to bring marijuana cultivation to legal status and use that knowledge to propose new legislation that would address the concerns of rural residents and better safeguard the environment. Prior research has identified environmental concerns as a result of unregistered marijuana operations in California, however it is challenging to find similar studies conducted in Washington. This thesis research has uncovered loopholes in some of the regulations overseen by the WSLCB. Public records reveal that unlawful behavior has continued in certain instances and was supported by the agency, while communities suffered the consequences.<sup>6,7</sup> Therefore, social and environmental injustices emerge— injustices that have not been adequately addressed.

- 
1. Thurston County Board of County Commissioners (BoCC). (2014, January 21). Ordinance No. 14978. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpublish/DocView.aspx?id=3232625&page=1&searchid=f5891a2e-723c-4ed1-90cd-a9b8df100cfc>
  2. Thurston County Washington Board of County Commissioners (BoCC). (2018, May 1). Ordinance No. 15613. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpublish/DocView.aspx?id=9808796&searchid=1f8ab1ca-43b7-4996-b625-607e3a20889a&dbid=0>

3. Cushman, B.D. (2016, December 8). Application for Other Administrative Action - Code Interpretation pertaining to Project No. 2014101488 (Marijuana Producing/Processing Application). *Cushman Law Offices*. Olympia, Washington. Available: [www.cushmanlaw.com](http://www.cushmanlaw.com)
4. Young, B. (2017, July 17). Washington's pot industry: What it takes to expose hidden owners and keep cartels and illicit money out of the state's pot industry. *The Seattle Times Local Politics*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/politics/washingtons-challenge-hidden-owners-in-its-pot-industry/>
5. *The News Tribune* Staff. (2017, November 28). Suspected illegal pot grows busted in Thurston, Grays Harbor and King Counties. *The News Tribune*, Aberdeen, Washington. Available: <http://www.thenewstribune.com/news/local/article186966538.html>
6. Thurston County Permitting and Land Use. (2018). Document Library Research Project No. 2014101488. Folder sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Long Range Planning Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
7. Masias A.V. (2017, April 17). Enforcement Report of Complaint. Blue Moose - Complaint Number C7C7107A and C7C7107B. *Washington State Liquor and Cannabis Board*. Olympia, Washington.

---

## CH. 1 MARIJUANA POLICY—ENVIRONMENTAL & SOCIAL IMPACTS

*The proposed use shall not result in substantial or undue effects on adjacent property, neighborhood character, natural environment, traffic conditions, parking, public property or facilities, or other matters affecting the public health, safety, and welfare.*

Thurston County Washington, 2018<sup>1</sup>

### 1.1 MARIJUANA'S FOOTPRINT

#### *Legalization's Impact on My Family*

Zephyr's black fur glistened in the sun as she sat poised for action. The beauty of her posture took my breath away. In retrospect, it was as if she already knew her fate and wanted to spend those few precious hours enjoying her favorite pastime—retrieving rocks thrown into our pond. That same afternoon, without warning, two gunshots rang out as I tugged on stubborn weeds in the garden. Zephyr collapsed moments later in my arms and died from the wound inflicted by our neighbor. He and his family had long been dealers in marijuana—before it was legalized in Washington State. Law enforcement had raided their property in 2008. I wondered if he were stoned, to be so cruel in his blind action to shoot her, especially after he swore to my husband that a distant neighbor had done the deed. There was no way that had been possible in the short time it took her to find us and be comforted through our tears as she passed away.

Since legalization in 2012, recreational marijuana production and processing in Washington State has provided millions in yearly tax revenue, with the noble intent, in part, of supporting education.<sup>2</sup> At the same time, not all residents living on properties adjacent to production and processing operations are faring so well. My family, having

endured and fought against our neighbors' unlawful marijuana operations for many years, knows this for a fact.

I voted to legalize recreational marijuana, not because I was a consumer, but because the campaign literature informed me that prisons were full of people convicted of marijuana possession, and having personal experience with cancer, I understood that many people needed this highly valued plant to be safe, accessible, and affordable. Enjoyed by cultures around the world, whether part of sacred ritual or anti-war protest, this mysterious plant species has always had a unique impact. People everywhere claim the benefits of marijuana's ability to ease suffering from pain, or to relax their heightened stress.<sup>3</sup> Further research on benefits obtained from cannabinoids found only in the *Cannabis* species could reveal properties that one day, perhaps, might relieve those now addicted to painkillers, or opioid medications. As more states legalize marijuana, fewer people argue that individuals struggling to overcome pain should not have access to its soothing effect. The issue that arises, then, is how to regulate legalized production of a plant still considered a Schedule I drug by the Federal Government.\*

Those were my thoughts as I considered Initiative 502 (I-502) and marked my ballot in favor in 2012. Had I known the future racing toward me, I might have paused and reconsidered. However, I realized that I too might benefit from marijuana's medicinal comfort someday. In fact, two years after the bill passed in Washington State, I experienced a life-threatening tumor.

---

\*A Schedule I drug is defined by the U.S. government as a substance having no currently accepted medical use and a high potential for abuse.

At the time, my doctor warned me that my cancer could reactivate within the year. “You’re healed,” he said, “but there’s still a window of time when it could all come back.” With each passing month my life depended on managing the stress and sudden panic attacks that would overwhelm my body in the middle of the night, especially as our neighbors began destroying acres of land next to our property with the intent to produce and process industrial-scale, commercial marijuana. Theirs wasn’t the hippie ideal seemingly lost with the ’60s. It was the opportunist’s greed, no matter the environmental or neighborhood cost.

Landlocked beside this activity, we observed three acres of hillside bulldozed and graded into two level tiers as facilities were installed to cultivate marijuana. Our valley had always been peaceful, a safe space to be immersed in nature where quail, pheasant, deer, trillium, butterflies, and so many exquisite creatures had thrived in their niche. We were shocked as the character of our rural residential neighborhood was so drastically transformed. How could such alteration to the landscape be acceptable? Why hadn’t we been asked, or even notified, about our neighbors’ intentions? Weren’t there regulations to prevent this kind of environmental degradation? A few hundred feet beyond the site lie acres of wetlands with a central creek that meanders across Yelm Prairie, joining other creeks that flow to the Nisqually River. Wasn’t it the role of government to mitigate such impacts to protect species habitat and the environment?

Realizing the implications for our future, we could not and would not remain silent victims as events unfolded. Despite concerns about retaliation, we prepared our arguments and did our best to inform Thurston County officials, firmly believing in authority, regulations, and government oversight—until even *that*, we began to doubt—

and stepped into an environmental enigma, neighborhood nightmare, and unbelievable battle that occupied our lives for three and a half years.

Until the introduction of marijuana to our neighborhood, my husband and I had worked hard to live sustainably on our ten acres of land. I had built a simple log cabin and he added the comforts of solar and wind energy, and because we cared about the natural environment, the land gave back. Everything was a proud accomplishment—our orchard, the bees, a carrot, a new round of chicks. Yet everything we loved came under threat as the nightmare of a large-scale marijuana operation next door to us continued to develop—disrupting our peace, investment, dreams for retirement, and state of well-being. We sought to be environmentally “green” while our neighbors pursued their “green gold”, as much of it as they could produce.

Our neighbors had been raided by law enforcement for illegal marijuana production on the property long before Initiative 502 appeared on the ballot.<sup>4</sup> Over several years, smoke from processing unfiltered, unlicensed marijuana had filled our home and garden during late-summer evenings. We listened to young children playing in the unfenced marijuana production and processing area. Situated in an obscure valley, our neighbors could easily continue to produce bulk quantities of marijuana in greenhouses and processing sheds located on the other side of our garden. When I approached the local police about our concerns in 2015, I was told marijuana was now legal in Washington State and that regulations were too confusing for law enforcement to do anything about the situation. “Yes . . . but . . .” I started. “Potheads. We spend more time defending their businesses from break-ins than assisting the neighbors,” the Yelm officer responded.

Following the legalization of marijuana production and processing in Washington State, voters expected government regulations to protect citizens and the environment from any harmful effects associated with this developing industry. However, evidence in public testimony describes negative impacts to communities from commercial marijuana production facilities in Thurston County. Residents have complained about the skunk-like odor of marijuana, increased traffic, generators, garbage, unsightly fences, safety concerns, decreased property value, and loss of neighborhood character among other issues in their neighborhoods.<sup>5</sup> Two questions arise as a result: What potential environmental impacts should be addressed when creating policy that governs large-scale marijuana production and processing facilities? What social concerns should be considered when drafting legislature, or an ordinance, to regulate recreational and medical marijuana operations?

Commercial production and processing of marijuana in Washington State requires a license from the WSLCB and special land use approval as outlined in county regulations. Since November, 2013, Thurston County officials have enacted eleven interim ordinances to regulate the production and processing of marijuana.<sup>6</sup> The delay in passing a final ordinance, after nearly five years' deliberation, reflects the confusion and debate that has surrounded this unfolding business model since voters legalized the industry. Unfortunately, this confusion has led to detrimental outcomes for neighborhoods, my own included.

#### *Thurston County's Interim Marijuana Ordinance*

In 2013, the Washington State Liquor Control Board, later renamed The Washington State Liquor and Cannabis Board (WSLCB), held 13 public hearings, and

met with over 6,000 state residents, in order to draft new regulations to govern the commercial production, processing and distribution of marijuana.<sup>7</sup> The state's total population at the time was approximately 6,900,000.<sup>8</sup> Therefore, less than 0.1% of the population voiced an opinion in affecting marijuana policy that would impact, on some level, all Washington State residents. (Determining what percentage of the 6,000 citizens who met with WSLCB representatives were marijuana business enthusiasts, whose voices might have swayed baseline policy to regulate this emerging industry, would be an interesting statistic in future studies researching the subsequent impacts of policy decisions to Washington residents.)

The U.S. Drug Enforcement Administration classifies marijuana as a Schedule I drug—defined as a substance having a high potential for abuse.<sup>9</sup> The Federal Government also classifies marijuana as horticulture and not an agricultural product. Kristi Weeks, working as Policy Counsel with the Washington State Department of Health from 2015-2017, disclosed in an early interview that because marijuana cultivation is not recognized as agriculture by the Federal Government, it cannot be recognized as such by the states.<sup>10</sup> In contrast, an appeal in March, 2018 before the Environmental and Land Use Hearings Office between marijuana producer Green Freedom LLC and Olympic Region Clean Air Agency (ORCAA), determined that although the WSLCB regulates marijuana and considers it a controlled substance, it is a plant and crop, therefore, cultivating marijuana is a type of “agricultural activity.” The Hearing Examiner ruled in the case: “As a horticultural crop, growing marijuana is an agricultural activity as described in RCW 70.94.640(5)(a). The Board concludes that because marijuana is grown to be packaged and sold, it is an agricultural commodity.”<sup>11</sup> RCW 70.94.640(5)(a) defines an agricultural

activity as: “the growing, raising, or production of horticultural or viticultural crops, berries, poultry, livestock, shellfish, grain, mint, hay, and dairy products.”<sup>12</sup>

Leading up to the Green Freedom case, the confusion over whether marijuana falls under an agricultural or horticultural umbrella led to a gray area in the crafting of an early interim ordinance and zoning of commercial marijuana operations in Thurston County. Despite federal definitions of marijuana as a horticultural plant, Thurston’s Board of County Commissioners, defending the zoning of large-scale marijuana operations in rural residential areas, stated that marijuana production “resembles a type of agricultural use.”<sup>13</sup> A letter from the Thurston County Resource Stewardship Department sent to Goldwater Properties in May, 2015 stated:

The Board of Thurston County Commissioners, in Ordinance 14944, adopted on November 12, 2013, found that marijuana production “resembles a type of agricultural use.” Therefore, the proposed marijuana operation has been reviewed as similar to an agricultural use. That use was found to be appropriate for the location, as the property is located in a zone that allows agricultural uses. The property is located in a rural area where farming activities are common and long-standing.<sup>14</sup>

One could easily argue that “common and long-standing” farming activities are rarely, if ever, protected by eight foot high chain-link or other significant security fencing, and equipped with cameras every few feet, as mandated by the WSLCB. Marijuana cultivation does indeed resemble agriculture in that plants are propagated, fertilized, tended, processed, and eventually sold. Should marijuana be considered an agricultural product, rather than a controlled substance and horticultural plant by the Federal Government, marijuana production and processing could potentially fall under qualification for farm subsidies.<sup>15</sup> An interesting side-note, worthy of contemplation.

The Thurston County Board of County Commissioners (BoCC) began holding meetings in 2014 to receive public input on regulations that would govern local marijuana production and processing. Opponents to marijuana operations at different locations in the county expressed their concerns about neighborhood safety, should the facilities already under construction in their communities be granted land use approval. Noxious odors, deforestation, earth movement, construction, noise, garbage, and significant traffic increases, were dramatically altering their neighborhood's rural character into what resembled industrial activities.<sup>16</sup>

Written comments and testimony received by Thurston County officials at public hearings since 2014 regarding the zoning of large-scale marijuana operations in rural residential and agricultural areas, have brought attention to the unsightly fencing required to secure a marijuana facility that often alters neighborhood character.<sup>17</sup> Multiple security cameras mandated to line the perimeter signal to passersby not to approach due to perhaps the dangerous, or toxic activity conducted behind the chain-link barrier. Citizen concerns involving commercial marijuana operations located in rural areas, as described by attendees at Thurston County public hearings and through written correspondence, include the following:

- Loss of neighborhood character
- Fear for personal and family safety
- Increased criminal activity
- Large-scale land conversion such as deforestation and grading
- Rodent infestations
- Unpermitted construction
- Unlicensed marijuana production and processing
- Unsightly fencing
- Reduced property value
- Risks to children and pets
- Free roaming guard dogs

- Water, soil, light, and air pollution
- Intolerable skunk-like odor
- Possible soil, air, and water contamination from pesticides, rodenticides, and fertilizers
- Potential threat to wetland areas
- Detrimental impacts to habitat, species, and ecosystems
- Overconsumption of water and depletion of aquifers
- Degraded road conditions
- Excessive noise from barking dogs, and industrial fans
- Industrial, hazardous wastewater runoff
- Worker traffic
- Inappropriate garbage and toxic waste disposal
- Noise and CO<sub>2</sub> pollution from generators used in off-grid locations
- Misrepresentation of facts in licensing and land use applications
- Greenhouse Gas Emissions<sup>18</sup>



Figure 1: Unlicensed marijuana operations. Marijuana production at two unpermitted facilities on the outskirts of Yelm, Washington. (Photograph by author, October 3, 2016).

In my case, following the removal of all native vegetation and the hillside graded into two level platforms spanning at least three acres (without a required Administrative Special Use Permit (ASUP) or environmental review approved by Thurston County), my neighbors began the construction of two unlicensed industrial-scale marijuana facilities (Figure 1). What used to be a rural setting now resembled a detention-like environment.

As one observer noted “It was so strange seeing this place in the middle of the woods. If Michelle hadn’t invited me there, I would never have known a marijuana farm existed in this rural residential area. It’s an industrialized farm and it looks completely out of place in the woods with the construction materials and the giant metal fences and cameras surrounding the dual complex . . . The marijuana farm’s very presence near her property is jarring and strange.”

At a Thurston County Public Planning Hearing to discuss renewal of the Interim Marijuana Ordinance in the fall of 2015, officials still did not appear well-informed regarding the impacts on citizens and the environment from industrial-sized marijuana operations attempting to locate in rural residential neighborhoods. At the time, county planners requested further investigation of the potential problems to communities, including a review of decisions made in regulating marijuana production and processing in other counties.<sup>19</sup> The Board requested information on the following issues associated with commercial marijuana operations:

- Water quality, usage, and availability
- Wetland buffers
- County ordinances regarding light pollution
- Zoning regulations in other counties
- Comparison of county fencing requirements
- Code enforcement

As a result, a planning commissioner memorandum dated February 24, 2016 stated “County staff has recommended that the county’s current interim regulations be made permanent and consistent with state laws that have been approved during the legislative sessions.”<sup>20</sup> The question remains: Have state laws, approved during legislative sessions and adopted by Thurston County, adequately protected rural property owners and residents from the intrusion of large-scale marijuana operations? I would argue they have

not, based upon my personal experience. “U.S. Attorney General Sessions criticizes Washington State’s legal marijuana system” ran the media headlines in 2017.<sup>21</sup> I would have to agree with Mr. Sessions that Washington State’s legal marijuana system contains some disturbing loopholes, as will be discussed in more detail further into this research.

### *Marijuana Licensing and Special Land Use*

The Washington Administrative Code (WAC) has divided marijuana licensing into three categories: A Tier 1 operation is defined as less than 2,000 sq. ft. of plant canopy; a Tier 2 as between 2,000 to 10,000 sq. ft.; and a Tier 3 can produce 10,000 to 30,000 sq. ft. of marijuana plant canopy.<sup>22</sup> Prior to November 10, 2015, Tier 1, 2, and 3 marijuana operations were able to locate in rural residential and agricultural zones of unincorporated Thurston County. The early Interim Marijuana Ordinance did not specify that neighboring residents were to be notified, and therefore did not allow a comment period regarding a marijuana production and processing application for an Administrative Special Use Permit (ASUP) in these zones.<sup>23</sup> Neighbors were left uninformed. As of November 10, 2015, due to concerns expressed by negatively impacted residents, and following further review by the Board of County Commissioners, Tier 1, 2, and 3 marijuana production and processing operations were no longer permitted in rural residential or agricultural areas of Thurston County.<sup>24</sup> However, producer/processor applicants who had submitted an ASUP for a marijuana Home Occupation business in these areas prior to this change in land use were granted an exception (regardless of whether or not construction of a facility had already been initiated without the required permits), and were therefore considered “vested.”

In this instance, vesting refers to an application for special land use as a Home Occupation to produce and/or process marijuana that had been submitted during the time period that Thurston County’s interim ordinance allowed for such activity within that zone. Some operations, such as the one next door to my property, were considered vested by Thurston County despite development of facilities without land use approval, known production of unlicensed marijuana, existing property violations, and obvious misrepresentation of facts.<sup>25</sup>

### *Marijuana Cultivation*

As information, technology, and know-how have increased, so has the ability to grow a marketable product in marijuana—whether legal or otherwise. With equipment and guidelines readily available online, marijuana can now be cultivated in a variety of climates and locations. Expertise describing production and processing techniques can easily be distributed via word-of-mouth, underground communication networks, the internet, grow shops, and specialized magazines.<sup>26</sup>

Producers cultivate marijuana for the plant’s unique cannabinoids derived from the leaves and flowers of the female *Cannabis sativa* plant.<sup>27</sup> Clones are taken from mother plants to establish crops of all-female plants whose flowering can be artificially encouraged through responses to diurnal dark periods.<sup>28</sup> This technique, called “sinsemilla,” produces a high concentration of THC (delta-9-tetrahydrocannabinol), marijuana’s main psychoactive ingredient.<sup>29</sup> Manipulating harvest cycles indoors through the sinsemilla technique can significantly increase production.<sup>30</sup> Yet sinsemilla marijuana production can be energy intensive. Mother plants and daughter clones require 18–24 hours of light per day, reduced to 12 hours at critical times to induce flowering.<sup>31</sup>

Outdoor cultivation produces significantly lower yields due to Washington's seasonal climate, when compared to other marijuana production methods. O'Hare, et al. found in their research that on average, greenhouse cultivation is less energy intensive than indoor methods (inside a permanent hardscape structure).<sup>32</sup> However, I argue that when maintaining high, year-round production levels using the sinsemilla technique, the additional heating, light, and air circulation required to cultivate marijuana in soft-sided greenhouses in Washington State increases energy usage and could result in greater energy consumption than when cultivating marijuana in an indoor, solid-wall facility.

The Water Resources Program at the Washington State Department of Ecology has stated that water consumption in outdoor marijuana operations is likely higher than estimates provided by the WSLCB, due to the fact that outdoor environmental conditions cannot be controlled.<sup>33</sup> Unfortunately, in places where limited regulatory oversight and mismanagement exist, outdoor marijuana operations have also created severe ecological problems through degradation of wetlands in accessing water, land conversion, and runoff of chemical waste.<sup>34, 35</sup>

In 2013, recommendations to the WSLCB favored marijuana cultivation in "standard greenhouses" rather than "high-security greenhouses," and in preference to indoor growing operations. Although O'Hare's team stated at the time that compared to indoor production, marijuana produced in greenhouses entails "lower energy consumption, GHG [Greenhouse Gas Emission] production, water consumption, wastewater production, fertilizer application, and toxic risks," these findings require further study.<sup>36</sup> Water and energy consumption, pollutants from industrial wastewater, storm water runoff, and greenhouse gas emissions, could all prove to be more efficiently

managed in indoor operations as marijuana's commercial production and processing industry develops and less energy intensive technologies are introduced. Replacement of fluorescent bulbs with LED lighting is just one example of a change that increases energy efficiency. Indoor plant production cycles can be adjusted, through artificial lighting, to utilize energy requirements during off-peak hours, causing less drain to the power grid at crucial periods.<sup>37</sup> When compared to insulated indoor operations, soft-sided greenhouses could demand significantly more energy for heating and lighting during winter months, and increased ventilation and water consumption during hot summers, causing additional draws on the power grid during peak periods.

O'Hare, et al. did not consider the land conversion necessary for construction of large commercial greenhouses, nor plastic waste products from used greenhouse materials (unless constructed in glass or similar permanent material), that can contribute to GHGs when burned or added to the landfill. The researchers also failed to consider the disposal of hazardous wastewater from the chemicals known to be used in marijuana production and processing.<sup>38, 39, 40</sup> Outdoor and greenhouse marijuana production sites located in rural or agricultural areas of Thurston County often rely on independent septic systems for industrial wastewater management, or simply allow irrigation runoff directly into the environment. Neither option adequately deals with hazardous chemicals lurking in marijuana wastewater.

In addition, odor is one of the main complaints related to marijuana production and processing and is difficult to monitor in outdoor or greenhouse production.<sup>41</sup> Therefore, indoor production and processing facilities could be considered less intrusive

in appearance, function, and impact, while offering greater security to communities, than greenhouse or outdoor marijuana cultivation in Washington State.

### *Environmental Impacts of Marijuana Production and Processing*

Short Gianotti, et al. in their research, have said the horticultural practices of marijuana cultivation have similar impacts to the environment as an agricultural crop, however, mismanaged and unpermitted marijuana growing operations can contribute to increased environmental damage.<sup>42</sup> Where poor management due to unregulated marijuana operations occur, degradation can include significant carbon dioxide emissions, forest removal and topsoil depletion from land conversion, damage to wetlands, chemical pollution of land and waterways, garbage and uncontrolled burning, diminished surface water, and the consumption of fossil fuels.<sup>43, 44, 45</sup> According to researchers, “Even legal outdoor cultivation can cause deforestation and soil erosion.”<sup>46</sup> Additional problems include poisoning of endangered and other species by use of toxic pesticides and fertilizers.

### Industrial Hazardous Waste

*The Regulatory Guidance for Cannabis Operations*, created in partnership with multiple Washington State government agencies, states that regulations prohibit the discharge of hazardous wastewater into the environment from marijuana production and processing activities.<sup>47</sup> According to the Interagency Resource for Achieving Cooperation (IRAC), marijuana production and processing wastewater is considered a hazardous industrial material and should not be discharged into an individual on-site septic system.<sup>48</sup> All marijuana wastewater must be discharged to a sewer system because

industrial wastewater released to an on-site septic system “can damage them and cause harm to the environment” (Figure 2: *Regulatory Guidance for Cannabis Operations*).<sup>49</sup>

An individual household septic system could develop leakage from corrosive chemicals, or other malfunction, resulting in hazardous waste used in marijuana cultivation and processing contaminating surrounding soils and groundwater. I make the point that a special land use permit, granted to a vested commercial marijuana operation that is discharging industrial wastewater into an individual on-site septic system, could be in violation of state regulations.

**[IRAC] REGULATORY GUIDANCE FOR CANNABIS OPERATIONS  
(August 2015) Section 1. SANITARY SEWER DISCHARGES:**

**Wastewater that results from any growing, cleaning, or rinsing processes is considered an industrial waste (industrial wastewater) and is subject to local, state, and federal regulations. This includes water used in extraction, hydroponic irrigation and the manufacture of edible products...Prior to discharging industrial waste to the sewer system, all discharges that generate and dispose of industrial wastewater must contact their local sewer agency to obtain approval.**

**SEPTIC SYSTEM DISCHARGES:**

**No business may discharge industrial wastewater into an onsite septic system.**

**Septic systems, also known as Individual On-site Sewerage Systems, are designed to treat only domestic wastewater, which means water carrying human wastes...Industrial wastewater may not be discharged to any septic system according to state regulations. Industrial wastewater discharges to septic systems can damage them and cause harm to the environment.**

Figure 2: Regulatory Guidance for Cannabis Operations.  
WSLCB Guidelines Version 2.0 - Sanitary Sewer Discharges for marijuana industrial waste.  
(Interagency Resource for Achieving Cooperation (IRAC), 2015).<sup>50</sup>

In 2017, I asked an employee focused on water resources at the Washington State Department of Ecology (DOE) why an exception was being made in state regulations to allow my neighbor to discharge potentially chemical laden water directly onto the ground when irrigating thousands of marijuana plants, and dump hazardous wastewater from processing into an on-site septic system. She informed me that Thurston County has its own set of rules in handling marijuana industrial wastewater, and therefore, the DOE could do nothing to intervene. This answer disappointed and angered me since the pollutants from the marijuana wastewater discharge could contaminate acres of wetland below the site and enter Wheeler Creek that flows across Yelm Prairie before entering the Nisqually River, the southernmost home to wild pink salmon.<sup>51</sup>

### Water Usage

Water is a major component of marijuana cultivation. The plants require nutrient rich, moist soils with good drainage in order to thrive.<sup>52</sup> Therefore, irrigation is a necessity during dry periods, with demand varying according to plant maturity, cultivation method, system efficiency, time of year, and location. Water diversion to irrigate thirsty marijuana plants has been an increasing problem in some areas of California causing a reduction in stream flows normally required for spawning salmon and other species survival.<sup>53</sup> Severe drought conditions have further intensified the issue in recent years whereby, according to Bauer, “. . . the streams in the study watersheds simply cannot supply enough water to meet current demands for marijuana cultivation, other human needs, and the needs of fish and wildlife.”<sup>54</sup>

The North Coastal Basin of California provides a clear example of quasi-legal marijuana cultivation causing reduced availability of water in the area (Figure 3). Bauer,

et al. studied three watersheds in Humboldt County—Upper Redwood Creek, Salmon Creek, and Redwood Creek South—and Outlet Creek in Mendocino County.<sup>55</sup> The results indicated that water demands from marijuana cultivation in these areas exceeded streamflow during low-flow periods, thereby endangering documented populations of sensitive aquatic species, such as salmon and steelhead trout.<sup>56</sup> Researchers record that on average, a single marijuana plant demands six gallons of water per day during the growing season in California.<sup>57</sup> In comparison, grape vines grown in similar conditions are estimated to use half this amount.<sup>58</sup> Similar environmental impacts to watersheds from inadequate zoning and oversight of marijuana operations could become problematic for aquatic and riparian-dependent species in Washington State, especially when one considers climate change, potential water shortages during summer months, aquifer depletion, and the impacts of accelerated population growth in the state.<sup>59, 60</sup>



Figure 3: Marijuana water diversions.  
*Marijuana operations* divert, pump, and store water out of a creek near Hayfork, California. (Whittaker, June 16, 2015).<sup>61</sup>

According to the Humboldt County Outdoor Medical Cannabis Ordinance Draft, water demand is said to be approximately 22.7 liters (six gallons) per day per marijuana plant from June to October.<sup>62</sup> Using this figure, Bauer's team estimated that 2,549,890 liters (673,910 gallons) per day were being used during production season to water an estimated 112,330 marijuana plants (counted through aerial surveys in the study zone).<sup>63</sup> Another group of researchers calculated approximately three billion liters (800 million gallons) of water per square kilometer (km<sup>2</sup>) was being used in greenhouse marijuana production and 430 million liters (11 million gallons) of water per km<sup>2</sup> in outdoor cultivation per growing season in the northern coastal region of California.<sup>64</sup>

The estimate of 22.7 liters (six gallons) per plant per day, as indicated by the Humboldt Growers Association (HGA) in 2010, is not far from the 18.9 liters (five gallons) per plant per day estimated by the United States Department of Justice 2007 Domestic Cannabis Cultivation Assessment.<sup>65</sup> Other reports can vary widely from 3.8 liters (one gallon) to 56.8 liters (15 gallons) of water usage per marijuana plant per day.<sup>66</sup> In comparison, an average household uses anywhere between 300 to 380 gallons of water per day.<sup>67</sup>

The Water Resources Program at the DOE follow WSLCB guidelines that indicate an estimated 3,900 gallons of water consumed per day for a Tier 3 marijuana operation.<sup>68, 69</sup> Bauer, et al. estimated each marijuana plant requires 1.115 m<sup>2</sup> of space in a greenhouse environment.<sup>70</sup> Therefore, a Tier 1 operation (185.8 m<sup>2</sup>) could house approximately 167 plants. Multiplying that by the amount of water needed per plant yields a total water consumption per day of approximately 3,791 liters (1,001 gallons). Increase that number by a factor of five for a Tier 2 operation (929 m<sup>2</sup> = roughly 830

plants): water consumption would be an estimated 18,955 liters (5,007 gallons) per day. Multiply that by three for a Tier 3 production facility (2,787 m<sup>2</sup> of plant canopy = roughly 2,500 plants) and the average consumption could amount to a staggering 56,750 liters (14,992 gallons) of water needed per day during high production periods. Even at half this quota at 1,250 plants, a Tier 3 operation would be in non-compliance of the DOE's allowance of 5,000 gallons (18,927 liters) of water per day for single domestic or industrial/commercial usage from a well, without acquiring a water right permit.<sup>71</sup> Based on the above calculations, the WSLCB estimate of 3,900 gallons per day (gpd) for a Tier 3 operation appears to be extremely low.

In *Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State*, the DOE points out that a project including both a Tier 2 and a Tier 3 operation would likely require a water right permit given the total use could exceed 5,000 gallons per day (gpd) according to WSLCB estimates.<sup>72</sup> This becomes apparent in the 2016 Washington State Department of Ecology Water Resources Program table below:

Table 1: WSLCB estimates of marijuana water consumption.  
(Washington State Department of Ecology Water Resources Program, 2016).<sup>73</sup>

| Tier | Maximum square footage | Estimated water demand |
|------|------------------------|------------------------|
| 1    | 2,000 sf               | 260 gpd                |
| 2    | 10,000 sf              | 1,300 gpd              |
| 3    | 30,000 sf              | 3,900 gpd              |

The Water Resources Department relies on this data provided by the WSLCB to determine estimated water usage of a marijuana facility according to Tier level.<sup>74</sup> I suspect WSLCB water use estimates, depending on location, could prove highly inaccurate. When I asked about the potential water consumption from two marijuana

operations on the ten-acre parcel next door to my property, the DOE expressed concern and wrote a letter requesting more information on intended water use at the facility.<sup>75</sup> However, the WSLCB never questioned water consumption, or the need for a water right permit, when licensing the industrial-sized, dual operation.

The Washington State Department of Ecology Water Resource Program states: “Growers are responsible for researching and evaluating their own water needs. Current information regarding marijuana water use is largely anecdotal.”<sup>76</sup> However, some watersheds with limited water availability, such as the Quilcene-Snow Basin in Jefferson County, or the Dungeness watersheds in Clallam County, are now required to install a meter on every new well.<sup>77</sup> In regards to other areas, such as the Yakima Basin Project and the Colombia Basin Project in eastern Washington, the United States Bureau of Reclamation (USBR) stated in May, 2014 that despite marijuana production being legal under state law, any use of USBR water or facilities, such as canals, reservoirs, pumps, etc., to irrigate marijuana cultivation is strictly prohibited under the Controlled Substance Act of 1970. The same stipulation does not apply to western Washington where there are no USBR projects.<sup>78</sup>

Two interesting exemptions exist in water use related to marijuana cultivation under DOE regulations. The first is the fact that a land user can “water livestock with no gpd limit.”<sup>79</sup> Could this exemption potentially be misused by a facility combining marijuana cultivation with stock raising, thereby avoiding the need for a water right permit? At one point, my neighbor threatened to install pig pens along our shared property boundary.

The second exemption worth pondering is that in Washington State, rainwater collection systems do not require a water right permit when the water collected and stored is distributed on the same parcel. Pumping water from exempt groundwater wells to a holding tank connected to a rainwater collection system for later use is allowed, as long as the amount does not exceed 5,000 gpd.<sup>80</sup> One can only imagine the quantity of water that could be consumed by a large marijuana facility operating under the above exemptions in rural communities.

The DOE Water Resources Program guide mentions that the information available in traditional crop irrigation in Washington does not include marijuana cultivation data, due to the illegality of commercial marijuana production in Washington State prior to Initiative 502.<sup>81</sup> Water use differences according to climate variations in the state would also impact marijuana irrigation demands. The DOE suggests that water consumption would most likely be higher than WSLCB estimates in outdoor growing operations since environmental conditions cannot be as readily controlled.<sup>82</sup> This begs the question why, five years after legalization, hasn't the DOE, or the State, conducted research to determine accurate water usage guidelines specific to Tier size, location, and methods of marijuana cultivation?

In 2016, the Northwest High Intensity Drug Trafficking Area (HIDTA) program that promotes joint efforts and cooperation among various law enforcement, public health, and regulatory agencies, reported that 58,604 illegal marijuana plants eradicated that year in Washington State had consumed approximately 43.2 million gallons of water during the growing season's 120-day production cycle. Of this illegal production, 60%

were being cultivated on state lands.<sup>83</sup> Government agencies would do well to consider such findings when creating legislation regulating marijuana production in the state.

### Chemicals and Pollutants in Cultivation

The *Cannabis sativa* plant is susceptible to a variety of infestations from pests and fungal diseases on stems, leaves, and flowers. Insects, spider mites, aphids, thrips, mice, and rats are pests known to be bothersome to marijuana cultivators.<sup>84, 85</sup> In fact, as a result of the large-scale marijuana production and processing facilities introduced to our neighborhood, my family has had to deal with a significant increase in rat populations that has proven difficult to eradicate.

According to the Washington Administrative Code (WAC), only “specified soil amendments, fertilizers, other crop production aids, and pesticides may be used in the production of marijuana.”<sup>86</sup> WAC 314-55-084 refers to the Washington State Department of Agriculture (WSDA) list of approved pesticides to be used in the cultivation, processing, and handling of marijuana; however, marijuana producers need greater expertise in use of those chemicals.<sup>87</sup> Inappropriately applied and poorly monitored toxic herbicides, fungicides, and pesticides can lead to serious environmental concerns from marijuana cultivation including poisoned wildlife, degraded habitat, and contaminated waterways.<sup>88</sup> Public health risks in “do-it-yourself” pesticide use can cause exposure to toxic chemicals in their preparation, application, and disposal resulting in illness that can bring about headaches, nausea, and vomiting.<sup>89</sup> Without sufficient knowledge, training, and oversight, dangerous chemical applications can pose risks to workers, regulators, neighbors, soils, watersheds, pets, children, and wildlife.

Researchers have noted significant ecological degradation resulting in poisoned fish, other wildlife, and polluted waterways due to excessive chemical application in marijuana operations in the North Coastal Basin of California and the Sierra National Forest.<sup>90, 91, 92, 93</sup> Because large-scale marijuana production requires a high use of fertilizers, the resulting runoff can cause harmful algal blooms and eutrophication in nearby wetlands.<sup>94</sup> Pesticides can enter the food chain and cause further harm to species,<sup>95</sup> including humans. Rodenticides can cause neurological damage and internal bleeding. Dozens of fisher, a rare and re-introduced forest carnivore to areas of Washington State, have been found dead due to pesticide poisoning from illicit marijuana cultivation in California.<sup>96, 97</sup> Fungicides, chemicals from fertilizers, diesel fuel, human waste, plant hormones, and soil amendments are all wreaking havoc in areas of the California marijuana cultivation environment.<sup>98</sup>

Dr. Mourad Gabriel, a wildlife biologist and executive director of the non-profit Integral Ecology Research Center (IERC), regularly finds discarded Gatorade bottles or tin cans that test positive for toxic chemicals, such as Carbofuran, at illegal marijuana cultivation sites in northern California forests.<sup>99</sup> Carbofuran is a broad spectrum carbamate pesticide highly toxic to birds that has been banned in the United States, Canada, and the European Community.<sup>100, 101</sup> Hidden cultivation sites on forested land and private property in some areas of California have caused such severe contamination that Assistant U.S. Attorney, Karen Escobar, described them as superfund sites requiring hazardous waste cleanup due to the severity in human and environmental health risks.<sup>102</sup> According to the Northwest High Intensity Drug Trafficking Area (HIDTA) program, “Over 400 pounds of fertilizers, chemicals, and pesticides were removed from illegal

marijuana growing operations [in Washington State] in 2016.”<sup>103</sup> Carbofuran, under the tradename Furadan, was discovered at one illegal marijuana production facility. Although it has been used in agriculture for decades, Furadan is an insecticidal and nematicidal product and neurotoxin said to be highly dangerous to humans.<sup>104</sup>

Agronomic practices using Integrated Pest Management (IPM) technologies in marijuana cultivation could reduce chemical pollutants present in irrigation waters and storm runoff, however, oversight that could ensure proper adherence to IPM policies and practices is not likely to be conducted by the WSLCB, or any other government agency. Some of the millions of dollars in tax revenue the industry is already generating should be available to guarantee environmental oversight. Unfortunately, this has not been my experience. Apart from the Washington State Department of Health, which tests for contaminants in all medical marijuana products sold through licensed stores, industry regulators (WSLCB testing labs) only randomly test marijuana sold in the recreational market for pesticide content.<sup>105</sup>

### Solid Waste Disposal

State regulations do not allow for the unauthorized burning of toxic waste. My neighbor originally named his marijuana business “Organic Harvest” and in his land use application stated “We are committed to upholding the local Yelm community and have taken careful consideration to thoughtfully design our operation in order to maximize our positive impact on the surrounding area.”<sup>106</sup> Yet he has repeatedly left piles of toxic garbage exposed for months on his property, then burned them in the open, even during a Burn Ban (Figure 4).<sup>107</sup> A Notice of Complaint by the Olympic Region Clean Air Agency (ORCAA) records:

I arrived at the facility at ~1015 [AM] and observed a pile of prohibitive material topped with branches smolder/smoking. I paced the pile off at ~12'Lx15'Wx4'H...I was made aware that there were two marijuana operations on this property, Organic Harvest and Blue Moose, and some of the prohibitive materials looked like it was associated with those operations. The prohibitive material included but was not limited to construction/demo debris, plastic wrap, plastic banding, cardboard boxes, metal cans, plastic bottles, Styrofoam cups, and a plastic chair.<sup>108</sup>



Figure 4: Trash and burning at a marijuana facility.  
Construction and other toxic debris were burned at this unpermitted marijuana facility on the outskirts of Yelm, Washington. (Photographs by author, 2016).

Falsely posturing as the business owner of the leased Tier 2 marijuana operation on his property, my neighbor further claimed “Not only are we committed to the people and nearby community of Yelm, but another important core principle at Blue Moose is the preservation of the broader environment.”<sup>109</sup> If “preservation of the broader environment” was this producer’s true intent, why are piles of garbage still left beside the

production site area and elsewhere on the property to invite an infestation of rats that overrun adjacent properties? Increased cases of Hantavirus, a disease attributed to mice and rats, were recorded in the first half of 2017 in Washington State (Figure 5).<sup>110</sup> The virus can result in death in some cases and, with rats being attracted to garbage, chemicals, and marijuana, this became yet another stressful concern to my family.

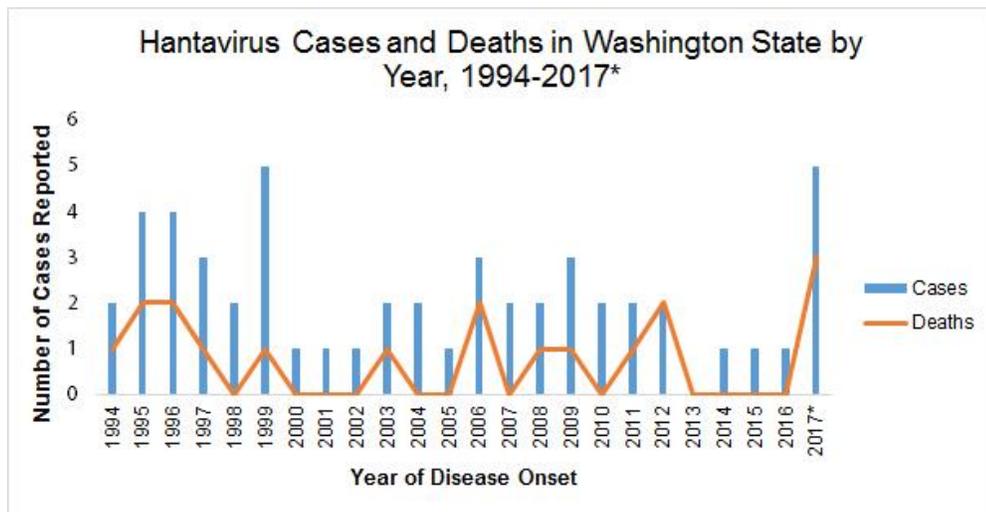


Figure 5: Hantavirus Cases and Deaths 1994 – 2017.  
 Increased Hantavirus deaths in Washington State are notable in 2017. Whether the marijuana industry had any impact in this increase cannot be determined.  
 \*2017 represents partial year data as of 7/18/17 that is subject to change.  
 (Washington State Department of Health 2017.)<sup>111</sup>

Research into waste attributed to illegal marijuana farms has shown that some areas in California national forests became so toxic that law enforcement agents were sent to the hospital with “skin rashes, respiratory problems and other symptoms.”<sup>112</sup> Discrepancies in federal and state drug laws have caused incongruity in how states address pesticide use and policy violations. This leaves workers and others involved in marijuana cultivation, as well as regulators, vulnerable to health risks.<sup>113</sup> Ecologist Dr.

Mourad Gabriel, an expert in researching toxic waste from illegal marijuana farms, has visited over 100 California cultivation sites and calculated “that federal land in California contains 731,000 pounds of solid fertilizer, 491,000 ounces of concentrated liquid fertilizer and 200,000 ounces of toxic pesticides” as a result of the industry.<sup>114</sup> Toxicants (manmade poisons), could contaminate water supplies in Washington after leaching into the soil, and, with the state’s abundant rainfall, be washed into sensitive watersheds without appropriate monitoring of marijuana chemical uses.

The mood-altering natural cannabinoid, THC, present in ever-increasing strength in marijuana flowers and other products, could also find its way into Washington waterways. An article from the *Seattle Patch* appeared to confirm this with the headline: “THC In Seattle Water ‘Highest Detected In The World’.”<sup>115</sup> University of Washington researchers tested Seattle’s wastewater for the presence of THC in 2016 in order to understand the prevalence of marijuana use in the Seattle area. They found the rate to be approximately 416 milligrams of THC per 1,000 people in Seattle. With a population of around 704,000 at the time, this meant an estimated 300,000 milligrams of THC was potentially contained in Seattle’s water.<sup>116</sup> One has to wonder how much THC could be passing through municipal filtration systems and escaping to surrounding waterways.

Some waste pesticides and discarded light bulbs used in marijuana production and processing are considered hazardous waste. Special recycling programs have been established by the Washington State Department of Agriculture to handle such material.<sup>117</sup> However, use of this disposal option depends on marijuana producers and processors ethically managing such materials according to state industrial waste management guidelines.

### Mercury Contamination

Another ecological concern associated with the marijuana industry is the improper disposal of non-recyclable, high-intensity discharge (HID) lighting materials. Unless handled properly, HIDs can leech mercury and other toxic chemicals into the environment. A single HID bulb contains approximately 30 mg of neurotoxic mercury, with contamination estimated to be as high as 30 mg of mercury for every kilogram of marijuana produced when HID materials are not disposed of in an appropriate manner.<sup>118</sup> Conscientious waste management in commercial and medical marijuana cultivation, and the installation of more efficient and less toxic LED lighting systems, is essential in the industry to reducing mercury waste from contaminating the environment.

Since January 1, 2013, the WSLCB has required that all mercury-containing light bulbs be recycled as outlined in RCW 70.275.080.<sup>119</sup> Unfortunately, my neighbor, at the time of this writing, has had an open dump truck full of construction and marijuana cultivation debris parked next to my driveway for more than a year. I can only imagine the potential contaminants leaching onto the ground from discarded light bulbs and other toxic materials.

### Energy Consumption

According to Sweet, the energy intensity of marijuana production and processing in Washington State has not been widely researched.<sup>120</sup> Although more efficient technologies are being developed, the large amount of electricity needed to run lights, climate controls, and irrigation in indoor and greenhouse operations requires further study.

Research conducted in 2012 estimated that 1% of all electrical energy use that year nationwide, the equivalent of two million average homes, was consumed in the cultivation of marijuana. This results from the industry's heavy dependency on irrigation, heating, lighting, and air quality control, at an estimated cost of \$6 billion.<sup>121</sup> A room measuring 4'x4'x8' producing just four marijuana plants consumes approximately 13,000 kWh/year in electricity for lighting, dehumidification, ventilation, irrigation, heating, cooling, and processing in standard operations.<sup>122</sup> Working backwards to the source, we also know that in the United States, generation of electricity from power plants is the largest contributor of greenhouse gas emissions.<sup>123</sup> Therefore, a 1% consumption of the nation's electrical power would be a further cost in marijuana cultivation and processing contributing to pollution in the environment.

Although outdoor marijuana cultivation is less energy intensive than greenhouse or indoor marijuana production, consumers believe higher potency marijuana is derived from indoor cultivation. More potent marijuana commands a higher price in the marketplace, thereby driving production indoors. Ultimately, whether or not potency is increased through indoor cultivation, consumer preference for higher THC content could benefit communities and the environment by focusing production indoors. According to Mills, by implementing more energy efficient systems design in indoor marijuana operations, energy consumption could be reduced by at least 75%, potentially making indoor hardscape marijuana cultivation a more viable alternative in overall energy use when compared to soft-sided greenhouse cultivation in Washington State.<sup>124</sup>

## Greenhouse Gas Emissions (GHGs)

One kilogram of processed marijuana is estimated to emit 4,600 kg (10,141 pounds) of CO<sub>2</sub>—that amount doubles when producers use diesel generators to power operations.<sup>125</sup> In addition, carbon dioxide is often injected into marijuana production facilities to enhance plant growth and increase yield.<sup>126</sup> Propane or natural gas used in production, heating, and processing also contributes to the industry's large carbon footprint.<sup>127</sup>

Greenhouse Gas Emissions (GHGs) can be released from marijuana operations in varying amount, depending on the size of the operation, and on whether an outdoor, greenhouse, or indoor installation is used. Transportation of production/processing supplies and distribution of end products adds to GHGs emitted by the industry. Alterations to land cover type and indirect inputs such as the production of fertilizers used in cultivation also contribute to GHGs. All told, CO<sub>2</sub> emissions from marijuana production in the United States have been estimated at 15 million metric tons per year, or the equivalent emissions of three million average-sized cars.<sup>128</sup>

According to Mills, depending on the type of generator, up to 70 gallons of diesel fuel, or 140 gallons of gasoline, can be consumed to grow one indoor marijuana plant.<sup>129</sup> Based on these data, if a plant needs approximately 1.115 m<sup>2</sup> of grow space,<sup>130</sup> then an off-grid Tier 1 operation with 167 plants, could consume as much as 11,690 gallons of diesel, or up to 23,380 gallons of gasoline, per harvest cycle. Approximately 22.4 pounds of CO<sub>2</sub> are emitted from burning one gallon of diesel fuel. About 19.6 pounds of CO<sub>2</sub> are produced from burning one gallon of gasoline that does not contain fuel ethanol.<sup>131</sup> This equates to approximately 262,000 pounds of CO<sub>2</sub> from diesel fuel, and 458,000 pounds of

CO<sub>2</sub> from gasoline, potentially being emitted per harvest cycle with a Tier 1 marijuana facility powered by either diesel or gasoline generator.

Public records document the constant use of multiple generators to operate the unpermitted marijuana facility next door to my property.<sup>132</sup> After several years of seasonal production of thousands of marijuana plants on the property, with irrigation and lights powered by generators, our neighbors' contribution of GHGs to the environment has been considerable.



Figure 6: Marijuana's carbon footprint.  
CO<sub>2</sub> emissions from indoor marijuana production. (Mills, 2012).<sup>133</sup>

Figure 6 shows the energy demands of an indoor marijuana facility.<sup>134</sup> Since the figure was created, energy efficient technologies have been advanced in the industry, including LED lighting systems that would reduce this earlier estimate of energy consumption. Research has determined that indoor marijuana operations could reduce GHG emissions by concentrating lighting and watering requirements during nighttime hours when the overall demand for electricity is lower.<sup>135, 136</sup> Successful marijuana production during the growing season requires significant light and irrigation when hotter

temperatures also increase daily power usage by the population due to the need for air-conditioning in homes and offices. With nights being generally cooler in Washington State, the power load is reduced during those hours, making it an ideal period for an indoor marijuana facility to schedule irrigation and artificial lighting to coincide with nightly demand reductions. A well-insulated structure, utilizing solar energy and natural light during daytime hours, and cycled with off-peak power periods, could certainly decrease energy usage and GHG output.

### Land Conversion and Storm Runoff

Outdoor commercial marijuana cultivation requires flat areas to locate the large hoop or more permanent greenhouse structures needed for successful year round operations in cooler climates such as Washington State. Where level ground isn't available, grading is necessary. In California, marijuana cultivation has led to degradation of the environment through unlawful clearing of native vegetation, grading of mountaintops, and large areas flattened to make way for roads, outdoor growing areas, and parking lots.<sup>137, 138</sup> Deforestation, earth movement, and terracing have been common practices in several locations converted to marijuana production in Thurston County.<sup>139, 140</sup> The estimated earth movement next door to my property was several times higher than the 500 cubic yards (approximately 1/3 of an acre at one foot deep) allowed by the county without requiring a grading permit AND environmental review prior to land conversion (Figure 7). In fact, Thurston County guidelines define the need for a grading permit according to the following:

- More than 7,000 square feet of a clearing activity (clearing and grubbing, conversion to lawn, conversion to pasture, etc.).
- More than 50 cubic yards of grading.

- If any amount of grading or removal of vegetation is proposed within a Critical Area.
- If grading, filling or excavating more than 500 cubic yards of material. In this case, you will be required to submit a SEPA checklist before a grading permit will be issued (SA 027).<sup>141</sup>

Despite the above requirements, and despite onsite inspections conducted by county officials, my neighbor applied for a grading permit for the earth displacement only after my husband, a geotechnical engineer with 40 years professional experience, queried the lack of such records in county files. Ultimately, it was our neighbor's tardiness in acquiring the necessary grading permits, after-the-fact, that enabled my family to legally challenge, and defeat, his marijuana operations.<sup>142</sup>



Figure 7: Unpermitted land conversion for two marijuana operations. Illegal earth movement for an industrial-scale marijuana facility on the outskirts of Yelm, Washington. (Photographs by author, 2015).

As exemplified by the facility next door to my property, land management involving marijuana operations can be difficult to monitor when located out-of-sight on private property. According to Short Gianotti, et al., California researchers have been hindered in collecting detailed assessments of environmental damage from illicit marijuana cultivation due to concerns about safety and retaliation at such sites.<sup>143</sup> The nature of the industry and political forces involved have limited researchers' ability to conduct empirical studies of the environmental impacts of marijuana cultivation in the Sierra National Forest.<sup>144</sup> "Even as California embraces the booming legal marijuana market . . . it is also seeing an explosion in illegal cultivation . . . Growers have followed, detained, threatened, pursued, and shot at officers and civilians, including scientists and field techs."<sup>145</sup>

Northwest HIDTA (High Intensity Drug Trafficking Area) is a program comprised of 13 initiatives that involve federal, state, tribal, and local law enforcement. HIDTA initiatives "target major illicit drug trafficking organizations through aggressive investigations and enforcement that include sources of supply, distribution, drug interdiction and drug related financial and violent crimes."<sup>146</sup> According to Northwest HIDTA, Washington has had widespread availability of marijuana for decades. The program's most recent report states that Mexican National cartels are primarily responsible for illegal outdoor marijuana production in eastern Washington, while Asian criminal organizations are prevalent in the use of homes for indoor operations in western Washington.<sup>147</sup> HIDTA reported approximately 373,778 illegal marijuana plants eradicated since the state legalized recreational use. Sixty percent of the illegal production occurred on state lands in 2016.<sup>148</sup>

Obscure locations on state and private lands hinder adequate oversight of illicit behavior. This can lead to enforcement challenges. Prior to policy changes implemented on July 1, 2016, the medical marijuana market in Washington State was largely unenforced.<sup>149, 150</sup> A brief overview of policy history, and an investigation into loopholes before and after the 2016 revised marijuana regulations were introduced, will be discussed in the next section.

---

1. Thurston County Washington. (2018). Chapter 20.54 – Special Use. 20.54.040 – General Standards 3.(a). *Thurston County Washington*. Olympia, Washington. Available: [https://library.municode.com/wa/thurston\\_county/codes/code\\_of\\_ordinances?nodeId=TI T20ZO\\_CH20.54SPUS](https://library.municode.com/wa/thurston_county/codes/code_of_ordinances?nodeId=TI T20ZO_CH20.54SPUS)
2. Washington State Office of Financial Management. (2016). Marijuana Revenue Appropriations. *Washington State Office of Financial Management*. Available: [https://www.ofm.wa.gov/sites/default/files/public/legacy/budget/documents/Marijuana\\_Revenue\\_Approps\\_2016.pdf](https://www.ofm.wa.gov/sites/default/files/public/legacy/budget/documents/Marijuana_Revenue_Approps_2016.pdf)
3. Roffman, R.A. (1982). *Marijuana As Medicine*. Madrona Publishers. Seattle, Washington.
4. Russell, R. (2008, November 6). Affidavit of Ryan Russell in Support of probable Cause for Seizure. No. 08-2-02591-5. Detective Ryan Russell. *Superior Court of the State of Washington in and for the County of Thurston County*.
5. Thurston County Washington Board of County Commissioners (BoCC). (2015, November 10). 1) Opportunity for the Public to Address the Board. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/BOCCPublic/DocView.aspx?id=5629690&page=2&searchid=bb4277ce-f4f1-4203-88a0-2c1c7f1645a2>
6. Thurston County Washington Board of County Commissioners (BoCC). (2018, May 1). Ordinance No. 15613. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/bocccpublic/DocView.aspx?id=9808796&searchid=1f8ab1ca-43b7-4996-b625-607e3a20889a&dbid=0>
7. Pardo, B. (2014, May 18). Cannabis policy reforms in the Americas: A comparative analysis of Colorado, Washington, and Uruguay. *Science Direct: International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2014.05.010>
8. Washington State Office of Financial Management. (2017, August 16). Total Population and Percent Change 1990-2017. *Washington State Office of Financial Management*. <https://www.ofm.wa.gov/washington-data-research/statewide-data/washington-trends/population-changes/total-population-and-percent-change>
9. U.S. Drug Enforcement Administration. (2017). Drug Schedules. *U.S. Department of Justice*. Available: <https://www.dea.gov/druginfo/ds.shtml>
10. Weeks, K. (2016). Policy Counsel at the Washington State Department of Health. *Washington State Department of Health*. Tumwater, Washington. Personal interview.

11. Francks, H. C. (2018, March 20). PCHB NO. 17-028c Green Freedom LLC v. Olympic Region Clean Air Agency. Pg. 17. *Environmental and Land Use Hearings Office*. Tumwater, Washington.
12. Francks, H.C. (2018, March 20).
13. Smith, R. (2015, May 19). Letter to Goldwater Properties. Project No. 2015100095. Folder Sequence No. 15 100286 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington.
14. Smith, R. (2015, May 19).
15. Weeks, K. (2016).
16. Thurston County Board of County Commissioners (BoCC). (2016, June 22). Thurston County Board Briefing. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/board-briefing-marijuana-regulations-20160623.pdf>
17. Holman, I. (2016). Not In Our Neighborhood. Letter of Complaint submitted to Thurston County Long Range Planning Resource Stewardship Department. *Yelm, Washington resident*.
18. Thurston County Board of County Commissioners (BoCC). (2016, June 22).
19. Chalem, K. (2016, February 24). Memorandum: Marijuana Interim Regulations. Staff responses to questions posed by Planning Commission members *Thurston County Washington Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
20. Chalem, K. (2016, February 24).
21. Young, B. (2017, August 5). U.S. Attorney General Sessions criticizes Washington State's legal marijuana system. *The Seattle Times Local News*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/sessions-raises-concerns-over-washingtons-marijuana-legalization/>
22. Washington Administrative Code. (2018). What is a marijuana producer license and what are the requirements and fees related to a marijuana producer license? WAC 314-55-075. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-075>
23. Thurston County Washington Board of County Commissioners (BoCC). (2014, January 21). Ordinance No. 14978. Codes & Ordinances. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpublish/DocView.aspx?id=3232625&page=1&searchid=f5891a2e-723c-4ed1-90cd-a9b8df100cfc>
24. Thurston County Washington Board of County Commissioners (BoCC). (2015, November 10). Ordinance No. 15210. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublish8/DocView.aspx?id=5581486&searchid=53a0f74e-4ae3-4061-8df1-19824224fe03&dbid=0>
25. Thurston County Permitting and Land Use. (2018). Document Library Research Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
26. Decorte, T., Potter G.R. (2015). The globalisation of cannabis cultivation: A growing challenge. *ScienceDirect: International Journal of Drug Policy*. Elsevier. Available: [www.elsevier.com/locate/drugpo](http://www.elsevier.com/locate/drugpo)

27. Cervantes, J. (2006). *Marijuana Horticulture: The Indoor/Outdoor Medical Grower's Bible*. Van Patten Publishing.
28. Cervantes, J. (2006).
29. Piljman, F.T.A., Rigter, S.M., Hoek, J., Goldschmidt, H.M.J., Niesink, R.J.M. (2005). Strong increase in total delta-THC in cannabis preparations sold in Dutch coffee shops. *Addiction Biology*, 10(2), 171-180. Available: <http://doi.org/10.1080/13556210500123217>
30. Piljman et al. (2005).
31. Cervantes, J. (2006).
32. O'Hare, M., Sanchez, D.L., Alstone, P. (2013, June 28). Environmental risks and opportunities in cannabis cultivation. *BOTEC Analysis Corp*. Available: [http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC\\_Whitepaper\\_Final.pdf](http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC_Whitepaper_Final.pdf)
33. Washington State Department of Ecology Water Resources Program. (2016, December). Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State. Publication No. 14-11-003. *Washington State Department of Ecology Water Resources Program*. Lacey, Washington.
34. Bauer, S., Olson, J., Cockrill, A., Van Hattem, M., Miller, L., Tauzer, M., Leppig, G. (2015, March 18). Impacts of surface water diversions for marijuana cultivation on aquatic habitat in four northwestern California watersheds. *PLOS ONE 10* (art. e0120016). doi:10.1371/journal.pone.0120016
35. Bernstein, S. (2017, August 6). Toxic waste from U.S. pot farms alarms experts. *MSN News*.
36. O'Hare, et al. (2013, June 28).
37. Sweet, S.L. (2016, June). The energy intensity of lighting used for the production of recreational cannabis in Washington State and implications for energy efficiency. *The Evergreen State College*. Olympia, Washington. Master of Environmental Studies Thesis.
38. Bauer, et al. (2015, March 18).
39. O'Hare, et al. (2013, June 28).
40. Interagency Resource for Achieving Cooperation (IRAC). (2015, August). Regulatory Guidance for Cannabis Operations Version 2.0. Section 4. *Interagency Resource for Achieving Cooperation (IRAC)*.
41. McNair, F.L. (2018, March 16). Executive Director. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington. Personal interview.
42. Short Gianotti, A.G., Harrower, J., Baird, G., Sepaniak, S. (2016, November 18). The Quasi-legal challenge: Assessing and governing the environmental impacts of cannabis cultivation in the North Coastal Basin of California. *Science Direct Land Use Policy*. Available: <http://dx.doi.org/10.1016/j.landusepol.2016.11.016>
43. Bauer, et al. (2015, March 18).
44. Gabriel, M.W., Woods, L.W., Poppenga, R., Sweitzer, R.A, Thompson, C., Matthews, S.M., Higley, J.M., Keller, S.M., Purcell, K., Barrett, R.H., Wengert, G.M., Sacks, B.N., Clifford, D.L. (2012, July 13). Anticoagulant rodenticides on our public and community lands: Spatial distribution of exposure and poisoning of a rare forest carnivore. *PLOS ONE 7* (art. e40163). doi:10.1371/journal.pone.0040163
45. Short Gianotti, et al. (2016, November 18).

46. Seaman, L. (2015, July 10). Marijuana's Environmental Impacts. Water and Wildlife. *Stanford Woods Institute for the Environment*. Available: <https://woods.stanford.edu/news-events/news/marijuanas-environmental-impacts>
47. Interagency Resource for Achieving Cooperation (IRAC). (2015, August).
48. Interagency Resource for Achieving Cooperation (IRAC). (2015, August).
49. Interagency Resource for Achieving Cooperation (IRAC). (2015, August).
50. Interagency Resource for Achieving Cooperation (IRAC). (2015, August).
51. Washington Department of Fish and Wildlife (2018). Freshwater fishing: Nisqually River. *Washington Department of Fish and Wildlife*. Olympia, Washington. Available: <https://wdfw.wa.gov/fishing/salmon/pink/nisqually.html>
52. Cervantes, J. (2006).
53. Kovner, G. (2015, June 30). Fisheries panel to hold Sacramento hearing on water use by pot farms. *The Press Democrat*. Santa Rosa, California.
54. Bauer, S., Olson, J., Cockrill, A., Van Hattem, M., Miller, L., Tauzer, M., Leppig, G. (2015, March 18). Impacts of surface water diversions for marijuana cultivation on aquatic habitat in four northwestern California watersheds. Pg. 20. *PLOS ONE 10* (art. e0120016). doi:10.1371/journal.pone.0120016
55. Bauer, et al. (2015, March 18).
56. Bauer, et al. (2015, March 18).
57. Bauer, et al. (2015, March 18).
58. Bauer, et al. (2015, March 18).
59. Carah, J.K., Howard J.K., Thompson S.E., Short Gianotti A.G., Bauer S.D., Carleson S.M., Dralle D.N., Gabriel M.W., Hulette L.L., Johnson B.J., Knight C.A., Kupferberg S.J., Martin S.L., Naylor R.L., Power M.E. (2015, August). High time for conservation: Adding the environment to the debate on marijuana liberalization. *BioScience 65*: 822-829.
60. United States Environmental Protection Agency. (2016). Climate Change indicators in the United States 2016. Fourth edition. *U.S. Environmental Protection Agency*. EPA 430-R-16-004. Available: [www.epa.gov/climate-indicators](http://www.epa.gov/climate-indicators)
61. Whittaker, M. (2015, June 16). High and Dry in California: How pot growers are illegally diverting water from California's streams and creeks. *The Wall Street Journal*. New York, N.Y. Available: <https://graphics.wsj.com/embeddable-carousel/?slug=CAWATER>
62. Humboldt Growers Association (HGA). (2010, December 13). Humboldt County Outdoor Medical Cannabis Ordinance Draft-Water Usage. *Humboldt Growers Association (HGA)*. Humboldt County, California. Available: <http://library.humboldt.edu/humco/holdings/HGA2.pdf>
63. Bauer, et al. (2015, March 18).
64. Carah, et al. (2015, August).
65. United States Department of Justice. (2007, February). Domestic Cannabis Cultivation Assessment. *Johnstown, PA: National Drug Intelligence Center*. Product No. 2007-L0848-001.
66. Bauer, et al. (2015, March 18).

67. Cline, V. (2018, February 16). Compliance and Enforcement Officer. *Washington State Department of Ecology Southwest Regional Office Water Resources Program*. Lacey, Washington. Personal interview.
68. Cline, V. (2017, February 23). Ground Water Withdrawal and Irrigation Water for Commercial/Industrial Use – Parcel No. 22603110000. *Washington State Department of Ecology Water Resources Program*. Lacey, Washington. Letter.
69. Washington State Department of Ecology Water Resources Program. (2016, December).
70. Bauer, et al. (2015, March 18).
71. Washington State Department of Ecology Water Resources Program. (2016, December).
72. Washington State Department of Ecology Water Resources Program. (2016, December).
73. Washington State Department of Ecology Water Resources Program. (2016, December).
74. Cline, V. (2018, February 16).
75. Cline, V. (2017, February 23).
76. Washington State Department of Ecology Water Resources Program. (2016, December). Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State. Publication No. 14-11-003. Pg. 2. *Washington State Department of Ecology*. Lacey, Washington.
77. Cline, V. (2018, February 16).
78. Washington State Department of Ecology Water Resources Program. (2016, December).
79. Washington State Department of Ecology Water Resources Program. (2016, December). Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State. Publication No. 14-11-003. Pg. 2. *Washington State Department of Ecology Water Resources Program*. Lacey, Washington.
80. Washington State Department of Ecology Water Resources Program. (2016, December).
81. Washington State Department of Ecology Water Resources Program. (2016, December).
82. Washington State Department of Ecology Water Resources Program. (2016, December).
83. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
84. McPartland, J.M., Clarke, R.C., Watson, D.P. (2000). Hemp diseases and pests: management and biological control: an advanced treatise. *CABI Publishing*. New York, N.Y.
85. Stone, D. (2014, May 20). Cannabis, pesticides and conflicting laws: The dilemma for legalized states and implications for public health. *Regulatory Toxicology and Pharmacology*. Available: [www.elsevier.com/locate/yrtph](http://www.elsevier.com/locate/yrtph)
86. Washington Administrative Code. (2018). Production of marijuana WAC 314-55-084. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-084>
87. Stone, D. (2014, May 20).
88. Bauer, et al. (2015, March 18).
89. Stone, D. (2014, May 20).
90. Bernstein, S. (2017, August 6).
91. Bauer, et al. (2015, March 18).

92. Carah, et al. (2015, August).
93. Thompson, C., Sweitzer, R., Gabriel, M., Purcell, K., Barrett, R., Poppenga, R. (2013, May 14). Impacts of rodenticide and insecticide toxicants from marijuana cultivation sites on fisher survival rates in the Sierra National Forest, California. *Conservation Letters* 7: 91–102.
94. Short Gianotti, et al. (2016, November 18).
95. Bauer, et al. (2015, March 18).
96. Gabriel, et al. (2012, July 13).
97. Thompson, et al. (2013, May 14).
98. Smith, J. (2017, March 31). Illegal Pot Farms Are Poisoning California’s Forests. *The Atlantic*. Boston, Massachusetts. Available: <https://www.theatlantic.com/science/archive/2017/03/backcountry-drug-war/521352/>
99. Smith, J. (2017, March 31).
100. Extension Toxicology Network (EXTOXNET). (1993, September). Carbofuran: Pesticide Information Profile. *Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University, and University of California at Davis*. Available: <http://pmep.cce.cornell.edu/profiles/extoxnet/carbaryl-dicrotophos/carbofuran-ext.html>
101. Smith, J. (2017, March 31).
102. Bernstein, S. (2017, August 6).
103. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. Pg. 12. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
104. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June).
105. Weeks, K. (2018). Government Relations Director at the Center for Public Affairs. *Washington State Department of Health*. Tumwater, Washington. Personal interview.
106. Thurston County Permitting and Land Use. (2016, November 22). Administrative Special Use Permit – Marijuana Production and Processing. Project No. 2014101488. Folder sequence No 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
107. Olympic Region Clean Air Agency (ORCAA). (2016, December 5). ORCAA Complaint Form ID 17412. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington.
108. Olympic Region Clean Air Agency (ORCAA). (2016, December 5).
109. Thurston County Permitting and Land Use. (2016, August 23). Completeness Transmittal Memorandum. Project No. 2014101488. Folder sequence No 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
110. Washington State Department of Health. (2017). Hantavirus Cases and Deaths in Washington State. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Hantavirus>
111. Washington State Department of Health. (2017).
112. Bernstein, S. (2017, August 6).
113. Stone, D. (2014, May 20).
114. Bernstein, S. (2017, August 6).

115. McNamara, N. (2017, August 10). THC in Seattle water ‘Highest Detected in the World’.” *Seattle Patch*. Seattle, Washington. Available: <https://patch.com/washington/seattle/thc-seatte-water-highest-detected-world>
116. McNamara, N. (2017, August 10).
117. Washington State Liquor and Cannabis Board (2017). Regulatory Guidance for Indoor Marijuana Producers. Hazardous Waste Management. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <http://www.lcb.wa.gov>
118. O’Hare, et al. (2013, June 28).
119. Washington Administrative Code. (2018). RCW 70.275.080. Requirement to recycle end-of-life mercury-containing lights. *Washington State Legislature*. Available: <http://app.leg.wa.gov/RCW/default.aspx?cite=70.275.080>
120. Sweet, S.L. (2016, June).
121. Mills, E. (2012, April 17). The carbon footprint of indoor *Cannabis* production. *Energy Policy* 46: 58–67. Available: <http://dx.doi.org/10.1016/j.enpol.2012.03.023>
122. Mills, E. (2012).
123. United States Environmental Protection Agency. (2016).
124. Mills, E. (2012).
125. Mills, E. (2012).
126. O’Hare, et al. (2013, June 28).
127. Mills, E. (2012).
128. Mills, E. (2012).
129. Mills, E. (2012).
130. Bauer, et al. (2015, March 18).
131. United States Energy Information Administration. (2017, May 19). How much carbon dioxide is produced from burning gasoline and diesel fuel? *Independent Statistics & Analysis U.S. Energy Information Administration*. Available: <https://www.eia.gov/tools/faqs/faq.php?id=307&t=11>
132. Kantas, T. (2016, October 21). Administrative Special Use Permit – Marijuana Production & Processing. Planning (3.) Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccppublic8/CustomSearch.aspx?SearchName=MinutesTextSearch>
133. Mills, E. (2012).
134. Mills, E. (2012).
135. O’Hare, et al. (2013, June 28).
136. Sweet, S.L. (2016, June).
137. Bauer, et al. (2015, March 18).
138. Short Gianotti, et al. (2016, November 18).
139. Saint, A. (2017, April 12). Memorandum – Stormwater Scoping Report – Response Jim Hayes Site Plan. Project No. 2014101488. *Thurston County Department of Resource Stewardship Stormwater Utility*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
140. Holman, I. (2018, May 1). *Yelm, Washington resident*. Personal interview.

141. Thurston County Resource Stewardship Department. (2018). When do I need a permit? *Thurston County Washington Permitting and Land Use Resource Stewardship Department*. Available: <http://www.co.thurston.wa.us/permitting/faq/faq-clearing.html>
142. Thurston County Permitting and Land Use. (2018).
143. Short Gianotti et al. (2016, November 18).
144. Short Gianotti et al. (2016, November 18).
145. Smith, J. (2017, March 31).
146. Northwest HIDTA. (2018) Northwest High Intensity Drug Trafficking Area Threat Assessment and Strategy for Program Year 2018. *Northwest HIDTA*. Seattle, Washington.
147. Northwest HIDTA. (2018).
148. Northwest HIDTA. (2018).
149. Weeks, K. (2018, February 20).
150. Snaza, J. (2018, February 22). Thurston County Sheriff. *Thurston County Sheriff's Department*. Olympia, Washington. Personal interview.

---

## CH. 1.2 MARIJUANA POLICY—MEDICAL TO RECREATIONAL

*Sooner or later we will learn that plants with effects on the body and mind, such as marijuana, are what we make of them. Used intelligently and carefully they can help us. Used irresponsibly they can harm us. The problem is not to try to eradicate the plants (impossible) or stop people from using them (also impossible) but to teach the principles of safe interaction with them.*

Andrew Weil, Author of *The Marriage of the Sun and Moon*, 1980<sup>1</sup>

### *Marijuana's Medical Mystery*

Rooted in darkness, lit from below, the artist's image grows upward and outward to fill the canvas. Leaves reflect light from an unknown source to the viewer, yet nothing dispels the deep void that suspends this two dimensional portrayal of immortality. Fine, gold-tinted branches weave laterally, splayed outward from a thin, central trunk—the shape of the marijuana leaf clearly discernable. The image borrows an ancient symbol that represented eternal life. But is this concept of immortality expressed truthfully in this art piece, or is it a reinvention of an esoteric idea suited to a modern interpretation?

The Tree of Life symbol has been a source of inspiration throughout forgotten eras and up to modern times. As the tree reaches upward to the light, it expresses life and unity in one noble idea. An archetype in philosophical traditions, the symbol is magical and mystical. Each element—roots, trunk, branches, leaves, flowers, and fruit—hold meaning, representing the mythological belief of an eternal existence. As the tree's roots penetrate deep into the Earth, they represent the sustenance that maintains life; the trunk spouts branches that reach outward to absorb frequency from the sun; leaves transform the sun's rays into life-giving food and healing properties on levels physical, spiritual, and emotional; the fruit and flowers provide nourishment that regenerate and inspire. The

knowledge contained in this ancient symbol connects heaven and Earth with all forms of creation. It is intended as an image of goodness on our planet. Can one, then, accept artist Fred Tomaselli's symbolism of the *Cannabis* species as a "Tree of Life?"

In Tomaselli's artistic rendition, called *Super Plant*, marijuana is idealized as a symbol of immortality.<sup>2</sup> The image bears evidence of a cultural expression that evolved out of resistance and the desire for freedom during the '60s era. Although the artist intended this art piece, created in the '90s, to highlight the beauty, mystique, and influence of marijuana, the irony of the work is disturbing. To embrace this piece without question is perhaps to hold to a belief that marijuana contains answers to liberation and restoration; although through properties barely understood, and many still to be discovered. There is truth to that. Curiously, closer inspection of the piece reveals that stylized pink fruit are actually pills—synthetic marijuana products newly introduced to the evolving market. The artist has blended the old with the new. Marijuana *is* an extraordinary plant, used medicinally and recreationally by cultures around the world for centuries, and yet it continues to be controversial.

### *The Endocannabinoid System*

The *Cannabis* plant, from which several marijuana strains are derived, is the only known plant that produces more than one hundred naturally occurring cannabinoids. However, only two—delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD)—have so far been studied extensively for their psychedelic or medicinal properties.<sup>3</sup> Federal law defines "marijuana" as *Cannabis* plant strains with a THC content greater than 0.3 percent. *Cannabis* containing less than 0.3 percent THC is considered industrial hemp.<sup>4</sup>

Both humans and animals have an endocannabinoid system with receptors present in the brain and body that naturally receive cannabinoids.<sup>5</sup> The two types of receptors in the body that respond to THC and CBD cannabinoids found in marijuana are located in the following areas:

CB1 — Mainly the brain, spinal cord, and nervous system

CB2 — Predominantly in the immune system, gastrointestinal system, and nervous system periphery<sup>6</sup>

When THC binds to CB1 receptors it triggers the psychoactive effect, or “high,” of marijuana. THC “is a powerful analgesic, anti-spasmodic, and muscle relaxant with twenty times the anti-inflammatory power of aspirin and twice that of hydrocortisone. Additionally, THC is a powerful appetite stimulant and possesses anti-emetic properties which means it helps with nausea and vomiting.”<sup>7</sup> As CBD binds to CB2 receptors it “is a non-euphoriant cannabinoid with neuroprotective and immunomodulatory properties. It is a potent anti-inflammatory, analgesic, and anti-convulsant.”<sup>8</sup> CBD also moderates and dampens the degree of anxiety, memory loss, paranoia, or euphoria that can be stimulated through high doses of THC.<sup>9</sup>

According to the University of Washington Alcohol and Drug Abuse Institute (ADAI), only two of more than 113 cannabinoids existing in the *Cannabis* plant have been well understood so far.<sup>10</sup> Caulkins, et al. reported in 2016 that due to prohibition and the challenges encountered when conducting studies on *Cannabis*, there have been few clinical trials testing the medicinal benefits of smoked or vaped marijuana.<sup>11</sup> In January, 2017, the Institute of Medicine released a consensus report following a nine-month comprehensive review of the literature regarding the risks and benefits of marijuana. In this 400 page report, researchers concluded that there is “conclusive or substantial

evidence” that cannabinoids found in the *Cannabis* plant have a “moderate effect as a therapeutic agent in the treatment of chronic pain.”<sup>12</sup>

Medical patients value the cannabinoids produced in marijuana that mimic the naturally released cannabinoids in the human endocannabinoid system because they can reduce pain, inflammation, and other stresses. Both THC and CBD are found naturally in the marijuana plant however, genetic manipulation has dramatically increased THC levels in recent years.<sup>13</sup> THC gives marijuana its mind-altering and therapeutic qualities, however, products created synthetically that contain a higher percentage of CBD, ease the symptoms of chronic pain or distress without the intense psychoactive experience that can result from a high THC content.

Since 1985 synthetic production of cannabinoids has resulted in products available through legal prescription as well as concoctions illegally created (such as Spice and K2). Two Federal Drug Administration (FDA) approved medications containing synthetic, or semi-synthetic THC, have the trade names Marinol and Cesamet. Yet medications based purely on THC, without the buffering effect of CBD included in the product, have had limited acceptance among medical patients due to the “high” that can accompany the drug. Instead, many patients prefer using the natural plant for medicinal purposes to obtain the benefits of both cannabinoids.<sup>14</sup>

Legalization of recreational marijuana in Washington has introduced an increasing variety of products to the market in the form of concentrates, edibles, or flowers, with a noted increase in the strength of THC cannabinoids present. In 2015, according to University of Washington researchers, flowers or buds were the highest selling marijuana products in Washington State.<sup>15</sup> Two years later, expansion of

concentrates and edibles began changing production and processing methods as they gained an increasing market share. This also increased potential hidden health risks to the unaware consumer, and to the environment.

### *Marijuana Health-Safety Concerns*

Marijuana flowers and plant material can be smoked in the form of joints (cigarettes), blunts (altered cigars), or vaped through water pipes commonly called bongs. Vaporizing the flowers is said to be a safer method of consumption for the respiratory system than inhaling combustion from smoking a joint.<sup>16</sup> Marijuana concentrates, consumed in vaping, are often produced using butane or other methods involving chemical additives such as glycerol and propylene glycol. Pesticides and other contaminants used in production or processing methods can also contribute to the volume of chemicals lingering in recreational marijuana products.

According to ADAI, the number of chemicals remaining in marijuana concentrates is unknown—some can be added following CO<sub>2</sub> extraction methods.<sup>17</sup> Testing laboratories overseen by the WSLCB only randomly test marijuana plant material used in processing prior to the manufacturing of extracts, such as hash oils, shatter wax, CO<sub>2</sub> oil, budder, or honey comb, to name a few examples, so levels of contamination in a recreational product can remain high.<sup>18</sup> To guarantee consumer safety, in an industry still riddled with black market activity despite legalization, chemical testing from seed to final product should be a policy requirement with every commercial marijuana product sold. However, only the Washington State Department of Health tests medical marijuana this rigorously before medicinal product can be purchased through a licensed retailer in Washington State.<sup>19</sup>

New cultivation practices and selective breeding methods have dramatically increased the potency of THC found in marijuana. Sinsemilla, meaning “no seeds” in Spanish, is a technique using only unfertilized female plants that put most of their energy into cannabinoid production instead of producing seed.<sup>20</sup> Today, the female flowers are prized above the other plant parts that were once included in marijuana products, rendering marijuana significantly more THC potent. According to researchers, users habitually exposed to higher doses of THC risk developing a marijuana use disorder leading to illness or addiction.<sup>21</sup> Marijuana use disorder is a new term combining two prior terms—marijuana abuse and marijuana dependence. The condition is diagnosed with the presence of two or more symptoms (from a list of 11) that include not being able to stop consumption, cravings, withdrawal symptoms, and giving up important social activities.<sup>22</sup> Recently, *CBS news* and other media outlets have reported on a mysterious, relatively new illness, cannabinoid hyperemesis syndrome (CHS), tied to marijuana consumption. According to Dr. Kennon Heard, an emergency room physician in Aurora, Colorado, heavy, long-term marijuana use can result in CHS, triggering severe abdominal pain, nausea, and vomiting.<sup>23</sup>

Perhaps the most serious risk to consumers comes from the edibles industry. Edibles can vary in the amount of THC contained in just a single batch of unregulated cookies, candies, gummies, chocolates, or other marijuana products. Because digestion delays the effect of THC on the body, consumers can be caught off guard, first by an unknown THC content, and second by thinking the product is having no impact, causing them to consume more. Body size and metabolism also influence whether desired results appear in thirty minutes, or two hours.<sup>24, 25</sup> In 2017, ADAI researchers reported that

Washington urgent care facilities and poison control services had seen an increase in people intoxicated with edibles due to consumers not being educated on portion size, or the time required through metabolism to experience an effect.<sup>26</sup> According to reports by Northwest HIDTA, The Washington State Poison Center (WAPC) has noted that calls to the agency regarding marijuana concentrates and extracts increased from 2012 to 2014 by 850% with 46% of marijuana exposure calls recorded in 2015 coming from youth 18 and under.<sup>27</sup>

The WSLCB has only 12 certified labs throughout Washington to test marijuana quality and THC potency.<sup>28</sup> Given the volume of marijuana products now flowing through the state on a daily basis, it would seem these labs can't keep up with demand in testing for chemical contamination and THC content. As indicated above, only medical marijuana is guaranteed quality testing for every product legally sold.

The Washington State Department of Health (DOH), under House Bill 2136, was charged with defining which marijuana products beneficial for medical use would remain exempt from sales tax to patients or providers holding a qualifying recognition card.<sup>29</sup> The DOH worked hard to balance patient needs beneath the umbrella of the state regulatory system.<sup>30</sup> In their efforts to meet patient demands under changing policy conditions, the DOH implemented methods to ensure product safety for medical consumers. Three official DOH logos—"General Use," "High THC," and "High CBD"—indicate whether a product has met producer/processor compliance with all requirements under state guidelines and WSLCB regulations, including third-party testing by a certified lab (Figure 8).<sup>31</sup> In contrast, the WSLCB relies on spot checks to ensure recreational products meet health and THC potency standards.<sup>32</sup> Approved medical-grade

marijuana is also available for purchase at licensed stores by recreational users who might be concerned about contaminants entering commercial products (and the environment) due to random testing by the WSLCB.<sup>33</sup>



Figure 8: Medical marijuana product compliance logos. (Washington State Department of Health, 2018).<sup>34</sup>

According to a recent Northwest HIDTA report, THC potency was mislabeled on seven out of eight recreational products purchased, with a difference ranging from between 3.5 to 7 percent than the actual potency measured.<sup>35</sup> In July 2016, products from a marijuana retailer in Seattle averaged 71.7% potency in concentrate extract, an increase of approximately 15% from the average standard of 55.9% set by the University of Mississippi Potency Monitoring Project in 2014.<sup>36</sup> The risks associated with merely spot checking for chemical and THC content in recreational marijuana creates a potential health hazard as unaware customers suffer the consequence of illness or overdose from mislabeled or contaminated products. Current marijuana policy in Washington State lacks adequate safety oversight. Therefore, consumers and the environment would be better served if all marijuana end products were tested as rigorously as medical marijuana.

Marijuana has been used throughout the world for social and aesthetic effect, or medicinal benefit for centuries.<sup>37, 38</sup> Even so, despite being the only plant known to contain cannabinoids that offer such potential relief for certain types of human suffering, many people still object to its legal availability, whether for medicinal, recreational, or

further research purposes. Artificial cannabinoid products made in a lab, which could potentially solve a raft of issues surrounding marijuana cultivation and processing, have not yet substituted the attributes experienced in ingesting products made from the natural plant. Hence the long debate concerning marijuana legalization in this country and throughout much of the world.

### *Marijuana Legalization – Medical to Recreational*

Washington State is one of nine U.S. states, plus Washington D.C., that in recent years has legalized medical and recreational marijuana. In 1998, Washington State voters first approved Initiative 692, allowing the use of medical marijuana for relief to patients with terminal or debilitating conditions. At that time, qualifying patients and primary caregivers could legally possess up to a 60-day supply of marijuana.<sup>39</sup> Under Washington State's legalized marijuana system, the Department of Health qualifies medical marijuana patients as those suffering from the following conditions:

- Cancer, human immunodeficiency virus (HIV), multiple sclerosis, epilepsy or other seizure disorder, or spasticity disorders;
- Intractable pain, limited for the purpose of this chapter to mean pain unrelieved by standard medical treatments and medications;
- Glaucoma, either acute or chronic, limited for the purpose of this chapter to mean increased intraocular pressure unrelieved by standard treatments and medications;
- Crohn's disease with debilitating symptoms unrelieved by standard treatments or medications;
- Hepatitis C with debilitating nausea or intractable pain unrelieved by standard treatments or medications;
- Diseases, including anorexia, which result in nausea, vomiting, wasting, appetite loss, cramping, seizures, muscle spasms, or spasticity, when these symptoms are unrelieved by standard treatments or medications;
- Chronic renal failure requiring hemodialysis;
- Posttraumatic stress disorder; and/or
- Traumatic brain injury.<sup>40</sup>

In 2007, an amendment to Initiative 692 defined the “60-day supply” as allowing patients to possess “no more than 24 ounces of usable marijuana and no more than 15 plants.”<sup>41</sup> Since Federal Government regulations made even that amount of marijuana illegal, the Obama administration clarified the federal policy, stating that “. . . it wouldn’t prosecute any patients who abide by the law in their state. However, people who are in the business of cultivating, selling or distributing marijuana, and those who knowingly facilitate such activities, are in violation of the Controlled Substances Act, regardless of state law.”<sup>42</sup>

By 2011, law enforcement in Washington State began to alter its approach toward marijuana cultivation with more leniency in arrests, following a declaration by Seattle Police Chief, John Diaz, in which he stated: “With competing and inconsistent laws, the SPD is going to exercise discretion when investigating cases involving medical marijuana patients, recognizing that some medical marijuana patients and designated providers may have difficulty obtaining marijuana for medical use.”<sup>43</sup> That same year, state legislature passed Senate Bill 5073 providing guidance for healthcare practitioners authorizing medical marijuana, and protections that allowed patients (or designated providers) to form collective gardens. Senate Bill 5073 did *not* permit commercial marijuana production, processing, or other types of transactions; regulation or any type of government oversight; the “right” to use medical marijuana; or arrest-protection for patients.<sup>44</sup>

Only one year later, in 2012, Washington State voters approved Initiative 502. Initiative 502 allowed adults age 21 and older to possess up to one ounce of marijuana obtained from a state-licensed marijuana store, and the commercial production and

processing of recreational marijuana. Policies designed to regulate and enforce state laws to ensure public safety included seed-to-sale traceability; product testing and labeling; serving size limits; product restrictions; and taxation requirements.<sup>45</sup>

Following legalization in Washington and Colorado in 2012, the Deputy U.S. Attorney General James Cole issued a memo titled *Guidance Regarding Marijuana Enforcement* (the “Cole Memo”). In that memo, Cole makes it clear that the U.S. Government expects “that states and local governments that have enacted laws authorizing marijuana-related conduct will implement strong and effective regulatory and enforcement systems.”<sup>46</sup> Eight enforcement priorities were listed in the Cole Memo:

- Distribution of marijuana to minors,
- Revenue from sale of marijuana from going to criminal enterprises, gangs, and cartels,
- Diversion of marijuana from states where it is legal under state law to other states,
- State-authorized marijuana activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity,
- Violence and use of firearms in the cultivation and distribution of marijuana,
- Drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use,
- Growing of marijuana on public lands and the attendant public safety and environmental dangers posed by marijuana production on public lands, and
- Possession or use of marijuana on federal property.<sup>47</sup>

None of the provisions in the Cole Memo outlined restrictions that would provide public or environmental protection from marijuana operations locating in rural residential or agricultural areas. The research described in this thesis revolves around this point. It attempts to answer the question “What are the potential social and environmental impacts resulting from this omission in the Cole Memo that only ensures public safety on public lands, relying on state and county officials to determine how and where to regulate land

use for marijuana operations elsewhere in the state?” The ramifications of this omission in the Cole Memo appear to have not yet been adequately researched, or addressed, by regulatory agencies or legislators.

### *WSLCB and State Regulations*

Several years after the 2012 legalization of recreational marijuana in Washington, the Cannabis Patient Protection Act (SB 5052) was passed together with the Marijuana Tax Reform (HB 2136).<sup>48</sup> These changes resulted in, as of July 1, 2016, a single combined system of medical and recreational marijuana production, processing, and retailing that is now regulated and enforced by the WSLCB.<sup>49</sup>

The mission of the WSLCB is to “Promote public safety and trust through fair administration and enforcement of liquor, cannabis, tobacco, and vapor laws” with a goal of ensuring “the highest level of public safety by continually improving and enforcing laws, regulations, and policies that reflect today’s dynamic environment.”<sup>50</sup> Under Chapter 314-55 of the Washington Administrative Code (WAC) the WSLCB is charged with overseeing marijuana licensing; guiding the application process; enforcing production, processing, and retailing regulations; monitoring recreational product testing and traceability; and administration of sales reporting and other activities.<sup>51</sup> According to John Snaza, Thurston County Sheriff and Executive Chairman of Northwest HIDTA, that’s a tall order—only 16 WSLCB officers oversee this broad range of marijuana activity and vast geographic area of enforcement responsibility.<sup>52</sup>

The Washington State Legislature and WSLCB websites provide detailed statements of policy regulating the marijuana industry. Of those, I focus attention here on

the regulations that might have harmful ramifications to public and environmental safety. What stands out in WSLCB marijuana regulations is how much of the required reporting of marijuana production and processing activities—transactions, transport, cultivation and processing methods, waste management, etc.—relies on the integrity of the marijuana licensee to fill out the paperwork themselves. Random spot checks by the WSLCB, a self-regulated traceability system, and response to complaints received from concerned citizens, appear to be the most predominant methods used by the WSLCB to identify abusers in the industry. Internal checks for consistency in reporting, in-depth criminal background checks, and observation of strange behavior patterns by the agency is still lacking, based upon my experience and research.

Since marijuana still falls under the federal category of a Schedule I drug, its production, processing, and retailing businesses are mostly cash-based and thus invite a strong potential for black market activity and money laundering.<sup>53,54</sup> According to a Northwest HIDTA 2017 report, “Many marijuana retailers are operating as cash-only businesses as the majority of banks and credit unions are hesitant to work with companies that sell a still federally-illegal product.”<sup>55</sup>

An article appearing in *The Olympian* on April 3<sup>rd</sup>, 2018, identified the high taxes imposed on marijuana businesses as one reason for continuing black market activity.<sup>56</sup> Washington has imposed a 37% excise tax on marijuana, Oregon a 17% state tax plus 3% local tax, and in California taxes can go as high as 45%. Marijuana operations unable to conduct business transactions through a bank often have little option but to carry cash into tax offices to make payments.<sup>57</sup> Although the WSLCB states that the agency will investigate the criminal and administrative violation history of each applicant per WAC

314-55-040 and 314-55-045, a thorough review is not always the case, as was revealed in investigations into the criminal background and business dealings of the marijuana facilities locating next door to my property.<sup>58, 59</sup>

In July 2016, as I sat in the lobby of the WSLCB headquarters in Lacey and spoke with a department head overseeing marijuana licensing in the Yelm area, I revealed detailed photographs of the hundreds of unlicensed marijuana plants being cultivated on my neighbor's property. Although my neighbor had applied for a marijuana production and processing license in 2014, none had so far been issued. I was informed by the WSLCB officer that no one from the agency had visited the property, or seen the proposed site, because all monitoring prior to the licensing of a marijuana facility is handled through photographs submitted by the applicant to demonstrate progress and compliance. There was simply too much demand and too few staff, he told me, to physically visit site premises until one final inspection.

According to agency regulations “the WSLCB *may* conduct a final inspection of the proposed licensed business, in order to determine if the applicant has complied with all the requirements of the license requested” (emphasis added).<sup>60</sup> In essence, if an applicant begins construction of facilities without first being approved a special land use permit from the county, the WSLCB will continue to evaluate the unpermitted development using submitted photographs and operating plans, despite existing land use violations on the property. Such violations include evidence of unlicensed, large-scale production of marijuana as revealed to the agency in July, 2016. In fact my neighbor, while testifying before the Thurston County Commissioners during an Appeal on April 4, 2018, stated that he was encouraged by the WSLCB to build out his operation as quickly

as possible, prompting his construction of the dual-facility prior to county land use approval.<sup>61</sup> This also indicates that the WSLCB showed no consideration to impacts from the development on neighboring residents.

A week after my July 2016 meeting with employees at the WSLCB, the agency approved the first marijuana license for my neighbors' property—prior to their receiving any county permits to operate or construct a marijuana operation on that land. A Tier 2 license was issued on September 14, 2016 to Seattle investors who had leased the lower level of the facility—without disclosing to the WSLCB, as required by law, their one hundred thousand dollar investment in the operation.<sup>62</sup> The site of the Tier 2 facility was previously depicted as the storm run-off area in our neighbors' 2014 vested special land use application. A month later, on October 12, 2016, the WSLCB issued a second marijuana license for the property, despite county code prohibiting more than one marijuana facility on a single tax parcel in that zone; the known cultivation and transport of hundreds of unregistered marijuana plants; and the continuing land use violations.<sup>63</sup> Records show the WSLCB then proceeded to collect more than \$43,000 in taxes from the two still unpermitted facilities in 2016.<sup>64, 65</sup>

The fundamental problem: the WSLCB can issue a license for a marijuana production facility to someone siting that facility on land not approved for marijuana commercial land use by the county. The WSLCB collects taxes on the operations, while operators then comply, after-the-fact, with state law and county regulations. This leaves no room for public input by neighboring residents, unless law enforcement intervenes. The WSLCB issued two licenses for my neighbors' ten acres zoned rural residential, *after* they had been informed about the illicit activity, and despite outstanding Notices of

Violation in construction, earth movement, unlawful marijuana production, fire codes, and waste disposal associated with the property. Such flaws in policy and its application lie at the heart of why some irate residents are attempting to fight this and other unwelcome invasions in their communities at locations throughout eastern and western Washington.

In 2017, during a second meeting at the WSLCB Olympia headquarters with a WSLCB officer, lieutenant, and commander, we were informed that the agency only enforces regulations once an applicant has been licensed and only in the site area of the proposed operation. In other words, despite the fact that the WSLCB was made aware that my neighbors had been cultivating hundreds of unregistered marijuana plants in 2015 and 2016, within and outside the site area proposed in their 2014 land use application, the WSLCB would not intervene except to issue a license. When asked what happened to all the illegal plants after they had been discovered, the WSLCB officer on the case would not provide an answer. Even a Narcotics Taskforce raid, scheduled for October 12, 2016 on the property, was canceled at the last minute because officers were told had they damaged any of the marijuana plants, law enforcement could be held liable. Instead, my husband and I were shocked when our neighbor was approved, that same day, a second marijuana production license on the property by the WSLCB, still without county land use approval.

Under *General information about marijuana licenses*, WAC 314-55-015, is stated that the privileges of a marijuana license may not be enacted without the WSLCB approving an application.<sup>66</sup> The question then becomes, “Why did the WSLCB approve my neighbors’ license applications when so many concerns involving unpermitted land

use, misrepresentation of fact, and black market activity could be demonstrated?

Photographs of the hundreds of unpermitted marijuana plants on the property had been shown at meetings with various government agencies and political representatives.

WAC 314-55-075 states that “the WSLCB will conduct *random* criminal history checks at the time of renewal...”<sup>67</sup> (emphasis added). According to WSLCB policy, three violations result in cancelation of a marijuana license. In the course of the investigation into our neighbors’ activities, law enforcement discovered that a Thurston County Narcotics Taskforce raid on the property in 2008, where more than 70 marijuana plants had been confiscated, had not been disclosed. Nor had a conviction on another Yelm property in 2012 where 1,200 unlicensed marijuana plants were found. In addition, it was discovered during a raid on August 17, 2017 that not only had they again produced 1,500+ marijuana plants without permit on the property next door, but that they were cultivating another 6,000+ unlicensed marijuana plants in Tonasket, eastern Washington.<sup>68</sup> This would suggest that random criminal history checks by the WSLCB at the time of licensing or renewal are not adequate in protecting neighboring residents from the impacts of illicit behavior.

Furthermore, WAC 314-55-083 defines the security requirements for marijuana operations.<sup>69</sup> This regulation results in large areas often surrounded by unsightly fencing with multiple cameras projected along the perimeter of a marijuana facility. My neighbor installed 42 surveillance cameras, almost a quarter of them pointing toward our property. The cameras can record our activities, including coming and going, at the lower portion of our property, an invasion of our right to privacy. We also began noticing that when marijuana was present (identifiable by banks of florescent lights and odor), someone

would appear outside the processing area and observe us if we worked too close to the facility. In one instance, I crawled out of my forest on my stomach after my neighbor quickly appeared and paced the fence-line trying to locate me. The experience was terrifying.

In a three day tour of eastern Washington I found scenic areas, such as the Palouse, becoming marred by marijuana production sites, with some facilities even using shipping containers strung together as security fencing (Figure 9). Other operations were positioned in the middle of open fields, or what remained of wildlife habitat corridors in sage brush areas, and beside scenic mountainous wildlife reserves (Figures 10 and 14).



Figure 9: Shipping containers fence a Tier 3.  
An industrial-scale marijuana operation next to the Palouse Scenic Byway in eastern Washington. Shipping containers are strung together for security fencing. (Photograph by author, 2018).



Figure 10: Marijuana facilities in eastern Washington. Industrial-scale marijuana operations are located in rural residential, agricultural, and wildlife areas in eastern Washington. (Photographs by author, March 2018).

Also under WAC 314-55-083, all marijuana, marijuana concentrates, or marijuana-infused products are to be traceable and must remain in a “quarantine” area for a minimum of 24 hours before transport between two licensed facilities. “At no time during the quarantine period can the product be handled or moved under any circumstances and is subject to auditing by the WSLCB or designees.”<sup>70</sup> The agency requires traceability “to prevent diversion and to promote public safety” under the following guidelines:

- Marijuana licensees must track marijuana from seed to sale. Marijuana seedlings, clones, plants, lots of usable marijuana or trim, leaves, and other plant matter, batches of extracts, marijuana-infused products, samples, and marijuana waste must be traceable from production through processing.
- Key notification of “events,” such as when plant enters the system (moved from the seedling or clone area to the vegetation production area at a young age);
- When plants are to be partially or fully harvested or destroyed;
- When a lot or batch of marijuana, marijuana extract, marijuana concentrates, marijuana-infused product, or marijuana waste is to be destroyed;
- Any theft of usable marijuana, marijuana seedlings, clones, plants, trim or other plant material extract, infused product, seed, plant tissue or other item containing marijuana;
- There is a seventy-two hour mandatory waiting period after the notification described in this subsection is given before any plant, a lot or batch of marijuana, marijuana extract, marijuana-infused product, or marijuana waste may be destroyed;
- All marijuana plants eight or more inches in height or width must be physically tagged and tracked individually;
- A complete inventory of all marijuana, seeds, plant tissue, seedlings, clones, all plants, lots of usable marijuana or trim, leaves, and other plant matter, batches of extract, marijuana concentrates, marijuana-infused products, and marijuana waste;
- All marijuana, usable marijuana, marijuana-infused products, marijuana concentrates, seeds, plant tissue, clone lots, and marijuana waste must be physically tagged with the sixteen digit identification number generated by the traceability system and tracked.<sup>71</sup>

Is it feasible for an agency with approximately 135 employees—with 16 officers dedicated to marijuana enforcement—to ensure the above regulations are implemented to protect citizens in an area as large as the state of Washington? With the volume of

paperwork required, and the tracking sophistication needed, it is doubtful an agency with so few employees can monitor all marijuana transportation activity.<sup>72</sup>

A licensee is said to be subject to an inspection request by the WSLCB, or law enforcement, with business owners required under state law to keep transportation records for three years. The regulations also state that “All marijuana plants, clones, seeds, lots, batches, intermediate products, end products, vendor samples, and sample jars must remain physically tagged during transport.”<sup>73</sup> Yet despite the transportation requirements listed under WAC 314-55-085, for three years in a row my neighbors moved hundreds of undocumented marijuana plants around with a rented U-Haul truck or unmarked semi-trailer, even after being licensed by the WSLCB. WSLCB policy did not prevent illicit transport, nor safeguard the community from such activity.

Although WAC 314-55-045 is intended to protect the public, the wording states only that it “*might prevent* an applicant from receiving a marijuana license” (emphasis added) by stipulating the following causes for rejecting or revoking a marijuana production or processing license:

- Three or more public safety violations
- Four or more regulatory violations
- One to four, or more license violations<sup>74</sup>

These criteria permit people with numerous past violations to operate a marijuana production facility.

WAC 314-55-097 addresses the disposal of marijuana waste liquids and solids. They “must be stored, managed, and disposed of in accordance with applicable state and local laws and regulations.” At the same time, “it is the responsibility of each waste

generator to properly evaluate their waste to determine if it is designated as dangerous waste.”<sup>75</sup> In other words, the WSLCB relies on producers and processors to monitor their own waste disposal procedures. Given the number of marijuana facilities licensed across the state, and the small number of regulators, the WSLCB would be stretched thin to ensure such waste is handled correctly so as not to impact the safety and well-being of all neighboring property owners, children, pets, wildlife, and the environment. My neighbors’ piles of toxic garbage that were periodically burned beside my driveway is just one example of a lack of oversight in waste management related to marijuana production and processing in a remote rural environment.<sup>76</sup>

Based upon my and others experience, as well as reports by the media, it is difficult to assume that every marijuana plant, or plant material, has not been contaminated with some chemical solvent when only spot checks are made on recreational marijuana to ensure public safety. The regulations state that “Remediation solvents or methods used on the marijuana product must be disclosed to a licensed processor the producer or producer/processor transfers the products to; a licensed retailer carrying marijuana products derived from the remediated harvest, lot, or batch; or consumer *upon request*”<sup>77</sup> (emphasis added). Due to the fact that hazardous waste is a byproduct of the marijuana industry, with the generator of that waste responsible for its safe disposal, regular inspections by WSLCB enforcement and/or county officials should be a policy mandate. Rather than inspection “upon request,” weekly reporting of all chemicals and methods used in the production or processing of marijuana should be a requirement. And testing of all marijuana end products should be mandatory to ensure a modicum of consumer and environmental safety.

- 
1. Weil, A. (1980). *The Marriage of the Sun and Moon*. Dispatches from the Frontiers of Consciousness. P.98. *Houghton Mifflin Company*. Boston. New York, N.Y.
  2. Ayers, R. (2017, December 6). A Conversation with Artist Fred Tomaselli. *Huffington Post*. New York, N.Y. Available: [https://www.huffingtonpost.com/robert-ayers/i-think-its-hilarious-rob\\_b\\_786621.html](https://www.huffingtonpost.com/robert-ayers/i-think-its-hilarious-rob_b_786621.html)
  3. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. *University of Washington*. Seattle, Washington. Available: <http://adai.uw.edu/mcacp/>
  4. Washington State Liquor and Cannabis Board (2018). FAQs on Marijuana. What about industrial hemp? Does this create a new market for hemp products? *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: [https://lcb.wa.gov/mj2015/faqs\\_i-502#PublicSafety-Criminal](https://lcb.wa.gov/mj2015/faqs_i-502#PublicSafety-Criminal)
  5. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  6. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  7. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 14 *University of Washington*. Seattle, Washington. Available: [http://adai.uw.edu/mcacp/module1/story\\_html5.html](http://adai.uw.edu/mcacp/module1/story_html5.html)
  8. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 15 *University of Washington*. Seattle, Washington. Available: [http://adai.uw.edu/mcacp/module1/story\\_html5.html](http://adai.uw.edu/mcacp/module1/story_html5.html)
  9. Caulkins, J.P., Kilmer, B., Kleiman, A.R. (2016). *Marijuana Legalization: What Everyone Needs to Know*. Second Edition. *Oxford University Press*. New York, N.Y.
  10. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  11. Caulkins, et al. (2016).
  12. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 28 *University of Washington*. Seattle, Washington. Available: [http://adai.uw.edu/mcacp/module1/story\\_html5.html](http://adai.uw.edu/mcacp/module1/story_html5.html)
  13. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  14. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  15. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  16. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  17. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
  18. Weeks, K. (2018, February 20). Government Relations Director at the Center for Public Affairs. *Washington State Department of Health*. Tumwater, Washington. Personal interview.
  19. Weeks, K. (2018, February 20).
  20. Caulkins, et al. (2016).

21. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
22. Gettman, J. (2016, March 8). Pot Matters: Marijuana Use Disorder. *High Times*. Available: <https://hightimes.com/health/science/pot-matters-marijuana-use-disorder/>
23. Lapook, J. (2016, December 28). Mysterious illness tied to marijuana use on the rise in states with legal weed. *CBS Evening News*. Available: <https://www.cbsnews.com/news/mysterious-illness-tied-to-marijuana-use-on-the-rise-in-states-with-legal-weed/>
24. Weeks, K. (2018, February 20).
25. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
26. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April).
27. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
28. Northwest HIDTA. (2018). Northwest High Intensity Drug Trafficking Area Threat Assessment and Strategy for Program Year 2018. *Northwest HIDTA*. Seattle, Washington.
29. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. *University of Washington*. Seattle, Washington.
30. Weeks, K. (2018, February 20).
31. Washington State Department of Health. (2018). Medical Marijuana Guideline for Use of Product Compliant Logos. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/ProductComplianceLogos>
32. Weeks, K. (2018, February 20).
33. Weeks, K. (2018, February 20).
34. Washington State Department of Health. (2018).
35. Northwest HIDTA. (2018).
36. Northwest HIDTA. (2018).
37. Caulkins, et al. (2016).
38. Clarke, R.C. Merlin, M.D., (2013). Cannabis: Evolution and Ethnobotany. *University of California Press*. Berkley, Los Angeles, London.
39. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. *University of Washington*. Seattle, Washington.
40. Washington State Department of Health. (2018). Medical marijuana: Qualifying Conditions. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/PatientInformation/QualifyingConditions>
41. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2007: 60-day supply defined. *University of Washington*. Seattle, Washington.
42. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2009: Ogden Memo changed federal government's enforcement policy. *University of Washington*. Seattle, Washington.

43. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2011: Seattle law enforcement policy changed. *University of Washington*. Seattle, Washington.
44. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2011: SB 5073 passes but is partially revoked by governor. *University of Washington*. Seattle, Washington.
45. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2012: Voters approve Initiative 502. *University of Washington*. Seattle, Washington.
46. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2013: Cole Memo outlines regulatory expectations. *University of Washington*. Seattle, Washington.
47. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2013: Cole Memo outlines regulatory expectations. *University of Washington*. Seattle, Washington.
48. University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medical Marijuana: History in Washington. 2015: Legislature passes Cannabis Protection Act (SB 5052) and Marijuana Tax Reform (HB 2136). *University of Washington*. Seattle, Washington.
49. Washington State Department of Health. (2018, February 26). Medical Marijuana: Rules in Progress. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/LawsandRules/RulesinProgress>
50. Washington State Liquor and Cannabis Board (WSLCB). (2018). Vision, Mission, Goals, Values. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/careers/vision>
51. Washington Administrative Code. (2018). WAC 314-55. Marijuana Licenses, Application Process, Requirements and Reporting. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55>
52. Snaza, J. (2018, February 26). Thurston County Sheriff. *Thurston County Sheriff's Department*. Olympia, Washington. Personal interview.
53. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June).
54. Snaza, J. (2018, February 26).
55. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. Pg.14. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
56. Leavenworth, S. (2018, April 3). California's underground pot market continues to thrive. Is the tax man to blame? *The Olympian*. Olympia, Washington. Available: <http://www.theolympian.com/news/nation-world/article207815209.html>
57. Leavenworth, S. (2018, April 3).
58. Thurston County Permitting and Land Use. (2018). Document Library Research Project No. 2014101488. Folder Sequence No. 14 109460 ZM. Olympia, Washington. *Thurston County Resource Stewardship Department*. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
59. Washington Administrative Code. (2018). WAC 314-55-040. What criminal history might prevent a marijuana license applicant from receiving or keeping a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-040>

60. Washington Administrative Code. (2018, February 26). WAC 314-55-020 (9). Marijuana license qualifications and application process. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-020>
61. Board of County Commissioners for Thurston County. (2018, April 4). Appeal No. 18-102103VE. Project No. 2014101488 *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
62. Masias A.V. (2017, April 17). Enforcement Report of Complaint. Blue Moose - Complaint Number C7C7107A and C7C7107B. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
63. Kantas, T. (2017, January 13). Administrative Special Use Permit – Marijuana Production & Processing. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccp8/CustomSearch.aspx?SearchName=MinutesTextSearch>
64. McIver, M. (2017, August 21). Narcotics Taskforce Officer’s Report. Case Number: 16-035 TNT. Unlawful Manufacturing of a Controlled Substance – Marijuana. *Thurston County Narcotics Taskforce*. Olympia, Washington.
65. Thurston County Board of County Commissioners (BoCC). (2017, March 15). Thurston County Board Briefing Request - Thurston County Marijuana Data. *Thurston County Resource Stewardship, Long Range Planning Division*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/boccc/Pages/agendas.aspx>
66. Washington Administrative Code. (2018). WAC 314-55-015. General information about marijuana licenses. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-015>
67. Washington Administrative Code. (2018). WAC 314-55-075. What is a marijuana producer license and what are the requirements and fees related to a marijuana producer license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-075>
68. McIver, M. (2017, August 21).
69. Washington Administrative Code. (2018). WAC 314-55-083. What are the security requirements for a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55&full=true#314-55-083>
70. Washington Administrative Code. (2018). WAC 314-55-083.
71. Washington Administrative Code. (2018). WAC 314-55-083.
72. Bush, E. (2018, February 7). With tracking systems hobbling, marijuana industry scrambles to keep pot on shelves. *The Seattle Times*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/marijuana/with-tracking-system-hobbling-marijuana-industry-scrambles-to-keep-pot-on-shelves/>
73. Washington Administrative Code. (2018). WAC 314-55-085. What are the transportation requirements for a marijuana licensee? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-085>
74. Washington Administrative Code. (2018). WAC 314-55-045. What marijuana law or rule violation history might prevent an applicant from receiving a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-045>

75. Washington Administrative Code. (2018). WAC 314-55-097. Marijuana waste disposal—liquids and solids *Washington State Legislature*. Available:  
<http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-097>
76. Olympic Region Clean Air Agency (ORCAA). (2016, December 5). ORCAA Complaint Form ID 17412. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington.
77. Washington Administrative Code. (2018). Quality assurance testing. WAC 314-55-102. *Washington State Legislature*. Available:  
<http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-102>

---

## CH. 1.3 SOCIAL IMPACTS OF MARIJUANA COMMERCIALIZATION

*Nobody ever questioned where that marijuana plant came from, the starter plant. They just appeared. Where did they come from? Nobody knows. Nobody really cared about that... What is society dealing with? Do you even see it in the news? What do you see? You see people illegally growing it, maybe human trafficking. But they don't even touch on the effects that have been to these young people.*

Thurston County Sheriff, John Snaza, 2018<sup>1</sup>

### *Marijuana Policy Loopholes*

My meeting with Thurston County Planners in July, 2016 was disturbing. I had been told in May that my neighbors' land use application to produce commercial marijuana on their property was no longer being processed. "There are too many violations," insisted two clerks reviewing the file at the county front desk. "There's no way they'll be issued a permit." Yet to my family's dismay, unpermitted construction had resumed on the property a few weeks later. The single-lane easement shared with six neighboring properties had become a potholed mess as traffic increased dramatically with heavy equipment and worker vehicles passing constantly to the facility. When I reported on the renewed activity, as well as piles of construction debris—including Styrofoam, plastic chairs, household garbage, greenhouse plastics, and other toxic materials—some burned during a burn ban, I was jeered at by my neighbor.<sup>2</sup> Only after informing county officials of the harassment did the behavior cease. However, I was left terrified at times by the actions of my neighbors and their workers. Being landlocked behind the facility, I had no option but to pass close by the site area every time I left my property. On two occasions, fear for my safety led me to request a police escort to my house.

Although my neighbors' application had been closed by Thurston County planners in March 2015, the official I informed about the continuing construction and unpermitted marijuana cultivation briefly scanned my photographs, listened to my concerns, promised to review the situation, and left the meeting. He never mentioned attorneys had contacted him on behalf of my neighbor. He handed me his card requesting whomever I spoke to at the WSLCB give him a call. Less than a week later, following an inspection of the unlicensed marijuana operations I had reported, the WSLCB approved a Tier 2 license on my neighbors' property to an outside investor. Empowered by this success, my neighbors continued construction of the dual marijuana facility without county land use approval.<sup>3</sup> "I'm sorry," said an assistant to State Representative Randi Becker when she called that day to inform me about the first license approval, "Sometimes these things just fall through the cracks." A few months later, on October 12, 2016, the WSLCB issued a second marijuana production license on the property, a Tier 3, *after* I had revealed aerial photographs of more than one thousand unregistered marijuana plants being unlawfully cultivated, and despite multiple land use violations still outstanding on the property.

In reviewing public records, my husband had questioned why a grading permit had never been required by the county with the tons of earth that had been moved to level three acres of hillside for the dual-facility. Finally, Thurston County Resource Stewardship sent a "2nd Notice of Violation" to my neighbor stating the following:

On October 7, 2016 department staff completed a site inspection and observed the growing of marijuana on the above subject property without benefit of a land use permit. The grow operation is occurring within an existing greenhouse structure. Although a Special Use Permit for Marijuana Production and Processing is under review no approvals

have been granted at this time. Therefore, the property is in violation of the Thurston County zoning code Title 20.

The following are the required corrective actions to bring the property into compliance: 1) Within thirty (30) calendar days of the date of the Notice of Violation, cease all grow activities on-site until such time all Thurston County permits have been issued and all permit conditions are met to the County's satisfaction. 2) Remove all marijuana plants from the property. 3) Obtain the Special Use Permit and complete all required permit conditions for the marijuana production on-site. 4) Obtain all building permits and the construction/grading permit that are under review. Failure to bring this violation into compliance will result in the issuance of a civil infraction, civil penalty or referral of this matter to the County Prosecutors Office for further action.<sup>4</sup>

Disregarding this notice, my neighbors' construction continued and the greenhouse lights and fans were turned on. County Compliance Officer Kraig Chalem confirmed the next day that another inspection had occurred on November 21, 2016, when I queried why the production lights had suddenly gone off and mentioned I had seen a U-Haul truck backed up to the facility.<sup>5</sup> My neighbor always had time to prepare because the county would usually give notice before an inspection. With notification ahead of time, a U-Haul could be rented to move the unpermitted marijuana. During a previous county inspection my neighbor would not allow entry to the production and processing site. No entry was allowed, my neighbor informed the land use inspector, because the proposed site now fell under WSLCB jurisdiction. At the time I could only wonder about the policies guiding county marijuana regulations.

Is what has occurred over a four year period in my neighborhood the result of loopholes in marijuana policy? Finding the answer to this question has prompted this research. I wanted to understand if others had been as seriously impacted. Or was ours just a one-off case where my husband and I were considered NIMBYs in our attempt to

fight what we considered an injustice in the right to enjoy the safety and rural character of our own home?

*Thurston County Ordinance Deliberations*

In light of the not-yet-concluded discussions about finalizing the Thurston County Interim Marijuana Ordinance, this section will evaluate the impacts of commercial marijuana production and processing facilities on rural residents of Thurston County, as revealed through government reports, surveys, and public testimony. Some reports indicate harm to ecosystem functioning, effects on human health and safety, and the potential of large-scale marijuana facilities to lessen property values. Whether current policy safely regulates large-scale commercial marijuana production and processing operations in Washington State will be investigated. Media reports that continue to expose black market production and sales of marijuana in the state and other parts of the country will also be considered.

From 2015 to 2018, public hearings and planning meetings have addressed shifting Thurston County marijuana regulations. I have testified repeatedly. When invited to speak by Commissioner Blake at a marijuana planning meeting in February 2017, I commented that at no time during the discussion had I heard anyone address the complaints of residents being forced to live next to a commercial marijuana operation. Only Commissioner Edwards expressed concern regarding the impact to constituents located near to such a facility. Instead, much of the discussion revolved around the interests of marijuana producers, the additional tax revenue coming to the county, and possible lawsuits that might be instigated by vested marijuana producers unhappy with changing county regulations.<sup>6</sup>

In 2015, and after considering public comment, the then Thurston County Board of County Commissioners had requested a review by Thurston County Resource Stewardship into how marijuana policy was being implemented in other Washington counties. As a result of their findings, the Commissioners changed the Interim Marijuana Ordinance to no longer allow commercial production and processing in rural residential or agricultural zones of unincorporated Thurston County.<sup>7</sup> They had heard the same story over and over—large-scale marijuana operations were causing negative social and environmental impacts, and were better suited to commercial or industrial areas. However, less than a year later, in September 2016, the Board reversed its position and proposed a final ordinance that would have returned commercial marijuana production and processing facilities to unincorporated rural residential and agricultural areas of the county.<sup>8</sup>

Public protest immediately followed this announcement. Letters and emails by more than 80 rattled residents objecting to the policy reversal poured in to Thurston County Resource Stewardship and the Board of County Commissioners (BoCC). Those county residents did not favor the introduction of large-scale, commercial marijuana operations in rural residential or agricultural zones of the county. They repeatedly expressed concerns about pollution, crime, loss of neighborhood character, reduced property value, unsightly fencing, odor, noise, environmental degradation, increased traffic, and safety. As a result, the final ordinance proposal was dropped, and the Board renewed the previous Interim Marijuana Ordinance, No. 15292, for another six months.<sup>9</sup> On May 1, 2018, the BoCC renewed its eleventh Interim Marijuana Ordinance, leaving open the possibility for a final ordinance to be determined in November, 2018.

The fight to prevent the zoning of marijuana operations in rural residential and agricultural areas of unincorporated Thurston County in 2015 and 2016 ended by safeguarding residents, at least in the interim, from further intrusions. The process highlighted policy loopholes that legitimize unlawful marijuana production, and the resistance of the WSLCB to investigate black market activity occurring prior to license approval.

### *Criminal Behavior Following Legalization*

From 2012 to 2016 nearly 400,000 illegally cultivated marijuana plants were discovered and destroyed by law enforcement agencies across Washington State.<sup>10</sup> At a 2017 planning meeting with the WSLCB and Thurston County Planners, including the Commissioners, I heard a representative of the WSLCB inform those present that only 50% of marijuana criminal activity had been reduced in Washington since legalization of recreational marijuana.<sup>11</sup> Likewise, Northwest HIDTA noted in their 2017 report that “Even as marijuana is considered legal recreationally, the drug remains a threat to the state.” HIDTA also stated that studies showed that medical, recreational, and black market sales in Washington held equal shares with each representing a third of the marijuana market (presumed to be legal and illegal) in the state.<sup>12</sup>

According to the WSLCB, and based upon WAC 314-55-165, penalties for unlawful production and processing of marijuana may include the removal of a license. License removal relies on evidence provided in written objections that must be funneled through the appropriate city, county, tribal government, or port authority before consideration by the agency. Such letters must be received at least thirty days before a license is to expire. The regulation further states that “If the objection is received within

thirty days of the expiration date or the licensee has already renewed the license, the objection will be considered as a complaint and *possible* [emphasis added] license revocation may be pursued by the enforcement division.”<sup>13</sup> Despite submitting an extensive list of concerns in a second meeting with WSLCB enforcement staff Commander Dzubay, Lieutenant Bolender, and Officer Masias on April 17, 2017, the agency continued to support our neighbor, regardless of the illicit activity. This experience suggests that the WSLCB favors the interests of ongoing operations over those of the community.

In November 2016, Thurston County Associate Planner, Tony Kantas, informed the WSLCB that, according to county regulations, the agency could not license two marijuana operations on the same property in a rural residential area.<sup>14</sup> In spite of this, the WSLCB renewed the Tier 2 license in July, 2017. Further, WSLCB Officer Masias identified for a second year in a row at least 1,500 illegally transported marijuana plants during an August, 2017 Narcotics Taskforce raid on the property, yet the WSLCB did not revoke the licenses (Figure 11).<sup>15</sup>

Regulations under WAC 314-55-515 indicates financial or other penalties such as loss of a license will be incurred if a licensee or employee violates WSLCB regulations. These are broken into five groups—1) Public safety violations; 2) Regulatory violations; 3) License violations; 4) Non-retail violations involving the manufacture, supply, processing, and/or distribution of marijuana by nonretail licensees and prohibited practices between nonretail licensees and retail licensees; 5) Violations involving the transportation freight of marijuana.<sup>16</sup> The Narcotics Taskforce raid on my neighbors’ property on August 17, 2017 revealed that since 2008, violations had occurred on the

property and elsewhere in all five categories, yet, to the best of my knowledge, they were only issued a minor fine of \$2,500 by the WSLCB.<sup>17</sup>



Figure 11: Unlawful transport of marijuana. Hundreds of undocumented marijuana plants were delivered on July 28, 2017 to this ten-acre property on the outskirts of Yelm, Washington. (Photographs by author July 28, 2017).

Hammersvik, et al. and Nguyen, et al. suggested that more restrictive regulatory models introduced in the commercialization of marijuana could better protect the public from criminal activity.<sup>18, 19</sup> Decorte and Potter conclude that in general, *small-scale* cultivators of marijuana do not cause significant problems for people or the environment. *Large-scale* marijuana operations, on the other hand, have historically resulted in greater social harm and disruption, indicating that such operations would be better suited to industrial or commercial zones than rural residential or agricultural areas.<sup>20</sup> Consider media reports covering an illegal marijuana operation spanning King, Grays Harbor, and Thurston counties in Washington. According to the reports, Chinese nationals believed to be a part of organized crime had purchased homes to set up unlicensed production of marijuana. Illegal marijuana operations were even located in restricted areas, such as near schools.<sup>21</sup> During a raid, the Grays Harbor County Drug Force had seized \$400,000 worth of cash and gold, made 44 arrests, and confiscated 32,449 marijuana plants at an

estimated value of \$80 million. Four unlicensed production sites in Thurston County also were identified as part of the operation.<sup>22</sup>

Lewis County enforcement officers reported similar concerns in 2017 when more than 8,000 marijuana plants were collected in raids from at least seven indoor, large-scale operations.<sup>23</sup> According to *The Chronicle*, one of the Lewis County illegal operations involved was discovered less than a block from Vader City Hall. In the press report, Sheriff Rob Snaza stated to the Board of Lewis County Commissioners “I think we’re going to continue to see this activity for a while, especially in rural areas.”<sup>24</sup> To find illicit operations, law enforcement follows up on instances of inflated power bills at certain addresses. This might be a reason why some rural marijuana producers use generators to run lighting and pumps for irrigation.

On January 11, 2018, *The Chronicle* reported that investigators had searched a location in Winlock, Lewis County, and, after seizing more than 1,500 plants, arrested three individuals.<sup>25</sup> Yet in 2016, after I had submitted evidence to government officials of over 1,000 unlicensed marijuana plants being cultivated next door to my property, no arrests occurred. Almost a year later, the county Sheriff expressed surprise that no one had informed him about the activities, or the size of the illicit operation. Although we had complained to several prominent individuals, including former Thurston County Commissioner Sandra Romero, former Thurston County Long Range Planning Director Brent Butler, the WSLCB, and several state representatives, the Sheriff had never been made aware of the issue. Instead, and unlike the arrests in Lewis County, my neighbors were issued two licenses *after* the WSLCB discovered undocumented marijuana on the property in 2016; were given a final WSLCB inspection to approve, in addition, a Tier 2

processing license on the property in 2017; and despite the discovery of 1,500 illegally transported marijuana and an additional 6,000+ unlicensed plants found in eastern Washington that same year, approved yet another marijuana license in Tonasket in 2018.<sup>26</sup>

Several months after the WSLCB replaced its tracking system with sophisticated technology that was said to be highly secure and reliable on November 1, 2017, *The Seattle Times* reported that widespread technical issues in the system had caused major concerns.<sup>27</sup> The marijuana traceability system is supposed to track plants and product from seed to sale and be on the watch for any suspicious transport activity.<sup>28</sup>

U.S. Attorney General Jeff Sessions began critiquing Washington's legal marijuana system in 2017.<sup>29</sup> On January 3, 2018, he rescinded the 2013 Obama-era memo that had indicated the Department of Justice would not interfere if certain restrictions—such as not allowing children to purchase marijuana, or the transportation of marijuana product across state borders—were adhered to in states that had legalized marijuana.

Sessions' memo stated:

It is the mission of the Department of Justice to enforce the laws of the United States, and the previous issuance of guidance undermines the rule of law and the ability of our local, state, tribal, and federal law enforcement partners to carry out this mission. Therefore, today's memo on federal marijuana enforcement simply directs all U.S. Attorneys to use previously established prosecutorial principles that provide them all the necessary tools to disrupt criminal organizations, tackle the growing drug crisis, and thwart violent crime across our country.<sup>30</sup>

It is hoped Sessions' 2018 memo will strengthen law enforcement action and prosecution of those who undermine voters' trust by abusing a unique business opportunity and becoming an unwelcome threat to communities.

Natalie Johnson, reporting on developments in crime involving marijuana in the January, 2018 issue of *The Chronicle* stated, "While the legal marijuana trade is booming in Washington, large-scale illegal pot grows with out-of-state ties, many in converted homes in residential areas, are increasingly cropping up like weeds in rural Lewis County communities."<sup>31</sup> Andrew Selsky, in an article that appeared in the *Associated Press* in August, 2017 mentioned that "officials suspect pot grown legally in Oregon and other states is also being smuggled out, and the trafficking is putting America's multibillion-dollar marijuana industry at risk."<sup>32</sup> A month later, *The New York Times* writer Thomas Fuller reported that "California, which by one estimate produces seven times more marijuana than it consumes, will probably continue to be a major exporter—illegally—to other states. In part, that is because of the huge incentive to stay in the black market: marijuana on the East Coast sells for several times more than in California."<sup>33</sup> According to Fuller, only about 3,500 of approximately 32,000 marijuana farmers in the Emerald Triangle—Humboldt, Trinity, and Mendocino counties—had applied for permits since California's Proposition 64 legalized commercial marijuana in 2016. The same article noted examples of violent crimes associated with the illegal market, including the "robbery and slashing death of a grower; the murder of a man at a marijuana farm by a co-worker wielding a baseball bat; an armed heist in a remote area by men who posed as law enforcement officers; and a robbery by two men and a juvenile who were invited to a barbecue and then drew guns on their hosts and fled with nine pounds of marijuana."<sup>34</sup>

While conducting research for this project I have traveled throughout Thurston County and eastern Washington to observe and photograph locations where marijuana licenses have been approved by the WSLCB. I have been astounded, at times, by the density of homes surrounding Tier 3 operations in urban and rural areas. Operations must be situated away from schools, as required in the regulations, yet those same regulations do not prevent marijuana facilities from locating amidst residential neighborhoods where families with young children play in the street, and teenagers walk to and from school. The easement entrance to the industrial-scale marijuana operation next door to my property is a school bus stop. Children live less than 1,000 feet from the facility. The family has a view of much of the outdoor activity at the site from their home on the hillside, despite the semi-opaque, cloth screening draped around the chain-link perimeter. The WSLCB continued to license facilities in rural residential areas, while ignoring the genuine concerns of neighboring residents, and even ignoring, in my case, county code regulations. Public trust has been violated.

### *Community Impacts*

The social impacts of industrial-scale commercial marijuana production and processing operations can go beyond a concern for safety associated with black market behavior. Residents in close proximity can be affected by diminishing property values; an increase in criminal activity; pollution that can disturb neighborhood character and resident' health; increased rodent populations that can bring concerns about disease; worker traffic that can damage easements and endanger pets, children, and wildlife; fires resulting from dangerous extraction methods; hazardous chemical use; and noise from generators, dogs, and industrial fans. Each of these concerns will be considered below.

## Guard Dogs

Roaming dogs can be a neighborhood irritant associated with marijuana production. Besides loud, incessant barking, dogs brought in to deter trespassing—or protect marijuana cultivation—can pose a threat to pets, wildlife, and livestock, causing significant disturbance to neighboring residents.



Figure 12: Multiple dogs to guard marijuana.  
Guard dogs caged on our property line. The photo on the right shows one of five dogs that would regularly invade our property. (Photographs by author, 2017-2018).

Our neighbors' dogs were often left free-roaming, terrorizing our livestock (Figure 12). Enjoyment of our property continues to be diminished as five dogs, now caged with little human attention on our property boundary, bark loudly at any disturbance.

## Property Values

In testimony provided at a Thurston County Public Hearing in 2016, a realtor described trying to sell a home located close to a marijuana production facility. As soon as he explained to potential buyers what was going on behind the fenced area, they quickly withdrew interest in the purchase, despite an initial attraction to the property.<sup>35</sup>

On February 18, 2016, Ira Holman, contesting the commercial marijuana operation locating at Mountain Vista, near Yelm, wrote Thurston County:

I have given testimony as has multiple realtors and an appraiser that this grow operation has created an ADVERSE affect on our property values. We have also provided evidence to the commissioners stating such. The characteristics of the neighborhood are also ADVERSELY affected by this grow.<sup>36</sup>

My husband and I had invested in development of our ten acres since 1990. Our neighbors had purchased their parcel in 2006. Because of the marijuana operations developing next door, we faced losing nearly three decades of effort in creating our small farm because we would never feel safe living beside such a massive drug operation. We also felt that no one would want to purchase our property at market value due to the lights, noise, traffic, road conditions, pollution, dogs, ongoing generator use, unsightly fencing, surveillance cameras, and strangers streaming in and out of this industrial-sized, commercial facility. One option would be to sell at a reduced price to either those who had invaded our sanctuary, or perhaps others wanting to destroy the beauty of the land for their own profit in the industry. The other option was to stay put and fight.

### Noise Pollution

Commercial marijuana operations located in remote, rural areas can have limited or no access to electricity, prompting producers to install one or more generators to power off-grid facilities.<sup>37, 38</sup> Due to the high energy demand of marijuana production, the constant drone of generators used in some rural operations to power lights, irrigation systems, and industrial-sized fans that circulate air for heating and cooling, can be an annoyance that diminishes quality of life to neighboring residents.

As I write this, my neighbors continue to run loud generators. They have done so for more than a decade. Representatives from the Department of Health noted the noise when visiting our property, as did Thurston County Resource Stewardship. Multiple generators would often run simultaneously. Initially, my neighbors had no connection to the power grid. This was their only means of operating florescent lights and the pumps for watering illicit marijuana. When they applied for electrical power to run the two marijuana operations, Puget Sound Energy (PSE) determined that the facility was so large, and would be so energy demanding, they would not allow additional electricity to power the two unpermitted homes also on the property.<sup>39, 40</sup> That meant my neighbors' continued use of noisy generators, with no power available in the line to run electricity to our property (Figure 13).



Figure 13: Discarded generators used in illicit marijuana production. Photographed during a Thurston County site inspection at the unpermitted marijuana production site on the outskirts of Yelm, Washington. (Thurston County Permitting and Land Use, 2016).<sup>41</sup>

Landlocked behind the expanding marijuana operations, and dependent on a failing solar system as well as our own backup generator, my husband had made an agreement with this neighbor to connect to the electrical grid in 2015. However, my

husband was informed by PSE in 2016, after installation began at the marijuana facility without notice, that there wouldn't be enough power left in the line to also allow connection to our property.<sup>42</sup> Furious, we demanded a solution. PSE finally agreed to a work-around in 2016, however, our neighbor blocked access to the transformer. Only *after* his property was raided by law enforcement a year later, did PSE agree to bypass our neighbors' illicit operations to connect our property to the power grid. The outside investor and business owner of the Tier 2 operation leasing the run-off area of our neighbors' facility wrote my husband during this conflict:

We had requested the power capacity that you are now receiving . . . We've done a lot to get where we are. We aren't hoodlums and criminals dealing some illegal drug here . . . Because so, we are taking a stand and saying we do not want your wires coming onto our property . . . it is our right to maintain our property lines . . . I understand you may be upset by this move, I understand it may cause bad blood between us . . .<sup>43</sup>

The challenge to bring power to our property was exhausting. The continuing noise from multiple generators was grating and intolerable. In addition, the constant whirring of industrial fans in the greenhouses—similar to living beside an airfield—together with the noise of multiple barking dogs, created a cacophony of sound that was almost unbearable.

### Light, Odor, and Air Pollution

Large-acreage, multiple greenhouse operations, facilitating thousands of square feet of marijuana plant canopy, can significantly alter neighborhood character due to the constant night-lights required to facilitate diurnal cultivation methods. Ira Holmen, whose home was located on the other side of the street to a marijuana facility, told me during our interview “Then there’s the light pollution. They have to have the prison yard lights.

My bedroom was on the back side of the house right kitty corner from his proposed pot farm so I would have light all day and night.” Other survey respondents complained about troublesome night lights from large marijuana operations close to their rural residence. However, of all the disturbances, odor appears to be the major complaint associated with marijuana production and processing facilities.

According to the Washington Clean Air Act, RCW 70.94.011, established in 1967 and fully activated on January 1, 1969:

Air is an essential resource that must be protected from harmful levels of pollution. Improving air quality is a matter of statewide concern and is in the public interest. It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington’s inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.<sup>44</sup>

Marijuana emits a strong, skunk-like odor that can permeate neighboring properties when air isn’t adequately ventilated or “scrubbed.” By nature, outdoor marijuana growing operations have little chance of scrubbing air and preventing odor from affecting neighboring residents. During production, and in particular as the marijuana plants matured, a nauseating odor would permeate our property, easily identified as marijuana by visiting law enforcement. Production and processing of the plants also creates air contaminants. Scientists from the Spokane Regional Clean Air Agency (SRCAA) and Washington State University studied the Volatile Organic Compounds (VOCs) released from marijuana in 2016 – 2017. The team analyzed

samples during harvest and drying and identified 40 organic compounds, many of which can be detected by humans even at low concentrations.<sup>45</sup>

In 2018, SRCAA introduced new policy to deal with marijuana odor. From July 1, 2014 to August 31, 2017 the agency had received 322 marijuana odor complaints from neighboring residents. This prompted the agency's Board of Directors to adopt new regulations effective March 1, 2018, to deal with the problem. Spokane leads other counties in odor regulation due to the high number of marijuana facilities in the county—approximately 18 producers, 22 processors, and 120 producer/processors according to the WSLCB as of October, 2017.<sup>46</sup> SRCAA's new standards distinguish three categories of operations: Indoor Producer, Outdoor Producer, and Existing "Other Producer." All three are required to register annually with the agency, pay an annual registration fee, provide an annual report, minimize odor, and receive periodic inspections. Indoor producers are required to install air pollution control equipment and/or facility design to reduce VOCs and must keep windows and doors closed. Outdoor producers may only operate during the county's growing season, with no control of environmental conditions other than frost coverings used for a portion of the day. Existing "Other" producers must keep odor at levels below "2"—defined as an "odor is distinct and definite, any unpleasant characteristics are recognizable."<sup>47</sup>

Throughout the state, operators of indoor marijuana production and processing facilities are required to install systems such as carbon absorption filtration to reduce VOCs and odor; however, filtration devices are much less effective for greenhouse operations when opening sides and windows during hot weather. The odors naturally escape into the environment, causing distress to neighboring residents. A recent case in

Grays Harbor between Green Freedom LLC, a Tier 3 producer and processor, and ORCAA was the result of a neighboring resident complaining about watery eyes, nausea, headaches, and a runny nose due to emissions from the facility. They could not be outside enjoying their property because of the “very strong pungent marijuana odor.”<sup>48</sup> Green Freedom LLC lost the case and was required to pay two penalties, at \$1,000 each, for not taking sufficient remedial action to reduce odor by installing carbon scrubbers and filters at their facility.<sup>49</sup>

Although marijuana producers and processors are subject to air quality regulations in order to reduce odor and air pollution, this can be challenging to regulate in more remote locations. Fumes from generators used to run marijuana operations also raise environmental concerns due to the impossibility of scrubbing CO<sub>2</sub> exhaust released into the atmosphere.

### Security and Neighborhood Character

Before a marijuana operation receives a license from the WSLCB, eight foot high fencing and an extensive array of security cameras along the perimeter of the facility must be erected. My neighbors installed chain-link fencing despite every Thurston County Interim Marijuana Ordinance clearly stating: “Chain-link, chain-link with slats, or open wire fencing (except as temporary construction fencing) shall be prohibited.”<sup>50</sup> My neighbors then situated 42 cameras along the site periphery. Such requirements by the WSLCB make large-scale marijuana operations stand out from agricultural, rural, residential, open landscape, or forested natural settings. However, marijuana producers argue that production sites in the countryside offer lower costs in land acquisition and development, hence their desirability.<sup>51</sup>

As I traveled through eastern Washington in March, 2018, I was disheartened to see the introduction of chain-link and other unsightly fencing, topped with ominous looking security cameras, dotting the scenic landscape. Okanogan County, as one example, takes pride in the beauty of the landscape, yet these “fortresses” located in pristine rural residential and agricultural areas, complete with stunning mountain vistas, seemed at odds with the scenery. On a plateau above the Okanogan valley near Tonasket, I counted at least four large-scale marijuana operations situated within a mile. A stunning panorama conducive to all sorts of recreational possibilities that had previously drawn homes and orchards to the rural area, was being invaded by an industry that was not reflective of neighborhood character. Some of the unkempt grounds with dilapidated fences were littered with industry paraphernalia, including unsightly shipping containers. The location of a massive indoor facility with rows of sheds surrounded by heavily fortified wire fencing seemed completely at odds with the natural environment of mountainous hillsides and open plateau dotted every few acres with country houses. The area was being transformed by an industry that seemed much better suited to commercial zones lower in the valley. One operation was located beside a mountain stream cascading toward the nearby river. Deer ranged over the wildlife area adjacent to the facility. A bald eagle perched motionless on a branch above the stream (Figures 9, 10, and 14).



Figure 14: Marijuana operations in Tonasket. Large-scale marijuana operations in Okanogan County. The three sites shown above are visible in the upper right photo. (Photographs by author, March 2018).

### Fire and Chemical Hazards

Subritzky reported the danger of hazardous fires and explosions occurring from marijuana processing. “Blasting”, a method of extracting Butane Hash Oil (BHO) from the *Cannabis* plant, can pose a risk of fire whenever processing for the oil is conducted unsafely on a commercial or small-scale level.<sup>52</sup> The flammability of butane used in extraction methods has caused a number of home explosions. According to Northwest HIDTA “THC extraction lab explosions are an increasing concern for the state.”<sup>53</sup> Fires from the increased use of blasting could be an added threat in longer, drier summers

related to changing climate conditions across Washington. Forested landscapes, like those in Thurston County, could face an increased threat with marijuana processing operations permitted in those settings.

Also of concern is the inadequate training about and lack of certification in the application of pesticides in the marijuana industry. Pesticides pose health risks to workers, neighbors, pets, and wildlife.<sup>54</sup> The Oregon Veterinary Medical Association (OVMA) warns pet owners about the risk of animals ingesting improperly stored pesticides, inhaling marijuana smoke, eating the plants, or consuming marijuana infused products such as cookies and chocolates.<sup>55</sup> Although pets rarely die from the effects of marijuana exposure, they can be poisoned if they eat or inhale the plant. The OVMA website warns about the treatment required after marijuana ingestion involving “decontamination of the GI tract, IV fluids, and anti-vomiting medication. In severe cases, it may include oxygen support, monitoring blood pressure, regulating the pet’s temperature, and ventilator/respiratory support.”<sup>56</sup> Also according to OVMA’s website, symptoms are usually seen within 30-60 minutes of inhalation or ingestion of marijuana and may include:

- Glassy eyes
- Stumbling, lack of coordination
- Disorientation
- Dilated pupils
- Drowsiness or agitation, excitement (dogs)
- Urinary incontinence, dribbling (dogs)
- Vomiting
- Tremors and seizures
- Coma<sup>57</sup>

Pets, livestock, and wildlife which have freedom to roam, may encounter marijuana grown in obscure rural areas, increasing the likelihood of ingested marijuana and subsequent suffering.

A letter of protest submitted on October 2, 2016 to the Thurston County Board of Commissioners referred to the illegal use of prohibited pesticides by two of the state's largest marijuana operations: New Leaf Enterprises, makers of the popular Dama line of products, and BMF Washington LLC. Both facilities became the target of a WSLCB investigation.<sup>58</sup> Samples taken on November 12, 2015, “tested positive for significant levels of myclobutanil, the active ingredient in Eagle 20; spiromesifen, the active ingredient in Forbid 4F; and dinotefuran, the active ingredient in another banned pesticide, called Safari 20.”<sup>59</sup> The letter states that “Gorodnitsky and Dax Colwell, New Leaf's owners, insisted that they hadn't sprayed their legal grow, and the contamination must be due to what Gorodnitsky called a 'loophole,' wherein the growers were allowed to bring in plants from their medical grows that were already tainted.”<sup>60</sup> According to *The Seattle Times* on February 13, 2016, executives at New Leaf said they had used myclobutanil on “mother plants” when the company was in the medical marijuana business. Myclobutanil, the article pointed out, turns to cyanide gas when heated to a certain temperature. The company president said at the time that when cuttings from those plants were introduced as clones to the recreational market “the mothers transferred myclobutanil into regulated plants . . . This is possible with so-called systemic pesticides that don't just stay on plant surfaces but move into the whole plant.”<sup>61</sup>

## Traffic

Despite being relatively easy to cultivate, marijuana plants require regular attention to sustain a healthy and productive crop.<sup>62</sup> Therefore, according to the WSLCB, up to 150 workers can be employed at a Tier 3 facility depending on the size of the operation and plant production cycle.<sup>63</sup> Increasing the number of workers increases traffic to and from a site, posing additional challenges for neighbors previously used to quiet rural byways. Maintaining road conditions can be difficult, depending on location. Private roads do not fall under county jurisdiction, leaving neighbors with the additional expense of maintaining a degraded easement due to increased traffic serving an industrial-size marijuana operation. Unfortunately, despite three earth moving vehicles associated with the marijuana operations sitting idle on the property, and following years of worker traffic damaging the dirt road, my neighbors would not provide upkeep for the easement (Figure 15).



Figure 15: Degraded easement from increased traffic. Truck, heavy equipment, and marijuana worker traffic significantly degraded road conditions on this single-lane easement outside Yelm, Washington. (Photographs by author, 2017).

## *Marijuana Grower Concerns*

Statements made by marijuana producers attending Thurston County Commissioner Public Hearings have alluded to growers favoring rural residential or agricultural areas because of the lower cost in leasing or purchasing acreage and installing facilities. Other advantages for growers could be the challenges facing agencies that attempt to enforce building codes and regulations in secluded locations. One producer who attended the Public Hearing on renewing Thurston County's interim ordinance in May 2018, stressed that marijuana is a plant, and should be given the same consideration as any other agricultural product. He, as have others, requested that marijuana production again be allowed in agricultural areas.<sup>64</sup>

In Thurston County, some marijuana producers have complained about the expense incurred after purchasing property in rural residential or agriculture zones and the loss of their investment after pre-emptively developing facilities, then losing their investment because a revised ordinance later prohibited their enterprise. Other producers have said that less energy is consumed in outdoor operations under greenhouses than in indoor warehouses (usually located in industrial/commercial areas), implying that success in the marijuana business only comes to facilities located in a rural location. Producers have argued that rent is too high, sites are limited, and regulations too stringent to succeed in less rural locations.

My neighbor told me in 2015 that his enterprise would be worth five million dollars. "Why wouldn't I do this?" he asked me. At what cost to the environment and neighboring properties? I wondered. Surely, if he could earn such an amount in a rural residential area, shouldn't he also earn a profit in a better suited commercial or

industrially zoned location with ready access to a sewer system, electricity, and water supply? In April 2017, my neighbor testified before the Board of County Commissioners that he had a flower farm on his property, ambiguously referring, I presume, to his unregistered marijuana. His words were printed in *The Olympian* the following day where he was portrayed as an upstanding and somewhat victimized representative of marijuana industry regulations.<sup>65</sup>

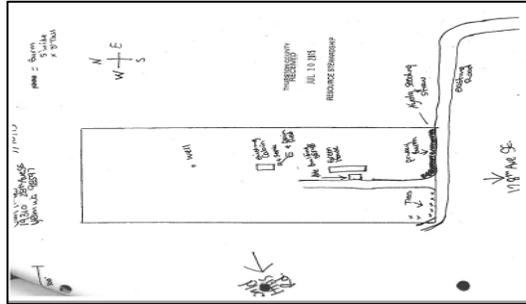
### *Misrepresentation of Facts*

Since legalization of commercial marijuana, the WSLCB has consistently stated that marijuana license applicants must abide by all county land use regulations in the area selected for a marijuana production or processing operation.<sup>66</sup> Similar to other land use developments, a marijuana facility should not begin construction without following county guidelines. The Thurston County Interim Marijuana Ordinance states that applicants who begin construction of marijuana facilities in advance of receiving a special land use permit, do so “at their own risk.”<sup>67</sup>

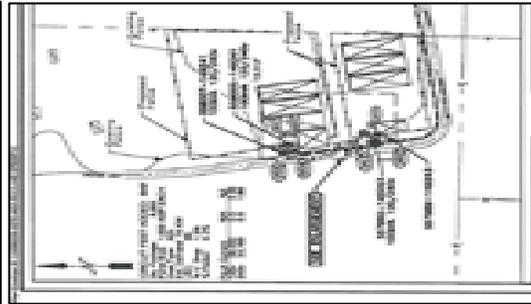
Public records show my neighbors’ misrepresentation of facts in various land use and license applications.<sup>68, 69</sup> The original 2014 vested application for Administrative Special Use Permit (ASUP) describes the business as: “Organic Harvest will grow marijuana outdoors in a secured area. The production will take place in a 30 x 96 foot poly-film greenhouse. Plants will be in the ground and covered late season with plastic to prevent mold.”<sup>70</sup> In addition, the individual named as the Applicant for the Home Occupation resided in Olympia, had never lived on the property, and had a significant criminal history that included robbery, hit and run, assault, and jail time.<sup>71</sup>

The WSLCB monitors marijuana applicants through a criminal credit-point system. Anyone with a score above eight is denied a marijuana license.<sup>72</sup> Yet this Applicant, included as a partner in my neighbors' marijuana production and processing license application, had a criminal credit history score of 44, way beyond the acceptable limit for approval of a license.<sup>73</sup> When the WSLCB discovered the criminal record had not been disclosed in the Tier 3 application, they would not grant the license, so my neighbor changed the name of the business, and informed the WSLCB that this Applicant would instead become an employee.<sup>74</sup> However, in contradiction, the ASUP submitted to Thurston County stated the business would have no employees. Also, this individual's name, listed as the sole Applicant on the 2014 county land use application, was not changed until 2017. He and his wife (who also has a criminal record and was included as a Tier 3 Organic Harvest license applicant), never resided on the property.<sup>75</sup>

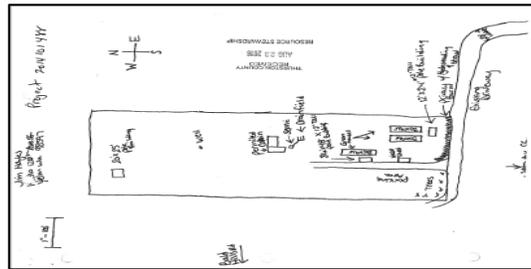
Without waiting for special land use approval by Thurston County to operate a commercial marijuana business on the property, my neighbors proceeded to deforest, grade, level, and tier the hillside and build facility infrastructure from 2014 to 2017 with the support of the WSLCB.<sup>76</sup> Site plans submitted to Puget Sound Energy in 2016 reveal that the facility was going to be a 2,000 square foot processing building and six industrial-sized greenhouses, NOT the 200 square foot processing shed and one 30'x96' industrial-sized greenhouse as applied for in the original 2014 ASUP vested by Thurston County.<sup>77, 78</sup> As of December 2016, four of the six intended greenhouses never indicated in site plans to the county, had already been constructed (Figure 16).



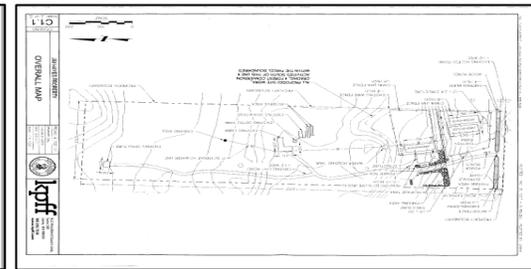
April 8, 2014 and July 10, 2015  
Thurston County Planning – 1 greenhouse



August 1, 2016  
Puget Sound Energy – 6 greenhouses



August 23, 2016  
Thurston County Planning – 3 greenhouses



March 31, 2017  
Thurston County Planning – 3 greenhouses

Figure 16: Misleading information in marijuana site plans.  
A total of four out of an intended six greenhouses had been constructed as of December 2016.  
(Thurston County Permitting and Land Use, 2018).<sup>79</sup>

Misinformation is a significant point of contention impacting residents neighboring such facilities. When zoning regulations changed in Thurston County’s Interim Marijuana Ordinance in 2015, all marijuana land use applications already submitted were considered vested, my neighbor’s included. As a result, neighboring residents troubled by the intrusion, especially where expansion was occurring, were told by county officials that there was nothing they could do. Yet my neighbors deviated from the vested land use application by developing two marijuana operations without permits, when only one had been previously allowed in that zone; and ten times larger than the building scope of the original ASUP. The expansion from one greenhouse to six, and the increase from a 200 square foot to a 2,000 square foot processing building intended to be

shared by multiple marijuana businesses is significant, resulting in a two year legal battle to contest the county's vesting of the operation.<sup>80</sup>

Over the years my neighbors received multiple notices regarding building and land conversion code violations. Eventually public records revealed that at least six different marijuana production and processing licenses had been applied for on the ten-acre property.<sup>81</sup> In 2015, applications for three additional marijuana production licenses were submitted to the WSLCB on an adjacent ten-acre property.<sup>82</sup> The marijuana producers/processors located on the adjoining property were planning to share the expanded processing shed on my neighbors' property, I was informed at the time by a troubled neighbor.

Had these multiple marijuana operations been licensed and granted final land use approval, my family, landlocked behind all of this activity, would have had to pass through the center of at least four industrial-scale marijuana operations—with a capacity to produce 80,000+ square feet of marijuana plant canopy (under multiple WSLCB licenses)—in order to access our property (Figures 17 and 18). All because zoning in the county's earlier Interim Marijuana Ordinance had allowed such operations to locate in rural residential communities. A Planning Commission Briefing presented before the Board of Thurston County Commissioners in 2016 stated “Is it appropriate based on what we know to allow marijuana producers in rural residential zones?”<sup>83</sup> The difficulty I wish to point out is that misinformation can become so confusing, officials can take the route of licensing a facility rather than addressing the concerns of neighboring residents.



Figure 17: Unpermitted Tier 2 and Tier 3 marijuana operations. Two unpermitted industrial-scale marijuana facilities cultivating unlicensed marijuana on a ten-acre, rural residential property outside Yelm, Washington. (Photograph by author, October 3, 2016).



Figure 18: Unlicensed marijuana cultivation in 2016. Over a thousand unregistered marijuana plants were located in several areas on the same property outside Yelm, Washington in 2016 and again in 2017. (Photograph by author, October 3, 2016).

Public records can reveal misleading information provided by marijuana applicants when positioning themselves for a license, or licenses, in a favored location. A review of our neighbors' records from 2014 to 2017 revealed contradictory statements in

the number of employees, type of operation, size of facilities, investment funds, ownership, previous infractions, undocumented marijuana production and transport, and building violations.<sup>84, 85</sup> How, I often asked, can a marijuana license be sanctioned, and a special land use permit application be deemed vested, when such unethical behavior is so apparent?

### *Vested Interests*

The vesting of marijuana operations remains a point of contention between the public and the Board of County Commissioners as they deliberate a final marijuana ordinance. In a meeting at our home on August 18, 2016, former Thurston County Commissioner, Sandra Romero, apologized to my family. She informed us that the language in the early marijuana ordinance was not legally “strong enough” for us to oppose the permitting of our neighbors’ operations, despite the pre-existing and continuing land use violations and the unlawful cultivation of marijuana.

Thurston County Commissioners have held multiple hearings to receive public comment regarding the eleven Interim Marijuana Ordinances, to date, in the county. Five years after legalization, the indecision on a final ordinance has been due, in part, to the debate in marijuana zoning, and how to deal with vested applications resulting from the earlier interim ordinance.

Public protest submitted after zoning regulations were changed in 2015 indicates the continuing discontent of Thurston County citizens having to deal with vested marijuana operations.<sup>86</sup> Referring to a developing marijuana operation where she lived in Mountain Vista, a Yelm neighborhood, Pat Kelly wrote:

*We really don't want to breathe that stuff in the air, or we would be smoking it ourselves. It makes the air toxic. It should be located in an industrial park.*<sup>87</sup>

Ira Holman, contesting the same Mountain Vista project stated:

*People no longer feel safe and it is an eyesore as stated above . . . We don't have the law enforcement to continually check this operation for compliance and this will lead to many unreported spills and other contamination problems that could indeed affect our groundwater.*<sup>88</sup>

Elizabeth Wynia, also concerned about the Mountain Vista project, commented:

*We do not want commercial growing of marijuana in the Mountain Vista residential district. People offered a plethora of deleterious effects caused by this business. The reasons include property devaluation, bad smell, unsightly fence and hoop greenhouses not in keeping with our natural setting, fear of letting children walk around freely given the kind of individuals drug trade attracts, stress on our water reserves, pollution, and so on . . . It behooves the Commissioners to protect and maintain our individual rights by removing the marijuana business from our neighborhood.*<sup>89</sup>

Lori and John Cupp, from Yelm, had this to say about a facility near them:

*This County has had its share of phony medical marijuana dealers who have taken advantage of weak laws and have been allowed to get way out of control, much to the detriment of the rural communities they pollute.*<sup>90</sup>

and further:

*There are different people coming and going to this facility daily. Besides retaliation we have experienced we are also concerned about the crime risks it brings into our neighborhood.*<sup>91</sup>

Kelly Noltensmeier, from Rochester, stated:

*This is a residential neighborhood . . . All of the hundreds of residences that surround the property depend on wells for our water. If there is a discharge of any of the chemicals used in the [marijuana] growing we will all be poisoned with no hope of an alternative water source . . . My family has lived here for over 40 years...If we are forced to go on city water because of something that is not our fault. Is that right or fair?*<sup>92</sup>

Janice Hortung, living on a six-acre rural residential parcel in northeastern Thurston County, reported:

*There were six large outdoor hoop houses with 45 plants, and the skunk odor wafted strongly over most of our entire parcel itself, and the parcel on the opposite side of the grow operation to encompass about a 12 acre area. The operation was and still is an unsightly mess, and we suffered with constant traffic going to and from the grow operation at all hours. All three neighbors who adjoined this parcel were negatively affected by it, as well as the neighbors across the road who experienced a lot of noise from the high traffic.<sup>93</sup>*

These are a sampling of the concerns arising out of the early zoning of marijuana production and processing operations in unincorporated Thurston County. Unfortunately, once a commercial marijuana operation was deemed vested, it became difficult to contest that decision and oppose a facility, regardless of harmful impacts occurring to the natural environment and surrounding residents.

I presented photographic evidence of the hundreds of unregistered marijuana plants produced at the facility next door to my property from 2015 to 2017 to various government entities including the Governor's office. During that time, construction continued and outside investment poured in. After receiving approval for the two licenses, a combined 40,000 square feet of marijuana plant canopy was going to be allowed production by the WLSCB on my neighbors' ten-acre property. However, Thurston County could not issue a special use permit for two marijuana operations on the same parcel in that zone, regardless of whether or not the original ASUP was vested. Yet the WSLCB renewed the Tier 2 and conducted a final site visit to approve an additional license to process marijuana on the property in January 2017.<sup>94, 95</sup> This example indicates a significant flaw in bureaucratic policy.

County officials did not curtail my neighbor's vested ASUP until several months after an August 17, 2017 raid on the property by law enforcement.<sup>96</sup> Vesting marijuana production and processing facilities in Thurston County has caused my family frustration, stress, and at times despair. When our protests seemed to be going nowhere, we considered accepting our losses and moving to Idaho. This personal case study, woven throughout this thesis, exemplifies the difficulties other residents are also experiencing due to issues in marijuana policy in Washington State. Instead of concerns related to unethical marijuana businesses being addressed, we, and others, have been thrust into the category of NIMBYs. The term was used by a WSLCB representative describing residents upset about a marijuana facility during a briefing to the Thurston County Board of Commissioners I attended in March, 2017.<sup>97</sup>

### *NIMBY*

Through working to expose the shadow operations occurring next door to my property, I came to understand the unjustness of the title “NIMBY”—a term often used to negatively characterize those opposed to certain government land use decisions. Without intending to, I had joined the ranks of other social groups and individuals fighting for basic respect for property, community safety, and the environment. As stated by Dr. Kathleen Saul, professor with The Evergreen State College, “Laws have been set forth to determine what can and cannot be done on/with property and we expect people to uphold their part of the property rights bargain since what they do on/with their property affects us and our ability to use our property. That’s what lies behind our laws governing pollution, for example.”<sup>98</sup>

NIMBY first appeared in mid-1970 according to the Encyclopedia Britannica.<sup>99</sup>

The term NIMBY (Not-In-My-Backyard) can refer to citizens who object to the potential hazards of situating jails, landfills, drug rehabilitation centers, or other undesired projects that will severely alter the character of their community. Few, I would argue, welcome such potentially dangerous intrusions to a neighborhood. Does that make everyone a potential NIMBY? Without hesitation, and based upon my experience, I would add large-scale marijuana facilities to this list of undesirable operations being located within rural residential neighborhoods. Government regulations and county zoning statutes contain clauses that are meant to consider all stakeholders. Labeling one side with the catch-all term “NIMBY” shows insensitivity, and lacks acknowledgement of the impact such projects have on others. According to Saul “It also puts all opposition into one category, failing to recognize there might be diversity in the groups or individuals exposed.”<sup>100</sup> In certain situations, such as my own, NIMBY comes across as belittling and often reveals an inability or unwillingness to listen to all sides of an argument in order to find an equitable solution. Even Washington State Representative Denny Heck referred to NIMBYs when I asked him, at a presentation at the Evergreen State College in 2017, for his perspective on landowners upset about marijuana production in rural residential areas.

### *WSLCB Loopholes*

During a private meeting in 2017, WSLCB Commander Dzubay stated “I spend all day talking to people in a situation just like yours.” Later she confided: “Even I don’t sleep at night because I’m worried one of these marijuana operations will locate next to me.” The Commander and two other WSLCB officials told my husband and I the WSLCB could do nothing to help us. Yet we were to keep the agency informed about any

continuing illicit activity. Why? Because despite knowing about the unlawful quantity of marijuana cultivated on our neighbors' property, the WSLCB will only intervene AFTER a marijuana operation is licensed. Therefore, if issued a license despite unlawful activity, the activity is no longer deemed unlawful. Illegal cultivation could be occurring elsewhere on the property and the agency told us they will not investigate and so, in our case, they continued to process the license applications.

In essence, current WSLCB policy, as described to my husband and I on several occasions by the WSLCB, allows the agency to whitewash and ignore an applicant's illicit activity during the process of applying for a marijuana license. Where it is stated in the regulations that the WSLCB only intervenes in unlawful activity once a license is issued, I have not been able to locate. The policy was verbally communicated by several high-ranking WSLCB officials. Whether this policy is according to state regulations, or a WSLCB enforcement policy, my experience demonstrates that an applicant can receive a production or processing license regardless of undesirable activity and potentially dangerous disruption to neighboring residents.

Following my complaints to Thurston County Planners, a letter was sent from the WSLCB Licensing and Regulation Division to Thurston County Planning that stated:

This letter is to inform you of our decision on the above application. We received your response to our July 1, 2014 notice of application. Your response, dated July 16, 2014, indicated disapproval of the location for this application. Based on WAC 314-55-050, your objection is not grounds for seeking denial of an application because it fails to meet any of the elements contained in that regulation. The Liquor and Cannabis Board cannot support denial of the application based upon a local ordinance regarding a land use permit. Local Ordinances are the business of the given city or county and are not within the Board's jurisdiction. This notification is for courtesy

purposes only and we will not be offering nor granting you a hearing on this decision.<sup>101</sup>

The above statement by the WSLCB is a catch-22. Thurston County disapproved of the location of my neighbor's 2014 marijuana production and processing application, yet the WSLCB would not recognize the determination, stating "The Liquor and Cannabis Board cannot support denial of the application based upon a local ordinance regarding a land use permit. Local Ordinances are the business of the given city or county [emphasis added] and are not within the Board's jurisdiction."<sup>102</sup>

My experience in endeavoring to work with government agencies responsible for a community's wellbeing has taught me that walking alone on the edge of personal and family safety, because regulations do not adequately protect citizens, changes one's perspective. Knowing our arguments were being ignored, I reached a point that I no longer felt inferior to those in power. Because I was about to lose everything I had worked to achieve for nearly three decades, I overcame my fear and was ready to fight the injustice. My neighbors jeered at my comings and goings because they knew I was opposing their operations, but I realized if I didn't try to stop this abuse, we would have to leave our home.

Rather than lose everything, or be forced to live with the increasing noise, odor, traffic and fear, I chose to present my family's case to as many government agencies as possible. I visited the Washington State Department of Ecology, the Washington State Department of Health, the Washington State Liquor and Cannabis Board, Thurston County Resource Stewardship, the Thurston County Commissioner's office, two State Representative offices, a State Senator's office, the Governor's office, the Olympic

Region Clean Air Agency, the Department of Natural Resources, US Fish and Wildlife, Thurston County Public Health and Social Services Department, Yelm City Council, local law enforcement, and the Thurston County Sheriff's Department. I also spoke with a variety of other government appointees, including an assistant to the Washington State Attorney General. In August 2016, then County Commissioner Sandra Romero demonstrated a willingness to listen when she agreed to visit our home. She climbed a ladder at the back of my garden to view the unlicensed marijuana being cultivated and later told me "We just didn't realize the difference between marijuana production and agriculture when the first ordinance was created."

Although Governor Inslee, according to *The Nisqually Valley News*, stated that "the marijuana industry is succeeding in its goal to provide a safe, well-regulated option for marijuana consumers which has decimated the black market." this has *not* been the case for all Washington State residents.<sup>103</sup> Vesting laws that allow a still federally listed Schedule I drug to remain in neighborhoods where they are causing significant disruption to citizens' enjoyment of their own properties, experiencing nausea and headaches when they go outside, or living in fear of retaliation if they oppose a marijuana operation, is completely unfair. Especially as the majority (according to Washington State and Thurston County surveys conducted and discussed later in this thesis) were never notified about the intrusion. WSLCB enforcement policy that refuses to take into account unlawful activity occurring during the application process is unjust and irresponsible. The power of the WSLCB to override land use decisions made by county planning departments should be a concern to everyone.

- 
1. Snaza, J. (2018, February 26). Thurston County Sheriff. *Thurston County Sheriff's Department*. Olympia, Washington. Personal interview.
  2. Olympic Region Clean Air Agency (ORCAA). (2016, December 5). ORCAA Complaint Form ID 17412. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington.
  3. Thurston County Permitting and Land Use. (2018). Document Library Research. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
  4. Manns, R. (2016, October 20). 2<sup>nd</sup> Notice of Violation. Case #CZ 16-105016 Project No. 2014101488. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
  5. Kantas, T. (2017, January 13). Administrative Special Use Permit – Marijuana Production & Processing. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington.
  6. Thurston County Board of County Commissioners (2017, February 24). Work Session Summary. Commissioners Planning Session – Cannabis. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/bocc/Pages/agendas.aspx>
  7. Thurston County Board of County Commissioners (BoCC). (2015, November 10). Ordinance No. 15210. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublic8/DocView.aspx?id=5581486&searchid=53a0f74e-4ae3-4061-8df1-19824224fe03&dbid=0>
  8. Thurston County Resource Stewardship Department. (2016, September 20). An Ordinance permanently adopting regulations for marijuana producers, processors, and retailers. Attachment B. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/marijuana-regulations-proposed-ordiance-to-permanently-establish.pdf>
  9. Thurston County Board of County Commissioners. (2016, November 8). Ordinance No. 15371. *Thurston County Resource Stewardship Department*. Olympia, Washington.
  10. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Seattle, Washington.
  11. Thurston County Board of County Commissioners (BoCC). (2017, March 15). Thurston County Board Briefing Request - Thurston County Marijuana Data. *Thurston County Resource Stewardship, Long Range Planning Division*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/bocc/Pages/agendas.aspx>
  12. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. Pg. 20. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Seattle, Washington.
  13. Washington Administrative Code. (2018). WAC 314-55-165. Objections to marijuana license renewals. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-165>
  14. Kantas, T. (2016, November 4). Land Use Violation and Question. Email correspondence to Masias at [lcb.wa.gov](mailto:lcb.wa.gov) *Thurston County Resource Stewardship*. Olympia, Washington.

15. McIver, M. (2017, August 21). Narcotics Taskforce Officer's Report. Case Number: 16-035 TNT. Unlawful Manufacturing of a Controlled Substance – Marijuana. *Thurston County Narcotics Taskforce*. Olympia, Washington.
16. Washington Administrative Code. (2018). WAC 314-55-515. What are the penalties if a marijuana license holder violates a marijuana law of rule? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-515>
17. McIver, M. (2017, August 21).
18. Hammersvik, E., Sandberg, S., Pedersen, W. (2012, August 13). Why small-scale cannabis growers stay small: Five mechanisms that prevent small-scale growers from going large scale. *ScienceDirect: International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2012.08.001>
19. Nguyen, H., Malm, A., Bouchard, M. (2014, August 21). Production, perceptions, and punishment: Restrictive deterrence in the context of cannabis cultivation. *International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2014.08.012>
20. Decorte, T., Potter G. (2015). The globalisation of cannabis cultivation: A growing challenge. *ScienceDirect: International Journal of Drug Policy*. Available: [www.elsevier.com/locate/drugpo](http://www.elsevier.com/locate/drugpo)
21. *The News Tribune* Staff. (2017, November 28). Suspected illegal pot grows busted in Thurston, Grays Harbor and King counties. *The News Tribune*, Aberdeen, Washington. Available: <http://www.thenewstribune.com/news/local/article186966538.html>
22. *The Olympian* Staff. (2017, November 29). 4 Thurston County sites among those hit in raid netting \$80 million in pot plants. *The Olympian*. Olympia, Washington. Available: <http://www.theolympian.com/news/local/article187231078.html>
23. Johnson, N. (2018, January 11). Lewis County Sheriff: Trend of Large, Illegal Pot Grows Likely to Continue. Investigations: Power Bills a Giveaway for Clandestine Pot Growers. *The Chronicle*. Centralia, Washington. Available: [http://www.chronline.com/search/?l=25&sd=desc&s=start\\_time&f=html&t=article%2Cvideo%2Cyoutube%2Ccollection&app=editorial&q=Lewis+County+Sheriff%3A+Trend+of+Large%2C+Illegal+Pot+Grows+Likely+to+Continue](http://www.chronline.com/search/?l=25&sd=desc&s=start_time&f=html&t=article%2Cvideo%2Cyoutube%2Ccollection&app=editorial&q=Lewis+County+Sheriff%3A+Trend+of+Large%2C+Illegal+Pot+Grows+Likely+to+Continue)
24. Johnson, N. (2018, January 11).
25. Johnson, N. (2018, January 11).
26. McIver, M. (2017, August 21).
27. Bush, E. (2018, February 7). With tracking systems hobbling, marijuana industry scrambles to keep pot on shelves. *The Seattle Times*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/marijuana/with-tracking-system-hobbling-marijuana-industry-scrambles-to-keep-pot-on-shelves/>
28. Bush, E. (2018, February 7).
29. Young, B. (2017, August 5). U.S. Attorney General Sessions criticizes Washington state's legal marijuana system. *The Seattle Times Local News*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/sessions-raises-concerns-over-washingtons-marijuana-legalization/>
30. Irby, K. (2018, January 4). Sessions ends policy that allowed legal pot, disrupting state markets. *McClatchy Washington Bureau*. Available: <http://www.mcclatchydc.com/news/nation-world/national/article192953934.html>
31. Johnson, N. (2018, January 11).

32. Selsky, A. (2017, August 14) Marijuana states try to curb smuggling, avert US crackdown. *Associated Press*. New York, N.Y. Available: <https://www.apnews.com/f1c7244ac5384f9e9c08201967526791>
33. Fuller, T. (2017, September 9). Legal Marijuana Is Almost Here. If Only Pot Farmers Were on Board. *The New York Times*. New York, N.Y. Available: <https://www.nytimes.com/2017/09/09/us/california-marijuana-growers.html>
34. Fuller, T. (2017, September 9).
35. Holman, I. (2015). Not In Our Neighborhood. Letter of Complaint submitted to Thurston County Resource Stewardship Long Range Planning. *Yelm, WA resident*.
36. Chalem, K. (2016, February 24). Memorandum: Marijuana Interim Regulations - Staff responses to questions posed by Planning Commission members. A.1 Information for planning commission to review. Email from Ira Holman, February 18, 2016. *Thurston County Resource Stewardship Department*. Olympia, Washington.
37. O'Hare, M., Sanchez, D.L., Alstone, P. (2013, June 28). Environmental risks and opportunities in cannabis cultivation. *BOTEC Analysis Corp*. Available: [http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC\\_Whitepaper\\_Final.pdf](http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC_Whitepaper_Final.pdf)
38. Mills, E. (2012, April 17). The carbon footprint of indoor *Cannabis* production. *Energy Policy* 46: 58–67. Available: <http://dx.doi.org/10.1016/j.enpol.2012.03.023>
39. Puget Sound Energy (PSE). (2016, June 10). Organic Harvest, LLC (Grow Op). *Puget Sound Energy, Inc.* Tacoma, Washington.
40. Brigham, J. (2016). Private email correspondence with Puget Sound Energy (PSE). *Yelm, Washington resident*.
41. Kantas, T. (2016, October 21). Administrative Special Use Permit – Marijuana Production & Processing. Planning (3.) Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublic8/CustomSearch.aspx?SearchName=MinutesTextSearch>
42. Brigham, J. (2016).
43. Shimada, T. (2016, November 17). Re: Please\_DocuSign\_these\_documents\_Electric\_Com Private email correspondence. *Seattle, Washington resident*.
44. Washington State Legislature. (2018). RCW 70.94.011 Declaration of public policies and purpose. *Washington State Legislature* Available: <https://app.leg.wa.gov/rcw/default.aspx?cite=70.94.011>
45. Spokane Regional Clean Air Agency (SRCAA). (2017, December 4). Q&A Spokane Regional Clean Air Agency's Proposed Rules for marijuana Production & Processing. *Spokane Regional Clean Air Agency*. Spokane, Washington.
46. Spokane Regional Clean Air Agency (SRCAA). (2017, December 7). Article IV. Exhibit R – Stationary Source and Stationary Source Categories Subject to Registration. *Spokane Regional Clean Air Agency*. Spokane, Washington
47. Spokane Regional Clean Air Agency (SRCAA). (2018, February 28). Compliance Assistance Program – Marijuana Production & Processing in Spokane County. Pg. 2. *Spokane Regional Clean Air Agency*. Spokane, Washington.
48. Francks, H. C. (2018, March 20). PCHB NO. 17-028c Green Freedom LLC v. Olympic Region Clean Air Agency. P. 10. *Environmental and Land Use Hearings Office*. Tumwater, Washington.
49. Francks, H. C. (2018, March 20).

50. Thurston County Board of County Commissioners. (2017, May 8). Ordinance No. 15465. 20.63.050 Development Standards Specific. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://mrsc.org/getmedia/ec2b449d-0ebe-4c71-8012-f00296977f43/t46o15465.pdf.aspx>
51. McNair, F.L. (2018, March 16). Executive Director. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington. Personal interview.
52. Subritzky, T., Pettigrew, S., Lenton, S. (2015, December 1). Issues in the Implementation and evolution of the Commercial Recreational Cannabis Market in Colorado. *International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2015.12.001>
53. Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. Pg. 8. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
54. Stone, D. (2014, May 20). Cannabis, pesticides and conflicting laws: The dilemma for legalized states and implications for public health. *Regulatory Toxicology and Pharmacology*. Available: [www.elsevier.com/locate/yrtph](http://www.elsevier.com/locate/yrtph)
55. Oregon Veterinary Medical Association (OVMA). (2017, December 11). Marijuana and Pets. *Oregon Veterinary Medical Association*. Available: <https://oregonvma.org/care-health/safety/marijuana-pets>
56. Oregon Veterinary Medical Association. (2017, December 11).
57. Oregon Veterinary Medical Association. (2017, December 11).
58. Baker A. (2016, October 2). Proposed Thurston County Zoning Changes for Marijuana Growing. Submitted to Thurston County Resource Stewardship. *Yelm, Washington resident*. Email correspondence.
59. Baker A. (2016, October 2).
60. Baker A. (2016, October 2).
61. Young, B. (2016, February 13). With much unknown, one expert says it's 'buyer beware' – Pesticides in Pot. *The Seattle Times*. Seattle, Washington.
62. McPartland, J.M., Clarke, R.C., Watson, D.P. (2000) Hemp diseases and pests: management and biological control: an advanced treatise. *CABI Publishing*. New York, N.Y.
63. Thurston County Board of County Commissioners (BoCC). (2017, March 15).
64. Thurston County Board of County Commissioners (BoCC). (2018, May 1). Public Hearing on Interim Marijuana Renewal Ordinance. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/tchome/Pages/publicmeetings.aspx>
65. Pemberton, L. (2017, April 27). Residents want pot businesses kept out of rural areas. *The Olympian*. Olympia, Washington.
66. Washington State Liquor and Cannabis Board (WSLCB). (2017). Regulatory/Permitting Guidance for Greenhouse Marijuana Producers. Local Government Permits and Regulations. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
67. Thurston County Washington Board of County Commissioners (BoCC). (2018, May 1). Ordinance No. 15613. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpbublic/DocView.aspx?id=9808796&searchid=1f8ab1ca-43b7-4996-b625-607e3a20889a&dbid=0>
68. Kantas T. (2017, January 13).

69. Masias A.V. (2017, April 17). Enforcement Report of Complaint. Blue Moose - Complaint Number C7C7107A and C7C7107B. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
70. Kantas, T. (2017, January 13).
71. Washington State Liquor Control Board (WSLCB). (2014, January 21). Request for Required Documents. Organic Harvest. License #413102. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
72. Washington State Liquor and Cannabis Board (WSLCB). (2017). Marijuana Licensing FAQ. What criminal history might prevent me from getting licensed? *Washington State Liquor and Cannabis Board*. Olympia, Washington.
73. Stanford, D.A. (2014, May 2) Re: Organic Harvest, License 413102, and James Arthur Weller. Letter to WLSB. *Slinde Nelson Stanford Attorneys*. Portland, Oregon. Available: [www.slindenelsonstanford.com](http://www.slindenelsonstanford.com).
74. Washington State Liquor Control Board (WSLCB). (2014, April 10). Notification of Criminal History Points. Organic Harvest. License #: 413102. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
75. Thurston County Permit Assistance Center. (2014, April 8). Master Application. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Washington*. Olympia, Washington.
76. Thurston County Permitting and Land Use. (2018).
77. Thurston County Permitting and Land Use. (2018).
78. Puget Sound Energy (PSE). (2016, June 10).
79. Thurston County Permitting and Land Use. (2018).
80. Cushman, B.D. (2016, December 8). Application for Other Administrative Action - Code Interpretation pertaining to Project No. 2014101488 (Marijuana Producing/Processing Application). *Cushman Law Offices*. Olympia, Washington. Available: [www.cushmanlaw.com](http://www.cushmanlaw.com)
81. Thurston County Permitting and Land Use. (2018).
82. Thurston County Permit Assistance Center. (2015, February 13). Master Application. Project 2015101304. 15 104057 VI Presubmission Conference. *Thurston County Washington*. Olympia, Washington.
83. Chalem K. (2016, February 3). Resource Stewardship Planning Commission Briefing: Proposed Chapter 20.63 – Marijuana Regulations. *Thurston County Long Range Planning Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/presentation-to-planning-commission-marijuana-interim-regulations.pdf>
84. Thurston County Permitting and Land Use. (2018).
85. Cushman, B.D. (2016, December 8).
86. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
87. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
88. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
89. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
90. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).

91. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
92. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
93. Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22).
94. Kantas, T. (2016, November 4).
95. Masias, A.V. (2017, April 17).
96. McIver, M. (2017, August 21).
97. Thurston County Board of Commissioners (BoCC). (2017, March 15).
98. Saul, K.M. (2018). Private correspondence. *The Evergreen State College*. Olympia, Washington.
99. Kinder, P.D. (2016, June 14). Not in My Backyard Phenomenon. *Encyclopedia Britannica*. Available: <https://www.britannica.com/topic/Not-in-My-Backyard-Phenomenon>
100. Saul, K.M. (2018).
101. Smith, R. (2016, August 18). Re: New Application for Marijuana Producer/Processor. Magnum Buds. License #: 413102. Michael Kain, Planning Manager Thurston County Commissioners. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
102. Smith, R. (2016, August 18).
103. Kollar, A. (2018, January 12). Washington Responds to Fed's Marijuana Crackdown. *The Nisqually Valley News*. Yelm, Washington.

---

## CH. 2 COLLECTING THE DATA

*We have been studying marijuana and marijuana policy for a combined total of nearly seventy years, but what we know is only a fraction of what is known, let alone the vast amount that remains unknown. A thorough understanding would draw on ideas from agronomy, anthropology, botany, chemistry, cognitive science, economics, history, international relations, law, management, medicine, neurobiology, operations analysis, pharmacology, philosophy, policy analysis, political science, psychology, public administration, sociology, and statistics.*

Caulkins, et al., *Marijuana Legalization: What Everyone Needs to Know*, 2016<sup>1</sup>

### 2.1 STUDY OBJECTIVES & DESIGN

#### *My Personal Conquest*

On October 3, 2016, aware that marijuana was being cultivated on my neighbors' property, I decided to take the matter into my own hands and rent a plane. I had waited for narcotics agents to act, but was informed they were understaffed and the only plane available was fighting wildfires in eastern Washington. I later realized how important that decision would be in obtaining the proof I needed to challenge the illicit activities occurring.

During the brief flight I witnessed and photographed the wound in the landscape and hundreds of unpermitted marijuana plants being cultivated in the forest behind my garden. "How can we allow this beauty to be destroyed by an industry that doesn't seem to care a whit for the environment?" I wondered. I was heartbroken as I saw my precious land next to the ugly tear in the landscape. That day I captured over 500 marijuana plants being unlawfully produced on my neighbors' property.

In July 2017, aware that marijuana was still being unlawfully cultivated behind my garden, I rented a small plane for the second time. That same morning, while walking my dog, I noted the arrival of a semitrailer and observed my neighbor unloading hundreds of marijuana plants without county or WSLCB permission. The coincidence of having a flight booked that very morning was astounding. Due to delays I finally lifted off at 10:20 a.m. (Figure 19). This time I never saw the landscape. I had one agenda. I captured a second truck delivery and what was later found to be more than 1,500 marijuana plants, more than half of them untagged, inside the greenhouses on the property (Figure 11). Those photographs were immediately sent to our attorney, the Sheriff, and a few days later *The Seattle Times*. It was a turning point in my personal conquest to confront black market operations and deception in applying for marijuana licensing and special land use. Several of the aerial photographs taken in 2016 and 2017 have been included in this research (Figures 1, 11, 17, and 18).



Figure 19: Flights over unpermitted marijuana facility.  
Two flights were taken with JAS, Olympia in 2016 and 2017 to document unlawful cultivation of marijuana near Yelm, contributing to this research. (Photographs by author, 2017).

## *Research Overview*

A review of the literature encompassing other states identifies potential environmental and social issues that could arise as a result of improper marijuana production methods, and where enforcement is lacking in regulating the industry. These discoveries initiated my research in collecting data through case studies, surveys, public testimony, government documents, the media, and interviews with a variety of marijuana stakeholders.

Peer-reviewed literature concerned with marijuana production issues have focused on environmental damage where illegal activity has occurred and regulations have been insufficient in deterring land use violations. As discussed, multiple abuses to the environment in terms of water diversion, garbage accumulation, deforestation, and chemical waste poisoning have been documented in other states such as California. Despite legalization of recreational marijuana intended to reduce black market activity, my research reveals the continuing existence of unlawful behavior associated with marijuana production in Washington State. Therefore, where ongoing illicit behavior and degraded environmental conditions are occurring, social issues arise. Because the available literature does not adequately address the social impacts to residents living in close proximity to commercial facilities in Washington, the main objective of this research is to better understand policy weak points that regulate large-scale marijuana production and processing operations that could threaten pristine areas of Thurston County and communities throughout the state.

## *Research Design*

Two separate surveys were mailed to Washington State citizens residing close to a commercial marijuana production operation. Questions allowed further comment from both those in favor of the marijuana facility, and those opposed. I also constructed interview questions to garner and analyze a variety of stakeholder perspectives that included the viewpoints of government agencies involved in policy structure and enforcement. The research was collected in three phases from mid-February to mid-June, 2018.

### *Phase I – Washington State Survey*

*Phase I* of my data collection consisted of a mailed survey to Washington State residents located close to a large marijuana production facility. Initially, a list of all commercial marijuana producer and processor licenses was obtained from the WSLCB website.<sup>2</sup> I chose an August, 2017 list for the purpose of my research. At that time, approximately five years had passed since legalization, allowing time for development of facilities and neighborhood response. Some businesses may not have succeeded, or been delayed due to community protests. That proved correct. As with my neighbors, not all marijuana production or processing operations have county land use permission to operate under a WSLCB license. Thus, this initial list might not have included all operations actually impacting social and natural environments.

I narrowed the large subject field of over 1,200 facilities to a list comprising only Tier 3 marijuana producers in the state. Using Google Earth, I assessed neighborhoods

surrounding each facility, and reduced my study to those operations located within rural residential areas.

A total of 162 Tier 3 marijuana facilities spanning 27 Washington counties appeared using Google Maps satellite imagery. Out of these I further narrowed my selection to 32 marijuana operations as the basis of my survey. Using online county data resources, I identified neighboring property owners located within several hundred feet to an approximate one half-mile of a facility, and mailed a survey to those residents. Names and addresses remain confidential.

Between two to thirteen households were surveyed near each facility, depending on available property information and the residential density of the location. A letter of introduction accompanied a list of ten close- and open-ended survey questions divided into two sections (Appendix I). Close-ended questions enabled a quantitative evaluation of participant' response, while open-ended questioning allowed for participant comment. Opinions were coded by content. Survey questions mirrored the environmental, social, and policy research objectives outlined in this thesis, and had been approved by the Human Subjects Review Board at The Evergreen State College.

In total, I mailed 200 surveys to residents in ten counties throughout Washington State between January 22, to 26, 2018. I gave no response deadline for the survey; however, I allocated a period of six weeks for data collection. Counties involved in my research included: King, Snohomish, Pierce, Thurston, Clark, Benton, Spokane, Whatcom, Yakima, and Chelan. Excel software was used in graphing the data.

### *Phase II – Interviews*

*Phase II* of my research consisted of a series of interviews intended to explore outcomes related to marijuana policy from the perspective of government agencies, citizens, and industry stakeholders. All interviews were semi-formal, and guided by a ten-point sequence of conversational questioning that encouraged dialogue with the participant. Interview questions were approved by the Human Subjects Review Board at The Evergreen State College. Where agreed upon in advance, an interview was recorded and transcribed.

Interview participants were identified as representatives of state agencies responsible for implementing or enforcing marijuana regulations, individuals involved in the industry, marijuana consumers, and neighboring residents (Appendix II). I contacted potential interview participants either by phone or email and used phone or email for follow-up questions to clarify points or changes in policy. Government agencies contacted for this research included the Washington State Department of Health, Olympic Region Clean Air Agency, the Washington State Department of Ecology, the Thurston County Sheriff's Department, and Spokane Regional Clean Air Agency.

### *Phase III – Thurston County Survey*

*Phase III* of this research focused on Thurston County residents and marijuana production operations of all sizes located in rural residential communities. This phase covered marijuana operations ranging from a Tier 1 (up to 2,000 square feet of plant canopy), to a Tier 3 operation (up to 30,000 square feet of plant canopy), either licensed or in the licensing application process. I chose Thurston County for this additional survey

due to the proximity to The Evergreen State College, travel time, and the county's lengthy delay in finalizing a marijuana ordinance. Questions included in this second survey were modeled after the previous *Phase I* statewide survey with only minor adjustments (Appendix III).

From an August, 2017 WSLCB list of marijuana applications in Thurston County, I selected 31 production/processing facilities located in a rural residential or agricultural area as viewed through Google satellite imagery.<sup>3</sup> A total of 200 surveys were mailed or hand delivered to Thurston County households located within an approximate one-half mile of a marijuana facility from April 26 to May 1, 2018. I gave no response deadline for the survey; however, I again allocated a period of six weeks for data collection. Excel software was used to graph the results that follow.

- 
1. Caulkins, J.P., Kilmer, B., Kleiman, A.R. (2016). *Marijuana Legalization: What Everyone Needs to Know*. Second Edition. *Oxford University Press*. New York, N.Y..
  2. Washington State Liquor and Cannabis Board (WSLCB). (2018). Frequently Requested Lists. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/records/frequently-requested-lists>
  3. Washington State Liquor and Cannabis Board (WSLCB). (2018).

---

## CH. 3 RESULTS

*Many of the people within this development have spent their entire life savings to go and get a piece of the American dream, a piece of land to live on and die on, at peace with themselves and their neighbors. Allowing this industry in our development jeopardizes everything that we all have worked for. Do not take the dreams of the many to further the greed of the few.*

Ira Holman, Yelm resident, 2016<sup>1</sup>

In 2014, on my return from a month's vacation in Switzerland intended to restore my body, mind, and spirit from the ravages of chemotherapy, I was dumbfounded to see the changes to our neighborhood landscape. In that moment I had no inkling such dramatic land conversion would occupy my life for the next four years and lead to my thesis topic. Nor that I would interact with so many interesting and good people along the way. At times, when the going got really tough, there were those kind souls in government and private institutions, dedicated to public welfare, who did their best to guide me through the regulations and become educated in how to deal with the situation. Some of those professionals I met again in the process of this research. I was also introduced to business owners actively engaged in the industry and gained valuable insights into marijuana policy from their perspectives. As I was struggling to learn, these individuals were also challenged by the newly unfolding Washington State marijuana industry, so they too were evolving. From differing viewpoints they gave me insight into legal procedure, property rights, water rights, land use, enforcement, air quality, waste disposal, marijuana policy, and many of the other topics addressed in this thesis.

I was also fortunate to connect with individuals impacted by marijuana operations located in their neighborhoods and, because I shared their heartache, found value in learning from their experiences when confronting government officials about marijuana policy and inappropriate land use zoning. Knowing “I wasn’t the only one” gave me the courage to write about my experience, using it as a case study throughout this thesis, and the fortitude to contact hundreds of residents I considered the most vulnerable to loss of neighborhood character through the establishment of large-scale marijuana facilities within their communities.

### 3.1 STUDY OVERVIEW

My data collection was organized into three phases in order to garner as broad an overview as possible in the four months allotted for my research. *Phase I* involved a survey of impacts to neighbors located within an approximate half-mile of a Tier 3 marijuana facility throughout Washington State. *Phase II* involved a series of interviews conducted with individuals knowledgeable in marijuana policy in their field of expertise that included meetings with representatives from government agencies, the Cannabis Farmers Council, and private citizens. A second survey was conducted in *Phase III* by contacting residents living within an approximate half-mile of a Tier 1, 2, or 3 marijuana facility in rural residential or agricultural areas of unincorporated Thurston County.

In order to familiarize myself with marijuana production facilities located in other areas of the state, I took a three day excursion to eastern Washington where I conducted interviews and toured the countryside to observe Tier 3 operations established in a variety of rural settings. In Thurston County, I visited every marijuana operation I had determined was located in a rural area and photographed the facility from the street.

Those photographs have been documented. Below I report in detail the results of each phase of my research.

### 3.2 PHASE I: WASHINGTON STATE SURVEY ANALYSIS

*Phase I* of this research involved a mailed survey to residents living within close proximity of a proposed, or already licensed, Tier 3 marijuana operation located in a rural residential area of Washington State. As depicted in the graphs below, the results indicate an obvious divide between those severely impacted environmentally and/or socially, and those not impacted at all.

This analysis focuses on survey responses from a sampling of ten counties spanning both sides of the Cascade Mountains. Of the 200 surveys mailed throughout the state, 22 were returned as undeliverable. In addition, 11 were not aware of a facility close by which could indicate the marijuana application for land use had fallen through in that location; the marijuana business had done a good job of integrating into the community; they were not located on the same street or easement; or the neighbor was too far from the facility to notice any marijuana production/processing activity. From the final pool of 178 surveys I received a total of 43 survey responses, from which a handful provided only partial response to the ten questions. Although not representative of all rural residential areas, the survey data offers a statewide sampling of responses from individuals residing close to a Tier 3 marijuana operation in Washington State.

Marijuana regulations vary by county across Washington, resulting in greater impacts to some residents than others. For this reason, survey responses could be limited to only those who felt strongly enough to provide feedback, positive or negative. Some

people may have decided not to respond out of fear of retaliation (despite the confidentiality of the survey); others may simply have been disinterested in the topic. In some instances, as the data comment section further demonstrates, neighborhood residents have worked together to prevent development of a marijuana facility, or at least delay operations for the interim depending on legal proceedings still pending.

Figures 20 through 26 provide a visual representation of the data collected. Due to meager response, survey questions #7a and #7b, concerning whether or not a decrease or increase has been observed in property values, has been omitted from this report. Without having listed their property on the market, most were undecided about the issue.

The *Phase I* survey is divided into two sections. Section One required a response indicated on a scale of 1 – 5:

1 = Not At All 2 = Not Really 3 = Undecided 4 = Somewhat 5 = Very Much

#1. To what degree has a marijuana facility impacted your neighborhood?

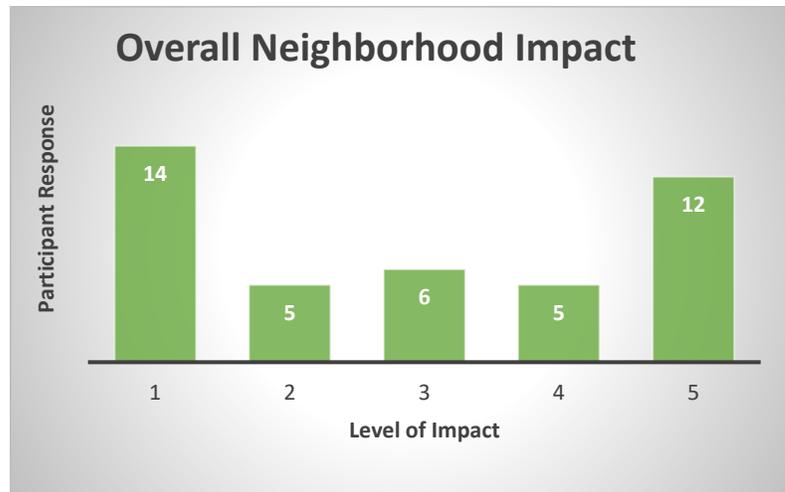
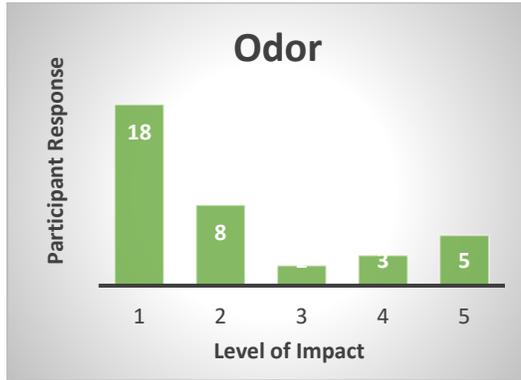
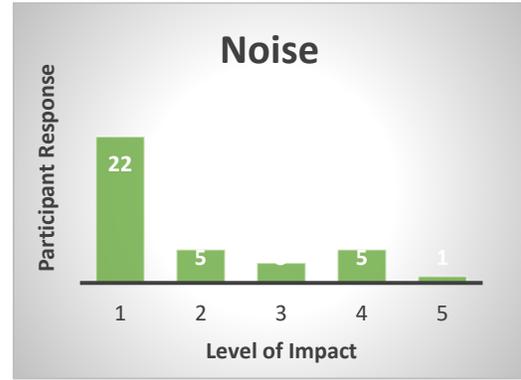


Figure 20: Tier 3 - Marijuana facility overall impact.

#2. Due to this marijuana facility have you been impacted by any of the following:

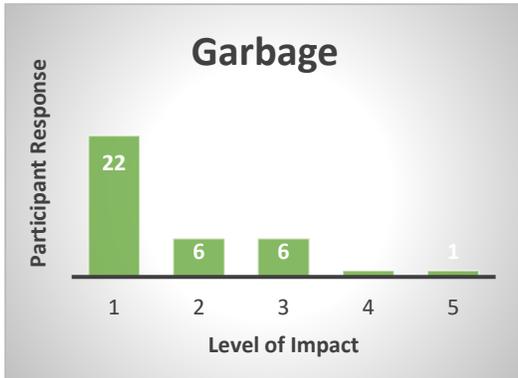


n = 36

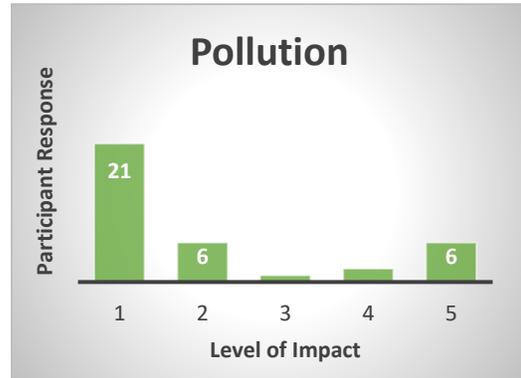


n = 36

Figure 21: Tier 3 - Marijuana facility odor and noise impact.

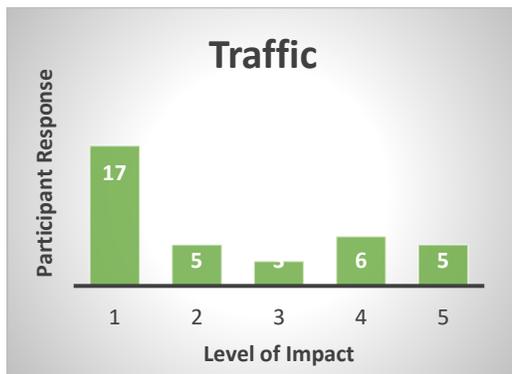


n = 36

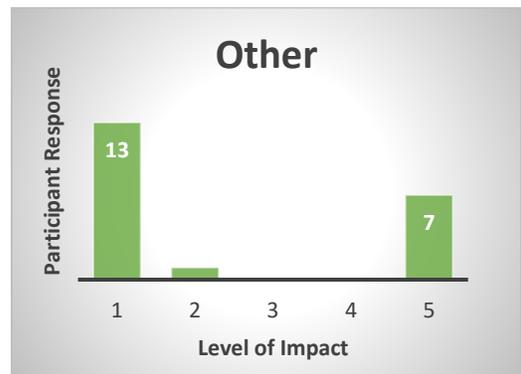


n = 36

Figure 22: Tier 3 - Marijuana facility garbage and pollution impact.



n = 36



n = 21

Figure 23: Tier 3 – Marijuana facility traffic and other impacts.

#3. What is your level of safety concern due to the commercial marijuana facility?

#4. Have you noticed an increase in crime following the arrival of this marijuana facility?

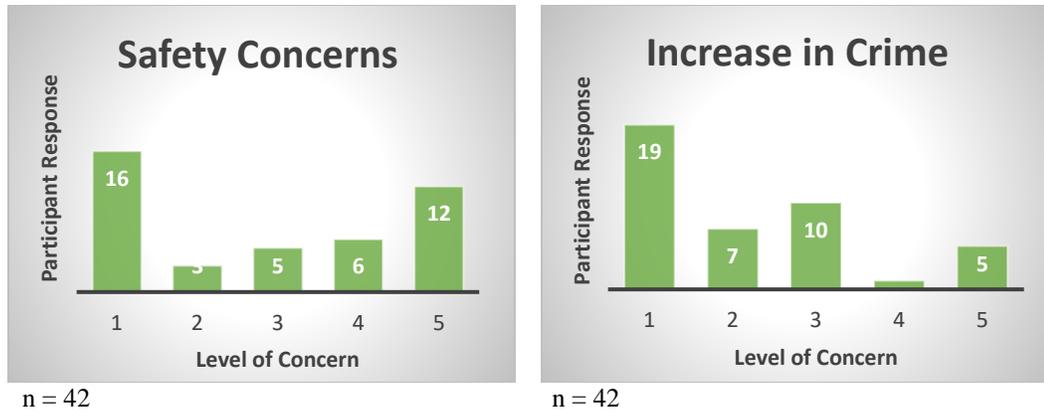


Figure 24: Tier 3 - Marijuana facility safety and crime concerns.

Section Two of the *Phase I* Washington State survey required a Yes/No response.

### Section Two

#5. Were you notified about this marijuana facility?

#6. Have you tried to prevent this marijuana facility?

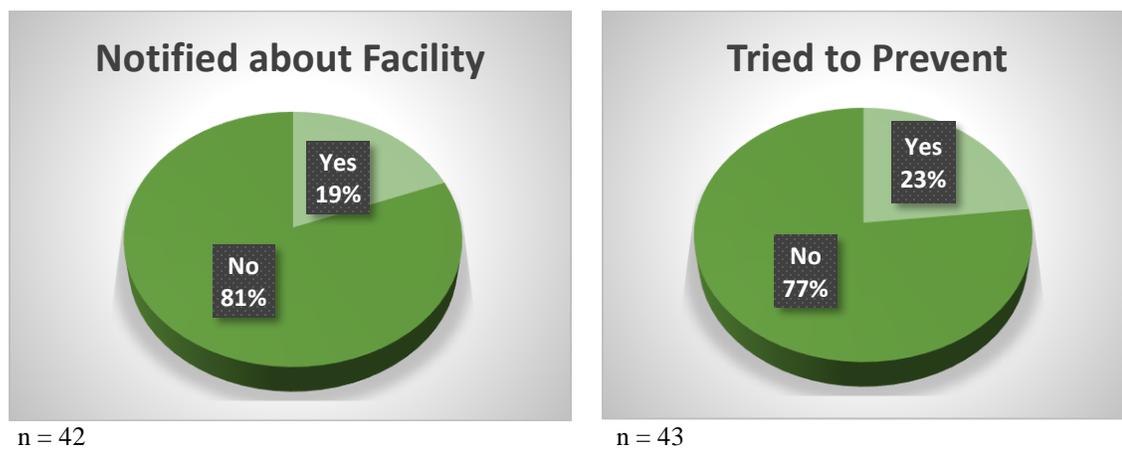


Figure 25: Tier 3 – Notified about facility / Tried to prevent facility.

#8. Have you considered moving elsewhere because of this marijuana facility?

#9. Would you prefer not to have this marijuana facility in your neighborhood?

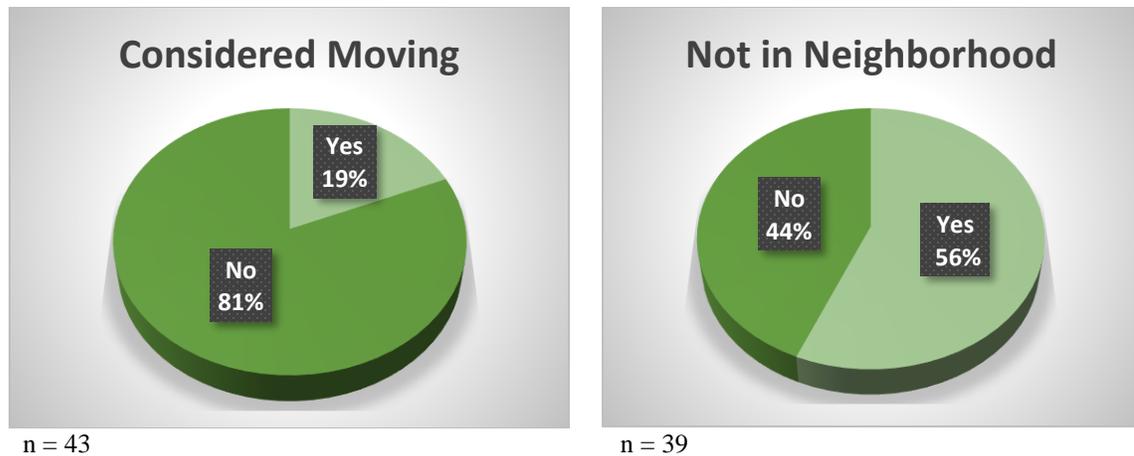


Figure 26: Tier 3 - Considered moving / Prefer not in neighborhood.

The above results represent a fragment of Washington State's total population. The number of responses also represents a small portion of those neighboring marijuana operations throughout the state. Reasons for those choosing not to participate in the survey can only be speculated. However, despite this small sampling, negative impacts are indicated. In the overall neighborhood impact the highest percentages in the 1-5 scale appear at either end of the spectrum—residents have not been impacted at all, or have been very much impacted. Section One also reveals that odor, pollution, traffic, safety, and other concerns have very much impacted some residents. Despite more residents indicating that they have not been impacted at all by a marijuana facility than very much impacted, the fact remains that more than half of the participants responded as undecided, somewhat, or very much impacted. Therefore, this data suggests that not all residents neighboring an industrial-scale marijuana facility have had a positive experience. Section two is revealing in that a high majority were never notified about the marijuana operation

locating in their neighborhood, and almost a quarter of respondents indicated that they had tried to prevent the facility. One fifth of participants had considered moving elsewhere, and significantly, more than half would prefer not to have the marijuana facility in their neighborhood.

One consideration in the data collected is that, while touring eastern Washington in March 2018, I noted two or more properties for sale in close proximity to several large-scale, Tier 3 marijuana operations, suggesting that some disturbed homeowners may have already moved prior to this research. This point was verified in my *Phase II* research (see Rochester and Yelm resident interviews), which raises a question as to why people close to a marijuana facility are wanting to sell their property. Those purchasing such properties likely would have no objection to a marijuana facility, if informed about the operation in advance.

Due to time and financial constraints, it was impossible to study every area of the state impacted by marijuana production operations since legalization, however, the sampling of counties included in the data provides some insight. Question #10 asked for further comment. Those responses have been included. The opinions express a variety of viewpoints. Despite high numbers of survey participants indicating they had experienced no impact, the bulk of comments responding to question #10 expressed some form of negative experience associated with a marijuana facility. I begin with those unopposed to a marijuana operation in close proximity.

- “The guy has been growing/selling from his home for 25 years—he now pays tax on the income! All good, in my opinion!”
- “This grower is only on 2.5 acres. Nice people.”

- “The pot farm is no bother to me.”
- “Marijuana facility is more than a mile away. No adverse condition exists. Wouldn’t even know it was there if I hadn’t read about it in the paper.”
- “I have not been impacted at all. However, my neighbors who are adjacent to such a facility complain about the smell and light pollution.”
- “Didn’t know there is one. A legal grower is better than a non-legal grower.”
- “We moved to the current address after the marijuana facility was opened and haven’t noticed any impact from it.”
- “Neighborhood is two and a half acres. Several have horses, cows, chickens, etc. Grow operator is three lots away with two large greenhouses—has good security.”
- “At this point the facility has not yet been built.”

Concerned:

- “Marijuana facilities take an enormous amount of water. It is difficult to tell how this affects an aquifer without talking to the county.”
- “This facility is new. I am very concerned about what its effects will be on our neighborhood as it gets established. I am also concerned about how much H<sub>2</sub>O they are using (we are all using the same aquifer) and run-off with the Deschutes River so close to the growing site. As neighbors we received no notice of this development.”
- “We are concerned about the significant water use and discharge from grow facilities. The discharge of water to the ground runs to neighboring properties especially in the winter due to saturated and frozen ground.”
- “As a neighborhood we sued due to the traffic, noise, pollution, etc. We have multiple ponds and woods and are worried about the environmental impact.”
- “The owner of the marijuana facility next door has a volatile reputation which makes approaching this property risky. In this respect, his reputation reduces the risk of crime. Also, the numerous ‘Do Not Trespass’ signs reduce traffic from ‘looky lou’ tourists looking for property to buy since we are on the Icicle River.”

- “Though we do not have a marijuana facility in our neighborhood, we have friends who do. They do not attract people of good character as customers. We have enough DUIs. We don’t need people high on marijuana driving on our roads!”
- “Industrial facilities do not belong in a neighborhood. There were multiple back room deals between county officials and the builder prior to this being done without talking or informing anyone who lives in the neighborhood. There are now about 50 families who will be impacted significantly along with significant effects to the ecosystem in our area. We are extremely worried about the wetlands we have and this causing potential flooding.”
- “Significant smell of burning cannabis from a backyard bonfire, however burning cannabis by-product or waste is not an approved method of disposal.”
- “Neighbors right next to us broke every county outdoor burning rule while clearing their land. They burned piles that were too big and there were too many, burned at night and in high wind. Our vehicles were covered with ash and it was hard to breathe at the time. I have no reason to think they will follow any of the rules related to their operation. I am also concerned about water use, discharge from the grow operation and illegal burning of waste.”
- “Our street frequently smells like skunk due to two grow operations in a small area. We have smelled burning marijuana coming from the operation right next door to us.”
- “Chemical use, fear of what chemicals in land, land fill and water are being used by growers affecting nearby water sources and being sprayed in the air and wind.”
- “Can’t get near pot smoke—severely allergic.”
- “We found out through our neighbors doing some investigating but were never notified by the builder or the County.”
- “I totally disagree with all stores selling marijuana. It shouldn’t be allowed.”
- “There should be much greater restrictions on where a grow operation is allowed to operate. There should be increased growing/growth report regulations for growers/distributors and the means for monitoring the operations are practicing legally. Grow operations should not be allowed to operate near homes or schools.”

- “Night light.”
- “Responses have been basically thank you for your comments but there’s nothing we can do.”
- “I presented my letter to the Commissioners at a Commissioners meeting about my concerns about the chemicals that are being used by the marijuana growers.”
- “Marijuana use other than medical is illegal by Federal law!”
- “State/County zoned property commercial instead of residential, the site is 15’ from our property: on the other side of a one lane unimproved road.”
- “It cost each of the neighbors in the area about \$10,000 to fight a large processing facility.”
- “We did not know the facility was being built so did not oppose. We did not receive ANY notification.”
- “Impossible to tell [property value] until we sell. Do not plan to disclose this [facility] when we do.”
- “We were involved in a lawsuit against one locating in our neighborhood. It impacted us financially due to the lawsuit. We sued against it to come. We had to hire an attorney. There was no other resource in the city. It was not good. It is a nuisance to the neighborhood to have to fight the effects of having a marijuana facility. It works against small neighborhoods and is a financial burden to fight. It is not welcome and creates ill feelings with the business owner.”
- “Facility is not yet open/built—can’t answer properly—but I believe it will very much (5) impact my surroundings.”
- “Fear of meeting persons under the influence of marijuana—danger in the road. I was never notified.”
- “We were broken in and had several items stolen.”
- “Constantly discuss with police.”
- “This is a grow house! Most not identified.”
- “The negative behavior, speeding, increased crime, etc.”

These comments, both for and against a neighboring marijuana Tier 3 operation, deserve consideration. Had time allowed, more voices could have been brought to the discussion including a broader survey across Washington State to investigate the impacts of all three Tier levels to residents living close to a marijuana operation.

In *Phase II* of my research I endeavored to broach some of the issues noted above during interviews with diverse stakeholders. The priority, in every interaction, has been to understand the effectiveness of marijuana policy, whether from the perspective of a government agency, law enforcement, marijuana entrepreneur, or private resident. Key observations obtained from these interviews are related in the next segment.

### 3.3 *PHASE II*: INTERVIEWS WITH STAKEHOLDERS

In challenging the unpermitted industrial-scale marijuana operations locating next to my property, I was exposed to various players involved in regulating the industry. I began to realize that agencies responsible for maintaining air and water quality were dealing with regulations insufficient to deal with this new type of industry. Thurston County planners were continually renewing and often revising an Interim Marijuana Ordinance while at the same time examining zoning and vesting matters. Law enforcement sought to take down black market activity. Marijuana producers and processors competed for a share of the market. Homeowners were battling the neighborhood intrusion. Throughout the discussion, marijuana tax revenues poured in to the state. Meanwhile, the WSLCB continued to issue marijuana Tier 1, 2, and 3 licenses until they had reached a quota and announced a pause in 2017. A cooperative license, where up to 60 plants can be cultivated at one facility by a group of no more than four licensed individuals, can still be obtained from the agency.

I referred to literature detailing the environmental degradation connected to marijuana cultivation outside of Washington State as a basis for my interviews conducted with individuals from the Washington State Department of Health (DOH), the Washington State Department of Ecology (DOE), the Olympic Region Clean Air Agency (ORCAA), the Spokane Regional Clean Air Agency (SRCAA), and the Thurston County Sheriff's department. I wanted to understand if similar threats to the environment could proliferate throughout Washington State without careful planning and stronger marijuana production and processing policies in place. I chose to begin this series of interviews with a DOE representative familiar with the state's water rights and resources, because I wanted to know if a potential threat existed for unbridled water consumption from the marijuana industry in Washington State.

### *Marijuana and Water Rights*

A longtime advocate for water quality and preservation, Vicki Cline agreed to participate in my first interview.<sup>2</sup> Cline serves as the Compliance and Enforcement Officer with the Washington State Department of Ecology Southwest Regional Office Water Resources Program. Cline impressed me with her passion for her work. In her job, she tackles some of the toughest abusers of water rights within her jurisdiction. As Cline listened intently to my purpose, I could only admire this stalwart defender of our state's water resources. She understood the issues. Cline had worked hard to protect water in her jurisdiction for many years and was hoping new policies would be introduced regarding marijuana water consumption, however, she was looking forward to retirement in a few months to lavish attention on a future grandchild.

We began the interview with questions concerning marijuana water use regulations. I asked Cline: “From your agency’s perspective, has policy been effective in regulating the production and processing of marijuana?” She responded:

We don’t really at the DOE have a policy that deals directly with marijuana grows. We have to hang our hat on the RCW essentially for the 1945 water code and now we have a little bit more limits in some watersheds under the Engrossed Substitute Senate Bill 6091. It used to be the Horst decision. So some watersheds are going to be even more limited as to what they can utilize for a marijuana grow. But as far as I know, we don’t have a policy that directly relates to marijuana grows.

Surprised, I alluded to the potential water consumption of marijuana cultivation by comparing reports from scientists in California and the WSLCB’s low estimates.<sup>3,4</sup> I was seeking her comment to help conceptualize a potential water rights issue related to large-scale marijuana operations in the state. Was the DOE looking at how numbers added up based upon the estimated consumption of six gallons of water per marijuana plant per day? Cline had heard a marijuana plant cultivated outdoors could require six gallons of water a day, but wasn’t certain that figure was accurate. “That’s a good question,” she responded. “I don’t know.”

Cline’s jurisdiction covers 12 counties and 20 watersheds within DOE’s western regional office boundaries. Despite the potential for high water consumption in marijuana production, very few operations are required to install a meter. As a result, the DOE relies on an honor system based upon the 1945 ground water code, RCW 90.44.050 that allows up to 5,000 gpd for commercial uses.<sup>5</sup> “When it comes to marijuana grows, and anything else in the water resources,” said Cline, “it’s all case by case. It really just depends on where you’re located and what watershed, and what drainage in that watershed, as to how

much water can be utilized for a certain project. But the background is the groundwater code and case law.”

Some watersheds, Cline told me, have limited water availability—the Quilcene-Snow Basin in Jefferson County, and the Dungeness watersheds in Clallam, for example—and require new developments, such as a marijuana operation, to install a meter on every new well installed. Because some residents in those watersheds are now measuring their water use, the DOE can obtain actual water usage data. Throughout the state, the DOE Water Resources Program ensures that anyone proposing to use an onsite well for a marijuana project, whether recreational or medical, understands the limits for commercial water use as part of the groundwater permit exemption regulations. “Folks can use up to 5,000 gals a day for a commercial operation. Whether they’re irrigating peas or marijuana. That’s it. We don’t have any policies that have been created or revised as a result of I-502,” Cline told me. I found this troubling, based upon my own calculations that a Tier 3 operation could potentially consume as much as, or more than, 14,000 gallons of water per day during the growing season. Without meters to monitor consumption, actual water usage would remain unknown.

In her role as compliance officer, Cline expressed concern regarding the impacts of the marijuana industry on stream flows and aquifers. If the agency isn’t notified about excessive water use, and never receives a complaint, the DOE remains unaware of water being removed that would reduce the amount normally flowing to a stream, or a creek, or a river. That causes concern, Cline told me, since stream flows impact fish spawning and species habitat.

Following a recent article in *The Seattle Times* that mentioned the existence of THC residues in Seattle waste water, I wanted to know if THC had been identified in streams or waterways around the Puget Sound.<sup>6</sup> The question is interesting, Cline said, because monitoring is conducted for other parameters, such as toxic chemicals and prescription drugs, but she wasn't aware if Thurston, or other counties, were monitoring for THC contaminants in waterways. "You'd think with all the folks that live out in the country that are on septic and drain fields that some of that would reach the river," Cline stated. "Whatever you take in comes out of you. Whatever your body doesn't use, where's it going to go? On a septic and drain field. It's going to go down and out so if prescription drugs affect fish and habitat, you can be darned sure that THC would."

Cline recalled six complaints connected to marijuana operations and water use in her jurisdiction, mostly in the Puget Sound area. Different programs at the DOE are tasked to respond to air, water quality, and other concerns, so additional complaints could have been received by the agency that weren't brought to her attention. She had not seen more complaints coming from one county over another.

Cline could not foresee what might happen to Washington's watersheds in the future. Policy in relation to marijuana water usage in Washington State is yet to be determined because the industry is relatively new and water consumption varies depending on whether a site relies on greenhouse, outdoor, or indoor operations. "We don't really know yet how it's impacting aquifers and water use because actually, while the business is still developing infrastructure, we really can't determine that yet" Cline told me. Down the road she believes the DOE will have better figures on water duty for indoor or outdoor marijuana cultivation. Due to the variation in climate it will be

different for eastern and western Washington she said. I found her closing remarks worth noting:

At my age in DOE this is all so new and as a person that works in compliance I hope we do get more guidance on what our water duty is for the different Tiers at the state level. Whether it be the LCB, or whether it be the locals, or whether it be the State Department of Ecology. I just think we need more information. So in the meantime, all I can do is hang my hat on that 5,000 gallons a day groundwater exemption. And without people having to measure then we don't know. We just don't know, and it's frustrating at times when I get phone calls. I don't know how to answer them. And in some of these there's so many things going on at the property, water's just one of them.

An industry with as intense a need for irrigation as marijuana cultivation should be required to monitor their water consumption was my conclusion from this interview. More than five years after legalization it is surprising to learn that policy has not yet been included in state regulations to measure water use at industrial-scale marijuana facilities. That marijuana water consumption is regulated according to a 1945 groundwater code when the industry appeared 70 years after those regulations were implemented is a concern, especially where property owners are having to share a water source with a marijuana operation. Also concerning is the fact that chemical pollutants, and cannabinoids such as THC, could be entering our ground water from marijuana production, processing, and consumption. To learn more about policy regulating the introduction of chemicals from marijuana production and processing into the environment, I decided to interview a representative from the Washington State Department of Health for their perspective.

*The Environment and People—Marijuana and Contaminants*

My next interview was held at the Washington State Department of Health (DOH) offices in Tumwater. Kristi Weeks, Government Relations Director at the Center for Public Affairs, spoke to me in her office.<sup>7</sup> Weeks had long been involved in medical marijuana policy. She indicated she loves her work, in part because she is able to help people who want an alternative to prescription medicines, such as Opioids.

Weeks responded to my first question about the effectiveness of marijuana policy by stating that regulations in pesticide use in recreational marijuana have not been strict enough to deter potential product contamination. Weeks lamented that regulations lack mandated testing for pesticide impurities in all recreational marijuana product sold on the market. The WSLCB, she informed me, conducts random testing for possible pesticide contamination. The DOH, on the other hand, is responsible for overseeing the safety of every medical marijuana item labeled as such to consumers. The DOH conducts testing on all medical marijuana product and validates quality assurance by applying one of three labels approving safety standards (Figure 8). Weeks considers this a step in the right direction, not just for consumers, but for the environment. On the other hand, according to Weeks, policy makers have not done enough to tighten regulations governing chemical use in recreational marijuana production and processing in Washington State.

The DOH introduced stricter regulations in monitoring contaminants in medical marijuana products as policy changes combining medical and recreational marijuana were introduced in 2016. Weeks believes combining medical with recreational marijuana under one umbrella was a major step forward in eliminating a grey area in regulating the medical marijuana market. Weeks told me that before the policy revisions the medical

marijuana market, since 1998, had been a kind of free for all with collectives—and unlicensed stores brandishing the signature medical marijuana “green cross” symbol—popping up all over the state. One individual requesting anonymity informed me:

Prior to legalization the whole process of cloning and growing was encouraged by the medical marijuana stores. We would clone our healthiest, best producing plants and then I would go on Weed Maps and call the dispensary to let them know my clones were ready. I would be able to sell them for \$6.00 per plant. I did business this way with several local dispensaries until they were all closed down. So legalization in my situation cost us our second small income. Then, when the recreational shops opened, most everything cost twice as much as it had before.

The revised regulations provided more clarity on how to tackle unregulated marijuana. Medical patients were allowed to cultivate no more than 15 plants, as authorized by a medical professional. Any quantity higher than that had to pass through WSLCB licensing. Someone wanting to produce more than 15 marijuana plants could not do so, after July 1, 2016, without first obtaining a cooperative, or Tier 1, 2, or 3 license. There are currently less than 20 licensed cooperatives across the state, Weeks told me.

As of July 1, 2016, medical marijuana sales also included a state sales tax (unless purchased by a tax exempt patient) and were now considered a part of the commercial marijuana industry. Medical patients used to purchasing previously affordable medicinal product were at first challenged by the regulatory changes affecting price and availability. The new policy also altered the landscape of collective operations where some groups had been able to cultivate hundreds of marijuana plants without oversight, as described by Thurston County Sheriff John Snaza in a later interview. Without these changes in policy, the medical marijuana industry had posed a significant risk to consumers and the

environment. Weeks, who had been involved in outlining the revised medical marijuana regulations, countered arguments of patients who complained about higher cost for medicinal product by saying the biggest inconvenience since the law's revision was a reduced number of stores where patients could acquire medical marijuana. "The Health Department listened to patients," Weeks told me, "because we wanted to understand their needs and concerns when developing medical marijuana policy." As a result, patients and the environment now benefit from DOH guaranteed contaminant free medicinal marijuana products. The DOH had wanted to "get it right" for medical patients, Weeks told me, so they labored over the policy changes to better serve the needs of patients. A medical marijuana patient who consented to an anonymous interview stated "I really appreciate the improved labeling. It makes it so much easier to use it in doses when detailed labeling exists! You can get it easily and now I don't have to pay the \$100 per year to have a green card to qualify for purchasing." From this assessment I would assume that new policies combining medical with recreational marijuana are serving patients and the industry.

According to Weeks, many patients expressed concern regarding chemicals present in medical marijuana products prompting the DOH, unlike the WSLCB, to go far beyond the contaminant testing regulations required by the state. The result is a higher standard of pesticide and chemical testing with all DOH labeled marijuana products. (Recall that the WSLCB requires random spot tests for contaminants in recreational products.)

While medical patients may pay more today for quality tested marijuana, the overall cost, Weeks informed me, has dropped significantly from what a patient was

spending just a few years ago due to higher rates of production. However, she pointed out, if a patient wants to purchase medical marijuana for an equal level of THC content today in edible products, such as chocolates or cookies, the ratio of THC to grams of product is much less than it used to be. Therefore, a patient has to purchase more product to achieve the earlier potency of THC that they were used to, leading to higher cost.

Medical marijuana patients registered into a confidential DOH database receive tax relief when purchasing approved products. However, those wishing privacy remain hesitant to sign up and therefore must pay taxes on product previously tax free. One individual had this to say about the pricing challenges:

To speak to the cost of marijuana, before and after the legislation passed, [it] was \$5-10 per gram and then after it has been \$15-20 per gram for consumers. The price of marijuana is going down as the industry increases and because there are more recreation shops popping up, the stores compete with each other by running sales that drop the prices down to sometimes as low as \$10 per gram like they were before. It was that initial hit that was so challenging for people and has been difficult for medical users to adjust to.

It appears that new policy combining the two very different production lines in the industry, is adjusting the market. After almost two years since new regulations were implemented, medical marijuana patients are being served quality product at a reasonable price, the environment is benefitting from “cleaner” production practices, and additional tax revenue is flowing to the state from a once minimally regulated side of the industry.

Weeks stressed the need for all commercial marijuana products to be tested for contamination from seed to sale. Specific labeling following testing on recreational product would indicate to consumers that care has been taken in production and processing methods that would not only benefits themselves, but also better protect water,

soil, and air quality in the broader environment. Washington State defines marijuana wastewater as industrial waste and hazardous. Because chemicals are known to be used extensively in the marijuana industry, Weeks point of view makes perfect sense. All untested marijuana product, whether medical or recreational, has the potential to harm consumers, neighboring residents, workers, pets, wildlife, and the environment. Comments received in this research indicate pollution from chemicals used in marijuana production and processing is a concern to residents neighboring large-scale marijuana operations.

After reviewing my interview notes, I emailed Weeks with a follow-up question. I wanted to know how a neighbor, bothered by someone cultivating 15 marijuana plants for medicinal purposes, could know if that cultivation was medically authorized. “There is no such thing as a medical license,” Weeks informed me, rather, “a qualified patient is authorized to use marijuana medically.” She explained further:

Qualified patients hold an authorization from their healthcare practitioner. An authorization is simply a piece of paper signed by the practitioner . . . Once a patient (or a patient’s designated provider) has this form, he or she can choose whether or not to be entered into the state’s medical marijuana authorization database . . .

A person with an authorization would not be required to show it to you if you asked. However, they are required by RCW 69.51A.043 to provide the authorization to a law enforcement officer if asked. Because entry into the database is voluntary, we have no idea who or how many people hold authorizations. We only have records of people who have elected to enter the database. That information is protected by law and cannot be released to anyone except in the very narrow circumstances listed in RCW 69.51A.230 (1).

In summary, I learned from Weeks that few authorized medical patients have actually formed WSLCB licensed cooperatives since introduction of the new policy

requirements. I also learned that verifying a neighbor holds medical authorization to produce up to 15 plants is challenging. Weeks strongly indicated more should be done to regulate pesticide and fertilizer contaminants within the commercial recreational marijuana industry. She also informed me that odor is an equally important issue needing further attention in marijuana policy. Throughout Week's experience, odor has been the number one complaint received by the agency. "Especially around harvest time," she said in closing.

### *Air Quality and Odor*

I conducted two interviews to learn more about efforts to regulate air quality and odor associated with marijuana production and processing—one agency on either side of the Cascades—the Olympic Region Clean Air Agency (ORCAA) in western Washington, and the Spokane Regional Clean Air Agency (SRCAA) to the east. Fran McNair, Executive Director with ORCCA, is passionate about her role in protecting citizens and the environment from odor disturbance and air pollution.<sup>8</sup>

I began the interview with the same question regarding the effectiveness of policy related to marijuana production and processing operations in the state, this time in reference to odor and air quality. "We're working on it," McNair responded. She told me policy was changing. Previously, all sources of air contamination were registered with the agency, including odors being emitted into the environment. Because the odor from marijuana contains Volatile Organic Compounds (VOCs), marijuana operations must register with ORCAA. However, a Notice of Construction, required with other odor emitting facilities (fish processing plants for example) is still not required prior to building a marijuana operation. That could soon change, McNair told me, following a

proposal soon to be submitted to the ORCAA Board of Directors. At the time of the interview, McNair was waiting on a ruling before the Pollution Control Hearings Board (PCHB). The case was between ORCAA and a marijuana producer/processor located next to a rural residential area in Elma. ORCAA supported the requirement that the operator do more to prevent odor from disturbing a close neighbor's ability to enjoy their property. The Appellant argued that the operation fell under an agricultural exemption which would remove ORCAA from regulating his marijuana activities. Note that ORCAA can only regulate odor related to agricultural use on areas up to five acres.

According to McNair, "We have all along said that this is not agriculture. That it's a controlled substance. Under the Liquor and Cannabis Board they indicate that if there are odor problems, we're supposed to deal with it." Still, marijuana producers and processors are pushing to be recognized as agricultural enterprises where odor isn't as regulated, land is cheaper, and tax cuts and other benefits can be offered for agricultural activity, thereby increasing their bottom line, she told me. According to McNair, should marijuana become recognized as agriculture it will be "a real uphill battle" to be able to say that a producer is not following good agricultural practices. Even if marijuana production has been designated as horticulture by the Federal Government, it can still be defined as agriculture by the states, she informed me.

Three Washington clean air agencies are focusing specifically on marijuana odor and air quality issues and are considering new policy to regulate the industry. SRCAA is currently at the forefront due to the large number of marijuana operations located in their jurisdiction. The agency implemented a three-tiered registration system as of March 1, 2018, based on whether marijuana operators are producers, processors, or both.<sup>9</sup> The

registration system mandates compliance and a Notice of Construction prior to building a marijuana facility. The Puget Sound Clean Air Agency also requires registration and a Notice of Construction. ORCAA is in the process of considering a similar structure to Spokane's three-tiered system, and deliberating whether marijuana facilities will require a Notice of Construction prior to build out of an operation. "But it's all up in the air at this point" said McNair, then confided:

It's an evolving system. We've been doing our best to try to manage the system. We have been doing research to try to figure out what are the best control mechanisms for odor. And so the difficulty is it's a new industry, there's a lot of work being done on odor control. When 502 was passed—if they had passed this so they all had to be indoor facilities, life would have been a lot better. But we have to deal with the law as it is.

State legislators recently considered allowing everyone to have a few marijuana plants without any rules or regulations. McNair described her concerns by asking me to imagine everyone in an apartment building cultivating five plants. "I mean it could be huge" said McNair. "The WSLCB couldn't make a decision. I knew they wouldn't. And they just threw it all back on the legislators so nothing was decided. So we are at this point in a sort of vacuum."

McNair firmly believes a marijuana facility should not be located any closer than a thousand feet from a residential area. She is currently working on a project on Marrowstone Island where a marijuana producer wants to locate next to a mobile home park. According to McNair, land use zoning is critical and should be considered step one in locating a marijuana business. She is considering working with the association of counties and cities to pass another piece of legislation to address the zoning issue in local jurisdictions. Legislation that unfortunately did not move through the House in 2017, she

told me, stated that the Liquor and Cannabis Board could perform their background work on licensing a facility and provide a conditional “yes,” but that they would not be able to grant a license until the local jurisdiction agreed that the proposal met all land use and zoning regulations.

Grays Harbor County culls out marijuana production in their zoning and regulations, yet even when zoned industrial, residential homes can still be impacted. McNair gave an example of a cultivation site where she had disagreed with a location. “Land use and zoning is critical when you’re making a decision on this” she told a Commissioner. Yet the decision was made to allow the facility at an old saw mill surrounded by residential housing. Unfortunately, in this instance, the Commissioner began to realize that this particular location was not appropriate and he later apologized that he had made a mistake. He then held a public meeting to try to introduce a moratorium to make things right. “It’s a three member Commission to say ‘OK, no changes.’” Other facilities were also trying to expand or make changes and his premise was, “While we have this moratorium you can’t do anything. Let us try to make a decision before anything more changes.” However the other two Commissioners decided “No, anybody that’s already grandfathered in, they can make changes.” This Commissioner, after realizing the location was unsuitable to neighboring property owners, made a 180 degree turn, according to McNair, and has been trying to fix what occurred. “He’s great to work with. He understands” she said. “It’s sad that he had to go through that process but he did and now he’s very vocal about ‘Yes. Land use and zoning are absolutely critical when it comes to siting marijuana facilities.’” I found this story a great example of the situation certain residents have had to confront when faced with

uninformed decisions from elected officials. McNair hadn't wanted to make the Commissioner angry, and realized she wasn't going to win her argument, so just allowed the situation to play out. She understands Grays Harbor needs new businesses and is not opposed to marijuana facilities when introduced properly.

However, McNair realizes the only way to achieve economic development is by taking care of people. People are experiencing health issues due to marijuana odor and that troubles her. ORCAA, she said, doesn't regulate medical marijuana because they are not commercial businesses. Yet she believes the change in policy to bring medical and recreational marijuana under one set of regulations is a good thing and better for everyone where both industries have a common set of rules and restraints.

McNair would like Washington State legislators to work in concert with local agencies to find a solution to odor control utilizing best management practices. It's hard to control odor on soft-sided greenhouses, unless very rural with no one close by, because sides need to be opened to release humidity and prevent mold, but, she said, there are mechanisms that can be used. Hard-sided buildings are much better suited to mechanized moisture control, she added.

ORCAA's difficulty, McNair informed me, is that in order to issue a violation notice after a formal complaint her staff has to go out and say "Yes, this is a level two or above." Air quality agencies use a scale between zero and four. If they register two or above then that's a violation. However, wind and temperature can change in a short period of time and impact odor levels. McNair's region spans 8,000 square miles, therefore, odor can dissipate by the time her staff arrives at a site.

When I asked McNair what improvements she feels should be made in marijuana policy she recommended all producers be required to cultivate the plants indoors and odor mitigation ought to be mandated. She also believes marijuana operations should not be located in rural residential areas unless a minimal parcel size of twenty acres. “I think it’s got to be in either industrial, and surrounded by industrial, or way out,” she told me.

Since legalization, marijuana has created a huge workload for the agency that is both a time sink and very expensive, McNair confided. Attorney fees in just the one case in Elma cost the agency (and taxpayers) \$16,000. “Some marijuana facilities pay their registration fee and are doing things right by the community,” said McNair. They are good players and “The agency learns from them.”

Spokane Regional Clean Air Agency Compliance Officer Jennifer Lopez reiterated the fact that residents in Spokane complain mostly about marijuana odor.<sup>10</sup> Spokane’s climate is more conducive to outdoor operations, however, night time conversions often intensify odor at a time when agency staff are not working. At least 300 complaints have been reported to the agency since 2012. One facility received over 100 complaints alone. As of March 1, 2018, SRCAA introduced new odor regulations to deal with the problem. Those currently licensed and in operation were given a year to come into compliance with the new policy requirements.

Lopez finds it interesting to be involved in a project from the ground up where time reveals what policy works and what doesn’t. As with ORCAA, she has seen a significant increase in her agency’s workload since marijuana legalization, yet SRCCA receives no additional funding from marijuana tax revenue to assist in regulating odor and VOCs associated with the industry.

After conducting the interviews with ORCAA and SRCAA, I understood that odor was a major disturbance to neighboring residents. Before witnessing the hundreds of marijuana plants being cultivated next door to me, I noted a pungent, skunk-like odor throughout our property. When processing the plants in makeshift sheds situated not far from my garden, the nauseous fumes would permeate our home. We couldn't open doors and windows as marijuana smoke wafted across the property. Other state residents have complained of headaches and nausea in response to the intense marijuana odor emanating from a commercial marijuana operation. How were they dealing with this injustice? I wondered. I decided to interview the County Sheriff for his perspective on the marijuana licensing situation in Thurston County.

#### *Community Impacts and Enforcement*

In considering the impacts to communities since legalization, I decided few would have as broad a perspective as Thurston County's Sheriff, John Snaza.<sup>11</sup> Although the WSLCB is the enforcement agency regulating marijuana production and processing operations, it has become apparent in my and others' experience that government representatives are often more interested in supporting the industry than showing concern for impacted residents. Therefore, I was delighted when Sheriff Snaza did not hesitate to be interviewed. I had only met the Sheriff a few times, yet as soon as I entered his office he spread his arms wide and said "Give me a hug," then made me a cup of coffee. "This is going to be a great interview" I thought, as I stirred the brew. Almost two hours went by before I realized so much time had passed. I only include a portion of what I learned from that interview.

I began with the same opening question, again adjusted slightly to suit the situation: “From law enforcement’s perspective do you consider policy to have been effective in regulating commercial marijuana production and processing in the county or state?” I queried. Snaza’s immediate response intrigued me:

It’s unfortunate how, as the County Commission changed through election, the thought process changed of how marijuana should be distributed in Thurston County, or should not. And the confusion as to who’s in charge. Is it planning? Is it the people who are making the rules? Is it the assessor’s office? Is it the drug? Who is making the decisions to whether you can or cannot have a marijuana grow operation, a production operation, or a selling operation?

According to Snaza, marijuana is not just a big issue in Thurston County, but a policy concern throughout the entire country and into Canada. “No,” he said “the policies are not effective.” From Sheriff Snaza’s point of view, we are entering a new era where a regulatory agency like the WSLCB has just 16 officers, each responsible for regulating three to four hundred marijuana production, manufacturing, processing, or selling operations. “How do you expect those individuals to keep track of all that?” he asked. And then, “Where does the money go?”

The WSLCB collects almost all the money from marijuana sales, Snaza told me, but he doesn’t know where it goes. There is no investment in recruiting more officers, he said, yet the agency is trying to expand their power to enforce laws. “My issue is that they don’t do anything related to law enforcement. They’re a regulatory agency, yet every legislative session they’re trying to seek other avenues of enforcement.” When I asked why, he told me it’s difficult to recruit young, eager individuals wanting to commit to law enforcement in a regulatory agency. The WSLCB is left understaffed and hence not enforcing laws as, he said, we are witnessing.

Snaza informed me that not just Thurston County, but the entire state, has seen a significant increase in marijuana related unlawful activity. Washington marijuana is now showing up in 40 other states. The Sheriff sits on the Northwest HIDTA Board. As Chairman of the Executive Board, he is provided information about marijuana use and where it is found in other parts of the country. The Governor, he said, came out against HIDTA's yearly report on where marijuanas are found and used, in particular among juvenile youths. This document, compiled by Federal, State, County, local entities, and the officer's school of public instruction, encompasses the entire state of Washington, and concludes that more kids are being suspended or are missing school because of drug abuse, in particular use of marijuana.<sup>12</sup> Yet the Governor, Sheriff Snaza told me, is looking for whatever reasons he can to justify the industry.

Unfortunately, he said, people are comparing marijuana to what it was in the '70s, and are not seeing the potency contained in products today, or that it can be very addictive. "You can't tell me that marijuana is the same as it was when the Indians smoked it a long time ago" said Snaza. He is concerned that with over 400 known carcinogens in marijuana, no one is looking at the pesticides and herbicides used to produce the plant, or what it does to the human body, and especially the effect on today's youth. Marijuana is a compounding agent yet people want candies, etc. because they don't like smoking weed, but how, he asked, without proper studies, do we know the long-term effects? "We haven't done enough studies on it and our society today has become so wanting to be more informed, but wanting to be able to experiment . . . whatever answers a young person was given many years ago, they're not ok with the

answers any more, and they want to find out on their own. I get that. I totally get it” he said.

I asked Snaza where, in his opinion, marijuana production and processing facilities should be located. He responded by telling me the Sheriff was never asked this question when county planners and officials were looking at marijuana policy. Personally, he didn't approve of near schools, daycares, or drug free zones, such as parks; but even out in the country, where it invites neighbor disputes, theft, traffic, and impacts how people enjoy acreage in the country. He would like to see marijuana operations located in areas away from homes but thinks that probably won't happen. “That is the frustrating part. I know that right now we have them in industrial areas where the growing of marijuana is more controlled. Marijuana growing is way different than what most anybody could ever even imagine. The sophistication of growing marijuana.” he told me.

Sheriff Snaza brought up a point that had long been on my mind when he mentioned nobody questions where all the clippings came from that created the starter plants in Washington State. They suddenly just appeared. More than likely they came from illegal production because you couldn't cultivate marijuana legally, except for a small quantity to support a medical condition, “but nobody ever questioned THAT aspect of it” he told me. I was reminded of a conversation with WSLCB Officer Masias outside the Thurston County courthouse in 2017. When I asked what had happened to the hundreds of marijuana plants discovered on my neighbor's property, and why the agency was able to collect over \$43,000 in taxes from the unpermitted operations that year, he would not give me an answer.

The Sheriff has issue with politicians and elected officials who consider themselves smarter than those who have been to school to study drug use, or who have actually grown, sold, and purchased marijuana. According to Snaza that was never taken into account. "Officials took what they believed they knew, and never questioned the process." He said that following I-502, large marijuana work groups were formed. Activists in these groups had obviously grown marijuana, were pro marijuana, and it was hard to see anybody who was acting in a position of "Us" versus "Them." There weren't representatives on either side saying "Yeah I can see where you can do that, or I can see this, or I can understand that," he told me. According to Snaza, creating the regulations wasn't an understanding process. "They had these group studies where they invited the public to attend to listen. But, they didn't listen," he said. "I don't think they really cared to listen to anybody that had anything to do with what might make things a little bit more difficult to understand."

Snaza believes we're going to see marijuana legalized throughout the country, just as we saw alcohol legalized in the early '30s. He then mentioned a recent drug operation involving over 40 Chinese people who had been human trafficked just to grow marijuana illegally. The reason marijuana is grown illegally in Washington State is because it's worth so much on the east coast, he informed me.

The Sheriff's department has a drug court for juveniles addicted to marijuana and other drugs. "Where do kids get marijuana when you're not supposed to buy it until you're 21?" he questioned. "What a hypocrisy to say that marijuana is funding our education when we're seeing our kids affected adversely by use of marijuana." I soon realized the Sheriff was holding nothing back. He told me he had seen what so many

friends and other family members go through in their households and communities because of marijuana. When I suggested marijuana operations were more suited to industrial areas, Snaza made the argument that now someone who owns property or buildings in an industrial area can charge however much they want due to demand. He pointed out that industrial areas are usually situated between city and country where it is *assumed* everything can be better controlled. He reminded me of the number of WSLCB officers overseeing marijuana policy enforcement—only 16.

The Sheriff's department receives minimal funding from what has quickly evolved into a \$300,000,000 per year revenue source to the state based mostly, he said, on cash transactions.

We're not dealing with if you have lines of credit, or whether you were able to put monies in banks, because I can guarantee you most of those people are not in favor of it because you get to hide your monies away. The easiest way to not keep track of anybody's monies, or to launder money, is through these types of businesses. And I don't want anybody to ever think they don't launder money. Nobody should ever think that they don't.

Snaza doesn't believe the state really cares about improper behavior. He doesn't think the Governor, who is in favor of marijuana, cares. "You know, I know that probably anybody who would be reading this, or thinking about this, would be saying 'Well, because you're law enforcement you have to say that.' I don't have to say anything." Snaza told me all but two sheriffs running for office in King County came out against marijuana. Law enforcement has seen what it does. Snaza realizes adults should be able to do what they want, it's the problems associated with youth that most troubles him. Snaza's deep humanity touched me from his bear hug greeting, to his concern for impacted youth, families, and communities. His words were both timely and troubling,

given the serious problems with drug addiction and the Opioid crisis currently facing the nation. Therefore, I include this next segment of the interview in the Sheriff's own words:

When those young people, those children, see their parents, their aunts, their uncles, their parents' friends all smoking weed, why would you tell a kid not to smoke it? If they're smoking it? How? What kind of message are you sending? The problem is you've probably never been involved in domestic violence where you've seen lots of drug abuse and what happens to those kids. I can tell you what happens to those kids. Why do you think we have the problem with homelessness now and drug abuse now? Because their parents, who got involved in drugs, weren't able to raise their own children because of their addiction and now I have these young people trying to raise kids because of their addiction and they can't. But people don't like to acknowledge that.

And where I'm at is why are we not dealing with that? Why are we not spending money on people? If you're homeless let's find out why. Is it mental health? Is it because of your drug addiction? Is it because when you were 14 years old you smoked weed for the first time and you liked it so much that you became a pothead and as time went by you were introduced to something else and went down that road? And I know we're not supposed to talk about other drugs but I can tell you that marijuana has been proven to be a gateway. Whatever a joke can be made about it. I get it. Nobody wants to acknowledge that 'Yeah that was my gateway drug.' Well, most people don't like to admit addiction either. Or mental health. You always hope that wherever we end up in our lives, we understand that we all make mistakes, and to never say never, and I hope people just don't quit on life or on themselves. That's all.

Most people would rather smoke marijuana than heroine, he said, but then they take OxyContin, just a 50 mg pill. "Who'd ever think that something like that is addictive but it turns people into wanting to use heroine. So why does it make anybody think that using marijuana doesn't make you want to use another drug? Or is addictive? What makes people think that?" According to Snaza, all drugs have good and bad effects. There are positives and negatives in everything you use, in how it affects your body and what it does to you as a person, he told me.

When I asked Snaza how many complaints law enforcement had received from communities impacted by neighboring marijuana facilities, he was personally aware of around fifty. Mostly people had complained about traffic, odor, and operators perceived to not be following the law. He had also received complaints from marijuana retailers upset that new regulations were infringing on their right to sell medical marijuana, while waiting for their license to be processed. Additional complaints may have passed through the department that he was not aware of, he told me.

The Sheriff had seen plenty of what he called “drug rips” in the county not from businesses, but from people manufacturing marijuana illegally. When I asked if combining medical with recreational marijuana policy had improved the situation, he told me that outdoor medicinal crops were cultivated in long rows with a list of names sectioned off to where each allotment was around 45 plants. Eventually maybe five, or six hundred plants were cultivated at a site. “That’s how it works. That’s how the medicinal system worked. And that’s what is frustrating about it—now you can combine medicinal and you can combine recreational—but the issue that I have is: What’s the difference?”

In combining medicinal with recreational marijuana policy, medical marijuana was finally brought into legitimate stores. One reason for the change, according to Snaza, was that the state government realized the popularity of marijuana, and had previously underestimated the amount of use and therefore revenues it could produce. “Those are just monies that we are seeing legally. Those are not the monies that we are seeing that are comprised of all marijuana sales in the State of Washington” he confided.

When I asked what should be done to improve marijuana policy he recommended an increase in the number of educated investigators, and more control over the “ins and outs” of marijuana. He also suggested allowing marijuana businesses to run their finances through banks, thereby holding people accountable for marijuana transactions because, “You can’t trust somebody justifying every sales transaction of a marijuana plant, or marijuanas, however many ounces. That’s the truth. Even if there’s cameras. The only people monitoring those cameras are the store owners, or the staff.” When I suggested every plant is supposed to be tagged and traced from seed to sale I was informed that’s not happening, that it’s not being done the right way.

Snaza is the elected Vice President of WASPC, the Washington Association of Sheriffs and Police Chiefs, which means he is the Vice President of all the sheriffs in the State of Washington, which also means he’ll become President of WASPC in a few years. He is well-informed about opinions throughout the state and told me not all Chiefs of Police come out against marijuana. The reason, he said, is because they work for a city manager, or a mayor, or a city council who may want marijuana in their jurisdiction, and so those Chiefs never say they are against it because they want to keep their jobs. There is no legislator out there, he said, except those in law enforcement, who understand the ramifications of what marijuana, and other drugs, are doing to this state, or to our children. Snaza commented:

Those who got in on the bottom floor of legalization are making millions in the industry. They’re just not legally showing it. Some people might oppose and say ‘Well, the Sheriff doesn’t know what he’s talkin’ about because I report everything.’ That would be one person in probably about zero. People who grow, who are selling marijuana trying to make it legal or whatever, I’m sorry, they are selling marijuanas. People who are doing that and are saying that they report

everything, I think they should have a halo on their head but they're not doing that. And it's nothing against them, it's just that's the lifestyle. That's how business is done.

According to Snaza, excuses are made, or reasons given, why certain things aren't filed, counted, or values reported correctly. Statistically, a pound of marijuana is worth up to \$2,000, or more. He has seen marijuana plants that produce over a hundred pounds of bud on just one plant. I had seen such giant plants when touring an indoor medical marijuana facility in Tumwater. The Sheriff argued that if you're able to grow a marijuana plant and then say "It's for my own use" the question remains how much marijuana can one individual consume from one plant? He gave the example of calculating five pounds of marijuana per person and asked "Do you know how long it would take you to smoke five pounds of marijuana? I mean an average person? You would have to smoke a two gram cigarette every, I think it's something like a two gram cigarette every two to four hours, two to four hours every day, 365 days to smoke five pounds. So my question to you is: How does a person function?" My own thought was then why would a medical patient need fifteen plants?

Sixty-three percent of Thurston County voted in favor of marijuana legalization—the majority came from the City of Olympia that controlled the vote. Many voters never saw opposition ads that described the potential impacts regarding smell, traffic, disputes, or the kind of community they were now going to be living in. "Would it be a thriving community?" Snaza asked. "Or a community always worried about traffic? What would that traffic look like? Or the fear that somebody's going to come over and rob your home." Those are the things that are most concerning that people were never warned about, he told me.

Snaza believes the legislature and the Governor are interested in the money and the popularity because right now marijuana legalization is popular, but he questions what is society dealing with? What is shown on the news? “It’s not news worthy how marijuana is affecting a person to go out and commit heinous crimes even though we are seeing reports of illegal production and maybe human trafficking.” He said the media isn’t touching what the effects have been to young people. “I can’t tell you how many times meeting bad people . . . they smoked weed before they did bad things. I can’t tell you how many people that I’ve met who smoked weed before doing bad things. But, does it go into a report and say ‘Yeah they admitted to using marijuana.’ Nobody thinks twice about it” he told me.

The WSLCB is not seizing untagged plants because they don’t know what to do with them, despite saying they have a storage place, Snaza told me. And although understaffed, they’re not asking local law enforcement to help them, he added. When I asked why, Snaza said because it’s a leadership issue in that how do you show that you’re a successful organization if you need help from other law enforcement? Although the Sheriff has extended an offer to educate and assist WSLCB marijuana enforcement many times, interest has not been forthcoming from the WSLCB. “Does Chief Nordhorn look for assistance from local law enforcement to combat illegal marijuana grows? No, because he thinks he can do it all by himself with his staff,” Snaza informed me.

Although Snaza finds the WSLCB Chief and his Assistant nice enough people, he is concerned about the positions they are putting their staff into. He confided:

If you were to interview their staff, and they knew that they were not going to be recorded, or documented in the things they said by their name, they would all tell you this is the biggest mess they’ve ever been

asked to do. They would tell you that because they are not equipped to do it. When I say equipped, they're not educated for it . . . They're just going out and they're just monitoring a business and they don't know how to look at books and decipher whether or not they're laundering money or not, and figure out why, and why are they not, because they're not there all the time.

The Sheriff knows that people, like myself and others who have been impacted by flaws in marijuana policy, are recognizing what is really going on. Snaza cares about his community and what is happening and so told me:

When I see other people not enforce the laws, and when I see our state legislator, or our Governor, come out and provide an opinion about something that is very controversial and then says 'Well we're going to get all this money and we're going to pay off all the school bills that we owe. We're going to give teachers raises because of those monies. We're going to give state patrolmen pay raises because of marijuana monies.' Where I'm at is that we have a lot more smarter people than just to say 'Let's legalize marijuana to straighten out our budget.'

According to Snaza, the Governor is thinking like a business man and saying:

'I can use this money to resolve a lot of issues that we're incurring right now.' And what is the problem with it? The Governor is 70 years old. I don't even know if he smokes weed or not. I don't know if he ever did. What I'm saying is, whatever his perception is, or whatever his wife's perception is, he's basing his perception off his own experiences. And maybe some information that he's been provided but, he's been in Congress for how long? What is his real battle? His battles have never been drugs. His battles have never been involved in drugs. The only reason why his battle is marijuana is because he likes the money that it brings to the state.

Realizing I had occupied the Sheriff's time for almost two hours I asked him for any final comments. His concern was that right now he was finding it difficult to hire new officers. One reason for that is they can't have smoked marijuana in the last 18 months, and then what decision is to be made if a wife or husband smokes marijuana?

What do people think? What is their perception? His other issue was regarding the health crisis we are putting ourselves into. Smoking marijuana can damage lungs, he told me. What it does to your body is no different than a regular cigarette. He is concerned about community and individual health, including minds. And he is concerned about jobs. “What are we doing when an employee takes off to smoke marijuana just so they say they can get through the day? People say well it’s just like having a drink. No it’s not. You can smell the odor of intoxicants. Marijuana’s a lot harder.”

Snaza added that no one even thinks about motorcycle gangs controlling the drug trade by getting drugs to and from a location, especially domestically. A lot of Washington State’s marijuana was coming from Mexico, he said, but is now observed coming from within our own people. Movement is not only through Mexican drug cartel trafficking organizations, but motorcycle gangs, and Chinese gangs up in Seattle. The Chinese have been around for a long time and are an especially a big influence in Seattle, Snaza told me.

They’re bringing in undocumented people from China and paying cash for homes and turning them into marijuana grows. Maybe one out of ten speak English, and they stay on the property. Someone goes and buys their groceries, or feeds them. I mean they just stay there and then their information, their passports, or their ID cards are kept by another part of the organization. So they can’t leave. They’re promised they get to come here but then they have to work for it. The Governor is aware of these things.

In the closing moments of our discussion Snaza asked me what do people really care about? He said over 285,000 people living in Thurston County are mostly unaware that marijuana isn’t just a recreational drug, but that it brings along crime, death, sadness, ill-health, and loss. He cares because as a Sheriff he sees what it does to families, friends,

neighbors—whether a marijuana operation, whether you’re an abuser, or whether it creates other physical issues. “What are we doing with that?” he questioned. “The only thing in the end is ‘What is the flavor of the day?’ What is the flavor of the day?”

Snaza believes we are creating a health and social crisis with marijuana that will probably not affect us for another ten years, but that we’re going to see a crisis. Everyone is expecting law enforcement to resolve problems such as homelessness. Despite the fact that marijuana provides an extra \$300,000,000 that the state didn’t have five years ago, he said “All these crises go to law enforcement but we’re not funded for it. Where does that money go? I’m not funded to take down all these places. I’m the lowest staffed Sheriff’s office in the entire state. I have been that way, we have been that way, since the late ’90s. We have been that way since ’95. I have 89 positions. We had 89 positions in 1995.”

Referring to the number of homeless now seen in downtown Olympia the Sheriff stated:

Why are there so many homeless? You want to know why? I’ll tell you why. One of my reasons is that Lacey, Olympia, and Tumwater no longer enforce drug laws. They enforce minor drug trafficking but because a prosecutor doesn’t deal with it, the people that they arrest go into my jail and they sit in my jail for five or six days and they get out because the prosecutor doesn’t charge them. When we talk about drug use and abuse, the downward spiral is what we’re willing to accept and what we’re not. If we’re ok with homelessness, and kids not having three square meals a day, or having a place to live, then I guess we’re ok. That’s what I tell people about law enforcement that most people don’t think about—that law enforcement people do care, and we are the community. We’re not just people that can’t wait to take somebody into jail because we want to screw with their lives. We’re the only people out there that are holding people accountable for their actions. And we get scrutinized every day about it.

In closing he told me that you don't just become a marijuana producer overnight. To cultivate the plant, you have to know what you're doing. Marijuana's been a very profitable business for many, many years and it will be for a long time because it's a product that people want to consume. "It's a business and people with business don't always care about anything but the business because that's what's going to support them," he said. "That's what's going to get them their dreams, their goals, their objectives. That's what's going to support them through however they want to live and choose to live." I responded by asking can't you have that in an area where it won't disrupt an entire community. "Not when you're talking about profit margin," Snaza responded. "That's so crazy, right?"

My interview with the Sheriff gave me plenty to ponder. I could see a clear connection from his statements to the problems some neighborhoods, such as my own, were experiencing. Having had such a negative experience, and following what I had learned from the Sheriff's interview, I wanted to know if ethical behavior did exist in the marijuana industry. One such producer had been recommended to me during my interview with Kristi Weeks. I decided to contact the individual and below record key points garnered from that interview.

### *Marijuana Entrepreneurs Impacted by Policy*

Crystal Oliver, President and Co-Founder of Washington's Finest Cannabis, had been recommended as an ethical marijuana producer who was proactive in policy input. I was hoping she could provide a business insider's perspective.<sup>13</sup> My exchanges with Oliver have led me to believe that conscientious entrepreneurs do exist in the marijuana industry. Our scheduled meeting in Spokane fell through, however, it was the impetus for

a three-day tour throughout eastern Washington in a distorted loop that I subsequently nicknamed “The Ring of Pot.”

Leaving western Washington in late March, I headed over I-90, then drove north to Tonasket, east to Spokane, south to Richland, west to Yakima, and back home via White Pass. Along this more or less circular route, I was on the lookout for Tier 3 marijuana facilities scattered around the countryside. I had identified most on a map. In total I visited between twenty to thirty marijuana sites of all configurations along the way. One of the largest, situated on a beautiful plateau overlooking the Okanogan Valley and mountains beyond, happened to be newly licensed to my neighbor.<sup>14</sup>

As I neared Spokane, I drove by Oliver’s outdoor operation positioned in full view of surrounding rural properties. What struck me was the child’s playground in front of a quaint, red farmhouse and a long, makeshift fence screened by loose fabric to conceal the seasonal marijuana cultivated in the field at the back of the home. The site wasn’t as impressive as portrayed on the *Finest Cannabis* website, but I knew Oliver put her heart and soul into her business, loved where she lived, and was struggling to succeed in her passion. I wondered how her business managed odor, or avoided complaints regarding neighborhood character, with such a large, fully conspicuous operation. As with a number of sites I had visited during my excursion, I noted at least one nice-looking residence up for sale nearby.

Prior to Initiative 502, Oliver had actively campaigned to legalize marijuana. She lists an impressive resume of speaking engagements, advisory boards, and legislation she is or has been a part of, including her positions as Executive Board Member of the Cannabis Farmers Council, and Executive Assistant Washington State Affiliate for

NORML (National Organization for the Reform of Marijuana Laws). She clearly had knowledge of the industry. I was delighted when Weeks introduced us. A live interview not being possible, I sent Oliver a list of questions I had planned to ask, to which she responded by email.

“Has your business been successful as a result of marijuana policy in Washington State?” was my first question. She responded by stating her business would not exist without legalization and regulations that, following I-502, were initially very small and business friendly. Licensing and application fees were low. There were “limits on ownership, no vertical integration, a state wide cap on canopy that enticed small businesses like mine to enter the regulated marketplace,” she wrote me. However, in recent years, policy has moved away from supporting small, family entrepreneurs such as herself, to favoring large businesses. She gave examples of changes in legislative and regulatory policy that included:

. . . allowing out of state financing, attempts to allow out of state ownership, increasing the number of stores an individual or entity can own from 3 to 5, only allowing folks to own up to 3 production licenses via assumption of existing businesses (we applied for 3 licenses initially, but the WSLCB had us place our other 2 on hold, then later closed those applications, this policy paved the way for only the very well capitalized to own up to 3).

Although Oliver has land and the ability to increase the size of her Tier 3 operation from one to three on her open prairie site, she said she doesn’t have the financial backing to purchase an available license from an existing business.

When I asked her about complaints from neighbors she replied that none had been received “directly about our facility.” Oliver’s family had worked to develop good

relations with neighbors by taking steps to mitigate complaints. She and her children would pick up trash once a week along the road in front of her property, occasionally cleaning up in front of a neighboring parcel. During the clean-up, neighbors would approach and the communication provided an opportunity to build good relations. Her facility has followed Spokane regulations with a required setback of three hundred feet between the cultivation area and any neighboring primary residence. To combat odor problems, she selects *Cannabis* strains that have a floral, or limonene terpene profile. “Our primary strain is high in the terpene geraniol, which is also found in geraniums and roses,” she wrote me.

Oliver has no desire to establish her business elsewhere, despite new regulations challenging the success of her operation, because she loves the area. Through her research into air quality, Oliver believes outdoor marijuana cultivation, including greenhouses and hoop houses, should be limited to rural and agricultural areas. Her research revealed that 75% of Spokane county farms are associated with zero complaints, while 74% of all complaints received were associated with just three farms. She also found that most of the complaints were related to indoor or warehouse cultivation. In regards to zoning, Oliver believes that the future of marijuana production should be similar to other types of agriculture. Operators should be encouraged to produce using outdoor or greenhouse facilities on parcels no smaller than ten acres. “I also believe setbacks from property lines and neighboring residence are advisable,” she added.

Spokane, as Rodriguez from SRCAA had mentioned, often experiences nighttime inversions that prevent odors from escaping into the atmosphere. Oliver made an interesting observation. She found, while reviewing outdoor marijuana facilities

associated with odor complaints, “that farms in heavily treed areas as well as farms located near creeks were more likely to have complaints.” Her operation, in the midst of a wide open area, would have less impact. From Oliver’s perspective she wrote: “Indoor/Warehouse models are quickly proving to be unsustainable given the high cost of inputs and energy consumption and over time I expect the vast majority of cannabis farms to move outdoors.”

I wanted to know what Oliver had found to be the best method of production in terms of energy efficiency (water, lighting, heating, etc.), environmental safety, neighborhood compatibility, and success in the industry. Having seen her operation from the outside, her response was interesting and valuable in light of earlier discussions regarding the environmental footprint of marijuana production and processing:

Well, we are personally working towards building a full self-sustaining permaculture style operation. This is because I think it is our responsibility to be good stewards of the land. My dream is to have a completely carbon neutral operation. I prefer outdoor cultivation in the native soil because it is less resource intensive. Over the last few years we’ve been planting cover-crops to increase the organic content and health of our soils. We use compost teas for fertilization. We have added organic compost and worm castings to help build our soils and this year we’re going to begin experimenting with bio-char. I know of indoor growers using LED lighting who call their cultivation method “sustainable” I simply don’t agree with the use of that word to describe what they do. They still buy electricity, buy fertilizers and throw away the packaging, they replace their bulbs and throw the old ones away. They buy soil and discard the spent soil as well. It’s not sustainable.

Oliver emailed me a list of improvements she would like to see in policy regulating commercial marijuana operations. Those suggestions include:

- Regulations that encourage outdoor cultivation, perhaps awarding more canopy to outdoor cultivation as an incentive. Maybe a carbon tax on indoor cultivation.

- Scaling back of excessive regulations, tracking of waste, for example, created inefficiencies in our operation and yields no public safety gains. Maintaining security camera coverage over every square foot of the operation is cumbersome and expensive for a small business.
- Appropriate zoning of producers allowing them to engage in direct sales similar to wineries.
- More enforcement of existing rules and regulations. “It is disheartening to see large operators receive ‘cancelation of license’ violations yet be able to continue operating for years as their attorneys appeal the decision and/or force a settlement with a less severe punishment.”
- Creation of a consolidated list serve related to cannabis that covers all agencies engaging in cannabis related rule making.
- The ability to bring my children onto the part of the farm where we grow cannabis. They love working with me in our vegetable garden and I know they’d like working with me in the cannabis field as well. (I see this policy change as highly unlikely, but most other types of farmers including grape & hop farmers get to have their children with them, it’s one of the perks of running a farm that we cannabis farmers don’t get to enjoy.)

Oliver’s business has been impacted by what she calls “problem farms,” when I asked her about unethical marijuana production and processing activities. Spokane’s revised and recently introduced Clean Air Regulations can be directly associated with just three marijuana farms in the county she informed me. Although her business is “barely” profitable, she and her husband work long hours to keep ahead of increasing expense due to regulatory agencies. She wrote “We expected that more businesses would have failed by now, but we didn’t realize that failing businesses would simply be acquired by investors and never retired,” and continued, “We knew this would be hard, it’s been a little harder than we anticipated.”

According to Oliver, the WSLCB funded the agency’s transition to a new traceability system via a 48% increase in licensing fees. The problems that occurred

during that transition were especially damaging to small businesses like hers because retailers had to resort to a manual process and so preferred buying from larger operators who were able to deliver more product at a time. Oliver was forced to find income elsewhere during that period due to zero income for two months from marijuana sales. March was the first month since November 1<sup>st</sup> where, she said, “traceability issues aren’t interfering with the industry, nor our business, and business is picking up and I expect that I may be able to leave my off farm job again.”

Climate, even in Spokane where many cultivators are drawn due to easier growing conditions, is still an issue for outdoor marijuana operations. Over a four-year period Oliver wrote she has had to deal with “late frost, early frost, rainiest October on record, record breaking wind storms with gusts 45+, hail, smoke from forest fires impacting air quality, and drought conditions.” But her biggest concern is that new legislation and policy changes will favor large operations that will eventually put all of the small operators out of business. Oliver said she only wants to earn a living. She’s not interested in becoming a millionaire. “It’s been the experience of a lifetime,” she wrote, “I’ve learned more over the last few years than I ever expected to.”

As stated in the Introduction to this thesis, my research has been conducted through the lens of my experience as a rural residential property owner impacted by state and county marijuana regulations. Before moving on to interviews with similarly impacted residents in Thurston County, I include a counter-perspective from a small-business, yet large-scale marijuana producer and processor. Oliver wrote this summary on the 5<sup>th</sup> anniversary of marijuana legalization.

**5 years post legalization;  
Over-regulation threatens the viability of small cannabis farmers.**

5 years ago when my husband and I attended the New Approach Washington Initiative 502 election night celebration we had no idea that we would be spending the next few years engaging with so many different regulatory agencies, we were still undecided about whether or not we would enter the market.

I remember the hearing the WSLCB held in Spokane, there were several hundred in attendance. My husband, Kevin Oliver's testimony recommended the board adopt regulations that allowed small businesses to thrive and also encouraged the board to allow those with past drug convictions opportunity to participate in the newly legal market.

When the WSLCB released their first set of draft regulations I pored over the hundreds of pages. The board had indeed put together regulations that included provisions to protect small business including caps on the number of retail stores and farms a person could own as well as caps on the size of individual and state canopy. We ran some projections and decided that we were in a position to start our business and take our advocacy to the next level. We were confident that we could support implementation and demonstrate that legalization was preferable to prohibition.

Just two months after our initial screening interview with the WSLCB, after we had submitted hundreds of pages of documents including our banking records & fingerprints (which we had taken at the public safety building by an active law enforcement officer), our local county commissioners adopted an emergency zoning ordinance that rendered 97% of our parcel unusable for growing or processing marijuana. This would be our first introduction to the world of land use policy and the Washington State Rule Making process.

We were eventually successful in organizing and mobilizing the local would-be legal marijuana farmers to oppose the ordinance and a new less restrictive ordinance was adopted and we along with our fellow farmers were able to move forward.

Next came a proposal from the Washington Association of Building Officials (WABO) to modify the state building code to add marijuana growing and processing to the list of "moderate factory industrial uses" which would have triggered F1 building code requirements for all structures where cannabis was grown. Fire flow requirements alone would have devastated rural cannabis farmers throughout the state. Again, we organized and mobilized the farmers and saw the proposed rule modified and marijuana growing was stricken from the rule proposal. I would later serve on the Cannabis TAG for the SBCC as they clarified and modified the fire code for marijuana extraction.

Meanwhile, the WSLCB continued to adopt emergency rule after emergency rule. There were months where multiple rule changes were adopted impacting our businesses processes, too many to list here. A couple over-reaching proposals that come to mind were the WSLCB proposed rule to add destruction of inventory as a mandatory penalty for farmers violating minor regulations and the proposed requirement of commercial grade fencing. In both these instances we had to organize and mobilize and push back and we won.

There have also been battles with the legislature including preventing cannabis farmers from taking agricultural tax exemptions, allowing out of state financing and increasing our license fees which the farmers have lost.

Recently the WSLCB awarded the traceability contract to Franwell, aka METRC, an RFID company, and we mobilized farmers to oppose the requirement of these expensive, single use hard plastic tags for tracking or security. The WSLCB agreed that the vendor could not require this and then METRC pulled out of the contract.

Now our farm is facing increased fees from the county and the local clean air agency. The Clean Air Agency hearing is actually the day after the 5 year anniversary of when legal pot went into effect in Washington.

It's too bad the farmers can't celebrate; instead they're fighting government overreach. It's no wonder there is so much income inequality in the US when various government agencies are always trying to take a piece of the revenue from small business owners while offering tax breaks and other incentives to large businesses.

I am proud of the work that we've done as a group but I fear for the future viability of small, family run cannabis farms in this state. Over-regulation and over-taxation is strangling them.

Figure 27: Marijuana legalization five years later.  
Crystal Oliver's experience on the 5<sup>th</sup> anniversary following marijuana legalization. (Oliver, 2017).<sup>15</sup>

*Thurston County Residents: Jack and Cary – Rochester*<sup>16</sup>

Jack purchased 40 acres on Michigan Hill before he retired in 1999 with the idea he'd create a horse facility complete with a building and riding arena and "that kind of thing." Upon retirement he realized it was too much work so he sold 30 acres. Jack and Cary met in 2011 and in 2013 learned that a neighbor had applied for a Tier 3 marijuana license and special land use permit. They came home from California in 2014 to find large greenhouses erected and chain-link fencing surrounding the installation. Everything conformed to Thurston County requirements. "It had to be at least 25 feet from our property line and he was about 45 feet from our property line," Cary told me. They submitted a public records request with Thurston County in June, 2014 and saw the stipulations for each component of the operation, and that's when they "got angry."

Their immediate concern was well water "because Michigan Hill has a history of hard to get water." Their property had two wells, one hand dug, and they became concerned after learning from the state that the neighboring marijuana business could legally draw up to 5,000 gallons of water per day. So in the fall of 2014, they filed a

complaint with Thurston County after noticing the business was not operating according to county regulations. Cary told me:

They had a permit but we looked at the permit and for example it said no employees. Well there were a lot of employees that lived on the property. There were not supposed to be cars going in and out. No transportation for people who didn't reside on the property. They had extra structures. They had parked an RV back there and it wasn't fully connected but it was more than what the county allowed and so they cited them for that. They had moved in one of those storage containers and made it into some kind of a processing thing. Well the permit clearly stated that there was to be no processing on the property. So there was just a clear violation and what surprised us is that nobody had ever even checked up after the permit was granted. Nobody even came and looked at it. That we could find. County officials did not issue a Notice of Violation until November, 2015.

Cary and Jack were mostly bothered by the security lighting, and the incessant noise from greenhouse fans. "There was no vegetation to screen the operation. It was right in your face. We had a fence between our property and the William's property, but nothing to obscure it other than this chain-link fence that kind of looked like a penitentiary type chain-link fence. And so it didn't feel residential anymore" said Cary.

Several neighbors adjacent to the marijuana operation joined forces to complain about the disruption to their neighborhood character. They observed a makeshift trench being dug to supply electrical power to the business that "just started collapsing." The facility was surrounded by security cameras with the fence covered by an opaque plastic material. Cary and Jack couldn't see any marijuana plants but they assumed it was being cultivated because they could see raised beds and people busy in the greenhouses. They were bothered by the fans and lights at night. "At one point they tried draping some black material. Not solid plastic but like black netting to try and diffuse the light because Christy made the comment to us one time that she got up in the middle of the night and it

was foggy and she said ‘Oh my god the sun’s coming up in the wrong direction’ and it was just the light emanating from the greenhouses.” The facility had three greenhouse structures covered in plastic and a couple of smaller hoop house frames inside the production area that Cary said Thurston County cited as another violation. He continued: “When they originally got this metal storage-box thing, they put it outside the grow, and the permit said everything was to be contained within the grow itself. They started to comply. But how can you not have employees when you need employees? They couldn’t do things like that so they were trying to get a new permit.”

At that point Jack joined the conversation by saying how unfortunate it was that a neighbor he had been cordial with for twenty-five years had acted with so little consideration. When they first heard about the intended operation they requested a neighborhood meeting. “All the neighbors came and Mr. Williams didn’t come. And I called him and he said ‘Oh I decided not to come because I think you’re just gonna’ beat up on me.’ So Cary and I never spoke to him. You know there were no words. He never said ‘Sorry.’ He never said ‘Do you mind if I do this?’ He never asked or told us it was going to happen. It just happened.”

Jack and Cary objected to the fact that the state could issue a marijuana license, and the county a land use permit, without requiring that adjacent neighbors be notified. “After we filed the complaint they did things like put up a sign calling it the Williams Cannabis Farm . . . It was just uncomfortable living next to someone that was angry with us and wouldn’t talk to us and he happens to be a black man and accused us of being racist to the neighbors. You know it just got ugly and we said ‘We don’t need this.’” After the county issued a Notice of Violation and the situation didn’t change, they

decided “to hell with it” and began the search for a new home. Cary and Jack were fortunate because although they never received full value for the sale of their property, at least another neighbor, further removed from the marijuana facility, was interested in buying. They doubt they could have done that well otherwise on the market, due to the obvious presence of the marijuana facility. Before moving to a new property in a different county, they observed between five to ten employees and seven to eight cars coming in and out of the property at different times. The work appeared to be seasonal, but it was obviously the same group of vehicles.

Similar to my own story, Jack and Cary voted yes to I-502, and have friends who rely on medical marijuana. “We have a friend with a bad back. He couldn’t sleep without it, so I’m really for marijuana consumption, especially medical. We don’t smoke recreationally or medically, but I think they need to be somewhere in a light industry, or Kent Valley, or something like that is where they belong. Or maybe it’s Centralia’s light industry. But not next to people in rural communities.” Cary believes that if the state still classifies marijuana as a drug, it is not agriculture. It’s a drug. He said “People think of agricultural ‘Oh it would be nice to have this big lettuce field out there and all these pretty plants growing.’ Well it’s not. It’s a big fan and its lights and ugly greenhouses.” Cary grew up in a tiny mountain town in Colorado and loved that life so when he met Jack he thought “Oh this is just perfect. But having it 45 feet from your property line was just . . . We moved because of the grow.”

Cary and Jack didn’t have to move but their home was no longer what they pictured in their mind—people had country houses for raising chickens and things like that—so once the marijuana operation moved in with the big fence and cameras their

home lost its appeal. They felt the nature of their lives had changed so much they had to sell their property. Both are firm believers that such a business is incompatible with rural residential zoning in Thurston County.

*Thurston County Resident: Ira Holman – Yelm<sup>17</sup>*

While attending almost every Thurston County public hearing addressing the renewal of the Interim Marijuana Ordinance, I listened to testimonies from residents as upset as I was about marijuana zoning and county regulations. Other neighborhoods were obviously also dealing with a large marijuana operation moving into their community without notification. As I reviewed emails submitted to Thurston County's Planning Department, one in particular caught my attention due to the number of residents involved. The leader of this group, Ira Holman, agreed to an interview at his home on the outskirts of Yelm, approximately ten miles from my property.

Holman and his wife, I learned during the discussion, are realtors, which provided a unique opportunity to discuss property values in relation to adjacent marijuana facilities. Few participants had responded to my question regarding an increase or decrease in property values in the *Phase I* mailed survey because, I reasoned, they just didn't know. The marijuana operation Holman battled is a stone's throw from his property in a rural residential area. The large commercial facility is in full view from their home and the street. Holman attempted to move away from the facility several times. Because of his profession, he is well informed about parcel and home values. His story is fascinating, and in many respects similar to my own.

Holman has spent most of his life in Yelm. As a boy he would ride his motocross bike through the area where he built his mountain-view home. After serving in the military, he returned to Yelm's lush countryside because he loves nature. His neighbor, after purchasing the opposite lot, said he was building a house and began constructing a large workshop. All was fine until one day, while Holman was working in his home office, the power went out. It was the middle of summer and the transformer had blown. The power company was called in and Holman asked how, with just three houses and his neighbor's shop, could they have lost power? He was told by a Puget Sound Energy (PSE) specialist, who went over to look at what his neighbor was doing, that a worker in the shop had tried to run a seven amp service off of a 200 amp panel and it blew the transformer. The PSE worker asked Holman if he knew about his neighbor's marijuana operation. "I had no clue because it was all indoors at the time" Holman told me. PSE replaced the transformer and made his neighbor bring everything up to code.

When he was over there actively, halogen lights or whatever they do, our lights would dim. And I have a 400 amp service, and my lights would dim and I'm like 'That's ridiculous!' I mean, I'm not in my shop welding. I got nothin' going on out there and our lights would dim, our computers would flicker and go off and come back on, and we were like 'What's going on?'

Holman immediately confronted his neighbor regarding the home owners association he was a part of with four other property owners, and told him he couldn't do this. It was wrong. "He ignored us and then went full scale and put up his prison yard fence with the black slats and the barb wire and then he started building these greenhouses that are 60 feet long by 30 feet wide and he was gonna' have five of them." At that point Holman decided he needed to sell his house before he lost everything. Then

his wife said “You know that’s crap.” So he put out a flyer. “I made three hundred flyers and went around and stuffed mailboxes and taped them to everyone’s door in the entire 2,000 acre area here and put a meeting date at my house.”

He invited everyone to his large home and was surprised when the meeting ended up being standing room only. Holman had researched how many plants the facility would hold: 1,111 mature marijuana plants based on a three foot by three foot plant canopy according to his calculations. With just an initial 45+ medical marijuana plants being cultivated in his neighbor’s shop, Holman, who suffers from asthma, explained to the crowd, he couldn’t tolerate the odor when the shop doors were left open. He and his wife would run into the house.

We couldn’t even be on our back patio. Couldn’t open our windows because the smell would just make us nauseous. And to be forward I was an MBC officer with the military—nuclear, biological, chemical—so I studied wind patterns and how it all affects and how it comes down through the valley and it would literally just blow right through here and everybody within the development that way is going to smell it, you know, for 60 acres, 70 acres.

Holman did his best to explain the implications to the crowd in his living room. “During the meeting my wife got a text from the grower saying ‘We wish we would have been invited to the meeting’ and my wife just responded ‘You’re lucky you’re not here,’ because people were so angry they may have actually killed him. They were very upset.”

Educating himself and his neighborhood on the issue took months while at the same time he tried to sell his property. To begin with he met the neighbor producing marijuana and told him:

‘Look, if you’re gunna’ build that I think it’s wrong, but I’m gunna’ sell my house because I can’t live next to it.’ I’ve got grandkids. My

kids. We have a lot of youth activities come over here. Girl scouts and FFA and tons of kids come to my house. And I mean I've got FFA animals out back now. And we tried to come to an agreement on a price and I was like 'Fine, as long as I get my money out of it and I can move somewhere where I don't have to deal with you I'm fine. I was in the military. I don't mind moving. I'm fine with it whatever.' And we came to an agreement on a price that was fairish. Not what I wanted, not what I thought it was worth, but it was fair.

Two months later, the neighbor told Holman he couldn't get a loan. The banks would not give financial backing to a marijuana operation. Annoyed at precious time lost, Holman put his property on the market. "Twenty to twenty-five people came to look at it in the first month. It's a big property, nice house, got a big mountain view and we had one offer that was 25% below market value because we disclosed what he was doing next door." That's when Holman understood that "either people weren't interested in living next to a marijuana farm, or they wanted a substantial discount on market price for living next to one."

Holman started hammering the Thurston County Board of Commissioners wanting to know how they could let this happen. He was told he didn't have enough evidence because it was just his house that was impacted. He responded "We're in real estate. It's what we do." He had statements written by people who would have purchased the house, or considered purchasing the house, if the marijuana facility had not been next door. Interested buyers said it was a beautiful home and valued appropriately. They told him "We just don't want to live next to that at all." If they had made an offer it would have been \$100,000 low, and Holman would have had to install screening and everything else necessary to block the marijuana operation's intrusion, so he pulled his property off the market. "We've put it on the market since then. Same deal, nobody will touch it next to a marijuana farm" he said. Holman has listed his property three times in the last five

years at fair market value. He has had other realtors assess the home's value compared to similar properties. "Not even a nibble since that one guy offered \$100,000 low because of the marijuana farm," he told me.

Holman contacted lawyers to know if there was anything he could do. He knew of other people who had spent a fortune fighting and that his neighbors didn't have the finances to support a legal battle. He would be on his own. So he held multiple neighborhood meetings to try to bring everyone together under one homeowner's association to have one strong voice and more income to work with, but there was no support. "So they basically left me out here to fight it on my own, but I'm still ok with everybody." He talked to ORCAA, who sent a specialist to check out the facility. They discussed the odor and the technician told him "There is no scrubbing system that he can put in that is going to make it so you are not affected by the smell of his marijuana. It's not possible." Holman responded "Then why are you guys allowing it?" "That's above my pay grade," responded the ORCAA specialist.

At one particular Commissioner's meeting on the Interim Marijuana Ordinance, the chamber was filled with at least 100 members of Holman's group. Some were more reserved, he told me, but he was outspoken because he didn't feel he should have to live next to a marijuana farm.

I understand the concept of the RRR1/5 because it's part of our job, but having a marijuana farm in a residential neighborhood it's just not, it's not morally right. I mean, you've got kids who live here and who wants to live next to a place that draws in people that are mainly less than honest. I don't know how else to put it, I mean, living next to a prison yard is pretty awful. It really brings down the country feel that we went for out here.

Holman began researching the health effects of marijuana. He learned that particulates disperse off of marijuana plants when vented, especially in the morning and evening when dew and condensation hold the pungent odor stagnant unless moved by strong gusty winds out of the forested environment. Particulates move through the air and are known to cause breathing problems in people with asthma. Holman wrote the County Commissioners “This odor has already made getting the children on the school bus—the school bus stop is located (has been there over six years) at the corner of the projected marijuana grow facility—nauseating.” According to Holman, the odor of just 45 plants was atrocious.

“Then there’s the light pollution,” said Holman “because they have to have the prison yard lights so my bedroom was on the back side of the house right kitty corner from his proposed pot farm so I would have light all day and all night.” If that wasn’t enough, Holman was also bothered by the noise from generators and the constant traffic in and out of the facility. At the time, only one member of the prior Board of County Commissioners, Bud Blake, seemed to care about his situation. Holman had this to say about the new Thurston County Commissioners:

Now we’ve got three what I think are pretty fair Commissioners up there that are trying to make their way through this nightmare. They just can’t seem to. They don’t seem to want to be the ones to lay down the hammer and say ‘We’re done. It’s gunna’ be this.’ So they keep passing these interim ordinances for six months and six months and six months but at some point they’re gonna’ have to make a decision. There are people that are going to vote them out too.

Holman’s neighbor had applied for a Tier 1 license. Although it was supposed to be a small facility, Holman knew, based on the construction, that his neighbor was planning something much bigger. “He was going to grow way more. His property is 224

feet wide by 900 feet long, just like mine, and it's awful. It's right on the street. And there were so many more things that he did that were illegal." Holman has a wetland at the back of his property. The 300 foot wetland buffer extends onto his neighbor's property.

He continued:

He cleared it without permit. He brought in, I'm going to guess about 10,000 yards of fill dirt, and lifted the level of the land like four feet. So he had a nice flat area. And it caused flooding in the two properties down below him and he doesn't care. There is so much. I mean blew the transformer. Illegally wiped out wetland buffers, and raised the land. I mean the guy has just been totally illegal.

Holman had heard, but could not verify, that after four and half acres were completely cleared, graded and the wetland buffer filled in on the lower half of his neighbor's property, he was fined approximately \$100,000 or more "and that's why he can't sell his property because he owes just too much." Apparently water now cascades down into his neighbor Randy's lot "and over into the storm water retention pond, and then over into the other guy's lot and it's caused problems," he told me.

I asked Holman if his neighbor had ever had a special land use permit to do what he was doing. He said he had been able to stop the activity before the Tier 1 greenhouses were completed. His neighbor could legally grow 45 marijuana plants in his shop as a medical cooperative, however, someone else, Goldwater Industries from Arizona, owned the property and that was another issue. "One of them has a felony and can't have a permit, and then I think his son picked up a felony and lost his and that's why they quit growing here" Holman told me.

Apparently the neighbor was cultivating more than the medically authorized 45 marijuana plants because Holman discovered another marijuana crop in cultivation on a

ten acre property about a mile away. He had observed his neighbor repeatedly filling a 500 gallon water container on the back of his truck and watched him drive away so one day decided to follow him. In doing so, he discovered more marijuana hidden in a nearby forest. Water had to be delivered from elsewhere because the property didn't have a well. Holman first showed the site to another neighbor and then informed the authorities. He told me:

This is how I know there's something going on because that night they must have got a tip that they were going to be raided the next day. They came with a U-Haul and took out a ton [of marijuana] over there next to me and we went back over there [the other property] and they'd pulled all their plants out of the ground and threw them onto someone else's property.

Holman's home is on a shallow aquifer. "We're only 98 feet and there's hundreds of us on it and it does tend to get a little murky at points and starts spewing brown water and it started when he started doing that. So we shut him down from doing that." Holman told me he went over to his neighbor's property after he had simply opened his spigot and left. The water flooded out everyone on neighboring properties below. "Why did he do that?" I asked. "Again just to be spiteful, and I just went over there and shut it off. Well now he's got security cameras everywhere." Holman had to install a water filtration system to help purify his water because it became muddied with tannins and ore. His neighbors had purification systems put in because the marijuana cultivation was "definitely drawing down on our water levels."

Holman has tried to be a good steward for his neighborhood:

I do what I'm supposed to do. I call who I'm supposed to call. I report what I'm supposed to report and they pretty much do nothing. There was no notification on what he was doing out here at all. And county

said 'Well, it's not up to us to notify you, it's up to you to look it up.' That's what they told me at county and I'm like you guys came out and made me put up an erosion gate and put yellow signs all over my property and you're telling me it's not up to you to notify neighbors of what's going on? Because there was nothin' out here. And that was, yeah, a big sticking point for me.

Although Holman voted in favor of legalization, he said "I just don't want it in a residential area. Period. If you want it to be on big acres, put it way out in the middle of nowhere on big acres but I'm for the industrial where they have the facilities to regulate the pollutants and the water." As he pointed out, unfortunately no one has startup capital to purchase an industrial parcel at 1.5 million dollars and add another six or seven hundred thousand in build out, because banks won't fund a business that is considered illegal federally. "It'd be really great," he said, "if the Federal Government would just step in and be like either 'No, you're not doing it.' or, 'Yes, you're going to do it but it's going to be by our regulations' because they're much stiffer and they don't play, you know, politician corrupt games on the low level where 15 thousand gets your vote." One of the problems that Holman sees is that legal transgressions are being allowed and that penalties are not strong enough.

The penalty should be if you're caught once doing something illegal 'OK. Here's a ten thousand dollar fine.' If you're caught twice you're shut down. You lose your license. The property's done. You're never growing again. I mean if you make it that black and white they're going to do it right because nobody wants to give over 10 grand and nobody wants to lose their right to grow.

Holman has been waiting for his neighbor to list the property so he can buy it. I asked why he thought it hadn't been listed with the operation now shut down. He responded:

To spite me. He's that vindictive. His brother threatened me a couple times on the road. I mean drove up in his truck, slammed on his brakes and just stared at me. And I'm just standing on my property loading stuff in and out of my truck and I just looked at him. I'm right here. They're not brave. They won't get out and say anything, but they try to intimidate you. I don't get intimidated. But, that's happened a few times. And I'm always polite, you know, and I wave. I'm neighborly. They're not doing anything illegally then I try to be neighborly, but they still have this hatred toward me because I'm the one that shut them down out here.

I wanted to know if that was the only retaliation Holman had experienced. He told me "The threats, Oh my god . . . when they were shutting down they were cussin' and screamin' at me when I was out here working on my tractor. Just stuff like that and they're trying to intimidate me, you know, but I just try to be nice, call 'em my neighbors."

In closing Ira was nostalgic when he told me:

Right on the back side of my shop is the Centralia western Chehalis bear migration trail. That's where they migrate right through there. And we see them every year. I haven't seen them in a while because his stuff has fences and stuff everywhere and the deer are becoming less and less. The elk we don't see them anymore. We used to have an old man out here who was as big as my truck and he was the coolest old elk. He had moss growing off of his rack and he was the coolest guy. Haven't seen him in years. I'm into the environment. That's why I moved out here, I like nature.

### *Conclusion*

Throughout the course of this research I have had contact with individuals embroiled in legal proceedings to prevent an industrial-scale marijuana operation from locating in their community. I could add more stories similar to the above. Yet there are always two sides to a story I realize. Although it would have been interesting to interview a marijuana business owner out of compliance with the regulations, such as my neighbor,

I did not think it would add to the focus of this thesis. I also chose not to interview the WSLCB as I had had my own negative experiences with the agency. I believe the interviews above speak for themselves.

### 3.4 *PHASE III*: THURSTON COUNTY SURVEY ANALYSIS

*Phase III* of this research involved a second survey mailed to residents living within close proximity of a proposed, or already licensed, marijuana operation located in a rural residential neighborhood of Thurston County. For this survey I selected residents situated up to an approximate half-mile of a Tier 1, 2, or 3 facility throughout the county. Of the 200 surveys sent out, only three were returned as undeliverable. The response rate was slightly higher than the *Phase I* survey. The few (seven) who were unaware of a facility, yet returned an incomplete survey, could indicate the marijuana application for land use had fallen through in that location. A total of 61 survey responses were collected from May 1, to June 11, 2018.

Marijuana producer locations vary throughout Thurston County, resulting in greater impacts to some residents than others. As with the *Phase I* survey, responses could be limited to only those who felt strongly enough to provide feedback, both positive and negative. As depicted in the graphs below, the results indicate the majority of participants are either undecided, somewhat, or very much impacted by a marijuana facility in their neighborhood. Similar to the *Phase I* statewide survey, a strong majority indicate they would prefer not to have a marijuana facility located in their vicinity.

The *Phase III* survey was divided into two sections. Section One required a response indicated on a scale of 1 – 5:

1 = Not At All 2 = Not Really 3 = Undecided 4 = Somewhat 5 = Very Much

#1. To what degree has a marijuana facility impacted your neighborhood?

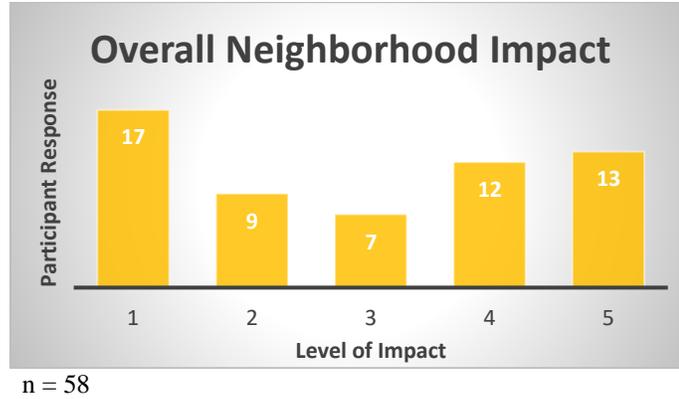


Figure 28: Thurston County - Overall impact from Tiers 1, 2, or 3.

#2. Due to this marijuana facility have you been impacted by any of the following:

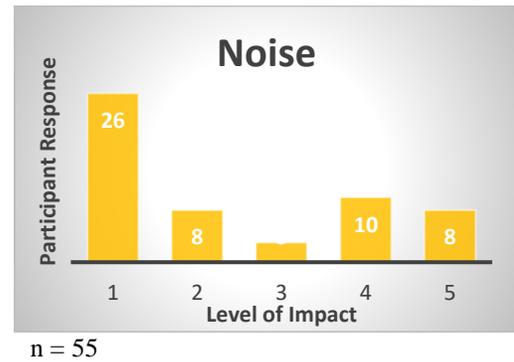
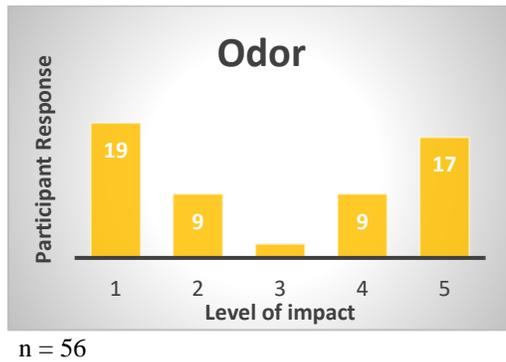


Figure 29: Thurston County - Impact from odor and noise.

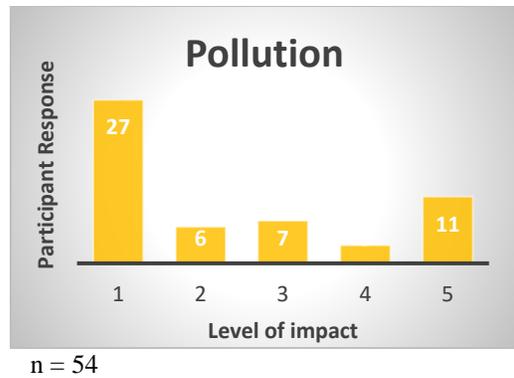
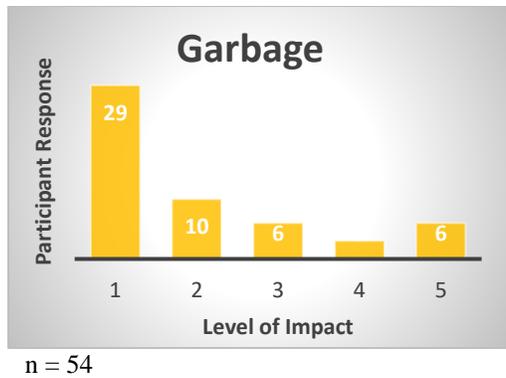
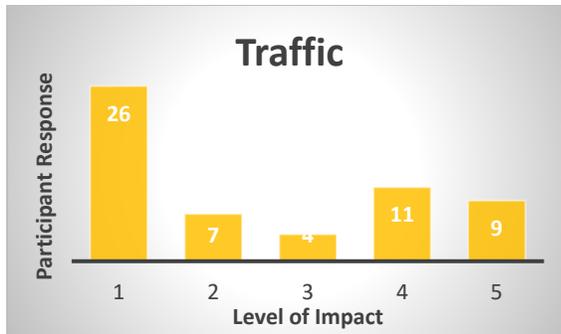


Figure 30: Thurston County - Impact from garbage and pollution.



n = 57

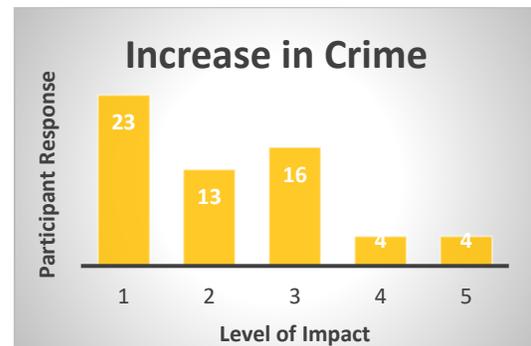
Figure 31: Thurston County - Impact from traffic.

#3. What is your level of safety concern due to the commercial marijuana facility?

#4. Have you noticed an increase in crime following the arrival of this marijuana facility?



n = 60



n = 60

Figure 32: Thurston County - Safety concerns and crime

Section Two required a Yes / No response.

#5. Were you notified about this neighboring marijuana facility?



n = 60

Figure 33: Thurston County - Notified about marijuana facility.

#7. Have you considered moving elsewhere because of this marijuana facility?

#8. Would you prefer not to have this marijuana facility in your neighborhood?

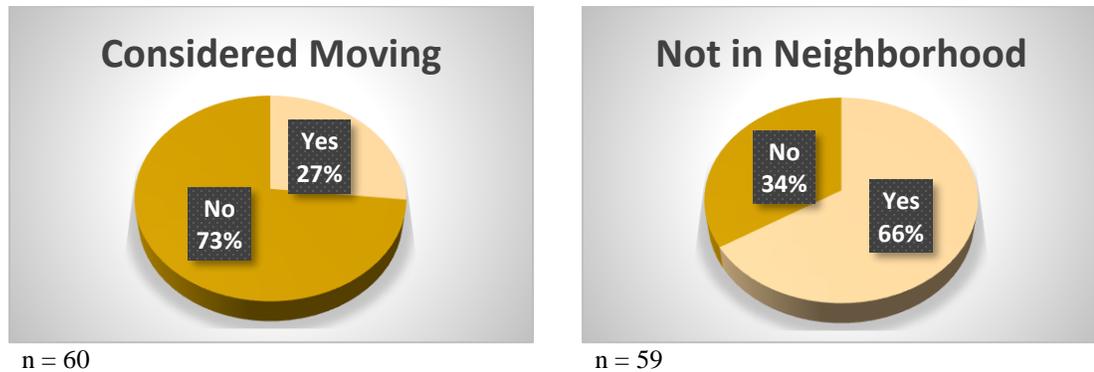


Figure 34: Thurston County - Considered moving / Prefer not in neighborhood.

Question #6 asked “If you tried to prevent this marijuana facility did officials assist you appropriately?” It also allowed for the additional response: “Not Applicable.” The majority (75%) selected “Not Applicable” and the remaining 25% said “No.” However, that 15 out of 59 responded in the negative and no one chose “Yes,” is worth noting.

Question #9 provided space for further comment. Participant responses have been included below. Forty percent of participants responded to question #9 with the majority expressing some type of concern related to a marijuana operation close by.

- “They are good neighbors. Unlike some of the people that live near me.”
- “No noted adverse impact on neighborhood.”
- “Marijuana has been around for many years, it is grown in the ground. It can help people to relax and sleep.”
- “It’s about time! Now watch the corrupted state rake in the cash!”
- “Not a big deal—like a liquor store. Folks in these parts tend to work hard and earn little. Availability of options to relieve that

stress or 'escape' nearby may help. How to help/prevent? It's the irresponsible use/abuse that can occur anywhere may be worth future study."

- "It is great to see previously unused buildings now active with economic development due to marijuana laws getting changed. Better than empty buildings!"
- "My neighbor has a small grow-op that is built very well, with lots of security cameras. If any impact, it makes for a more secure environment."
- "It was here before I was. Owners are considerate and do a good job managing traffic now. My first year there were some issues during harvest. Other neighbors were concerned about cars coming to the back of our dead end street and put up signs and gates. I have no issue with the farm."
- "So far, its presence has not caused any negative impact on my property."

Concerned:

- "This facility is about 1/4 - 1/2 mile from my house, on my road. A lot of workers end up at our house. The school bus stops about 2000 feet from the facility. It's literally in a neighborhood. Harvest time it smells awful and traffic increases dramatically. We keep hoping it will fail or move."
- "I see several points of pollution sources that impact my sense of environmental health."
- "Concerned that we had no idea; and while we are not opposed to its purpose, the potential for criminal activity is disconcerting."
- "Marijuana is still against Federal laws! U.S. national government not enforcing law. How many 'DUI' accidents (fatalities) have been directly contributed to marijuana intoxication! One that I know of in Rochester [a] teenage girl [was] killed! Those that grow work with, and use, are shortening their length of life! Dumb idiots."
- "We only knew there was something in the neighborhood from the odor. Other neighbors also did not know and didn't notice the odor. There have been no other indicators of a facility."

- “Cities and counties go to great lengths to keep industry and private residences in separate zonings but then they allow marijuana facilities in residential neighborhoods. It’s all about \$! If it was in their neighborhood they would certainly decline the facility.”
- “Don’t know yet if it will impact us with odor because it is relatively new. If it does we will definitely not be happy.”
- “They have been working on this site over two years, nothing is going on as yet. Workers come and go. Workers complain no pay so they leave. Moved a couple trailers in but nothing is hooked up. Perk holes been dug but no septic at the facility. If they are growing anything I have no idea.”
- “Tiny permit posted on the road. My family has been on this property since 1907. Noise of multiple vehicles, plus garbage truck, delivery trucks; additionally the road is a private road and the marijuana growers do nothing to maintain and repair the road. Traffic drives fast (one lane dirt road) past my house causing dust in summer. They have installed floodlights which impact neighbors at night. This was a quiet, established rural neighborhood. They moved from CA and ruined our neighborhood. Even though they have security on their property, I can’t afford to make all my buildings secure beyond locking them (I have a home, three large barns, two sheds and a rental house.) They have less than five acres, but built a second home on the property to house ‘visitors.’ I feel that the county turns a blind eye to what they are doing since their grow op is a tax revenue for the county and state. Finally, marijuana sales are not permitted near schools because of the concern of the wellbeing of children, yet this couple has a child and obviously he lives on the property. I included this when I responded to the Liquor Control Board when the application for the permit to grow was posted and was told there was nothing that could be done. Obviously, money wins out and the laws are only applied when convenient.”
- “A commercial facility should be approved prior to construction in a rural residential area. We often smell odor when outdoors. Conversations with ORCAA sound like there is little they can do to improve air quality, as anyone who wanted a permit for growing marijuana was given one without question.”
- “The smell is overwhelming and the sound of venting became a nuisance. Mainly smell, we have to go inside while venting times.”

- “I am offended that they were allowed to begin operations before notifying neighbors. Now it looks like they are here forever. Those operating it on the Mahan’s farm are notorious in the past for breaking county codes. Give them enough time and they’ll do it again. It took \$60,000 to stop the county from giving them a motor sports permit. Enough is enough!”
- “We have two facilities on our short street (one is next door to us). Concerned about the density. One added another well recently. Also concerned about how run-off is being handled. Some days the skunk-like smell is overpowering and makes it difficult to be outside. Have also smelled burning pot. A Commissioner told me there was nothing they could do about the situation.”
- “I would really prefer not [to] have facilities in our area.”
- “These facilities should be zoned industrial or commercial and if rural areas, only zoned Agricultural, never in residential even five acre parcels. The one in our neighborhood is too far away to smell but the house two down says it’s always an awful smell when they are processing.”
- “This is all driven by MONEY and unscrupulous inconsiderate Get-Rich-Quick Hooligans. The LCB and to a lesser extent Thurston County care NOTHING about neighbors and neighborhood impacts. We are all dismissed as NIMBYs.”
- “The problem is that 1) They burn garbage and trash and use gas to start their outdoor fires—they obviously do not get a burn permit or follow any of those rules. We often wonder what plant parts/chemicals are being burned. 2) It was listed as a ‘home based’ business in permitting—said no increase in cars coming and going—not true. People in and out from early in AM to late at night—big semis, delivery trucks, lots of ins and outs. They were required to have a driveway adequate for a firetruck to come in and turn around—this is not a normal home requirement. 3) They are always constructing something—hard to not hear it as it is on our fence line right next to our house . . . This is a manufacturing process and should be located in an appropriate location—somewhere like an industrial park with lots of warehouses . . . We are on just over two acres and the grow operation is on about the same as we are—too small for buildings right on our property lines.”

As with the *Phase III* survey these comments express a variety of opinions and experience. Most reflect points addressed in this thesis. However, it should be noted that this feedback came from rural residential areas all over Thurston County. Although some respondents have no issue with a facility, and others are supportive of empty buildings now being filled with new jobs available, those who have been negatively impacted have brought up additional concerns that include: the overpowering smell to some of burning marijuana and the illegality of doing so; multiple facilities locating in the one small area; the added financial burden to neighboring residents; accidents that have led to a teenage fatality in at least one instance; and for a few, the impression that this is all about the money and the tax revenues now flowing to an unconcerned government.

The *Phase III* results represent a fragment of Thurston County's total population, and a small portion of those residents neighboring a marijuana operation throughout the state. Why survey recipients chose not to participate in this survey requires speculation on my part; it could be that some individuals are more sensitive to odor or noise, for example, than others. However, despite this small sample size, results indicate that some Thurston County residents are negatively impacted by a marijuana facility. This phase of the research did not differentiate among respondents according to marijuana Tier level, so it is impossible to determine whether the overall size of an operation affects the degree of impact. Future research to include a state wide survey of neighborhoods surrounding all three marijuana production and processing Tier sizes, as well as marijuana cooperative operations, is recommended.

The *Phase I* and *Phase III* survey results show some similar patterns. In overall neighborhood impact, extremes appear at either end of the Section One scale in both

surveys and percentages are identical. When considering the overall impact to neighborhoods the percentage of Washington residents not impacted at all, or not really (scale 1 or 2) the total is 45% compared to Thurston County also at 45%. This leaves 55% of Washington State and Thurston County residents either undecided, somewhat impacted, or very much impacted (scale 3 – 5) by a marijuana facility.

In all other areas, except for concerns about safety, the majority responded that they were not really, or not at all impacted by a nearby marijuana facility. However, the majority of participants in both surveys indicated that they would prefer not to have the marijuana facility in their neighborhood. I provide those comparisons in the tables below:

Table 2: Comparison of Washington State and Thurston County Section I survey results.

|                  | <b>Washington State<br/>Scale 1 - 2</b> | <b>Thurston County<br/>Scale 1 - 2</b> | <b>Washington State<br/>Scale 3 - 5</b> | <b>Thurston County<br/>Scale 3 - 5</b> |
|------------------|---|--|---|--|
| <b>OVERALL</b>   | 45%                                     | 45%                                    | 55%                                     | 55%                                    |
| <b>ODOR</b>      | 72%                                     | 50%                                    | 28%                                     | 50%                                    |
| <b>NOISE</b>     | 75%                                     | 62%                                    | 25%                                     | 38%                                    |
| <b>GARBAGE</b>   | 78%                                     | 72%                                    | 22%                                     | 28%                                    |
| <b>POLLUTION</b> | 75%                                     | 61%                                    | 25%                                     | 39%                                    |
| <b>TRAFFIC</b>   | 61%                                     | 58%                                    | 39%                                     | 42%                                    |
| <b>SAFETY</b>    | 45%                                     | 35%                                    | 55%                                     | 65%                                    |
| <b>CRIME</b>     | 62%                                     | 60%                                    | 38%                                     | 40%                                    |

Table 3: Comparison of Washington State and Thurston County Section II survey results.

|   | <b>Washington<br/>YES</b> | <b>Thurston County<br/>YES</b> | <b>Washington<br/>NO</b> | <b>Thurston County<br/>NO</b> |
|---|---------------------------|--------------------------------|--------------------------|-------------------------------|
| <b>NOTIFIED<br/>ABOUT FACILITY<br/>CONSIDERED<br/>MOVING<br/>PREFER NOT IN<br/>NEIGHBORHOOD</b> | 19%                       | 13%                            | 81%                      | 87%                           |
|   | 19%                       | 27%                            | 81%                      | 73%                           |
|   | 56%                       | 66%                            | 44%                      | 34%                           |

Section two revealed that the majority of Washington State and Thurston County residents were never notified about the marijuana operation locating in their

neighborhood. In addition, more than half of Thurston County and Washington State residents stated that they would prefer the marijuana facility was not located in their neighborhood.

Had zoning not been redefined in Thurston County's Interim Marijuana Ordinance, I believe more complaints associated with commercial marijuana operations locating in rural neighborhoods would have been received by county officials, with these results potentially leaning further toward negative impacts. Instead, some marijuana businesses in Thurston County have failed or moved elsewhere due to these changes in zoning, or through loss of a license for a variety of reasons. Some survey participants may never have been aware that an application had been filed to locate a commercial marijuana operation in their neighborhood.

Although this research provided an opportunity for participant comment, additional views from policy makers, marijuana industry stakeholders, healthcare professionals, and residents on either side of the marijuana land use and policy debate, would have made a valuable contribution. For example, I am aware of a neighborhood in King County where a group of families are taking a legal stand to counter an industrial-scale marijuana operation attempting to locate within their community. Additional interviews with marijuana business owners would also have enhanced this research. I am aware of marijuana entrepreneurs upset that the WSLCB encouraged buildout before those business-people had acquired a land use permit. In an attempt to get in ahead of the game, they took a risk on unpermitted construction, and, when regulations changed, lost their investment. Future research should include these people.

- 
1. Holman, I. (2016). Not In Our Neighborhood. Letter of Complaint submitted to Thurston County Resource Stewardship Long Range Planning. *Yelm, Washington resident*.
  2. Cline, V. (2018, February 16). Compliance and Enforcement Officer. *Washington State Department of Ecology Southwest Regional Office Water Resources Program*. Olympia, Washington. Personal interview.
  3. Bauer, S., Olson, J., Cockrill, A., Van Hattem, M., Miller, L., Tauzer, M., Leppig, G. (2015, March 18). Impacts of surface water diversions for marijuana cultivation on aquatic habitat in four northwestern California watersheds. *PLOS ONE 10* (art. e0120016). doi:10.1371/journal.pone.0120016
  4. Washington State Department of Ecology. (2016, December). Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State. Publication No. 14-11-003. *Water Resources Program Washington State Department of Ecology*. Lacey, Washington.
  5. Washington Administrative Code (2018). RCW 90.44.050. Permit to withdraw. *Washington State Legislature*. Available: <https://app.leg.wa.gov/rcw/default.aspx?cite=90.44.050>
  6. McNamara, N. (2017, August 10). THC in Seattle water ‘Highest Detected in the World’.” *Seattle Patch*. Seattle, Washington. Available: <https://patch.com/washington/seattle/thc-seatte-water-highest-detected-world>
  7. Weeks, K. (2018, February 20). Government Relations Director at the Center for Public Affairs. *Washington State Department of Health*. Olympia, Washington. Personal interview.
  8. McNair, F.L. (2018, March 16). Executive Director. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington. Personal interview.
  9. Spokane Regional Clean Air Agency (SRCAA). (2017, December 4). Q&A Spokane Regional Clean Air Agency’s Proposed Rules for marijuana Production & Processing. *Spokane Regional Clean Air Agency (SRCAA)*. Spokane, Washington.
  10. Lopez, J. (2018). Compliance Office. *Spokane Regional Clean Air Agency (SRCAA)*. Spokane, Washington. Personal interview.
  11. Snaza, J. (2018, February 26). Thurston County Sheriff. *Thurston County Sheriff’s Department*. Olympia, Washington. Personal interview.
  12. Northwest HIDTA. (2018). Northwest High Intensity Drug Trafficking Area Threat Assessment and Strategy for Program Year 2018. *Northwest HIDTA*. Seattle, Washington.
  13. Oliver, C. (2018). President and Co-Founder. *Washington's Finest Cannabis*. Spokane, Washington. Personal interview.
  14. McIver, M. (2017, August 21). Narcotics Taskforce Officer’s Report. Case Number: 16-035 TNT. Unlawful Manufacturing of a Controlled Substance – Marijuana. *Thurston County Narcotics Taskforce*. Olympia, Washington.
  15. Oliver, C. (2017). 5 years post legalization; Over-regulation threatens the viability of small cannabis farmers. *Washington's Finest Cannabis*. Spokane, Washington.
  16. Jack and Cary (2018). *Rochester, Washington former residents*. Personal interview.
  17. Holman, I. (2018). *Yelm, Washington resident*. Personal interview.

---

## CH. 4 CURBING THE CONUNDRUM

*Land use decisions impact us all. They affect our water, community character, wildlife, and environment, public safety, roads, and economy. Thurston County's land-use regulations are intended to promote sound, coordinated development and the most appropriate use of land, and to conserve and restore natural resources that make Thurston County such a special place to live.*

Thurston County's Land Use Ordinance, 2016<sup>1</sup>

### 4.1 POLICY OPTIONS TO CONSIDER

On May 1<sup>st</sup>, 2018, the Thurston County Board of Commissioners renewed, for the 11<sup>th</sup> time, the county's Interim Marijuana Ordinance. A small group responded during the public comment period. Others attended the public hearing. People again raised concerns about the zoning of marijuana operations in rural residential or agricultural areas, referring to some of the issues discussed in this thesis. Two industry representatives attending the hearing asked the BoCC to change the zoning to allow marijuana production and processing in agricultural areas in the county. I supported the renewal of the 11<sup>th</sup> Interim Marijuana Ordinance that does not allow the zoning of marijuana production and processing operations in rural residential or agricultural areas of unincorporated Thurston County and presented the following testimony:

In 2014 my husband and I began a four-year journey fighting the threat that was destroying our neighborhood character. We are still fighting that battle at a cost, so far, of \$70,000. \$70,000 to stop an injustice resulting from a county ordinance. Lack of foresight in county and state regulations did not, and still do not, adequately protect residents from an industry so new to the state. No one knows what the eventual outcomes will be . . .

However well intentioned, the LCB with just 16 officers is incapable of enforcing the regulations, and even more so when they identify upset neighbors as NIMBYs. Common people like ourselves have nowhere to

turn if regulations do not protect the safety of our communities, our easements, our air, water, and soil, our pets, our children, our elderly, our neighborhood character, and the health of the natural environment.

Our story is an example of what harm the inappropriate zoning of marijuana can invite to a community.<sup>2</sup>

Those in favor of changing the ordinance and allowing industrial-scale marijuana production and processing in rural areas argued:

House Bill 2136 was the marijuana 502 fix Bill which allowed legislature jurisdictional powers to reduce the buffer from a thousand feet down to 150 feet . . . Now in my review of all this I did not see any sort of nod toward that ability to reduce zoning and actually put these businesses in a place where they won't impact the community. Right now you're shoving them into industrial and commercial sectors which are outpricing other businesses to exist there. It's creating what we call clustering and that clustering is creating a non-fair competitive advantage against other businesses . . .

The USDA considers this an agricultural product. I understand the legislature has been looking at it over and over again. According to them, as far as I know, and everybody I talk to, it's an agricultural product unless we're talking about tax. So, it's your job to dictate the health of this community both by the farmers, and by consumers, and by the public, and it is my job to tell you you're doing a poor job at it. I think you should relook at this, tool it better, and give something to this new industry.<sup>3</sup>

These disparate opinions exemplify the divide that my research identified between those who are seeking to establish marijuana businesses throughout Washington, and those like myself and others who are being severely impacted by such operations as they degrade neighborhood character and the environment. As previously stated, early versions of the Thurston County Interim Marijuana Ordinance permitted commercial marijuana production and processing operations in rural residential and agricultural areas of the county. Due to public outcry, as of November 10, 2015, these areas were removed from the interim ordinance.<sup>4</sup>

The data collected for this thesis reveal that not all Washington State residents neighboring commercial marijuana production and processing facilities have been negatively impacted by the industry. As shown in the results section, 56% of residents neighboring a Tier 3 operation in rural areas across Washington State would prefer not to have the marijuana facility in their neighborhood. In Thurston County that number is somewhat higher at 66% for residents close to either a Tier 1, 2, or 3 marijuana operation. Throughout the state only 19% had considered moving elsewhere while in Thurston County 27% indicated they had considered this option.

The *Phase I* and *III* survey responses demonstrate several key points:

- The majority of participants located within an approximate half-mile of a marijuana operation indicate they were never notified about the incoming facility (81% across Washington State and 87% in Thurston County).
- We see somewhat similar results between those not impacted at all (33% across Washington State to 29% in Thurston County) to those who indicated they have been impacted “very much” overall (29% across the state compared to 22% in Thurston County).
- The data shows that a higher percentage of Thurston County residents have been impacted in all categories than participants neighboring only large facilities across the state.
- Both the statewide survey targeting only Tier 3 facilities (*Phase I*), and the more encompassing county survey of all three Tier levels (*Phase III*), show similar patterns in response to impacts to odor, noise, garbage, pollution, and traffic.
- The size of a facility may not be a point of contention, but rather concerns such as odor, noise, unsightly fencing, could be bothersome regardless of the Tier level of a marijuana operation depending on multiple variables. These variables could include parcel size, distance from neighboring properties, obscurity, indoor or greenhouse operation, private easement or public road access, ethical business practices, odor and noise control, young families in the neighborhood, to name just a few.

These results should suggest discussion and further research. Residents of Washington State and elsewhere need to be made aware of the potential for social and/or environmental impact to residents situated in close proximity to commercial marijuana production and processing operations. New legislation is needed to protect rural residents, the environment, and consumers from any harms associated with the marijuana industry. The burden should not be borne by those challenging illicit behavior, fighting against the loss of neighborhood character, or expending thousands of dollars to safeguard their communities.

For the time being, the WSLCB has put a moratorium on all applications for Tiers 1, 2, and 3 marijuana licenses.<sup>5</sup> However, Washington’s Governor Inslee declared in January, 2018 that the marijuana industry will be moving “full speed ahead.”<sup>6</sup> Therefore, as long as the WSLCB has the authority to license a facility prior to land use approval, property owners should pay attention, in particular should county zoning regulations fail to adequately protect them. House Bill 2630, introduced by Representatives Griffey, MacEwen and Van Werven in 2017, was intended to limit the powers of the WSLCB to license a marijuana facility prior to land use approval (Appendix IV). In summary, House Bill 2630:

- Establishes that the issuance or renewal of a marijuana-related business license by the Liquor and Cannabis Board (LCB) is contingent on the applicant providing written proof that it is in compliance with the regulations of the local jurisdiction where the business is, or proposed to be located.
- Authorizes the LCB to tentatively approve a license for an applicant who otherwise meets applicable licensing requirements but has not provided written proof of compliance with local regulations.

- Prohibits a licensee having only a tentative approval from engaging in any marijuana-related commercial activities requiring an LCB-issued license.
- Requires the LCB to issue the license if, within six months of tentative license approval, the applicant provides the LCB with written proof of compliance with all local regulations.<sup>7</sup>

The provisions listed in this proposed Bill relate to a serious problem with marijuana policy that has been discussed throughout this thesis—the ability of the WSLCB to grant and renew a marijuana license before any land use applications for a marijuana operation have received county approval or permits. Each of the Bill’s provisions would have offered greater protection to neighboring residents by limiting the power of the WSLCB. The introduction of this Bill indicates that some government officials are aware of this disturbing weak point in marijuana policy. Hopefully the issue will be addressed again during upcoming legislative sessions.

New legislation, such as HB 2630, restricting the power of the WSLCB to license without land use approval, could prevent the expansion of the industry into unprepared neighborhoods. The state has seen commercial marijuana operations quickly move beyond the “mom and pop pot farm” some voters may have originally envisioned. As in my example, my neighbor ran with the opportunity to expand his illicit marijuana operations into a massive, industrial-sized, dual facility smack in the middle of a rural residential area. Media reports indicate that even Monsanto is now considering entering the marijuana market.<sup>8</sup> As big money investor interests increase, small-scale professionals, like Crystal Oliver (interviewed for this thesis), could be left struggling to compete and maintain a license through specialty “boutique” marijuana products.<sup>9</sup>

Large investors are moving the dial on the marijuana industry in Washington State. Where smaller marijuana operations fail, the newly available licenses can only be sold to investors who can afford to buy one. Should policy allow corporate giants running industrial-scale marijuana operations to move into areas zoned rural residential or agricultural in Thurston County, the impacts to our farmland, forested landscapes, and community character could be significant. While HB 2630 is a beginning, I do have suggestions for marijuana policy improvement. I consider these in this next section.

#### 4.2 POLICY IMPLICATIONS AND RECOMMENDATIONS

The surveys and interviews conducted for this research comprise three subjects of inquiry related to marijuana policy: 1) Environmental impacts resulting from inadequate regulations. 2) Changes in marijuana policy and the outcomes. 3) Social impacts in rural areas resulting from flaws in marijuana policy. As a result of this inquiry, below I discuss what marijuana regulatory weak points need to be addressed in future policy improvements to ensure the well-being of rural residential communities.

##### *Marijuana Policy—Environmental and Social Improvements*

I begin with improvements I consider necessary to protect the state's valuable water resources. Water consumption should be of major concern in the regulation of marijuana production and processing through a revision of the 1945 Groundwater Code and Clean Water Act. Estimates of water consumption in California clearly indicate the need for monitoring water use in licensed Tier 2 and Tier 3 marijuana operations to ensure usage falls below the allowance of 5,000 gpd without need for a water right permit. Monitoring water consumption in marijuana cultivation and processing should be

a requirement whether in Washington State or anywhere else in the country legalizing the drug. Detailed records of that usage should be maintained throughout the state to be used to alter policy if needed, and for research purposes.

The 1945 Washington State groundwater code that allows 5,000 gpd in commercial water use was established decades before marijuana cultivation became a legal enterprise. According to DOE Water Resources Compliance officer Vicki Cline, this earlier code has not been updated to address water usage by this new industry. Based upon my research and experience, I do not believe the 1945 code adequately protects Washington's aquifers or streams from excessive water consumption, or potential contamination, by the marijuana industry. Therefore, the Groundwater Code and Clean Water Act should be revised to address this vacuum. As discussed earlier, I calculated that a Tier 3 production facility, with the low estimate of 2,500 plants requiring six gallons of water per day (gpd) per plant, could consume almost 15,000 gpd of water during high production cycles. When I asked Cline if anyone was looking at these numbers she responded:

That's a good question. I don't know whether our policy folks at our headquarters office are poking around at Washington State extension service to incorporate anything in the extension, into the irrigation guide which is used statewide for water duties for crops. So I don't know. That'd probably be a good question to pose to the Washington State extension service to see if they're actually coming up with any numbers that are real. Then once that happens, I think maybe our policy folks would possibly look at updating our water use guidelines to include that type of crop.

Based upon Cline's remarks, my calculations, and the rapid expansion of the marijuana industry, I suggest new policy be implemented immediately to measure and address water consumption by the marijuana industry.

The diversity of Washington State, with its varied topography and growing conditions on either side of the Cascade mountain range, provides a unique challenge to policy makers. At the very least, legislation should take into account marijuana operations' multifaceted footprint in dry versus wetter climate conditions when revising or improving regulations. Snowpack in the Cascades is predicted to drop significantly (as is already occurring) due to Climate Change. This will put a strain on irrigation water for agriculture crops needed to feed a rapidly expanding state and global population. Eastern Washington is likely to experience more extreme dryness however, both eastern and western Washington could face significant water shortages throughout the summer with wildfires also more prevalent due to longer dry periods. Water availability, impacts on groundwater supplies, and contamination of existing waterways all need serious consideration when deciding how best to monitor, and where to locate, an industrial-scale marijuana operation.

Many times during my research I spotted commercial marijuana operations in the countryside, prison-like and resembling a detention facility, that totally detracted from the rural character of the surrounding neighborhood. As mentioned earlier, I witnessed unsightly marijuana operations situated along scenic byways, on stunning hillside plateaus, in the midst of apple orchard valleys and agricultural fields, amongst wildlife passage areas, beside nature reserves, next to wetlands and streams, and in the middle of residential neighborhoods. Allowing marijuana operations in residential or agricultural

zones could mean an invasion of such prison-like facilities, and the associated worker traffic, noise, security floodlighting, chemical runoff, odor, and an excessive array of cameras. Adding light pollution to the countryside would impede the viewing of the stars at night.

In a conversation about marijuana and odor control, Fran McNair, with the Olympic Region Clean Air Agency, pointed out that the “legislature loves the money.” This means certain politicians want to ensure that marijuana remains a viable product and continues to contribute to state tax coffers, while at the same time, the industry is pushing to be fully recognized as agricultural. Washington State has left the decision to county zoning and marijuana ordinances as to where a marijuana operation can be located. McNair told me, “The WSLCB says it’s not agriculture and that’s why we call marijuana a controlled substance.” I brought up the fact that as marijuana can be eaten in a variety of products wouldn’t that qualify it as a food source leading to agricultural classification. McNair shed some light on the policy difference when using the example of wine (also a controlled substance) with marijuana. “The growing of grapes would be agriculture, but the processing to make it wine is not. There’s a differentiation there . . . a different controlled substance [that’s] not regulated like marijuana. So what’s different is growing the grapes is agriculture. It doesn’t become a controlled substance until it becomes liquor or wine.” This caused me to reflect upon a comment made by Crystal Oliver, the Tier 3 business owner in Spokane interviewed for this thesis, who compared grapes and hops to marijuana as an argument for wishing her children could participate in her marijuana production activities.

McNair told me the marijuana industry wants to be zoned agricultural for two key reasons: 1) Owners do not want to be controlled by air quality agencies such as ORCAA that require installation of expensive odor and VOC filter systems. 2) Producers want to retain as much of the revenue as possible. She added “If they can say that they’re agriculture then, I mean, agriculture is the biggest exemption you can have when paying property tax and everything else.”

I argue that in order to reduce disruptions to communities brought about by light, noise, odor, traffic, chemical waste, and VOC pollution, state regulations should mandate marijuana be cultivated indoors in industrial or commercial areas. Regulations should prevent marijuana businesses from circumventing air quality control regulations by expanding into rural areas where, by purchasing a second or third license from failed marijuana businesses, or subleasing land to another marijuana business, they could expand operations beyond five acres. This was a key point brought out in the Green Freedom LLC versus ORCAA Appeal heard before the Hearing Examiner in March, 2018.<sup>10</sup> Where allowed to operate as agriculture in an area larger than five acres, McNair informed me, a marijuana business would no longer fall under air quality control by agencies like ORCAA and would instead be regulated by the Department of Agriculture, with a more lenient odor policy. Cheaper land is available in agricultural areas and marijuana producers would have fewer regulations to be concerned about. It’s a win-win for producers but can be a lose-lose for the neighbors. The state legislature and county policy can prevent this from happening. “They’ve got the controls to be able to say this area is not zoned for this, for marijuana” McNair told me.

Rural families should not fear for their health and safety. At times during my fight against the facility next door to me, I was so terrified, I asked for a police escort. I am aware of other neighbors close to a marijuana operation who feared for the safety of their children if they opposed the facility. To ensure public safety, officials must enforce zoning regulations that locate marijuana operations in industrial or commercial areas only—thereby restricting them to areas already accustomed to high traffic volumes and 24-hour per day operations, and keeping them out of residential areas. Advance Notice of Construction must be required, even for siting in industrial/commercial zones, allowing the public the opportunity to voice opinions on the proposals. A full environmental impact review must be conducted prior to issuing a commercial marijuana license or land use permit to ensure that air emissions, water run-off, and waste disposal do not create undue hazards for the community. Revised legislation, or a final marijuana ordinance—whether in Thurston County or elsewhere—should safeguard and prioritize neighborhood character, community safety, and the health of the environment.

Based on my research, I recommend:

- Tier 1, 2, and 3 commercial/industrial marijuana production and processing operations be located only in areas zoned industrial or commercial.
- The WSLCB should not be allowed to issue a marijuana production or processing license prior to final approval and permitting of a marijuana land use application.
- Those applying for any marijuana special land use be required to submit a State Environmental Policy Act (SEPA) review of the entire area to ensure habitat, aquifer, and watershed protection.
- Any applicant misrepresenting facts, or employing other deceptive measures when submitting applications, or repeatedly ignoring violation notices, should be denied a marijuana special land use permit and marijuana operations license.
- Government agencies collaborate in the permitting process. This would include ongoing communication between the representatives of the Washington State

Liquor and Cannabis Board, the Olympic Region Clean Air Agency, the Washington State Department of Health, the Washington State Department of Fish and Wildlife, the Washington State Department of Ecology, the Washington State Environmental Protection Agency, Thurston County Community Economic Planning and Development, Thurston County Law Enforcement, and relevant waste disposal agencies.

- Properties within a mile radius of a proposed rural marijuana operation should be notified at the time a marijuana license or marijuana special land use application is submitted, should be provided with all information related to the intended activity, and should be given 90 days to respond before any processing of a land use application is initiated.
- A Notice of Construction be required by air quality agencies such as ORCAA and Department of Ecology Water Resource Programs in conjunction with a marijuana land use application.
- A water meter be required at all Tier 1, 2, and 3 marijuana facilities.
- No construction be allowed to commence before the developers receive a marijuana operation land use permit, and ONLY following a comprehensive assessment of community and regulatory agency comments.
- Marijuana applicants who degrade the landscape by initiating construction without a marijuana special land use permit must be required to restore the site to its original appearance.
- Applicants for marijuana operations who initiate construction without final land use approval, or with existing property violations, not be considered vested or allowed to develop the facility any further.
- Marijuana operations found to discharge industrial wastewater from production and processing into any type of individual on-site septic system not be considered vested, or granted any special land use exemptions.
- Any marijuana production or processing operation failing to abide by state regulations should be given only one opportunity, after a significant fine, to correct the issue. A second violation should result in the permanent loss of a marijuana license and land use permit.
- All commercial marijuana product be tested from seed to sale and be stamped with a WSLCB quality assurance logo.

Marijuana cultivation is best suited indoors where production, processing, air circulation, temperature, light, security, pests, irrigation, power consumption, industrial wastewater discharge, garbage disposal, odor, and noise can be better monitored and controlled, thereby creating less impact to neighboring communities. Although indoor cultivation is a preferable method of ensuring community well-being, outdoor or greenhouse production could remain available to the marijuana industry under the right circumstances. Land use and zoning are critical decisions when monitoring the industry. Because they factor so highly into these considerations, zoning options will be considered more critically in the next section.

### *Zoning as a Practical Solution*

As indicated above, commercial marijuana production and processing facilities are not compatible with *rural residential* neighborhood character. They are compatible with *industrial* neighborhood character. Because of the harmful social and environmental impacts outlined in this thesis, the current zoning that allows marijuana operations in rural residential or agricultural areas is irresponsible. Building marijuana operations in commercial and industrial zones gives producers greater access to security, industrial wastewater sewer systems, and electrical power.

According to Thurston County Land Use Ordinances, “There are more than 60 types of zoning in Thurston County,” however they generally fall into five main categories: Residential, Commercial, Agricultural, Open Space, and Industrial.<sup>11</sup>

I consider each below:

- Residential – Areas designated for single and multi-family residences.<sup>12</sup>

County planners trusted with protecting residential enjoyment of property and the natural environment of this state must not expand this designation to include any kind of marijuana processing facility.

- Commercial – Areas intended for businesses which provide consumer goods and services as well as a wide variety of commercial, retail, office, and recreational uses.<sup>13</sup>

When siting marijuana operations in places with commercial zoning, state, county, and city agencies should disclose to the public any potential negative impacts to existing businesses and communities, as well as the job and tax benefits anticipated.

- Agricultural – Areas now used for agricultural and farming purposes which may be developed for urban use sometime in the future.<sup>14</sup>

Marijuana production is not recognized as agriculture by the Federal Government and thus should not be located in areas used, primarily, for the production of food.

- Open Space – Public recreational uses or area to be left in a generally natural state.<sup>15</sup>

Articles outlining the degradation to public lands in California and reports from Northwest HIDTA in Washington State summarize the harm inflicted by the marijuana industry on open space areas. As outlined in the Cole Memo (see p. 58), marijuana operations should be barred from these areas.

- Industrial – Areas intended for research and development, factories, warehousing, and other industrial uses.<sup>16</sup>

As stated, based on the potential human and environmental degradation connected to commercial marijuana operations, siting of these facilities is best suited to industrial zoning. Industrial zoning allows for the added infrastructure and security measures

required to safely run a marijuana production and processing operation. Industrially zoned areas allow for large structures, protective fencing, security, lights, noise, and appropriate water and waste facilities that ensure safer processing of pollutants that might otherwise enter the environment.

### *Additional Recommendations*

To prevent further damage to water resources and forested or agricultural landscapes in Washington State, as my research has identified, I suggest a need for more than one policy improvement. First, marijuana tax revenues should be allocated to combat the problems resulting from industry operations and sales of marijuana.

According to Thurston County Sheriff Snaza, legalization of marijuana is fueling an increase in homelessness and drug addiction. A portion of tax revenues received from marijuana sales should be applied to solving these social problems. Giving young people a place to shelter with mental health care provided, and assistance programs that would introduce new directions in their lives perhaps involving gardening, animal husbandry, or ecological preservation, would be one way to address the problem. With juvenile youth access and consumption of marijuana on the rise, as noted by Northwest HIDTA, marijuana tax funds should be used to educate young people about the detriment of such choices on their health and future prospects.<sup>17</sup> In addition, since marijuana facilities have been found to harm the environment, as demonstrated by my own story and those of other residents interviewed, revenues from the industry need to be allocated to repair that damage. Legislation also should be introduced to protect those ecosystem services from the negative impacts of overconsumption, or contamination of the state's water and pollution of the air. Funding should go to further research into the environmental impacts

of the industry as well as hiring additional staff at agencies like ORCAA and SRCAA. During interviews I was told these agencies have seen a significant increase in their workload since legalization. According to Sheriff Snaza, marijuana tax revenues should also be applied to WSLCB officer training and an increase in county law enforcement personal to tackle the growing problems associated with legalization of the marijuana industry as discussed in that interview.

My research indicates that marijuana continues to support a black market economy, with weak regulations failing to curb this behavior. Therefore, serious consideration also needs to be given toward new policies that confront continuing unlawful marijuana activity despite legalization. Rather than relying on random spot-checking and complaints to identify problems at a facility, WSLCB officers should be required to physically visit premises on a regular, rotating basis. I suggest introducing policy that requires a bi-monthly inspection of all licensed Tiers in the state. This would require more WSLCB officers to be employed with the agency. Policies that to date have allowed the agency to ignore community interests and the health of the surrounding environment require immediate revision.

#### 4.3 AN ALTERNATIVE SCENARIO

With predictions of dryer summers, reduced snow packs, and diminished water availability resulting from changing conditions in the state's climate, I offer an alternative revenue source to Washington State residents that could provide benefit to local communities and the environment while remaining lucrative to political interests. Rather than allowing the stripping away of forests, hillsides, wetlands, and other stunning natural features to support an industry that my research shows has not been as well-regulated as

some would suggest, entrepreneurs and land owners could invest in what grows naturally and more readily in many parts of western Washington: old-growth forest.

### *Marijuana versus Old-growth Forest*

As an alternative to taxes collected through marijuana sales in the State of Washington, I suggest the cultivation of old-growth forests that might benefit future generations by slowing climate change. As the state's population increases, putting pressure on available land and resources, we need to consider how we best utilize our precious landscapes. We must learn to consider nature, instead of conquering ecosystems for monetary gain and pleasure, thereby upsetting the balance of life in the process. Perhaps, as marijuana producers focus on intensifying chemical highs, we are forgetting the intoxicating high of simply walking through an ancient forest. A connection to the natural world is fading in our psyche and the natural world is disappearing as a result.

Environmental and political leaders addressing climate challenges with graphs, charts, and team meetings all stress the need to develop strategies to tackle the problem. Discussions meander around what a changing climate will mean for temperature, water supplies, food sources, forests, species, and human habitat, all important considerations for agencies tasked with thinking ahead for public benefit. Whether considering adaptive management, or applying mitigation techniques, the good intentions of these groups, without implementation, have no impact. Good intentions that result in even more problems just don't make sense. Why then, we should ask ourselves, has an industry like commercial marijuana production and processing, with such potential for detrimental environmental impact, been wholeheartedly embraced without adequate policy protection

to safeguard Washington's water supplies, agricultural lands, forest habitats, and the well-being of the people?

Instead of "racing full speed ahead," as the Governor has announced to expand the marijuana market, Washingtonians and political representatives need to focus attention on other revenue sources.<sup>18</sup> I do not think we should be following the example of California's marijuana market in degrading a forested landscape to produce a commodity governed by inadequate regulations and enforcement. As reported by HIDTA, illegal marijuana operations destructive to forest habitat are also being discovered on Washington's public lands.<sup>19</sup> Ignorance and greed only leads to environmental catastrophe.

Paula Swedeen, policy director for Conservation Northwest, proposed that more old-growth forests would have an impact on CO<sub>2</sub> levels because older trees are significant sequesters of carbon.<sup>20</sup> In fact, she said, older forests in western Washington, Oregon, and California have the highest carbon densities in the world. They continue to accumulate carbon even after a period of 400 years. Although this topic is beyond the scope of this thesis, in tackling rising GHG emissions, we need to find solutions that will provide CO<sub>2</sub> sequestration. Trees will provide air quality, habitat survival, and economic development. Thus, as an alternative to increasing revenues through marijuana production in the state, I propose the economic alternative of selling forest carbon credits through tree cultivation on a scale as small as an acre. This could provide income to small-scale property owners and protect Pacific Northwest forest habitat. I also suggest naming the concept "Treasure a Tree" or "TAT."

Swedeen stated that while old-growth forests decrease carbon footprint, it will take decades to sequester the carbon released when a forest is destroyed. “Keeping old growth on public lands is one of the best things we can do” she told students at the Evergreen State College in 2017.<sup>21</sup> I would also argue in favor of maintaining healthy tree populations on private lands, no matter how small. Reigniting an affinity for this eco-service on a broad cultural platform could have profound repercussions. Those who take the time to foster the growth of trees, to develop a strong bond with forested landscapes, might have a deeper concern for what is happening to our forested and rural areas due to the inroads of industrial-scale businesses such as marijuana operations. Should forest reserves continue to diminish worldwide, temperatures increase, and greenhouse gasses escalate, TAT might even outperform marijuana as a revenue source, while providing cleaner air, healthier individuals, and a safer environment.

- 
1. Thurston County Washington Permitting and Land Use (2018). Land Use Ordinances. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/landuse/landuse-home.html>
  2. Thurston County Board of County Commissioners (2018, May 1). Public Hearing – Renewal of Interim Marijuana Ordinance. Michelle Horkings-Brigham. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpbpublic8/DocView.aspx?id=9812078&searchid=30222285-4afe-4bfa-8508-d2c1bbd12478&dbid=0>:
  3. Thurston County Board of County Commissioners (2018, May 1). Public Hearing – Renewal of Interim Marijuana Ordinance. Jed Haney. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpbpublic8/DocView.aspx?id=9812078&searchid=30222285-4afe-4bfa-8508-d2c1bbd12478&dbid=0>
  4. Thurston County Washington Board of County Commissioners (BoCC). (2015, November 10). Ordinance No. 15210. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpbpublic8/DocView.aspx?id=5581486&searchid=53a0f74e-4ae3-4061-8df1-19824224fe03&dbid=0>

5. Washington State Liquor and Cannabis Board (2018). Marijuana Licensing. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/mjlicense/marijuana-licensing>
6. Kollar, J. (2018, January 12). Washington Responds to Fed's Marijuana Crackdown. *Nisqually Valley News*. Yelm, Washington.
7. Griffey, MacEwen, Van Werven. (2018, January 22). HB 2630 Bill Analysis. Brief Summary of Bill. *Washington State House of Representatives Office of Program Research. Commerce & Gaming Committee*.
8. Schneider, P. (2017, June 21). Monsanto and Bayer are moving to take over the cannabis industry. *Waking Times*. Available: <http://www.wakingtimes.com/2017/06/21/monsanto-bayer-maneuvering-take-cannabis-industry/>
9. Weeks, K. (2018, February 20). Government Relations Director at the Center for Public Affairs. *Washington State Department of Health*. Olympia, Washington. Personal interview.
10. Francks, H. C. (2018, March 20). PCHB NO. 17-028c Green Freedom LLC v. Olympic Region Clean Air Agency. *Environmental and Land Use Hearings Office*. Tumwater, Washington.
11. Thurston County Permitting and Land Use. (2016, October 2). Land Use Ordinances. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/landuse/landuse-zoning.html>
12. Thurston County Permitting and Land Use. (2016, October 2).
13. Thurston County Permitting and Land Use. (2016, October 2).
14. Thurston County Permitting and Land Use. (2016, October 2).
15. Thurston County Permitting and Land Use. (2016, October 2).
16. Thurston County Permitting and Land Use. (2016, October 2).
17. Northwest HIDTA (2018). Northwest High Intensity Drug Trafficking Area Threat Assessment and Strategy for Program Year 2018. *Northwest HIDTA*. Seattle, Washington.
18. Kollar, J. (2018, January 12).
19. Northwest HIDTA. (2018).
20. Swedeen, P. (2017). Policy Director Conservation Northwest. *The Evergreen State College*. Olympia, Washington. Lecture.
21. Swedeen, P. (2017).

---

## CH. 5 IN CONCLUSION

As I write this conclusion to my research, a four year battle with stakeholders involved in the marijuana production and processing industry in Washington State comes to a close. My husband and I intervened in an Appeal by our neighbor to extend his application for special land use after he missed deadlines to address multiple land use violations. The Hearing Examiner ruled in our favor. Our neighbor then appealed to the Thurston County Commissioners. They also ruled in our favor. Today, May 15, 2018, was the last possible day my neighbor might have appealed these rulings to the Washington State Superior Court. The industrial-scale marijuana operations next door to my property are no longer vested in our community.

Objecting to the unlawful marijuana activity occurring in our neighborhood cost my family more than \$70,000 in legal expenses. The many days I spent searching for government assistance to do something about the injustice usually resulted in an agency pointing to a different agency as being accountable. Ultimately, I discovered, the power to determine the site for a marijuana operation in Washington State, lies with County Commissioners and city officials. Until legislation is able to reign in the actions of the WSLCB and provide greater protection to communities, residents concerned about maintaining neighborhood character would do well to take an active interest in county hearings scheduled to receive public comment on shifting marijuana regulations.

Without adequate land use regulations, oversight of chemical usage, controlled product standards, final stage product testing, and stronger law enforcement, commercial marijuana producer/processors could be significantly impacting the environment and

health and wellbeing of thousands of individuals throughout the state, including marijuana tourists visiting from elsewhere. Reflecting upon the findings of this thesis one has to wonder if marijuana applicants have given any consideration to the ramifications to individuals and communities as they plan and develop their facilities within neighborhoods where children play and walk to and from school, and long-time property owners value safe, clean air and water, and a peaceful environment for retirement or to raise a family.

The *Cannabis Conundrum*, I have come to realize, is how it does what it does. More than 1,500 plants, overnight, can disappear. A WSLCB officer skirted the question concerning my neighbor when I queried “What happened to all of those plants?” outside the Thurston County Courthouse in 2017. “It’s our job to intervene only after an applicant is licensed” was his response. Such obscurity has long been the nature of a trade that with some, still operates in the shadows, despite the good will of voters and ethical marijuana business owners. Hidden in an obscure valley, as with my neighbor, none would ever realize what was happening, other than those directly impacted. Do residents really want Thurston County to become the next “Pot Silicon Valley”? I have wondered. I was one of the approximate 56% of the state’s population who voted in favor, while 44% of Washingtonians did not approve the legalization of recreational marijuana. Certainly those who voted against do not want such a reality.

In my personal quest from 2014 to 2018, and throughout this research, I have seen how, at times, concern for the well-being of others is cast aside in the name of profit. Although the industrial or commercial zoning of marijuana production and processing will not altogether alleviate harmful issues associated with the industry, it will at least

help to contain unsightly development, chemical abuse, and multiple concerns to communities. Innocent neighborhoods have been impacted because of weak regulations. Only more stringent marijuana policy can direct the industry in a manner that prevents further degradation, stress, and anxiety.

Being jeered at. Being denied access to the electrical power grid in order to install our own security. Being bombarded with the noise of endless hours of generators and industrial fans that shrank enjoyment of our property to the inside of our home. Being observed by strangers for years as we moved to and from our property. Being almost robbed of the dream for the future of our land. Having our family at risk. Being considered NIMBYs by government representatives. None of this has been easy. Despite this long ordeal with our neighbors I would vote again to legalize marijuana for the sake of all who might benefit from its medicinal properties. Had my personal journey with cancer taken a different path, I would have chosen marijuana's solace over other pain-killing drugs. Perhaps we would have fared better as a society had marijuana never been banned at all. Perhaps Zephyr would still be with my family, leaping after rocks thrown into our pond. My hope is that as marijuana becomes legalized in other areas, as I believe it will, the disruption to families and property, the world over, will diminish because the shadow behavior that has long surrounded this extraordinary plant will be a thing of the past. It's time the worldwide charade of abuse of power through drugs, ruled by money and greed, come to an end. Ethical behavior that abides by appropriate regulations concerned for the welfare of all, must become the new mandate if we hope to preserve the pristine environments, and even our very planet, that we all call our home.

---

## BIBLIOGRAPHY

- Ayers, R. (2017, December 6). A Conversation with Artist Fred Tomaselli. *Huffington Post*. Available: [https://www.huffingtonpost.com/robert-ayers/i-think-its-hilarious-rob\\_b\\_786621.html](https://www.huffingtonpost.com/robert-ayers/i-think-its-hilarious-rob_b_786621.html)
- Baker A. (2016, October 2). Proposed Thurston County Zoning Changes for Marijuana Growing. (Submitted to Thurston County Resource Stewardship.) *Yelm, Washington resident*. Email correspondence.
- Bauer, S., Olson, J., Cockrill, A., Van Hattem, M., Miller, L., Tauzer, M., Leppig, G. (2015, March 18). Impacts of surface water diversions for marijuana cultivation on aquatic habitat in four northwestern California watersheds. *PLOS ONE 10* (art. e0120016). doi:10.1371/journal.pone.0120016
- Bernstein, S. (2017, August 6). Toxic waste from U.S. pot farms alarms experts. *MSN News*.
- Board of County Commissioners for Thurston County. (2018, April 4). Appeal No. 18-102103VE. Project No. 2014101488 *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
- Brigham, J. (2016). Private email correspondence with Puget Sound Energy. *Yelm, Washington resident*.
- Bush, E. (2018, February 7). With tracking systems hobbling, marijuana industry scrambles to keep pot on shelves. *The Seattle Times*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/marijuana/with-tracking-system-hobbling-marijuana-industry-scrambles-to-keep-pot-on-shelves/>
- Carah, J.K., Howard J.K., Thompson S.E., Short Gianotti A.G., Bauer S.D., Carleson S.M., Dralle D.N., Gabriel M.W., Hulette L.L., Johnson B.J., Knight C.A., Kupferberg S.J., Martin S.L., Naylor R.L., Power M.E. (2015, August). High time for conservation: Adding the environment to the debate on marijuana liberalization. *BioScience* 65: 822-829.
- Caulkins, J.P., Kilmer, B., Kleiman, A.R. (2016). *Marijuana Legalization: What Everyone Needs to Know*. Second Edition. *Oxford University Press*. New York.
- Cervantes, J. (2006). *Marijuana Horticulture: The Indoor/Outdoor Medical Grower's Bible*. *Van Patten Publishing*.
- Chalem, K. (2016, February 24). Memorandum: Marijuana Interim Regulations A.1.ii – May 19, 2015 Letter to Goldwater Properties. *Thurston County Resource Stewardship Department*. . Olympia, Washington.
- Chalem, K., (2016, February 24). Memorandum: Marijuana Interim Regulations. Staff responses to questions posed by Planning Commission members *Thurston County Washington Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
- Chalem, K. (2016, February 24). Memorandum: Marijuana Interim Regulations - Staff responses to questions posed by Planning Commission members. A.1 Information for planning commission to review. Email from Ira Holman, February 18, 2016. *Thurston County Resource Stewardship Department*. Olympia, Washington.

- Chalem, K., (2016, January 20). Resource Stewardship Planning Commission Briefing: Proposed Chapter 20.63 – Marijuana Regulations. *Thurston County Long Range Planning Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/presentation-to-planning-commission-proposed-marijuana-regulations.pdf>
- Chalem, K. (2016, February 3). Resource Stewardship Planning Commission Briefing: Proposed Chapter 20.63 – Marijuana Regulations. *Thurston County Long Range Planning Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/presentation-to-planning-commission-marijuana-interim-regulations.pdf>
- Clarke, R.C. Merlin, M.D., (2013). Cannabis: Evolution and Ethnobotany. *University of California Press*. Berkley, Los Angeles, London.
- Cline, V. (2017, February 23). Ground Water Withdrawal and Irrigation Water for Commercial/Industrial Use – Parcel No. 22603110000. *State of Washington Department of Ecology State of Washington*. Lacey, Washington. Letter.
- Cline, V. (2018, February 16). Compliance and Enforcement Officer. *Washington State Department of Ecology Southwest Regional Office Water Resources Program*. Lacey, Washington. Personal interview.
- Cushman, B.D. (2016, December 8). Application for Other Administrative Action - Code Interpretation pertaining to Project No. 2014101488 (Marijuana Producing/Processing Application). *Cushman Law Offices*. Olympia, Washington. Available: [www.cushmanlaw.com](http://www.cushmanlaw.com)
- Cushman, B.D. (2017, February 15). Letter of inquiry regarding: Project No. 2014101488 (Marijuana Producing/Processing Application). *Cushman Law Offices*. Olympia, Washington. Available: [www.cushmanlaw.com](http://www.cushmanlaw.com)
- Decorte, T., Potter G. (2015). The globalisation of cannabis cultivation: A growing challenge. *ScienceDirect: International Journal of Drug Policy*. Available: [www.elsevier.com/locate/drugpo](http://www.elsevier.com/locate/drugpo)
- Extension Toxicology Network (EXTOXNET). (1993, September). Carbofuran: Pesticide Information Profile. *Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University, and University of California at Davis*. Available: <http://pmep.cce.cornell.edu/profiles/extoxnet/carbaryl-dicrotophos/carbofuran-ext.html>
- Francks, H. C. (2018, March 20). PCHB NO. 17-028c Green Freedom LLC v. Olympic Region Clean Air Agency. P. 10. *Environmental and Land Use Hearings Office*. Tumwater, Washington.
- Fuller, T. (2017, September 9). Legal Marijuana Is Almost Here. If Only Pot Farmers Were on Board. *The New York Times*. New York, N.Y. Available: <https://www.nytimes.com/2017/09/09/us/california-marijuana-growers.html>
- Gabriel, M.W., Woods, L.W., Poppenga, R., Sweitzer, R.A, Thompson, C., Matthews, S.M., Higley, J.M., Keller, S.M., Purcell, K., Barrett, R.H., Wengert, G.M., Sacks, B.N., Clifford, D.L. (2012, July 13). Anticoagulant rodenticides on our public and community lands: Spatial distribution of exposure and poisoning of a rare forest carnivore. *PLOS ONE* 7 (art. e40163). doi:10.1371/journal.pone.0040163
- Gettman, J. (2016, March 8). Pot Matters: Marijuana Use Disorder. *High Times*. Available: <https://hiightimes.com/health/science/pot-matters-marijuana-use-disorder/>

- Griffey, MacEwen, Van Werven. (2018, January 22). HB 2630 Bill Analysis. Brief Summary of Bill. *Washington State House of Representatives Office of Program Research. Commerce & Gaming Committee.*
- Hammersvik, E., Sandberg, S., Pedersen, W. (2012, August 13). Why small-scale cannabis growers stay small: Five mechanisms that prevent small-scale growers from going large scale. *ScienceDirect: International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2012.08.001>
- Himmelstein, J.L., (1983). *The Strange Career of Marijuana: Politics and Ideology of Drug Control in America.* Greenwood Press. Westport, Connecticut.
- Holman, I. (2016). Not In Our Neighborhood. Letter of Complaint submitted to Thurston County Resource Stewardship Long Range Planning. *Yelm, Washington resident.*
- Holman, I. (2018, May 1). *Yelm, Washington resident.* Personal interview.
- Humboldt Growers Association (HGA). (2010, December 13). Humboldt County Outdoor Medical Cannabis Ordinance Draft-Water Usage. *Humboldt Growers Association (HGA).* Humboldt County, CA. Available: <http://library.humboldt.edu/humco/holdings/HGA2.pdf>
- Interagency Resource for Achieving Cooperation (IRAC). (2015, August). Regulatory Guidance for Cannabis Operations Version 2.0. *Interagency Resource for Achieving Cooperation (IRAC).*
- Irby, K. (2018, January 4). Sessions ends policy that allowed legal pot, disrupting state markets. *McClatchy Washington Bureau.* Available: <http://www.mcclatchydc.com/news/nation-world/national/article192953934.html>
- Johnson, N. (2018, January 11). Lewis County Sheriff: Trend of Large, Illegal Pot Grows Likely to Continue. Investigations: Power Bills a Giveaway for Clandestine Pot Growers. *The Chronicle.* Centralia, Washington. Available: [http://www.chronline.com/search/?l=25&sd=desc&s=start\\_time&f=html&t=article%2Cvideo%2Cyoutube%2Ccollection&app=editorial&q=Lewis+County+Sheriff%3A+Trend+of+Large%2C+Illegal+Pot+Grows+Likely+to+Continue](http://www.chronline.com/search/?l=25&sd=desc&s=start_time&f=html&t=article%2Cvideo%2Cyoutube%2Ccollection&app=editorial&q=Lewis+County+Sheriff%3A+Trend+of+Large%2C+Illegal+Pot+Grows+Likely+to+Continue)
- Kantas, T. (2016, October 21). Administrative Special Use Permit – Marijuana Production & Processing. Planning (3.) Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department.* Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpblic8/CustomSearch.aspx?SearchName=MinutesTextSearch>
- Kantas, T. (2017, January 13). Administrative Special Use Permit – Marijuana Production & Processing. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Resource Stewardship Department.* Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpblic8/CustomSearch.aspx?SearchName=MinutesTextSearch>
- Kantas, T. (2016, November 4). Land Use Violation and Question. Email correspondence with Masias at lcb.wa.gov *Thurston County Resource Stewardship.* Olympia, Washington.
- Kinder, P.D. (2016, June 14). Not in My Backyard Phenomenon. *Encyclopedia Britannica.* Available: <https://www.britannica.com/topic/Not-in-My-Backyard-Phenomenon>
- Kollar, J. (2018, January 12). Washington Responds to Fed’s Marijuana Crackdown. *The Nisqually Valley News.* Yelm, Washington.

- Kovner, G. (2015, June 30). Fisheries panel to hold Sacramento hearing on water use by pot farms. *The Press Democrat*. Santa Rosa, California.
- Lapook, J. (2016, December 28). Mysterious illness tied to marijuana use on the rise in states with legal weed. *CBS Evening News*. Available: <https://www.cbsnews.com/news/mysterious-illness-tied-to-marijuana-use-on-the-rise-in-states-with-legal-weed/>
- Leavenworth, S. (2018, April 3). California's underground pot market continues to thrive. Is the tax man to blame? *The Olympian*. Olympia, Washington. Available: <http://www.theolympian.com/news/nation-world/article207815209.html>
- Lopez, J. (2018). Compliance Section Manager. *Spokane Regional Clean Air Agency*. Spokane, Washington. Personal interview.
- Manns, R. (2016, October 20). 2<sup>nd</sup> Notice of Violation. Case #CZ 16-105016 Project No. 2014101488. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
- Masias A.V. (2017, April 17). Enforcement Report of Complaint. Blue Moose - Complaint Number C7C7107A and C7C7107B. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- McIver (2017, August 21). Narcotics Taskforce Officer's Report. Case Number: 16-035 TNT. Unlawful Manufacturing of a Controlled Substance – Marijuana. *Thurston County Narcotics Taskforce*. Olympia, Washington.
- McNair, F.L. (2018, March 16). Executive Director. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington. Personal interview.
- McNamara, N. (2017, August 10). THC in Seattle water 'Highest Detected in the World'." *Seattle Patch*. Seattle, Washington. Available: <https://patch.com/washington/seattle/thc-seatte-water-highest-detected-world>
- McPartland, J.M., Clarke, R.C., Watson, D.P. (2000) Hemp diseases and pests: management and biological control: an advanced treatise. *CABI Publishing*. New York, N.Y.
- Mills, E. (2012, April 17). The carbon footprint of indoor *Cannabis* production. *Energy Policy* 46: 58–67. Available: <http://dx.doi.org/10.1016/j.enpol.2012.03.023>
- Nguyen, H., Malm, A., Bouchard, M. (2014, August 21). Production, perceptions, and punishment: Restrictive deterrence in the context of cannabis cultivation. *International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2014.08.012>
- Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
- Northwest High Intensity Drug Trafficking Area (HIDTA). (2017, June). Marijuana Impact Report Volume 2. Pg. 20. *Northwest High Intensity Drug Trafficking Area Investigative Support Center Treatment and Prevention*. Washington State.
- Northwest HIDTA (2018) Northwest High Intensity Drug Trafficking Area Threat Assessment and Strategy for Program Year 2018. *Northwest HIDTA*. Seattle, Washington.

- O'Hare, M., Sanchez, D.L., Alstone, P. (2013, June 28). Environmental risks and opportunities in cannabis cultivation. *BOTEC Analysis Corp.* Available: [http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC\\_Whitepaper\\_Final.pdf](http://lcb.wa.gov/publications/Marijuana/SEPA/BOTEC_Whitepaper_Final.pdf)
- Oliver, C. (2018). President and Co-Founder. *Washington's Finest Cannabis*. Spokane, Washington. Personal interview.
- Oliver, C. (2017). 5 years post legalization; Over-regulation threatens the viability of small cannabis farmers. *Washington's Finest Cannabis*. Spokane, Washington.
- Olympic Region Clean Air Agency (ORCAA). (2016, December 5). ORCAA Complaint Form ID 17412. *Olympic Region Clean Air Agency (ORCAA)*. Olympia, Washington.
- Oregon Veterinary Medical Association (OVMA). (2017, December 11). Marijuana and Pets. *Oregon Veterinary Medical Association*. Available: <https://oregonvma.org/care-health/safety/marijuana-pets>
- Pardo, B. (2014, May 18). Cannabis policy reforms in the Americas: A comparative analysis of Colorado, Washington, and Uruguay. *Science Direct: International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2014.05.010>
- Pemberton, L. (2017, April 27). Residents want pot businesses kept out of rural areas. *The Olympian*. Olympia, Washington.
- Piljman, F.T.A., Rigter, S.M., Hoek, J., Goldschmidt, H.M.J, Niesink, R.J.M. (2005). Strong increase in total delta-THC in cannabis preparations sold in Dutch coffee shops. *Addiction Biology*, 10(2), 171-180. Available: <http://doi.org/10.1080/13556210500123217>
- Puget Sound Energy (PSE). (2016, June 10). Organic Harvest, LLC (Grow Op). *Puget Sound Energy, Inc.* Tacoma, Washington.
- Roffman, R.A. (1982). *Marijuana As Medicine*. Madrona Publishers. Seattle, Washington.
- Russell, R. (2008, November 6). Affidavit of Ryan Russell in Support of probable Cause for Seizure. No. 08-2-02591-5. Detective Ryan Russell. *Superior Court of the State of Washington in and for the County of Thurston County*.
- Saint, A. (2017, April 12). Memorandum – Stormwater Scoping Report – Response Jim Hayes Site Plan. Project No. 2014101488. *Thurston County Department of Resource Stewardship Stormwater Utility*. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
- Saul, K.M. PhD. (2017). Personal correspondence. *The Evergreen State College*. Olympia, Washington.
- Saul, K.M. PhD. (2018). Personal correspondence. *The Evergreen State College*. Olympia, Washington.
- Schneider, P. (2017, June 21). Monsanto and Bayer are moving to take over the cannabis industry. *Waking Times*. Available: <http://www.wakingtimes.com/2017/06/21/monsanto-bayer-maneuvering-take-cannabis-industry/>
- Seaman, L. (2015, July 10). Marijuana's Environmental Impacts. Water and Wildlife. *Stanford Woods Institute for the Environment*. Available: <https://woods.stanford.edu/news-events/news/marijuanas-environmental-impacts>

- Selsky, A. (2017, August 14) Marijuana states try to curb smuggling, avert US crackdown. *Associated Press*. New York, N.Y. Available: <https://www.apnews.com/f1c7244ac5384f9e9c08201967526791>
- Shimada, T. (2016, November 17). Re: Please\_DocuSign\_these\_documents\_Electric\_Com. Private email correspondence. *Seattle, Washington resident*.
- Short Gianotti, A.G., Harrower, J., Baird, G., Sepaniak, S. (2016, November 18). The Quasi-legal challenge: Assessing and Governing the Environmental Impacts of Cannabis Cultivation in the North Coastal Basin of California. *Science Direct Land Use Policy*. Available: <http://dx.doi.org/10.1016/j.landusepol.2016.11.016>
- Smith, J. (2017, March 31). Illegal Pot Farms Are Poisoning California's Forests. *The Atlantic*. Boston, Massachusetts. Available: <https://www.theatlantic.com/science/archive/2017/03/backcountry-drug-war/521352/>
- Smith, R. (2015, May 19). Letter to Goldwater Properties. Project No. 2015100095. Folder Sequence No. 15 100286 ZM. *Thurston County Resource Stewardship Department*.
- Smith, R. (2016, August 18). Re: New Application for Marijuana Producer/Processor. Magnum Buds. License #: 413102. Michael Kain, Planning Manager Thurston County Commissioners. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- Snaza, J. (2018, February 26). Thurston County Sheriff. *Thurston County Sheriff's Department*. Olympia, Washington. Personal interview.
- Spokane Regional Clean Air Agency (SRCAA). (2017, December 7). Article IV. Exhibit R – Stationary Source and Stationary Source Categories Subject to Registration. *Spokane Regional Clean Air Agency*. Spokane, Washington.
- Spokane Regional Clean Air Agency (SRCAA). (2018, February 28). Compliance Assistance Program – Marijuana Production & Processing in Spokane County. Pg. 2. *Spokane Regional Clean Air Agency*. Spokane, Washington.
- Spokane Regional Clean Air Agency (SRCAA). (2017, December 4). Q&A Spokane Regional Clean Air Agency's Proposed Rules for marijuana Production & Processing. *Spokane Regional Clean Air Agency*. Spokane, Washington.
- Stanford, D.A. (2014, May 2) Re: Organic Harvest, License 413102, and James Arthur Weller. Letter to WLSB. *Slinde Nelson Stanford Attorneys*. Portland, Oregon. Available: [www.slindenelsonstanford.com](http://www.slindenelsonstanford.com).
- Stone, D. (2014, May 20). Cannabis, pesticides and conflicting laws: The dilemma for legalized states and implications for public health. *Regulatory Toxicology and Pharmacology*. Available: [www.elsevier.com/locate/yrtph](http://www.elsevier.com/locate/yrtph)
- Subritzky, T., Pettigrew, S., Lenton, S. (2015, December 1). Issues in the Implementation and evolution of the Commercial Recreational Cannabis Market in Colorado. *International Journal of Drug Policy*. Available: <http://dx.doi.org/10.1016/j.drugpo.2015.12.001>
- Swedeen, P. (2017). Policy Director Conservation Northwest. *The Evergreen State College*. Olympia, Washington. Lecture.
- Sweet, S.L. (2016, June). The energy intensity of lighting used for the production of recreational cannabis in Washington State and implications for energy efficiency. Master of Environmental Studies Thesis. *The Evergreen State College*. Olympia, Washington.

- The News Tribune* Staff. (2017, November 28). Suspected illegal pot grows busted in Thurston, Grays Harbor and King counties. *The News Tribune*, Aberdeen, Washington. Available: <http://www.thenewstribune.com/news/local/article186966538.html>
- The Olympian* Staff. (2017, November 29). 4 Thurston County sites among those hit in raid netting \$80 million in pot plants. *The Olympian*. Olympia, Washington. Available: <http://www.theolympian.com/news/local/article187231078.html>
- Thompson, C., Sweitzer, R., Gabriel, M., Purcell, K., Barrett, R., Poppenga, R. (2013, May 14). Impacts of rodenticide and insecticide toxicants from marijuana cultivation sites on fisher survival rates in the Sierra National Forest, California. *Conservation Letters* 7: 91–102.
- Thurston County Board of County Commissioners (BoCC). (2015, November 10). Opportunity for the Public to Address the Board. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/BOCCPublic/DocView.aspx?id=5629690&page=2&searchid=bb4277ce-f4f1-4203-88a0-2c1c7f1645a2>
- Thurston County Board of Thurston County Commissioners. (2016, November 8). Ordinance No. 15371. *Thurston County Resource Stewardship Department*. Olympia, Washington.
- Thurston County Board of County Commissioners (BoCC). (2018, May 1). Ordinance No. 15613. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpublish/DocView.aspx?id=9808796&searchid=1f8ab1ca-43b7-4996-b625-607e3a20889a&dbid=0>
- Thurston County Board of County Commissioners (BoCC). (2014, January 21). Ordinance No. 14978. *Thurston County Washington*. Olympia, Washington. Available: <https://weblink.co.thurston.wa.us/boccpublish/DocView.aspx?id=3232625&page=1&searchid=f5891a2e-723c-4ed1-90cd-a9b8df100cfc>
- Thurston County Board of County Commissioners (BoCC). (2017, May 8). Ordinance No. 15465. 20.63.050 Development Standards Specific. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://mrsc.org/getmedia/ec2b449d-0ebe-4c71-8012-f00296977f43/t46o15465.pdf.aspx>
- Thurston County Board of County Commissioners (BoCC). (2016, May 10). Ordinance No. 15292. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublish8/DocView.aspx?id=6671052&searchid=5f7f1dde-6626-44de-ba9a-fde2074dd673&dbid=0>
- Thurston County Board of County Commissioners (BoCC). (2015, November 10). Ordinance No. 15210. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublish8/DocView.aspx?id=5581486&searchid=53a0f74e-4ae3-4061-8df1-19824224fe03&dbid=0>
- Thurston County Board of County Commissioners (BoCC). (2018, May 1). Public Hearing on Interim Marijuana Renewal Ordinance. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/tchome/Pages/publicmeetings.aspx>
- Thurston County Board of County Commissioners (BoCC). (2018, May 1). Public Hearing – Renewal of Interim Marijuana Ordinance. Michelle Horkings-Brigham. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpublish8/DocView.aspx?id=9812078&searchid=30222285-4afe-4bfa-8508-d2c1bbd12478&dbid=0>

- Thurston County Board of County Commissioners (BoCC). (2018, May 1). Public Hearing – Renewal of Interim Marijuana Ordinance. Jed Haney. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-boccpb8/DocView.aspx?id=9812078&searchid=30222285-4afe-4bfa-8508-d2c1bbd12478&dbid=0>
- Thurston County Board of County Commissioners (BoCC). (2016, June 22). Thurston County Board Briefing. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/board-briefing-marijuana-regulations-20160623.pdf>
- Thurston County Board of County Commissioners (BoCC). (2017, March 15). Thurston County Board Briefing Request - Thurston County Marijuana Data. *Thurston County Resource Stewardship, Long Range Planning Division*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/bocc/Pages/agendas.aspx>
- Thurston County Board of County Commissioners (BoCC). (2017, February 24). Work Session Summary. Commissioners Planning Session – Cannabis. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/bocc/Pages/agendas.aspx>
- Thurston County Long Range Planning (2018). Welcome to the Community Planning Division. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov>
- Thurston County Long Range Planning Resource Stewardship Department. (2017). Regulating Marijuana: Producer, Processors, and Retailers. Olympia, Washington. *Thurston County Long Range Planning Resource Stewardship Department*. Available: <http://www.co.thurston.wa.us/planning/docket/docket-marijuana.htm>
- Thurston County Long Range Planning Resource Stewardship Department. (2016). Proposed Ordinance under consideration for adoption. *Thurston County Long Range Planning Resource Stewardship Department*. Olympia, Washington.
- Thurston County Long Range Planning Resource Stewardship Department. (2016, June 22). Thurston County Board Briefing. *Thurston County Long Range Planning Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/board-briefing-marijuana-regulations-20160623.pdf>
- Thurston County Permit Assistance Center. (2015, February 13). Master Application. Project 2015101304. 15 104057 VI Presubmission Conference. *Thurston County Washington*. Olympia, Washington.
- Thurston County Permit Assistance Center. (2014, April 8). Master Application. Project No. 2014101488. Folder Sequence No. 14 109460 ZM. *Thurston County Washington*. Olympia, Washington.
- Thurston County Permitting and Land Use. (2016, November 22). Administrative Special Use Permit – Marijuana Production and Processing Project No. 2014101488. Folder sequence No 14 109460 ZM. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
- Thurston County Permitting and Land Use. (2016, August 23). Completeness Transmittal Memorandum. No. 2014101488. Folder sequence No 14 109460 ZM. Parcel No. *Thurston*

- County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting>
- Thurston County Permitting and Land Use. (2018). Document Library Research Project No. 2014101488. Folder Sequence No. 14 109460 ZM. Olympia, Washington. *Thurston County Resource Stewardship Long Range Planning Department*. Available: <http://www.co.thurston.wa.us/permitting/hearing/2014101488/hayes-appeal.html>
- Thurston County Permitting and Land Use. (2016, October 2). Land Use Ordinances. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/landuse/landuse-zoning.html>
- Thurston County Resource Stewardship Department. (2016, September 20). An Ordinance permanently adopting regulations for marijuana producers, processors, and retailers. Attachment B. *Thurston County Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/planning/docket/docs/marijuana-regulations-proposed-ordiance-to-permanently-establish.pdf>
- Thurston County Resource Stewardship Department. (2016, February 24). Memorandum: Marijuana Interim Regulations A.I.ii – May 19, 2015 Letter to Goldwater Properties. *Thurston County Resource Stewardship Department*. Olympia, Washington.
- Thurston County Washington Resource Stewardship Department. (2018). When do I need a permit? *Thurston County Washington Permitting and Land Use Resource Stewardship Department*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/faq/faq-clearing.html>
- Thurston County Washington. (2017). Browse Minutes, Ordinances and Resolutions. *Thurston County Board of County Commissioners' Document Library*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-bocpublic8/Browse.aspx?startid=547344>
- Thurston County Washington. (2016, January 14). Land Use Ordinances. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/permitting/landuse/landuse-home.html>
- Thurston County Washington. (2014-2016). Minute meetings by date. *Thurston County Board of County Commissioners' Document Library*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-bocpublic8/CustomSearch.aspx?SearchName=MinutesbyDate>
- Thurston County Washington. (2017). Thurston County Board of County Commissioners' Document Library. *Thurston County Washington*. Olympia, Washington. Available: <http://www.co.thurston.wa.us/wl-bocpublic8/welcome.aspx?dbid=0>
- Thurston County Washington. (2016, November 4). Thurston County News Release. *Thurston County Washington*. Olympia, Washington. Available: <http://www.thurstoncountywa.gov/tchome/pages/newsreleasedetail.aspx?List-ID=1230>
- Thurston County Washington. (2018). Chapter 20.54 – Special Use. 20.54.040 – General Standards 3.(a). *Thurston County Washington*. Olympia, Washington. Available: [https://library.municode.com/wa/thurston\\_county/codes/code\\_of\\_ordinances?nodeId=TIT20ZO\\_CH20.54SPUS](https://library.municode.com/wa/thurston_county/codes/code_of_ordinances?nodeId=TIT20ZO_CH20.54SPUS)
- United States Department of Justice. (2007, February). Domestic Cannabis Cultivation Assessment. *Johnstown, PA: National Drug Intelligence Center*. Product No. 2007-L0848-001.

- U.S. Drug Enforcement Administration. (2017). Drug Schedules. *U.S. Department of Justice*. Available: <https://www.dea.gov/druginfo/ds.shtml>
- United States Energy Information Administration. (2017, May 19). How much carbon dioxide is produced from burning gasoline and diesel fuel? *Independent Statistics & Analysis U.S. Energy Information Administration*. Available: <https://www.eia.gov/tools/faqs/faq.php?id=307&t=11>
- United States Environmental Protection Agency. (2016). Climate Change indicators in the United States 2016. Fourth edition. *U.S. Environmental Protection Agency*. EPA 430-R-16-004. Available: [www.epa.gov/climate-indicators](http://www.epa.gov/climate-indicators)
- University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. *University of Washington*. Seattle, Washington. Available: <http://adai.uw.edu/mcACP/>
- University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 14 *University of Washington*. Seattle, Washington. Available: <http://adai.uw.edu/mcACP/>
- University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 15 *University of Washington*. Seattle, Washington. Available: [http://adai.uw.edu/mcACP/module1/story\\_html5.html](http://adai.uw.edu/mcACP/module1/story_html5.html)
- University of Washington Alcohol and Drug Abuse Institute (ADAI). (2017, April). Medicinal Cannabis and Chronic Pain: Science-based Education in Times of Legalization. Module 1: slide 28 *University of Washington*. Seattle, Washington. Available: [http://adai.uw.edu/mcACP/module1/story\\_html5.html](http://adai.uw.edu/mcACP/module1/story_html5.html)
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2007: 60-day supply defined. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2009: Ogden Memo changed federal government's enforcement policy. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2011: Seattle law enforcement policy changed. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2011: SB 5073 passes but is partially revoked by governor. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2012: Voters approve Initiative 502. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2013: Cole Memo outlines regulatory expectations. *University of Washington*. Seattle, Washington.

- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2013: Cole Memo outlines regulatory expectations. *University of Washington*. Seattle, Washington.
- University of Washington Alcohol and Drug Abuse Institute (ADAI) (2017, April). Medical Marijuana: History in Washington. 2015: Legislature passes Cannabis Protection Act (SB 5052) and Marijuana Tax Reform (HB 2136). *University of Washington*. Seattle, Washington.
- Washington Administrative Code. (2018). WAC 314-55-015. General information about marijuana licenses. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-015>
- Washington Administrative Code. (2018). WAC 314-55. Marijuana Licenses, Application Process, Requirements and Reporting. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55>
- Washington Administrative Code. (2018, February 26). WAC 314-55-020 (9). Marijuana license qualifications and application process. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-020>
- Washington Administrative Code. (2018). WAC 314-55-097. Marijuana waste disposal—liquids and solids *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-097>
- Washington Administrative Code. (2018). WAC 314-55-165. Objections to marijuana license renewals. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-165>
- Washington Administrative Code (2018). RCW 90.44.050. Permit to withdraw. *Washington State Legislature*. Available: <https://app.leg.wa.gov/rcw/default.aspx?cite=90.44.050>
- Washington Administrative Code. (2018). WAC 314-55-084. Production of marijuana. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-084>
- Washington Administrative Code. (2018). WAC 314-55-102. Quality assurance testing. *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-102>
- Washington Administrative Code. (2018). RCW 70.275.080. Requirement to recycle end-of-life mercury-containing lights. *Washington State Legislature*. Available: <http://app.leg.wa.gov/RCW/default.aspx?cite=70.275.080>
- Washington Administrative Code. (2018). WAC 314-55-040. What criminal history might prevent a marijuana license applicant from receiving or keeping a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-040>
- Washington Administrative Code. (2018). WAC 314-55-045. What marijuana law or rule violation history might prevent an applicant from receiving a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-045>
- Washington Administrative Code. (2018). WAC 314-55-075. What is a marijuana producer license and what are the requirements and fees related to a marijuana producer license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-075>
- Washington Administrative Code. (2018). WAC 314-55-083. What are the security requirements for a marijuana license? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55&full=true#314-55-083>

- Washington Administrative Code. (2018). WAC 314-55-085. What are the transportation requirements for a marijuana licensee? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-085>
- Washington Administrative Code. (2018). WAC 314-55-515. What are the penalties if a marijuana license holder violates a marijuana law of rule? *Washington State Legislature*. Available: <http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-515>
- Washington State Department of Ecology. (2016, December). Frequently asked questions: water resource rules and regulations for marijuana growing in Washington State. Publication No. 14-11-003. *Water Resources Program Washington State Department of Ecology*. Lacey, Washington.
- Washington State Department of Ecology. (2016, January). Water resource rules and regulations for marijuana growing in Washington State. *Water Resources Program Washington State Department of Ecology*. Lacey, Washington. Available: [www.ecy.wa.gov](http://www.ecy.wa.gov)
- Washington Department of Fish and Wildlife (2018). Freshwater fishing: Nisqually River. *Washington Department of Fish and Wildlife*. Available: <https://wdfw.wa.gov/fishing/salmon/pink/nisqually.html>
- Washington State Department of Health. (2017). Hantavirus Cases and Deaths in Washington State. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Hantavirus>
- Washington State Department of Health. (2018). Medical Marijuana Guideline for Use of Product Compliant Logos. *Washington State Department of Health*. Available: [www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/PatientInformation/](http://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/PatientInformation/)
- Washington State Department of Health (2018). Medical marijuana: Qualifying Conditions. *Washington State Department of Health*. Available: <https://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/PatientInformation/QualifyingConditions>
- Washington State Department of Health. (2018, February 26). Medical Marijuana: Rules in Progress. *Washington State Department of Health*. Available: [www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/LawsandRules/RulesinProgress](http://www.doh.wa.gov/YouandYourFamily/Marijuana/MedicalMarijuana/LawsandRules/RulesinProgress)
- Washington State Legislature. (2018). RCW 70.94.011 Declaration of public policies and purpose. *Washington State Legislature*. Available: <https://app.leg.wa.gov/rcw/default.aspx?cite=70.94.011>
- Washington State Liquor and Cannabis Board (WSLCB). (2018). Air Quality and Odor Controls. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: [lcb.wa.gov](http://lcb.wa.gov)
- Washington State Liquor and Cannabis Board (2018). FAQs on Marijuana. What about industrial hemp? Does this create a new market for hemp products? *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: [https://lcb.wa.gov/mj2015/faqs\\_i-502#PublicSafety-Criminal](https://lcb.wa.gov/mj2015/faqs_i-502#PublicSafety-Criminal)
- Washington State Liquor and Cannabis Board (WSLCB). (2018). Frequently Requested Lists. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/records/frequently-requested-lists>

- Washington State Liquor and Cannabis Board (WSLCB). (2017). Marijuana Licensing FAQ. What criminal history might prevent me from getting licensed? *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- Washington State Liquor and Cannabis Board (WSLCB). (2018). Marijuana Licensing. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/mjlicense/marijuana-licensing>
- Washington State Liquor and Cannabis Board (WSLCB). (2017). Regulatory Guidance for Cannabis Operations. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: [lcb.wa.gov](http://lcb.wa.gov)
- Washington State Liquor and Cannabis Board (WSLCB). (2017). Regulatory Guidance for Indoor Marijuana Producers. Hazardous Waste Management. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <http://www.lcb.wa.gov>
- Washington State Liquor and Cannabis Board (WSLCB). (2017). Regulatory/Permitting Guidance for Greenhouse Marijuana Producers. Local Government Permits and Regulations. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- Washington State Liquor and Cannabis Board (WSLCB) (2018). Vision, Mission, Goals, Values. *Washington State Liquor and Cannabis Board*. Olympia, Washington. Available: <https://lcb.wa.gov/careers/vision>
- Washington State Liquor Control Board (WSLCB). (2014, April 10). Notification of Criminal History Points. Organic Harvest. License #: 413102. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- Washington State Liquor Control Board (WSLCB). (2014, January 21). Request for Required Documents. Organic Harvest. License #413102. *Washington State Liquor and Cannabis Board*. Olympia, Washington.
- Washington State Office of Financial Management. (2016). Marijuana Revenue Appropriations. *Washington State Office of Financial Management*. [https://www.ofm.wa.gov/sites/default/files/public/legacy/budget/documents/Marijuana\\_Revenue\\_Approps\\_2016.pdf](https://www.ofm.wa.gov/sites/default/files/public/legacy/budget/documents/Marijuana_Revenue_Approps_2016.pdf)
- Washington State Office of Financial Management. (2017, August 16). Total Population and Percent Change 1990-2017. *Washington State Office of Financial Management*. <https://www.ofm.wa.gov/washington-data-research/statewide-data/washington-trends/population-changes/total-population-and-percent-change>
- Weeks, K. (2016). Policy Counsel at the Washington State Department of Health. *Washington State Department of Health*. Tumwater, Washington. Personal interview.
- Weeks, K. (2018, February 20). Government Relations Director at the Center for Public Affairs. *Washington State Department of Health*. Tumwater, Washington. Personal interview.
- Weil, A. (1980). The Marriage of the Sun and Moon. Dispatches from the Frontiers of Consciousness. P. 98. *Houghton Mifflin Company*. Boston. New York, N.Y.
- Whittaker, M. (2015, June 16). High and Dry in California: How pot growers are illegally diverting water from California's streams and creeks. *The Wall Street Journal*. Available: <https://graphics.wsj.com/embeddable-carousel/?slug=CAWATER>

Young, B. (2017, August 5). U.S. Attorney General Sessions criticizes Washington State's legal marijuana system. *The Seattle Times Local News*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/sessions-raises-concerns-over-washingtons-marijuana-legalization/>

Young, B. (2017, July 17). Washington's pot industry: What it takes to expose hidden owners and keep cartels and illicit money out of the state's pot industry. *The Seattle Times Local Politics*. Seattle, Washington. Available: <https://www.seattletimes.com/seattle-news/politics/washingtons-challenge-hidden-owners-in-its-pot-industry/>

Young, B. (2016, February 13). With much unknown, one expert says it's 'buyer beware' – Pesticides in Pot. *The Seattle Times*. Seattle, Washington.

---

## APPENDICES

### APPENDIX I—Letter to Survey Participant



#### Michelle Horkings Master Thesis Survey

Dear Participant,

I am a student in the Masters of Environmental Studies program at The Evergreen State College. For my thesis project I am conducting a mailed survey to research how policy regulating large-scale marijuana operations in Washington State has impacted rural residents and the environment.

All survey respondents' identities will be kept confidential and the return address envelope included will be destroyed upon my receipt. (*If responding by email your email will be deleted after returning the survey*). Your response will be coded with others in this confidential survey and used as statistics relating only to WA county responses and NOT private individuals or addresses.

No names, emails, or addresses of participants will be included in my thesis data. My thesis will be read by my faculty member and I will make a presentation on the results of the compiled survey for my thesis. Your identity will be kept confidential and I will not reveal any identifying information about you in my thesis, or subsequent presentations and possible future publications.

If you have any questions about this project or your participation in it, you can email me at [hormic02@evergreen.edu](mailto:hormic02@evergreen.edu) or write to the return address included. The person to contact if you experience problems as a result of your participation in this project is John McLain, IRB administrator at The Evergreen State College, Library 2211, Olympia, WA 98505; Phone 360.867.6045.

Thank you for your participation and assistance!

Sincerely,  
Michelle Horkings

## APPENDIX II—Interview Schedule

### THESIS INTERVIEW SCHEDULE

| Date      | Time    | Name           | Agency                   | Location  |
|-----------|---------|----------------|--------------------------|-----------|
| 2/16/2018 | 3:00pm  | Vicki Cline    | WA Department of Ecology | Lacey     |
| 2/20/2018 | 1:00pm  | Kristi Weeks   | WA Department of Health  | Tumwater  |
| 2/26/2018 | 9:15am  | John Snaza     | Thurston County Sheriff  | Olympia   |
| 3/13/2018 | Email   | Kristi Weeks   | WA Department of Health  | Tumwater  |
| 3/16/2018 | 2pm     | Fran McNair    | ORCAA                    | Olympia   |
| 3/23/2018 | 10:30am | Lori Rodriguez | SRCAA                    | Spokane   |
| 3/27/2018 | Email   | Crystal Oliver | WAs Finest Cannabis      | Spokane   |
| 4/26/2018 | 10:30am | Jack and Cary  | Private Residence        | Centralia |
| 5/1/2018  | 10:30am | Ira Holman     | Private Residence        | Yelm      |

## APPENDIX III—Survey Questions

### MAILED SURVEY

Survey questions were divided into two sections.

#### **Section One**

Section one required a choice from a scale of 1 to 5:

**1 = Not At All 2 = Not Really 3 = Undecided 4 = Somewhat 5 = Very Much**

- 1) To what degree this marijuana facility impacted your neighborhood?
- 2) Due to this marijuana facility have you been impacted by any of the following:
  - Odor
  - Noise
  - Garbage
  - Pollution
  - Traffic
  - Other (specify)
- 3) What is your level of safety concern due to the commercial marijuana facility close by?
- 4) Have you noticed an increase in crime following the arrival of this marijuana facility?

#### **Section Two**

Section two of the survey required a YES/NO response:

- 5) Were you notified about this marijuana facility before it was located in your neighborhood?
- 6) A. Have you tried to prevent this marijuana facility from operating in your neighborhood?  
B. If you tried to prevent this marijuana facility did officials assist you appropriately?  
Please briefly describe your experience:
- 7) A. Do you believe your property value has decreased due to this marijuana facility?  
B. Do you believe your property value has increased due to this marijuana facility?
- 8) Have you considered moving elsewhere because of this marijuana facility?
- 9) Would you prefer not to have this marijuana facility in your neighborhood?
- 10) Any additional comments regarding this marijuana facility operating in your neighborhood?

HOUSE BILL 2630

State of Washington 65th Legislature 2018 Regular Session  
By Representatives Griffey, MacEwen, and Van Werven  
Read first time 01/11/18. Referred to Committee on Commerce & Gaming.

AN ACT Relating to ensuring marijuana license applicants are in compliance with local ordinances; and amending RCW 69.50.331.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Sec. 1. RCW 69.50.331 and 2017 c 317 s are each amended to read as follows:

(1) For the purpose of considering any application for a license to produce, process, research, transport, or deliver marijuana, useable marijuana, marijuana concentrates, or marijuana-infused products subject to the regulations established under RCW 69.50.385, or sell marijuana, or for the renewal of a license to produce, process, research, transport, or deliver marijuana, useable marijuana, marijuana concentrates, or marijuana-infused products subject to the regulations established under RCW 69.50.385, or sell marijuana, the state liquor and cannabis board must conduct a comprehensive, fair, and impartial evaluation of the applications timely received.

(a) The state liquor and cannabis board may cause an inspection of the premises to be made, and may inquire into all matters in connection with the construction and operation of the premises. For the purpose of reviewing any application for a license and for considering the denial, suspension, revocation, or renewal or denial thereof, of any license, the state liquor and cannabis board may consider any prior criminal conduct of the applicant including an administrative violation history record with the state liquor and cannabis board and a criminal history record information check. The state liquor and cannabis board may submit the criminal history record information check to the Washington state patrol and to the identification division of the federal bureau of investigation in order that these agencies may search their records for prior arrests and convictions of the individual or individuals who filled out the forms. The state liquor and cannabis board must require fingerprinting of any applicant whose criminal history record information check is submitted to the federal bureau of investigation. The provisions of RCW 9.95.240 and of chapter 9.96A 14 RCW do not apply to these cases. Subject to the provisions of this section, the state liquor and cannabis board may, in its discretion, grant or deny the renewal or license applied for. Denial may be based on, without limitation, the existence of chronic illegal activity documented in objections submitted pursuant to subsections (7)(c) and (10) of this section. Authority to approve an uncontested or unopposed license may be granted by the state liquor and cannabis board to any staff member the board designates in writing. Conditions for granting this authority must be adopted by rule.

(b) No license of any kind may be issued to:

(i) A person under the age of twenty-one years;

(ii) A person doing business as a sole proprietor who has not lawfully resided in the state for at least six months prior to applying to receive a license;

(iii) A partnership, employee cooperative, association, nonprofit corporation, or corporation unless formed under the laws of this state, and unless all of the members thereof are qualified to obtain a license as provided in this section; or

(iv) A person whose place of business is conducted by a manager or agent, unless the manager or agent possesses the same qualifications required of the licensee.

(2)(a) The state liquor and cannabis board may, in its discretion, subject to the provisions of RCW 69.50.334, suspend or cancel any license; and all protections of the licensee from criminal or civil sanctions under state law for producing, processing, researching, or selling marijuana, marijuana concentrates, useable marijuana, or marijuana-infused products thereunder must be suspended or terminated, as the case may be.

(b) The state liquor and cannabis board must immediately suspend the license of a person who has been certified pursuant to RCW 74.20A.320 by the department of social and health services as a person who is not in compliance with a support order. If the person has continued to meet all other requirements for reinstatement during the suspension, reissuance of the license is automatic upon the state liquor and cannabis board's receipt of a release issued by the department of social and health services stating that the licensee is in compliance with the order.

(c) The state liquor and cannabis board may request the appointment of administrative law judges under chapter 34.12 RCW who shall have power to administer oaths, issue subpoenas for the attendance of witnesses and the production of papers, books, accounts, documents, and testimony, examine witnesses, and to receive testimony in any inquiry, investigation, hearing, or proceeding in any part of the state, under rules and regulations the state liquor and cannabis board may adopt.

(d) Witnesses must be allowed fees and mileage each way to and from any inquiry, investigation, hearing, or proceeding at the rate authorized by RCW 34.05.446. Fees need not be paid in advance of appearance of witnesses to testify or to produce books, records, or other legal evidence.

(e) In case of disobedience of any person to comply with the order of the state liquor and cannabis board or a subpoena issued by the state liquor and cannabis board, or any of its members, or administrative law judges, or on the refusal of a witness to testify to any matter regarding which he or she may be lawfully interrogated, the judge of the superior court of the county in which the person resides, on application of any member of the board or administrative law judge, compels obedience by contempt proceedings, as in the case of disobedience of the requirements of a subpoena issued from said court or a refusal to testify therein.

(3) Upon receipt of notice of the suspension or cancellation of a license, the licensee must forthwith deliver up the license to the state liquor and cannabis board. Where the license has been suspended only, the state liquor and cannabis board must return the license to the licensee at the expiration or termination of the period of suspension. The state liquor and cannabis board must notify all other licensees in the county where the subject licensee has its premises of the suspension or cancellation of the license; and no other licensee or employee of another licensee may allow or cause any

marijuana, marijuana concentrates, useable marijuana, or marijuana infused products to be delivered to or for any person at the premises of the subject licensee.

(4) Every license issued under this chapter is subject to all conditions and restrictions imposed by this chapter or by rules adopted by the state liquor and cannabis board to implement and enforce this chapter. All conditions and restrictions imposed by the state liquor and cannabis board in the issuance of an individual license must be listed on the face of the individual license along with the trade name, address, and expiration date.

(5) Every licensee must post and keep posted its license, or licenses, in a conspicuous place on the premises.

(6) No licensee may employ any person under the age of twenty-one years.

(7)(a) Before the state liquor and cannabis board issues a new or renewed license to an applicant it must give notice of the application to the chief executive officer of the incorporated city or town, if the application is for a license within an incorporated city or town, or to the county legislative authority, if the application is for a license outside the boundaries of incorporated cities or towns, or to the tribal government if the application is for a license within Indian country, or to the port authority if the application for a license is located on property owned by a port authority.

(b) The incorporated city or town through the official or employee selected by it, the county legislative authority or the official or employee selected by it, the tribal government, or port authority has the right to file with the state liquor and cannabis board within twenty days after the date of transmittal of the notice for applications, or at least thirty days prior to the expiration date for renewals, written objections against the applicant or against the premises for which the new or renewed license is asked. The state liquor and cannabis board may extend the time period for submitting written objections upon request from the authority notified by the state liquor and cannabis board.

(c) The written objections must include a statement of all facts upon which the objections are based, and in case written objections are filed, the city or town or county legislative authority may request, and the state liquor and cannabis board may in its discretion hold, a hearing subject to the applicable provisions of Title 34 RCW. If the state liquor and cannabis board makes an initial decision to deny a license or renewal based on the written objections of an incorporated city or town or county legislative authority, the applicant may request a hearing subject to the applicable provisions of Title 34 RCW. If a hearing is held at the request of the applicant, state liquor and cannabis board representatives must present and defend the state liquor and cannabis board's initial decision to deny a license or renewal.

(d)(i) Before the state liquor and cannabis board issues a new or renewed license to an applicant for a marijuana producer, processor, or retailer license, the applicant must provide to the board written proof, as deemed appropriate by the board, that the local jurisdiction within which the applicant's premises is located or is proposed to be located has determined the applicant is in compliance with all applicable local ordinances and regulations.

(ii) If an applicant satisfies all requirements of license issuance or renewal in this chapter, except for the requirement in (d)(i) of this subsection, the state liquor and cannabis board shall tentatively approve but not issue the license. If within six months of tentatively approving the license application the applicant provides the board with written

proof of compliance with all local ordinances and regulations as required in (d)(i) of this subsection, the board shall issue the license. If the applicant does not provide such written proof to the board within six months of the date of tentative license approval, the board must deny the license.

(iii) During any time in which a marijuana producer, processor, or retailer's license is tentatively approved, the person or business with the tentative approval may not engage in any conduct related to producing, processing, transporting, transferring, or selling marijuana or marijuana products for which a license is required pursuant to this chapter.

(e) Upon the granting of a license under this title the state liquor and cannabis board must send written notification to the chief executive officer of the incorporated city or town in which the license is granted, or to the county legislative authority if the license is granted outside the boundaries of incorporated cities or towns.

(8)(a) Except as provided in (b) through (d) of this subsection, the state liquor and cannabis board may not issue a license for any premises within one thousand feet of the perimeter of the grounds of any elementary or secondary school, playground, recreation center or facility, child care center, public park, public transit center, or library, or any game arcade admission to which is not restricted to persons aged twenty-one years or older.

(b) A city, county, or town may permit the licensing of premises within one thousand feet but not less than one hundred feet of the facilities described in (a) of this subsection, except elementary schools, secondary schools, and playgrounds, by enacting an ordinance authorizing such distance reduction, provided that such distance reduction will not negatively impact the jurisdiction's civil regulatory enforcement, criminal law enforcement interests, public safety, or public health.

(c) A city, county, or town may permit the licensing of research premises allowed under RCW 69.50.372 within one thousand feet but not less than one hundred feet of the facilities described in (a) of this subsection by enacting an ordinance authorizing such distance reduction, provided that the ordinance will not negatively impact the jurisdiction's civil regulatory enforcement, criminal law enforcement, public safety, or public health.

(d) The state liquor and cannabis board may license premises located in compliance with the distance requirements set in an ordinance adopted under (b) or (c) of this subsection. Before issuing or renewing a research license for premises within one thousand feet but not less than one hundred feet of an elementary school, secondary school, or playground in compliance with an ordinance passed pursuant to (c) of this subsection, the board must ensure that the facility:

(i) Meets a security standard exceeding that which applies to marijuana producer, processor, or retailer licensees;

(ii) Is inaccessible to the public and no part of the operation of the facility is in view of the general public; and

(iii) Bears no advertising or signage indicating that it is a marijuana research facility.

(e) The state liquor and cannabis board may not issue a license for any premises within Indian country, as defined in U.S.C. Sec.1151, including any fee patent lands

within the exterior boundaries of a reservation, without the consent of the federally recognized tribe associated with the reservation or Indian country.

(9) A city, town, or county may adopt an ordinance prohibiting a marijuana producer or marijuana processor from operating or locating a business within areas zoned primarily for residential use or rural use with a minimum lot size of five acres or smaller.

(10) In determining whether to grant or deny a license or renewal of any license, the state liquor and cannabis board must give substantial weight to objections from an incorporated city or town or county legislative authority based upon chronic illegal activity associated with the applicant's operations of the premises proposed to be licensed or the applicant's operation of any other licensed premises, or the conduct of the applicant's patrons inside or outside the licensed premises. "Chronic illegal activity" means (a) a pervasive pattern of activity that threatens the public health, safety, and welfare of the city, town, or county including, but not limited to, open container violations, assaults, disturbances, disorderly conduct, or other criminal law violations, or as documented in crime statistics, police reports, emergency medical response data, calls for service, field data, or similar records of a law enforcement agency for the city, town, county, or any other municipal corporation or any state agency; or (b) an unreasonably high number of citations for violations of RCW 46.61.502 associated with the applicant's or licensee's operation of any licensed premises as indicated by the reported statements given to law enforcement upon arrest.