

# **HAWKEYE POLICY REPORT**

2022-2023

**IOWA™**

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*Since the turn of the century, cannabis policy in the United States has undergone significant shifts and become one of the foremost areas of policy change and debate. Because changes in this area of policy are largely being pursued at the state level and are often left up to the voters, a patchwork of different policies across the U.S. has emerged, with little consistency. While the Iowa debate surrounding marijuana and its regulation has been a controversial one, the state is unequivocally falling behind its neighboring states and the rest of the country. As the tides of public opinion turn, this paper aims to re-examine Iowa's policies around the use of cannabis.*

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*As per- and polyfluoroalkyl substances (PFAS) persist in products on the market—infiltrating our waterways and negatively affecting Iowans—addressing the issues PFAS cause in Iowa water has never been more pertinent. While other states have actively worked to address the detrimental effects PFAS inflict on water quality, Iowa lags far behind in both monitoring and mitigation of the issue. Iowa currently relies on a severely outdated action plan, and the state's testing resources are incredibly deficient compared to other states. Iowa must first understand its position regarding PFAS so that a concrete plan to control PFAS can be later developed. This report considers strategies the state may consider to help fully understand the magnitude of the PFAS problem in our waterways so effective mitigation and prevention can then be considered.*

## Contributing Authors

**Delaney Behning** is from Peosta, IA. She is a sophomore studying Political Science and Ethics & Public Policy, and she is earning a minor in Philosophy and a certificate in Sustainability. Currently, Delaney serves as an At-Large Senator in Undergraduate Student Government, where she occupies the Chair of the Sustainability Committee and serves on the Governmental Relations Committee. She also works as a communications intern for the university's Office of Sustainability and the Environment. She plans to attend law school after graduation, wanting to work in public interest law or environmental policy.



**Reese Bobitt** is from Des Moines, Iowa. She is a fourth-year student studying Political Science, Environmental Policy and Planning, and Sustainability on the Pre-Law track. After graduation she plans to pursue a law degree and work as an environmental lawyer, helping to shape the future of environmental policy, with particular interest in water quality and climate migration. Reese is the co-President of the Student Advancement Network, and a peer mentor for the Department of Political Science. She works as a research assistant for the Disasters, Migration, and Violence Lab and has previously worked for the Iowa State Senate as an intern. She is currently working on an Undergraduate Research Fellowship focused on the impact of rapid- and slow-onset natural disasters on international and internal migration patterns.



**Jane Holish** is a fourth-year student, graduating in May of 2023 with a B.A. in Political Science, a minor in Social Justice and a certificate in Writing. This semester, she is focused on finishing her degree and completing her Writing Certificate capstone. Her variety of experiences in Iowa City have included volunteering for Hawk the Vote and local nonprofit Field to Family. She has also volunteered at the Food Pantry at Iowa for the past year, and just recently started working as Operations Coordinator at both the Pantry and Clothing Closet. She also has worked on various research projects at the Iowa Social Science Research Center where she is now a supervisor. She is also excited to be starting a new position as policy advisor for Iowa City City Councilman Andrew Dunn this semester. In her free time, she enjoys hanging out with friends, any time spent outdoors, and making niche Spotify playlists.



**Patrick Johnson** is a fourth-year undergraduate student at the University of Iowa, double-majoring in Political Science and Economics while minoring in Spanish and International Relations. He also serves as the Undergraduate Student Body President at Iowa, which represents over 25,000 students across the Iowa campus. Patrick is a current admittee to the University of Iowa College of Law, and looks to pursue a career in constitutional law in his future.



**Jasmyn Jordan** is a second-year honors student from Normal, Illinois. She is double majoring in Political Science and International Relations on the Pre-Law Track. Jasmyn serves as Chairwoman of Iowa Young Americans for Freedom, Student Reporter for The College Fix, Honors Outreach Ambassador, member of Phi Alpha Delta Pre-Law Fraternity, member of Phi Eta Sigma Honors Society, and has interned on several political campaigns. She would like to pursue a career in political consulting, diplomacy, law, or government.



**Yunseo Ki** is a third-year student majoring in Political Science and Ethics & Public Policy; minoring in French; and obtaining certificates in Social Science Analytics and International Business. She works as Basic Needs Manager of the University of Iowa, directing the Food Pantry at Iowa and Clothing Closet at Iowa. Yunseo is also a policy intern for the Iowa City-City Council under City Councilman Andrew Dunn. Her other commitments include serving as a Peer Mentor for the Department of Political Science, Vice-Chair of the Honors DEI Council, President of the Korean Conversation Group, and a student research affiliate for the Iowa Policy and Opinion Lab (IPOL). Yunseo hopes to pursue a career in law.



**Cameron LaPage** is a senior studying political science and history with a minor in music at the University of Iowa. He is a member of Phi Alpha Delta Pre-law and Phi Eta Sigma Honors Society. He has previously done survey research for the Iowa Social Science Research Center, and is currently participating in long-term research project in judicial politics. He is pursuing a Fulbright scholarship to travel abroad in the spring, and hopes to pursue law school after graduation.



**Shivani Patel** is a second-year student from Hanover Park, Illinois. She is majoring in Political Science, minoring in Philosophy, and is on the Pre-Law track. On campus, Shivani is secretary of the Indian Student Alliance, on the Diversity, Equity, and Inclusion committee of her Pre-Law fraternity, and is greatly involved in the Honors Program as an Honors Outreach Ambassador. She tutors in ACT, enjoys helping students navigate the process to college, and plans to begin to volunteer as a tutor in the local community this year. After college, Shivani hopes to attend law school and further her education.



**Payton Riley** is a senior from Dubuque, Iowa. She is double majoring in Political Science and Ethics & Public Policy. She is also earning a minor in International Relations and a certificate in Nonprofit Leadership and Philanthropy. Payton values volunteer work and during her time at the University of Iowa she has interned at Open Heartland, a nonprofit that serves impoverished immigrant families, and served as a youth group leader for her church. She is currently an undergraduate research assistant for a PhD student at the University of Iowa. Payton is fascinated by the international system, with particular interest in conflict mediation and how civilians are impacted by war. In the future, she would like to be “one of those people who are proficient in several languages”. So far, she is making progress in Spanish and Russian. After graduating in May, she plans to attend graduate school to study international conflict.



**Caleb Slater** is a senior majoring in Political Science and minoring in Philosophy on the Pre-Law track. Currently a Resident Assistant at Mayflower Hall, his campus involvement includes serving as Programming Director for Hawk the Vote and President of University Democrats, along with short stints as Senator for both Associated Residence Halls and Undergraduate Student Government. Caleb has completed research on the approval of state legislatures as well as the impact of foreign aid on democratization abroad. He hopes to pursue a career in International Law upon completion of law school.



**Additional Contributor:  
Amelia Balk**

Amelia was an integral member of our team in the Fall of 2022 but was unable to be part of the Des Moines Delegation for the Spring of 2023.

# Improving Iowa's Reading Proficiency Among Students

*Amelia Balk, Jasmyn Jordan, Cameron LaPage*

## Executive Summary

Steadily decreasing proficiency on the reading tests or the National Assessment of Academic Progress (NAEP), American College Testing admissions exam (ACT), and Iowa's own early literacy screenings on elementary schoolers indicate a growing literacy problem in Iowa's students, a problem exacerbated by the pandemic. In the wake of signs of declining literacy in Iowa, three possible policy changes are examined with the aims of increasing literacy in Iowa's students:

1. Reviewing the state's Reading Intervention Program Report with the goal of educators discontinuing programs that have been shown to be ineffective.
2. Creating a dedicated fund for Intensive Summer Reading Programs (ISRPs) that schools would apply for on an annual basis.
3. Prioritizing "growing our own" school librarians and increasing the amount of school librarians based on school district size.

These policy recommendations were then evaluated using the following criteria:

1. Equity- How fairly a service is distributed among various target groups by considering how much service the individuals need.
2. Effectiveness- The extent to which a policy achieves its goal.
3. Feasibility- Probability that a policy would be adopted and carried out without being changed. This category also considered social and economic feasibility.

**Based on the analysis below, we recommend the state of Iowa fund an Iowa Reading Intervention Review to increase student literacy rates.**

## Introduction

Over the past decade, there have been increasingly worrying signs of declining literacy rates in Iowa's youth. Recently, the Department of Education released the latest results from the biannual National Assessment of Educational Progress (NAEP). Due to the pandemic, the percentage of fourth graders failing to meet the benchmark for NAEP basic level rose to a high of 36%, an 8% increase from 2013. Eighth graders suffered similar trends across the same period of time.

While the drop in proficiency from 2019 to 2022 was not as drastic in Iowa as it was in other states, there is indication that the pandemic hurt Iowa student literacy more than can be observed on the NAEP. In 2021, the Iowa Department of Education released a report on Spring 2021 ISASP scores as well as the results of the past year's Early Literacy screenings for kindergarten through third graders. From fall of 2019 to fall of 2020, all four groups suffered steep drops in literacy rates (IADOE) (Figure 2). The class of 2032 (kindergarteners in fall 2019) suffered the worst out of all groups. The group had the highest literacy rates among K-3 classes in fall 2019 (even improving from that spring) at 73%, but that number plummeted to 48% when the group reached 1<sup>st</sup> grade the following fall, a 25% drop. The class of 2030 (2<sup>nd</sup> graders in fall 2019) had the most resilience, only dropping 2% upon entering third grade in 2020. While literacy rates for 1<sup>st</sup>-3<sup>rd</sup> graders improved in spring of 2021, they were still shy of fall 2019 figures, and much lower than they were in spring of 2019. Literacy in the 2020-2021 kindergarten class actually declined 7% from fall to spring.

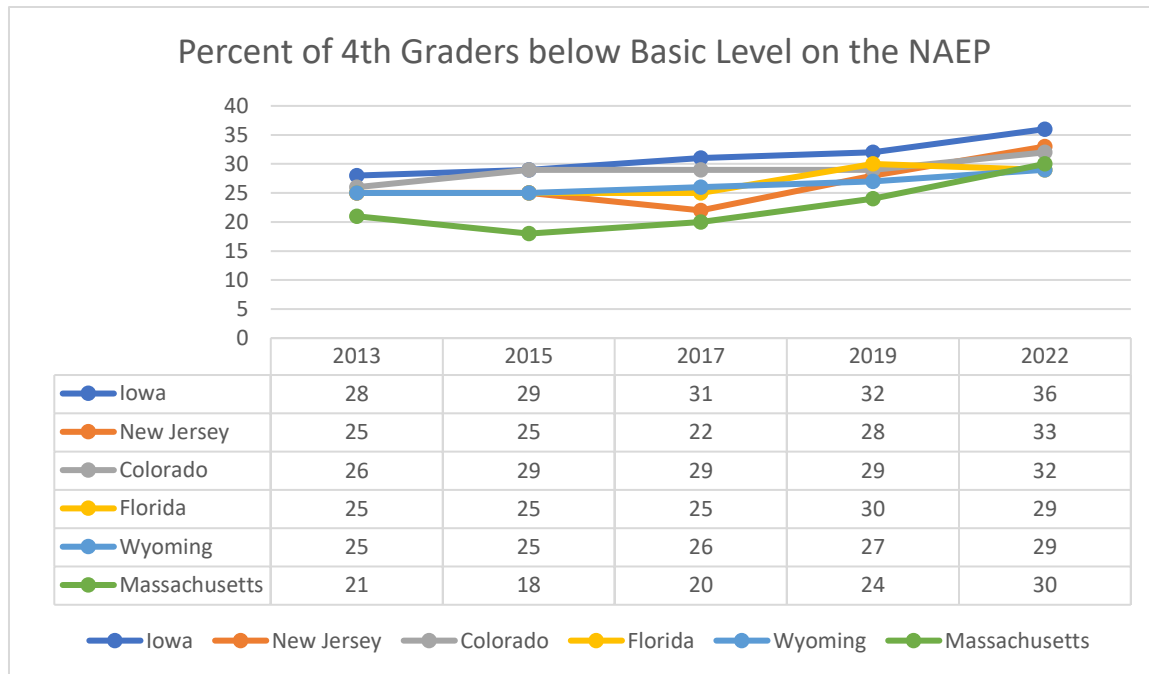


Figure 1: 4th Graders below basic level in Iowa and the top 5 performing states, 2013-2022. Source: NAEP and US Department of Education

Declining literacy is not just limited to elementary and middle school. Across the same time period, Iowa's on the ACT Reading test has declined; in 2015, 55% of Iowans taking the ACT reached the benchmark for reading proficiency, a number that dropped to 52% in 2019 and 50% in 2020, then recovered to 52% in 2021 (ACT) (Table 1). However, the rebound could be attributed to the low percentage of graduates who took the ACT in 2021.

There is also an aspect of inequality when it comes to literacy. On the NAEP, there is a large disparity along lines of race, student income, and school location. In 2022, white students, students from suburban and rural schools, and students not eligible for free/reduced lunches performed significantly higher than black or hispanic students, students going to urban and small town schools, and students who qualify for free/reduced lunches. Any approach to addressing literacy will have to be able to address this inequality.

Literacy is important as it is the foundation to almost every life skill. *Every Child A Chance Trust* has presented studies exhibiting that the higher the literacy rate, the more likely a population is to have good health, minimized crime, increased economic

prosperity, and lowered unemployment (Gross, 2009). Furthermore, the Barbara Bush Foundation for Family Literacy have revealed that low adult literacy rates can cost a country at least \$2.2 trillion each year (Barbara Bush Foundation for Family Literacy, 2020). The World Bank has illustrated that being able to read at a young age improves academic success for future years of schooling (Horvai, 2018). Literacy is a necessary policy to advocate for to make societies and nations the best that they can be by providing citizens the necessary reading skills they need to be personally, socially, and professionally successful. Because of this strong correlation between literacy and life outcomes, it is essential Iowa implements some sort of policy changes to change the downward trend of literacy proficiency rates in Iowa.



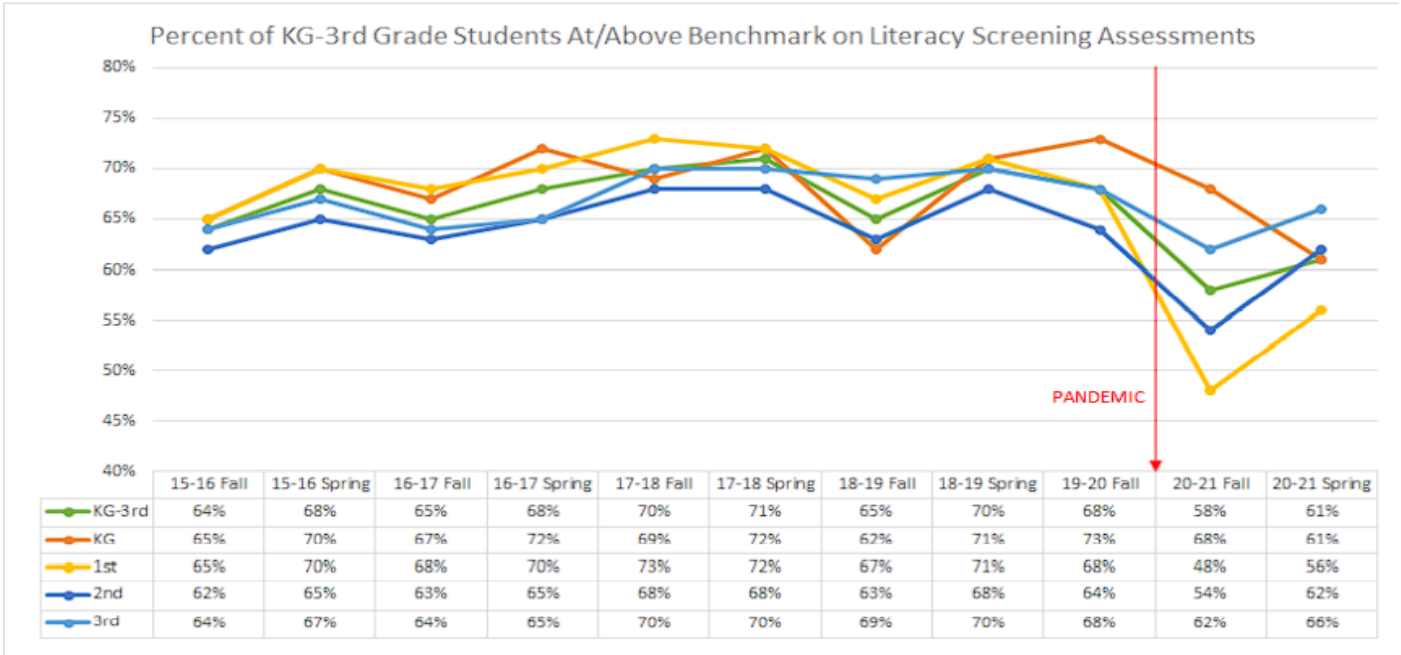


Figure 2: Early Literacy Data, Fall 2015-Spring 2021. Source: Iowa Student Success Early Warning System and Iowa Department of Education

**Policy Recommendations**

**Funding for a New Iowa Reading Program Review**

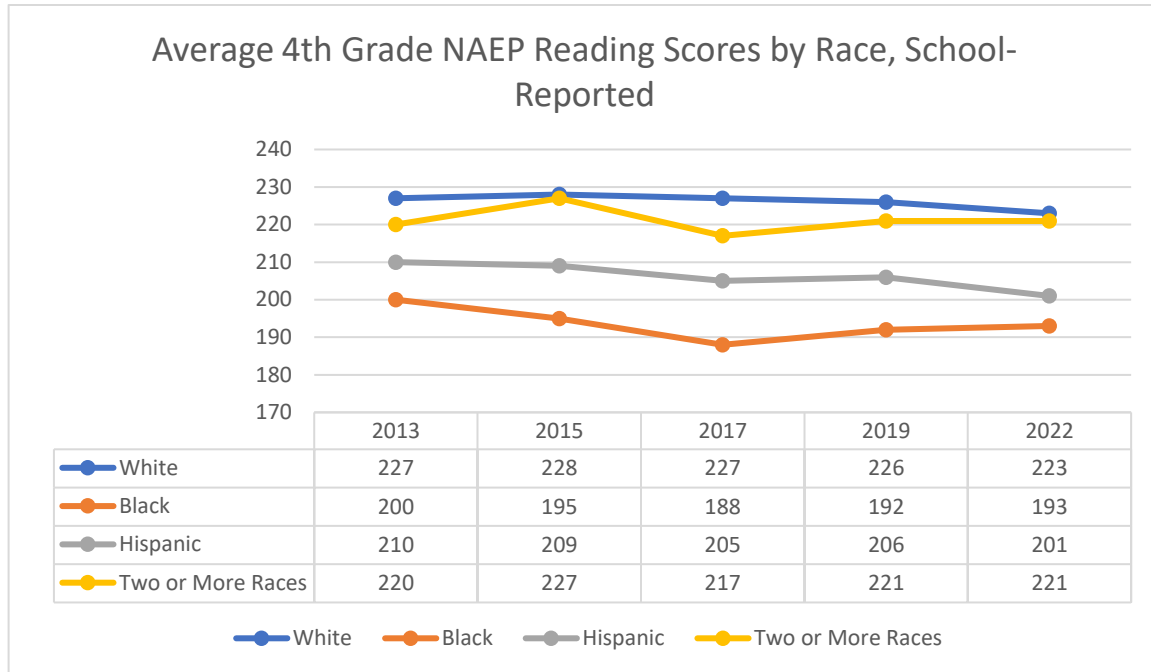
In March 2016, the Iowa Department of Education released a report reviewing prekindergarten through twelfth grade literacy intervention programs. The report reviewers included the Iowa Reading Research Center as well as national experts, each using rigorous review processes and criteria. Because of this comprehensive process, a well-balanced and easy to comprehend report was published. The purpose of compiling such a report is to “help inform educator decisions about selecting interventions to support student progress toward proficient in the area of reading” (Iowa Department of Education (IDE), 2016). These intervention programs are used for students who are persistently at risk as part of their increased reading instruction required daily. This makes accurate program selection critical so that the program selected gives the students the best chance to improve their literacy status to proficient.

Outside of this review, further reviews were dependent on resources and funding, with none appearing since the initial report in 2016. With

funding, this report would “identify [interventions] based on a review of literature that indicates emerging and/or existing evidence of efficacy” (IDE, 2016). It is imperative a new report is funded to reflect the ever-changing evolution of the teaching standards of the education system and the findings of new scientific reports, as the report was originally intended to do. After the initial funding of a new report, evaluation should be given to if a new report should be commissioned annually, biannually, every

Year	% High School Graduates Taking ACT	% At Reading Readiness Benchmark
2015	67	55
2016	68	55
2017	67	55
2018	68	54
2019	67	52
2020	68	50
2021	47	52

Table 1: Iowa ACT Proficiency Rates, 2015-2021. Source: Various ACT Publications, 2015-2021.



*Figure 3: 4<sup>th</sup> Grade NAEP Reading Scores in Iowa by School-Reported Race. Source: NAEP and US Department of Education. Note: Average scores for Asian students were 219 in 2013, 233 in 2015 and 220 in 2019, but there is insufficient data for 2017 and 2022.*

5 years, etc. But it should not be forgotten that the important first step is funding a new report as it has been 6 years since the last one.

One such example of new evidence being released is with Reading Recovery, an intensive one-on-one reading instruction for the lowest achieving first grade students, the sixth most used commercial program in Iowa (Hanford & Peak, 2022). In 2019, a report “helped bring public attention to the fact that reading programs based on this theory teach the strategies struggling readers use to get by” (Hanford & Peak, 2022). This evidence was corroborated by a federally funded study released spring of 2022. This long-term student impact study had two important findings:

1. Students who received Reading Recovery had scores on state reading tests in third and fourth grade that were below the test scores of similar children who did not receive Reading Recovery (Hanford & Peak, 2022).
2. Students who were in Reading Recovery were more likely than the comparison group to receive further intervention (Hanford & Peak, 2022).

Both of these results suggest this program may not be effective as previously thought, something not demonstrated in the antiqued 2016 report.

Alternatively, i-Ready is a reading intervention program originally not in the report but one that should be included due to its newfound success. i-Ready’s competitive advantage comes because of its two-part structure: the diagnostic and the personalized instruction. The diagnostic is an “adaptive assessment that adjusts its questions to suit the student’s need”, with the purpose of this “not to give the student a score or grade, but instead to determine how best to support your student’s learning”; from these answers a personalized instruction plan is developed (Research). Results from this program include these statistics:

1. Schools using i-Ready had a significantly higher percent (~19%) of students achieve reading proficiency on state-based assessments than students that did not use i-Ready (Research).
2. Additionally, in schools with key student groups, i-ready helps these students reach proficiency (Research). The graphic shows

**TABLE 1. REVIEW OF INTERVENTIONS SUMMARY**

Program	Grade	Instructional Tier	Internal Validity	External Validity	Overall Findings
Access Code	1-6	Targeted		✓	
Achieve Intervention	2-12	Classwide, Targeted, Intensive		✓	✓**
Corrective Reading	3-6+	Intensive		✓	✓
Corrective Reading	3-6+	Targeted			✓
Earobics	PK3-3	Classwide, Targeted, Intensive		✓	✓
Fast ForWord	K-12	Classwide, Targeted, Intensive	✓	✓	✓

Table 2: An excerpt of the 2016 Early Literacy Intervention Reviewed List. Source: Iowa Department of Education

the gains of some of these key groups, many of which are also disadvantaged in Iowa.

As seen in both Reading Recovery and i-ready, new evidence or educational practices are not reflected in the March 2016 Reading Intervention Program Report. Without an updated report, educators and districts are unable to make well-educated decisions on what program is the most effective for their school. This guide provides educators an in depth, comprehensive resource for program selection, saving time as educators will know this report was curated by field experts. Funding for a new intervention summary report to be produced in 2022 is essential to improving children literacy rates in Iowa.

**Additional Funding for Intensive Summer Reading Programs (ISRP)**

Intensive summer reading programs (ISRP) are school-operated programs that offer 4-5 weeks of supplementary in-class instruction to students (typically in third grade) at risk of failure. ISRPs are usually defined as computer-based, book-based, and regular school-based programs. To assist with the implementation of these programs, the state of Iowa could create a statewide fund which would allow school districts to apply for grants for their ISRPs. A 2016 study, commissioned by Iowa Governor Terry Branstad and conducted by the Iowa Reading Research Center (IRRC), examined the efficacy of

ISRPs. The study estimated that, considering course materials and staffing, the average cost of ISRPs ranged from \$1,193 to \$1,813 per pupil (Reed, Schmitz, Aloe, & Folsom, 2016). Adjusted for inflation, ISRPs would have a high-end cost of \$2,251.17 per pupil. Reed et. al estimated that about 25% of Iowa’s third graders (estimated at 9,000 in

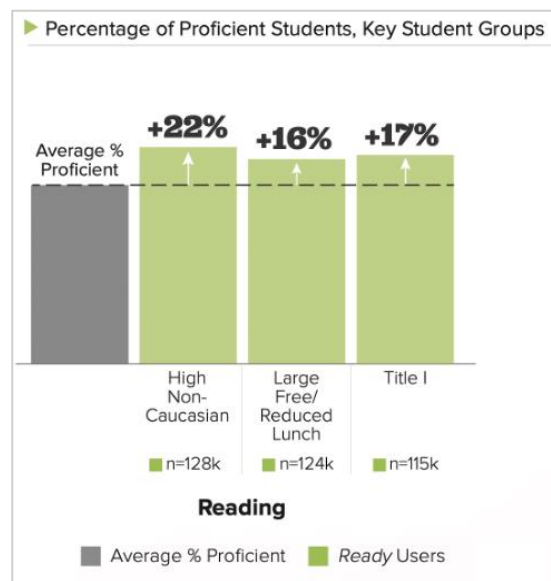


Figure 4: Percentage of Proficient Students, Key Student Groups. Source: Curriculum Associates Research and Efficacy

the study) were at risk of academic failure due to reading. Therefore, we could create a stable fund for ISRPs using the following fixed formula:  $y =$

$\$2,251.17 \times .25x$ , where  $x$  refers to Iowa's third grade enrollment and  $y$  is state funding.

A subsequent study in 2020 published in *Educational Policy* performed a cost/benefit analysis of ISRPs when compared to third grade retention (holding students back). The study estimated that school-designed and led programs (the cheapest of the three types) saves \$4.81 (\$5.54 adjusted for inflation) for every dollar spent when compared to the cost of having third graders attend an additional year of school (Reed, Cook & Aloe, 2020). This cost benefit is enormous. For example, if 40,000 3<sup>rd</sup> graders are enrolled, 10,000 are presumed to be at risk of reading failure, and it costs \$2,251.17 per pupil to fund ISRPs, then one year of funding would cost \$22,511,700. This could potentially translate to annual state savings of \$124,714,818 when compared to third grade retention.

More important than the money spent and saved is whether that money is being put to good use. The IRRC study examined voluntary ISRPs of all three kinds across the state of Iowa. What they found is that summer reading programs are effective at mitigating summer reading loss and preparing them for the upcoming school year (Reed, Schmitz, Aloe, & Folsom, 2016). However, the study also found that ISRPs did not significantly increase overall reading performance or bridge the gaps between high-performing and low-performing groups from the beginning to end of the summer session (Reed, Schmitz, Aloe, & Folsom, 2016). The 2020 study came to the same conclusion (Reed, Cook & Aloe, 2020).

These studies carry several questions. The first is that, while third grade retention is associated with increased dropout rates, there is little data answering whether ISRP participation prevents dropout in the long run. There is also little data about whether ISRP participation can be definitively linked to increased performance during the school year, though eliminating summer reading loss certainly gives students a head start. There is also the nature of the studies themselves. Both studies were voluntary, and the former suffered from low attrition rates. It is possible that ISRPs with compulsory attendance for at-risk students could produce more definitive

results. Ultimately, ISRP funding would be most useful as a stop-gap measure to reduce over-summer reading loss or when paired with extra intervention during the regular school year.

### ***Hiring School Librarians***

Being a school librarian is much more than selecting the books on library shelves and checking them out for students. Fostering digital literacy, championing the joy of reading, helping teachers enhance their lessons, and seeking out creative, diverse materials are four benefits that school librarians provide (Gavigan 2022). Additionally, school librarians support the intellectual freedom of students. Because there is an increasing amount of misinformation and disinformation which makes it hard for students to discern their sources, school librarians are vital in evaluating the credibility of sources (Gavigan 2022). School libraries can match print and digital literature that suit a student's reading level and interests which can help a student gain more of an appreciation for reading. Statewide studies have proven that there is a positive relationship between qualified school librarians and scores on standards-based language arts, reading, and writing tests, regardless of student demographics and school characteristics (Lance and Kachel 2018). A national study utilizing data from the National Center for Education Statistics (NCES) and 4th-grade National Assessment of Educational Progress (NAEP) reading scores exhibited that schools without librarians are associated with a fall in reading scores, while schools with librarians are have scores that rose (Lance and Kachel 2018). Another study demonstrated that if schools had full-time librarians, reading scores were: "consistently better for all grade levels of students...and had fewer Below Basic scores than those without librarians" (Lance and Kachel 2018). School librarians provide learning resources to enhance educators' lessons and grow student skills such as critical thinking, research, and communication (American Libraries Association 2020). Research has shown that students have greater test scores the longer a school librarian collaborates with their teacher (Strong School Libraries Build Strong Students n.d.). It is crucial that school

libraries offer resources that reflect differing values, opinions, and experiences so that students can relate to or become knowledgeable about a variety of backgrounds (Gavigan 2022). School librarians promote intellectual freedom by exposing students to an array of beliefs and points of view so that they can grow to be well-informed citizens that prosper no matter what field they study or work in.

In the past twenty years, the amount of Iowa school librarians has decreased forty percent from almost 700 teacher-librarians for 482,000 students to around 400 teacher-librarians for 485,000 student (Ryan 2018). In ten years, the school librarian population has diminished twenty percent, but simultaneously the teacher population has grown eight percent (Ryan 2018). Currently, the school librarian to student population is 1 to 1,200 (Ryan 2018). This translates to school librarians not having enough time to spend with students because they are either not working for the Iowa public school system or having to split their time among many schools. When school librarians are spending less time with students, the students are less likely to know how to analyze what they are reading and determine whether a source is useful or not. Additionally, school librarians run programs and enhance lessons in ways that teachers by themselves are unable to do so. Thus, students have lowered reading scores. To combat the decline in school librarians, we should prioritize “growing our own” school librarians and increase the amount of school librarians based on school district size. Currently, Iowa law calls for each Iowa school district to hire one qualified school librarian, and this rule is not enforced (Kachel and Lance 2021). There are 328 school districts and 1,352 public schools in Iowa (Iowa Schools 2022). Iowa law should be modified to implement that each of the 328 school districts needs to have at least one school librarian. Furthermore, the law should be changed so that it is recommended for school districts to have more than one school librarian and this can be enforced more as more school librarians are being trained and hired. The Iowa public school system can “grow their own” school librarians by helping certify current and retired teachers so that they can become

school librarians. Additionally, K-12 students could be incentivized to become student librarians if their education is paid for and they are mentored well in the role. K-12 schools that need librarians can help pay for the Master’s degree in library sciences or media specialist and Praxis II Library Media Content Test/Library Media Specialist (5311) (Iowa Dept. of Education 2022). The school districts can fund the school librarian position through their own monies, fundraising efforts, raising taxes, and requesting state and government funds.

### **Criteria**

Through the criteria of equity, effectiveness, and feasibility, the policy alternatives will be analyzed to determine what policy is the best for Iowa. The criteria are defined as follows:

#### ***Equity***

Equity is defined as how fairly a service is distributed among various target groups by considering how much of a needed service the individuals in each recipient group receives (Rossell, 1993). In the case of reading proficiency, equity is important for those groups who already are disproportionately impacted by lower reading proficiency rates. These groups include students of color, students on free or reduced lunch, and students in urban areas (Hanford, 2022). Ideally, following this definition, the policy chosen will be most impactful in lifting the worst readers, some of which are from the above groups, up to proficient, rather than continuing to improve the best readers to an advanced status.

#### ***Effectiveness***

Effectiveness is defined as the extent to which a policy achieves its goals (Rossell, 1993). In this case, our goal is improving reading proficiency rates among Iowa’s youth. This is measured by the myriad of test scores different student populations take frequently, including the Iowa Statewide Assessment of Student Progress (ISASP), Early Literacy Assessments, NAEP, and college placement exams of the ACT and SAT.

***Feasibility***

Political feasibility, defined as the probability that a policy would be adopted and carried out without being acceptably changed will be considered when evaluating policies (Rossell, 1993). This also includes the ease of the eventual policy implementation will, along with any backlash that may come from stakeholders. Next, economic feasibility will be considered; this includes concerns about funding and how much it would cost the state to implement the recommendation. Social feasibility will also be discussed but with less emphasis than other feasibility aspects because of the following: In 2022, 53% of Iowans said education policy is a critical issue, drawing the most support from Republicans, Democrats, and independents alike (Richardson, 2022). There is broad consensus on education being an issue, but the real social question will be how to capitalize on this momentum to change the status quo without alienating a large swath of Iowans.

**Evaluation of Recommendations Against the Criteria****Funding for a New Iowa Reading Program Review*****Equity***

As referenced earlier, one program left out of the 2016 review is i-ready, which has a high efficacy rate with historically marginalized groups (Research). Other programs that have similar potential when it comes to marginalized or disadvantaged groups could be missed by education personnel without inclusion in this valuable state resource. A new report would help teacher's pick programs that specifically help disadvantaged groups reach a higher reading proficiency level. This goal could be supported further by making a minor revision to include an equity review criteria or footnotes in the report, as this would make the equity results transparent for teachers. But, even at present, the Iowa Reading Program Review receives a positive score on equity as teachers and districts can tailor the

selected intervention program to address student inequalities.

***Effectiveness***

In a study analyzing the current evidence of a multiple intensive early reading interventions, researchers synthesized evidence from 25 different reading program studies. In this, they conclude the following: "Overall, the results of this meta-analysis indicate that intensive interventions result in positive gains in reading performance for struggling readers in Grades K through 3" (Wanzek et al., 2018). This finding is consistent with other studies that also "suggest a variety of early reading interventions can improve student reading outcomes" (Wanzek et al., 2018). With reading intervention programs proven effective in increasing student literacy rates, it is important to note how funding a new review would influence effectiveness.

Like the 2016 review, an updated review would not force educators to change their current intervention program. This review simply gives educators the tools to inform and educate them on the various program options and their validity. Increasing literacy rates would depend on educator's switching from a less effective program to a more effective program with the incentive of better student performance. Nevertheless, if the ineffective programs are filtered out in the report, and more emphasis is placed on effective programs, educators are likely to choose more effective programs. This would generate a positive effect on student's literacy rates.

***Feasibility***

This policy evades the main issue of political feasibility because it does not require teachers reshape the current way they are teaching and leaves current curriculum changes in the hands of school boards. This thinking is consistent with a Gallup poll in which 56% of all Americans said local school boards should have the most the influence in deciding what is taught in public schools it did (Calderon, 2014). Additionally in this poll, local school boards were ranked highest by Democrats,

Republicans, and Independents alike, defeating both the federal government and state government options (Calderon, 2014). Consequently, social feasibility could be a source of potential backlash. Some teachers or teachers' unions could be against this policy if the district they work in mandates a new program be used. These groups could be against new programs, as they would require extensive time, training, and money to administer them properly.

As for economic feasibility, the 2016 review was previously done by independently contracted reviewers, and the Iowa Reading Research Center, with both of their data later being combined into the full review (IDE, 2016). Unfortunately, the exact cost of the 2016 Review because of the current accounting record keeping process for request for proposals. The best estimate comes from the past and current fiscal funding for The Iowa Reading Research Center, which varies from around \$500,000 to 1 million per year (Budget Unit). In conclusion, the report is both economically, socially, and politically feasible.

### Additional Funding for Intensive Summer Reading Programs (ISRPs)

#### Equity

Various ISRPs have their own caveats. The IRRC study found that minority populations had lower performance than white students in school-led programs while English learners performed worse than native English speakers in computer-based programs (Reed, Schmitz, Aloe, & Folsom, 2016). Across the board, students in special education performed worse than their peers. While attrition was higher for black or Hispanic students, students on title 1 programs and students on free/reduced lunches, there was little evidence that ISRPs helped them catch up to their higher performing peers (Reed, Schmitz, Aloe, & Folsom, 2016). Lastly ISRPs are a favorable alternative to retention, which is linked to higher dropout rates and is shown to disproportionately affect minority groups (Reed, Cook & Aloe, 2020). Despite this, it appears that ISRPs are ineffective in alleviating inequality between groups.

#### Effectiveness

ISRPs are shown to reduce over-summer reading loss, but not at improving overall reading performance. Utilizing a Reading and CBM-R pre- and post-tests from the state-provided FAST program, the 2016 study found that student gains were not statistically significant. Students on average improved 3 and 4 points on each test, respectively, and average scores were still a far cry of the established benchmarks for reading literacy (Reed, Schmitz, Aloe, & Folsom, 2016). They are effectively a stop-gap measure to prevent students from repeating the third grade and would be most useful when combined with other improvements to the reading curriculum and reading intervention.

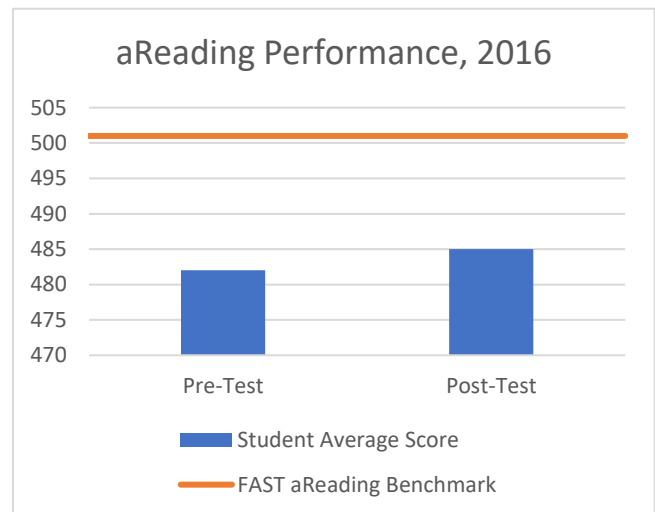


Figure 4: Average student performance on FAST aReading Test before and after ISRP participation. Source: Iowa Reading Research Center

The biggest benefit of ISRPs is the amount of money saved when compared to third grade retention. However, there is no guarantee that simply providing funding for ISRPs would result in all schools using it as needed, or that students who need to attend will attend. These issues could be mitigated by either schools or the state mandating attendance for low-performing students, as low attrition rates was a major issue in the 2016 IRRC study. However, there would be little benefit in reducing summer reading loss if students are not growing more over the regular school year.

**Feasibility**

As there is already framework for ISRPs with ELI, providing funding using the fixed formula is a simple solution (though the funding per pupil would have to adjust for inflation periodically). For political feasibility, summer reading is a rather inoffensive and non-controversial initiative, and there is little disincentive to providing political support. The high cost-effectiveness of Third Grade ISRPs when compared to retention, with the potential of saving millions of dollars for the state, should make it attractive to legislators across the political spectrum.

**Hiring School Librarians****Equity**

School librarians have helped students of color be able to improve their reading scores which lessens the achievement gap. Even by controlling socioeconomic factors, researchers have found that strong library programs are the most effective for marginalized populations like students of color reaped the most rewards from the programs (Lance and Kachel 2022). One study discovered that: “1.6% fewer students tested at the Below Basic level in reading when they had full-time librarians than those who did not, the difference was even greater for Black students (5.5%), Latino students (5.2%), and students with disabilities (4.6%)” (Lance and Kachel 2022). Additionally, studies showed that Black and Latino students who had more developed libraries more than doubled their Advanced writing scores and their likelihood for scoring below Basic writing was decreased by half compared to students without advanced library collections (Lance and Kachel 2022). When a school librarian is present at a school library, they usually bring with them technology and E-books. When wealthier students use these services, it gives students who may not have access to wi-fi or technology a greater opportunity to use paper resources.

**Effectiveness**

School libraries aid student achievement by bettering the students’ reading abilities, increasing

the students’ research skills, providing students and teachers with enhanced learning programs and resources. All of this knowledge and experiences will help students as they pursue higher education, jobs, and any other social and economic endeavors to better their quality of life. Studies involving over 2.6 million students have shown that a successful library program will raise reading scores 10-20 percentage points (Ryan 2018) Students that attend schools mostly comprised of low-income students are close to twice as likely to graduate if they have a certified school librarian in the school library (American Libraries Association 2020). School librarians benefit students from all backgrounds.

**Feasibility**

Certifying teachers to become school librarians will not be as expensive because they already have teaching experiences and bachelor’s degrees in those fields so they will only need a Master’s degree and to pass the Library Media Specialist Test (Iowa Dept. of Education 2022). Recently, there has been a great deal of controversy regarding school libraries and the books that are available in libraries. School librarians learn in their graduate courses and the policies currently set in place how to select the materials that are permitted to be available to students (Troutman, Alvarez, and Nebbe 2022). Furthermore, parents and community members who have concerns can view the library resources that are available to students by accessing the school library’s online catalog (Troutman, Alvarez, and Nebbe 2022). School librarians also encourage parents to speak with their kids about what they are reading to discuss how that literature can be applied to the real world so that the student’s belief system and understanding are grown (Troutman, Alvarez, and Nebbe 2022). Parents and community members are welcome to bring concerns to the school librarian and principal who work to make a decision as personal as possible such as permitting the student to read a book different from their classmates (Troutman, Alvarez, and Nebbe 2022). School librarians would prefer to offer a myriad of books (rather than completely removing the books) so that students can learn important life lessons from



literature that features experiences similar to or different from them (Troutman, Alvarez, and Nebbe 2022).

**Funding the Chosen Policy Recommendation**

As recently as 2022, Iowa has an estimated \$700 million in unused Elementary and Secondary School Emergency Relief (ESSER) funds (“Gov. Reynolds signs HF 2316, provides \$159M in new funding for public education, 2022). Given the political controversy of property and sales taxes, ESSER funds provide an attractive source of revenue for any of the education-based solutions. However, ESSER funds also carry the issue of having already been allocated to Iowa’s school districts. The state would effectively have to repossess these funds or issue a new directive on using them if it is to make any top-down changes, which could generate controversy. Of course, ESSER funds are also finite. Any changes requiring annual renewals of funding will eventually require a new source of revenue, be it a reallocation of the state or DOE budget or the introduction of a new tax.

policy is the only one which scored a “+” in each of the criteria categories: equity, effectiveness, and feasibility. Additionally, this policy has large benefits over the two options.

This policy’s advantage over the Summer Reading Program is in its effectiveness. The Summer Reading Program is more of a stopgap measure, so students don’t have to held back in third grade and suffer the negative externalities of such a momentous decision. With the Reading Review, progress could be made before the school year is over, which could help avoid the issue all together. Alternatively, this policy’s advantage over the School Librarians comes within the feasibility rating, specifically it’s social and political feasibility. The funding of school librarian is a culture war issue unlikely to be resolved anytime soon, which makes funding these staff positions a potential political liability for legislators to vote on, no matter their effectiveness. Furthermore, this recommendation also provides a unique opportunity to target the influx of homeschooled students and distance learning students in lieu of the Covid-19 pandemic (Catt et

Recommendation	Criteria		
	Equity	Effectiveness	Feasibility
Reading Intervention Review	+	+	+
Summer Reading Program	/	/	+
Increase School Librarians	+	+	/

*Table 3: Ranking of Policy Recommendations. A “+” means the recommendation meets the criteria, “/” means the recommendation is neutral or the effect cannot be accurately measured, and a “-” means the recommendation does not meet the criteria.*

**Choosing the Right Policy for Iowa**

After analyzing the different policy recommendations based on the criteria, the Reading Intervention Review is the right policy for Iowa. This

al., 2021). Effective reading interventions could be used by these students outside of a traditional student classroom setting, something that is harder to achieve in the other two policies. For these reasons, funding a new Reading Intervention Review is the

best decision for legislators to make to improve student reading proficiency across schools in Iowa.

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## Should Iowa Revisit its Policies Around the Use of Cannabis?

*Jane Holish, Shivani Patel, Payton Riley, Caleb Slater*

### Executive Summary

Since the turn of the century, cannabis policy in the United States has undergone significant shifts and become one of the foremost areas of policy change and debate. Today, marijuana remains a federally illegal substance. Nevertheless, many state legislatures have chosen to expand their medical marijuana programs or move towards decriminalization, while others have chosen to fully legalize marijuana for adult use<sup>1</sup>. Because changes in this area of policy are largely being pursued at the state level and are often left up to the voters, a patchwork of different policies across the U.S. has emerged, with little consistency. The current trends have put Iowa in a unique position, with Wisconsin as the only bordering state out of six that shares Iowa's status quo. While the Iowa debate surrounding marijuana and its regulation has been a controversial one, the state is unequivocally falling behind its neighboring states and the rest of the country. As the tides of public opinion turn, this paper aims to re-examine Iowa's policies around the use of cannabis.

We discuss how the status quo of Iowa's policies regarding the use of cannabis is currently functioning and explore three potential paths forward for the Iowa Legislature in the realm of marijuana policy: 1) the expansion of medical use, 2) decriminalization, 3) full legalization of recreational use. Each policy is evaluated in three areas: political feasibility, economic impact, and the impact on public health and safety. We then give each of the approaches a score for each criteria out of five based

on our analysis, yielding a composite score out of fifteen.

Through the process of our research, we found that while none of our policy alternatives reached the highest level of political feasibility, popularity among Iowans and the current administration's past efforts make expanding medical use the most politically feasible alternative. While the status quo has been implemented, we recognize that it may continue to become less favorable to Iowans over time. The economic impact of each policy alternative varies, but each provides an added benefit that the status quo does not, whether that be through money saved by reducing drug-related incarceration or added tax benefits of expanding the cannabis market in Iowa. While many fear potential public safety threats from increased marijuana use, the effects of decriminalization and legalization policy on this criteria are largely undetermined. However, both decriminalization and legalization significantly address the negative health impacts of mass incarceration. Ultimately, each of the policy alternatives that we explored brought added benefits to Iowans when compared to the status quo. Despite potential hurdles that may exist for its implementation, the full legalization of recreational marijuana is the alternative with the greatest combined benefits and least potential drawbacks for Iowans, and thus, is the policy that we recommend.

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<sup>1</sup> The terms "adult use" and "recreational" are used interchangeably; both refer to marijuana that is purchased and used by adults over the age of 21 in a legal state.

**Introduction**

As of November 2022, 21 states in the U.S. have legalized cannabis for adult use, with Missouri and Maryland being the most recent to do so in the aftermath of the midterm elections (Gibson, 2022). These 21 states—not including those that have chosen to decriminalize or legalize cannabis for medical use—now permit the purchase, sale, and recreational use of marijuana, despite the fact that the possession and distribution of marijuana is still a federal crime. Marijuana was designated as a Schedule I substance under the Controlled Substances Act (CSA) in 1970, as it was reported to have “a high potential for abuse, no currently accepted medical use in treatment in the United States, and a lack of accepted safety for use under medical supervision” (DEA, 2020). However, President Joe Biden’s recent October 2022 statement

on marijuana reform in the U.S. appeared to reflect changing tides in cannabis policy around the country, and cited a concern over its criminalization.

Recent federal action—combined with the increasing number of state legislatures who are considering taking more lax approaches to drug policy—bodes significant for the U.S. and the future of the state of Iowa. Iowa is currently one of the 11 most restrictive states in the nation in terms of marijuana legality and criminalization, allowing for only a limited medical program (DISA, 2022). Given that Iowa does not have a citizen-driven referendum process, the responsibility of changing cannabis laws would necessarily fall on the legislature—either through passage of a law or through a public referendum on a constitutional amendment.

Regarding the shifting trends and changing public opinion in Iowa, this paper seeks to assess the

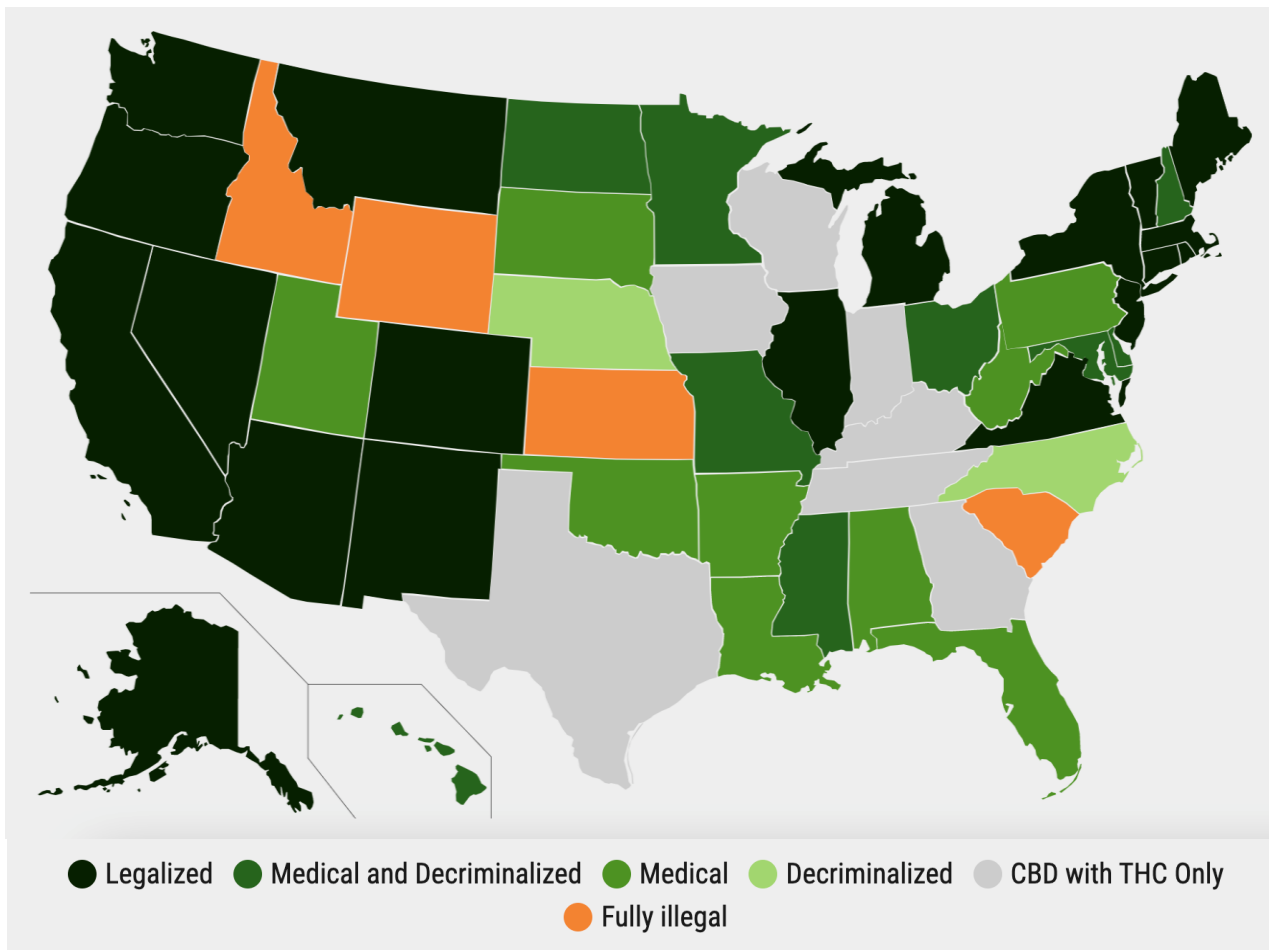


Figure 1. Cannabis policies in the United States. Source: disa.com (<https://disa.com/maps/marijuana-legality-by-state>)

ways that cannabis legislation is currently functioning in Iowa. It also seeks to evaluate possible policy alternatives, by the analysis of research done on other states. Three potential paths forward for Iowa that would divert from the status quo are as follows: expanding Iowa’s medical marijuana program, the decriminalization of marijuana, and the full legalization of cannabis for the use of adults 21 and over.<sup>2</sup>

### **Criteria**

We evaluate the status quo of cannabis policy in Iowa along with our proposed policy alternatives using three criteria: political feasibility, economic impact, and impact on public health and public safety.<sup>3</sup> To determine the political feasibility of each policy approach, we will be taking into consideration both public opinion as well as the ability of lawmakers to enact and implement the policy. To evaluate a policy’s economic impact, we will be assessing possible economic stimulation or creation of tax revenue that might be created through a particular policy alternative, while also looking at how tax dollars might be saved or better allocated under its implementation. Finally, we will be evaluating the data on health benefits, drawbacks, or lack thereof on the general public as a result of each chosen policy approach, including direct health impacts from marijuana use itself and other indirect or related factors. We will also be evaluating a policy alternative’s impact on public safety, including assessment of data concerning both crime and traffic safety. The four policy alternatives will be given a score out of five based on our evaluations for each of the three criteria, for a composite score out of fifteen.

We will then compare composite scores of each policy alternative out of fifteen.

### **Status Quo**

Although Iowa does have a limited medical cannabis program, the status quo is broad criminalization of marijuana. Iowa currently has one of the most severe first-offense penalties in the country, with a first-offense possession of any amount of cannabis constituting a misdemeanor punishable by up to six months in jail and/or a \$1,000 fine (NORML, 2022a). Distribution or cultivation of any amount of cannabis is a felony in Iowa, with sentences and maximum fines increasing depending upon kilograms and sales involving a minor. Furthermore, the Iowa Controlled Substances Act regards marijuana as a Schedule I hallucinogenic substance, similar to marijuana’s classification under federal law (NORML, 2022a). According to a report by the National Conference of State Legislatures, Iowa’s current program is listed under ‘Limited Access Cannabis Laws’ with low THC and high CBD-cannabidiol restrictions—meaning medical products only under 3% THC are permitted (NCSL, 2022). Currently, there are only five medical marijuana dispensaries located within the state of Iowa, licensed by Bud & Mary’s and Iowa Cannabis Co. (Rood, 2022; Sanctuary Wellness Institute, n.d.). Iowa currently shares its limited medical program and marijuana illegality status with six other states: Texas, Indiana, Kentucky, Tennessee, Georgia, and bordering state Wisconsin. This group is only less restrictive than states in which marijuana is fully illegal, with no medical program<sup>4</sup> (DISA, 2022).

<sup>2</sup> This paper makes the distinction in its assessments between decriminalization and full legalization for recreational use. Though these terms are often used interchangeably, the policies are quite different in their impact; decriminalization of marijuana would render it still illegal, just without the legal system choosing to prosecute anyone for it, while the legalization of being fully allowed by law, including sales and distribution. Thus, we have chosen to evaluate them separately.

<sup>3</sup> We have chosen not to include “equity” as one of our criteria to evaluate our alternatives, but acknowledge the importance

of its consideration. For the sake of conciseness and giving adequate analysis to each of our criteria in this paper, we acknowledge that an analysis of the equity of these policies could be its own separate paper beyond the scope of the current conversation. More about the inequities of marijuana criminalization is expanded on in the “Decriminalization” section.

<sup>4</sup> These states are Idaho, Wyoming, Kansas, and South Carolina.



***Political Feasibility***

Iowa's current policy approach does not appear subject to change from the current legislature. Therefore, unlike other policy alternatives which may require significant change to the state's bureaucracy and infrastructure, the status quo is least difficult to maintain. Although the status quo may appear to be the most politically feasible, changes in public opinion of Iowa's voters suggests the potential for this to change in coming years. A Des Moines Register and Mediacom Iowa Poll from March of 2021 found that just over half (54%) of adults said they favored legalizing marijuana for adult use, while 39% opposed and 6% were unsure. Support for legalization has steadily increased and has almost doubled since 2013; in comparison, only 29% of Iowans said they favored legalization, while 68% opposed and 3% were unsure at that time (Leys, 2021). Iowa's status quo will likely become less politically feasible to maintain over time if public opinion trends continue to grow more favorable toward cannabis reform—especially with recent legislative developments on this issue elsewhere.

***Economic Impact***

The economic impact of Iowa's status quo cannabis policy can be assessed in both current costs and savings for the state, while also considering potential losses of revenue under Iowa's heavy restrictions on medical use and recreational prohibition. It is inarguably expensive for the legal system to arrest and prosecute drug offenses; in 2015, state governments "spent \$7 billion in 2015 to incarcerate individuals for drug-related charges" (Pearl, 2018) in addition to the over \$3.3 billion spent by the federal government. In Iowa specifically, between 2018 and 2021, there were over 17,500 Iowans arrested for just marijuana possession. That number climbs to over 19,000 when factoring in arrests for marijuana sales (NORML, 2022b). Since possessing any amount of marijuana is punishable by jail time, it is important to consider how much money is spent for drug offenders to complete their sentences. According to a state audit that tracked spending over a five-year period, Iowa spends up to

\$60,858 per inmate (Beckman, 2017). The burden of this expense on Iowa taxpayers is considerable, and the expense grows exponentially when possession of even the smallest amount of cannabis is criminalized. Highly respected economist Jeffrey Miron (2018) estimates that Iowa's state and local governments spent a whopping \$59 million on marijuana prohibition during the year 2016.

Data also suggests that Iowa's current status quo of illegality may be pushing Iowans to seek recreational marijuana outside of the state. Illinois has a large market for buyers from border states where recreational marijuana remains illegal<sup>5</sup>; Iowans are a prominent market for Illinois dispensaries, particularly because Iowa's status quo heavily restricts medical THC levels. As a result, Iowa is consistently losing potential tax revenue. A dispensary in East Dubuque, IL opened in 2021 just minutes from the Mississippi River bridge into Iowa and steps from Wisconsin. "Its very first four customers were all from out of state, and two of those were Iowans," Manager Joshua Perkins reported to the Dubuque Telegraph-Herald (Kruse, 2022). Although Illinois is the only state that borders Iowa with a fully legal and regulated recreational cannabis industry, every other border state with the exception of Wisconsin has either decriminalized cannabis or expanded its medicinal use. Iowa may find that more bordering states follow Illinois in full legalization, meaning that the ease of access for Iowans close to the border may cause Iowa to lose out on more tax revenue in the future to out-of-state sales if the status quo continues.

*Economist Jeffrey Miron (2018) estimates that Iowa's state and local governments spent a whopping \$59 million on marijuana prohibition during the year 2016.*

<sup>5</sup> See page 31, "Legalization": *Economic Impact*.

### **Health and Safety**

Strict prohibition of marijuana has long been synonymous with promoting law and order; cracking down hard on drugs was seen as a necessary way to be tough on crime. Many legislators in opposition to marijuana reform see the status quo as preemptive crime prevention; arresting and locking up someone for marijuana possession or distribution now prevents the state from having to lock them up for a worse criminal offense later. However, this link between crime and marijuana legalization is not consistently backed up by data. On the contrary, a 2012 Human Rights Watch study of the criminal records of nearly 30,000 New York City residents convicted of marijuana-related crimes between 2003 and 2004 found that less than 10% of subjects would be subsequently arrested for violent felonies (HRW, 2012). Numerous studies have shown that the link between crime and marijuana is unfounded.<sup>6</sup> This suggests that the current approach of criminalization may be costing Iowa's taxpayers much more than it is worth to keep them safe, especially when coupled with mass incarceration for nonviolent crimes.

The status quo is often seen as the safest bet when concerning public health; a strongly regulated and limited medical market with a nonexistent recreational one leaves little concern over health impacts of the drug itself. The adverse effects of marijuana policy, however, must also consider the impact of adjacent factors, such as the negative health implications of incarceration on Iowa's communities, particularly those of color.<sup>7</sup> These are factors that must be considered when assessing any possible alternatives to the status quo.

### **Expand Medical**

Although Iowa does have a medical cannabis program in place, it is limited in scale when compared to programs from other states. Medical cannabis products in Iowa must be below 3% THC, which means that products available must go through a number of tests to ensure that they remain legal to sell. Per Iowa law, THC and CBD products must be created from cannabis plant extracts, meaning that

use of the flower itself—even for medical use—is not currently legal (Rood, 2022). Given that the most common form of medical cannabis use is through smoking cannabis flower (Rood, 2021), a potential alternative to the status quo in Iowa would be the expansion of its medical cannabis program to include higher levels of THC as well as legalization of use of cannabis flower for medicinal purposes.

This policy could be advantageous on two fronts. First, expansion is feasible. Expansion of medical marijuana is broadly popular with Iowans as well as with voters in states throughout the Midwest and Great Plains. Existing structures would allow a smooth transition from the status quo to an expanded program. Second, expansion is economically beneficial. This policy could bring costs for medical marijuana down, while bringing much needed money into Iowa's economy. Unfortunately, not enough research exists on the merits of medical cannabis to make a determination on whether this policy stands out when compared to its alternatives through a public health and safety lens. This program would therefore suffer overall from the potentially flawed assumptions used to justify its existence.

### **Political Feasibility**

The Iowa legislature would not be undertaking a substantial political risk in expanding access to cannabis for medicinal use. First, medical marijuana is broadly popular in the state of Iowa. Favorability has consistently increased for almost a decade; in 2014, 59% of Iowans favored medical expansion (Leys, 2014), and by 2020, that number had risen to 81% (Coltrain, 2020). According to a 2021 Des Moines Register/Mediacom poll, 78% of adults favor expansion while only 14% opposed and 6% weren't sure (Leys, 2021). Given that legislators who vote in line with public desires face fewer challenges in their reelection processes (Hogan, 2008), it would be in the legislature's interest to pass policy which has such broad popularity. Second, many states similar to Iowa are already expanding medical cannabis—typically at the ballot box. Since 2016, Missouri, North Dakota, South Dakota, and

<sup>6</sup> See page 32, "Legalization": *Health and Safety*, for more on the link between crime and marijuana legalization.

<sup>7</sup> See page 29, "Decriminalization": *Health and Safety*, for more on the negative health effects of incarceration.

Oklahoma have all passed voter-initiated referendums expanding medical marijuana. Michigan's voters expanded medical marijuana in 2008 with 63% of the vote, beating the opposition by over a million votes.

Legislative expansions are not unheard of in Iowa; the status quo was a result of a light legislative expansion itself, which increased the amount of eligible illnesses and was signed into law by Republican Governor Kim Reynolds in 2020 (Richardson and Gruber-Miller, 2020). Additionally, difficulties with the expansion of marijuana would be greatly mitigated due to existing systems in Iowa that would allow transitional ease between the status quo and a newly expanded system. More than 9,600 Iowans already hold medical cannabis cards—up 54% in 2022 from the previous year—and another 2,500 hold caregiver cards for their children or others who qualify (Obradovich, 2022). Legislative expansion would allow more growers to enter the market, and with the sole grower in Iowa, Bud and Mary's, already working to expand their operations, people in need of products would not need to wait long to access them. Finally, any expansion that permits the use of flower for medicinal purposes could also result in fewer testing requirements, which often take substantial time and resources.

### ***Economic Impact***

The expansion of medical marijuana has many potential impacts on Iowa's economy. While the status quo criminalizes the sale of flower—which leads to non-taxable black market sales—expansion of medical marijuana at the very least opens the possibility of market expansion. First, medical cannabis could have a minimal but tangible effect on Iowan pocketbooks. There is some evidence that, compared to different medications, medical cannabis can be a cost effective alternative to treatments for symptoms of certain illnesses such as multiple sclerosis and childhood epilepsy (Erku, Shrestha, and Scuffham, 2021). Additionally, previous studies

have shown that patients often choose medical marijuana over prescription drugs such as opioids or narcotics in almost half of the cases when cannabis is available as an option (Corroon, Mischley, and Sexton, 2017), indicating a demand that potential businesses could capitalize upon. There is also evidence that, as more states expand medical cannabis programs, the average cost will decrease nationwide due to increased competition from manufacturers and distributors (Krishna, 2022).

However, these benefits may be minimal. Medicaid and Medicare do not cover the cost of medical cannabis (Ecker, 2022), and these medical cannabis programs are often still expensive, leaving many patients opting to find their cannabis on the unregulated black market (Enright, Chiwaya, and Muccari, 2021). A 2015 examination of anonymously reported black market cannabis prices in Illinois found that buying medical marijuana from a licensed dispensary was often more expensive per ounce than buying from black market dealers (Johnson, 2015). Given that black market cannabis cannot be regulated, this is cause for concern.

Finally, although not as beneficial for increasing tax revenue as recreational marijuana legalization,<sup>8</sup> robust medical cannabis programs in other states and municipalities have led to some tax benefits. In 2011, the City of Oakland raised \$1.4 million in tax revenue from dispensaries, accounting for 3% of total business tax revenue during that fiscal year (Fay, 2021). More recently, during FY21, the State of Arizona raised \$24,947,544 in tax revenue off of medical cannabis sales exclusively; this number rose to \$60,474,985 in FY22 (Arizona Dept. of Revenue, n.d.).<sup>9</sup> The revenue brought in by cannabis sales in Arizona is dedicated to improvement of community colleges and funding of local police and fire departments (Phillips, 2022); Iowa could make similar use of revenue from medical cannabis sales.

<sup>8</sup> See page 31, "Legalize Recreational": *Economic Impact*, for more on the economic impact of legalizing recreational use.

<sup>9</sup> Although these numbers are exclusively from medical sales, it is possible that sales were impacted in part by the expansion

of recreational cannabis in Arizona. One could argue that an increase in accessibility led to more use of the medical program. Regardless, the point stands; medical marijuana sales can bring valuable tax revenue.

### Health and Safety

A major concern with expanded marijuana policy is its impacts on public safety and public health, and instrumental in pursuing a policy of cannabis expansion is the assumption that cannabis *does* serve a medical purpose. If there were to be no benefits of cannabis use, there would be no medical argument for an expanded medical cannabis program. This assumption is not present in the status-quo policy—as noted earlier, the federal government considers cannabis a Schedule I drug with no medical benefits, which is the same classification as heroin and lysergic acid diethylamide (LSD). To this day, debates continue on whether this is the correct classification. A recent review of existing literature found previous studies insufficient in answering these questions (Pratt et. al., 2019), noting that “many reviews were unable to provide firm conclusions on the effectiveness of medical cannabis, and results of reviews were mixed” (p. 32).<sup>10</sup> Ultimately, there is not enough research to definitively point toward one position or another. Although it appears unlikely that marijuana has severe adverse effects on those who use it, it has yet to be determined whether marijuana can be used as a reliable medication.

Despite this, there is some evidence that there are other potentially positive public health and safety impacts of expanded medical marijuana laws. For example, according to Anderson and Rees (2021), medical marijuana laws appear correlated with lower alcohol abuse rates among young adults. And in California, violent crimes and property crimes dropped by 20% in the aftermath of medical legalization (Jaeger, 2021). Fifteen other states have chosen to implement medical cannabis laws<sup>11</sup>—without legalizing recreational use—in spite of the ambiguity of the medical research, and the effects of expanding medicinal marijuana programs on public

health and safety should not in theory differ from the effects of the other alternative policies explored in this report. Subsequent sections will explore further impacts of different policy alternatives on addictions, traffic safety, and crime.

### Decriminalization

The decriminalization of recreational marijuana is a policy option that is frequently overlooked by policymakers and the general public because it is not often considered a viable stand-alone policy<sup>12</sup>. Nevertheless, decriminalization is an impactful policy and is worthy of its own analysis. Decriminalization, in regards to marijuana policy, means drastically reducing the criminal punishments for lower-level marijuana offenses. Like the other policy alternatives being evaluated in this paper, decriminalization policies can be adjusted to fit a state’s specific needs. Currently, states that have decriminalization policies but have not legalized recreational use include Hawaii, Nebraska, Rhode Island, Delaware, Maryland, Mississippi, North Dakota, Minnesota<sup>13</sup>, Missouri, Louisiana, Ohio, New Hampshire, and North Carolina (DISA, 2022; NORML, n.d.). States that pursue policies of decriminalization may view marijuana infractions as a civil violation rather than a criminal offense, withhold the possibility of jail time for offenders if they choose to continue to prosecute them criminally, or refrain from listing certain marijuana infractions on an offender’s criminal record (NCSL, 2022). Expungement, the clearing of criminal records for certain marijuana-related crimes, can also be considered a branch of decriminalization policy (NCSL, 2022). Decriminalization is distinct from legalization as a policy option because it enforces limited penalties on marijuana offenses and continues to prohibit the sale of recreational marijuana.

<sup>10</sup> Though “effectiveness” is debated, there is a strong argument to be made that Schedule I is too harsh of a classification at the federal level *regardless* of effectiveness, given its properties as a pain reliever (Erku, Shrestha, and Scuffham, 2021). Federal rescheduling is, of course, outside of the Iowa legislature’s purview.

<sup>11</sup> These states are: Alabama, Arkansas, Delaware, Florida, Louisiana, Minnesota, Mississippi, New Hampshire, North

Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Utah, and West Virginia

<sup>12</sup> Decriminalization policies often exist in tandem with policies permitting medical or recreational adult use. It is also frequently used as an intermediate policy in the process of legalization.

<sup>13</sup> Minnesota has a partial recreational legalization policy for edibles (DISA, 2022).

Decriminalization is an attractive policy option for several reasons, chief among which is improved health and safety outcomes, especially for black Iowans, due to lower incarceration rates. Additionally, decriminalization policies could have a significant economic benefit to Iowa by reducing the substantial cost of enforcing marijuana prohibition. However, a consistent theme is evident in light of these potential benefits, which is that legalizing recreational marijuana for adult use carries the same, if not more significant, benefits in comparison to decriminalization.

### ***Political Feasibility***

Since decriminalization lacks the clout of other policy alternatives, the polling used to measure Iowans' approval of decriminalization is limited. However, Hawkeye Poll (2022), a cooperative poll conducted by faculty and students of the University of Iowa Political Science Department, performed a poll which found that only 15.0% of participants believe "marijuana should be illegal but decriminalized for recreational use". This number is the lowest out of all alternatives included regarding recreational marijuana in the poll. The majority of participants (52.5%)<sup>14</sup>, indicated they prefer marijuana be legal for recreational use (Hawkeye Poll Cooperative, 2022). This polling indicates that decriminalization is unpopular as a stand-alone policy. However, because of the lack of substantial polling on decriminalization, it is unknown how decriminalization would poll when pitted against the status quo alone. In light of the popularity of legalization, it is possible that decriminalization would poll substantially higher in comparison to just the status quo because of the common perception that decriminalization is a middle ground between prohibition and legalization.

President Biden's recent pardon regarding simple possession of marijuana for federal violations is a move toward decriminalization by the executive branch which could have implications on the political feasibility of decriminalization on the state level, in regards to both public opinion and ease of

implementation. The pardon does not rise to the level of expungement, but does lessen the consequences of simple possession by returning "full political, civil, and other rights" to offenders (Biden, 2022a). President Biden also laid out two additional ways by which he is pursuing policy change on marijuana; these include "urging" governors to mirror the federal pardon on simple marijuana possession in their respective states, as well as asking the appropriate federal channels to consider changing marijuana's status as a Schedule I drug (Biden, 2022b). President Biden's actions do not require anything from state governments, however the rescheduling of the drug could have massive policy implications, even beyond decriminalization. Additionally, this move reinforces the momentum towards less restrictive marijuana policies nationwide, displaying action on the federal level, along with shifting public approval and policy change at the state level.

### ***Economic Impact***

Enforcing marijuana prohibition is a costly endeavor. Harvard economist Jeffrey Miron estimates that foregoing the enforcement of marijuana prohibition could save the government \$7.7 billion per year, an assessment which is endorsed by hundreds of notable economists (Fay, 2021). In light of this, it is not surprising that American taxpayers also bear a significant burden in terms of enforcing marijuana prohibition, spending over a \$1 billion on incarcerating individuals for marijuana related crimes every year (Fay, 2021). These statistics are more applicable from a national perspective, but the substantial cost of enforcing the country's current marijuana laws is a solid reference point to inform state-level policy considerations.

Iowa is not exempt from the national costs of marijuana prohibition. In Iowa, marijuana possession accounts for 55% of drug arrests (ACLU of Iowa, 2020). However, all indications are that those with infractions for simple marijuana possession are not flooding Iowa's prison systems. New admissions to Iowa prisons for all marijuana-related crimes are

<sup>14</sup> This number (52.5%) is very similar to findings from the aforementioned 2021 Des Moines Register/Mediacom poll,

which found that 54% of Iowans favor legalizing recreational cannabis (Leys, 2021).

consistently decreasing and significantly trail admissions for methamphetamines (TenNapel et al., 2021). Some may see this as an indication that costs related to marijuana offenses are not an urgent concern. However, although these statistics help convey a more accurate portrayal of the size of this issue within Iowa's criminal justice system, they do not account for the sheer size of the system itself. The state of Iowa unfortunately boasts an incarceration rate of epic proportions. The Prison Policy Initiative (n.d.) states that if Iowa's incarceration rate were evaluated as a country, it would have the second highest in the world, second only to the United States of America itself<sup>15</sup>. Furthermore, Miron (2018) estimates that Iowa spent \$59 million in state and local expenditures on marijuana prohibition in 2016. So, while the number of marijuana offenders that serve time in Iowa prisons may be relatively small, the system of incarceration is expensive and extensive. Cuts to such a system could produce substantial financial savings for the state, especially in the long term.

It is uncertain if decriminalization policy shifts how marijuana users obtain the drug, and what that may mean for illicit economies and surrounding states that permit recreational sales. Regardless of how marijuana users obtain the drug, it is certain that decriminalization does not add funds to state revenue through the means of taxation on recreational sales since its sale for recreational use would remain prohibited. Under decriminalization, the potential economic loss by the state due to out-of-state cannabis sales is likely similar to other policies which prohibit recreational sales, such as the status quo<sup>16</sup>.

### ***Health and Safety***

Decriminalization is often not a stand alone policy, usually existing in tandem with varying degrees of permitted medical use. Decriminalization's impact on access and medical

outcomes for medical marijuana users is also not often studied, likely because its sole impact on medical marijuana patients' outcomes would be difficult to determine. Decriminalization likely has little bearing on medical outcomes, whereas policies regarding medical use and recreational legalization have a greater impact on issues important to medical marijuana users and would be better suited for analysis on medical access and outcomes.

However, a significant benefit to pursuing decriminalization policy is that it would decrease the number of individuals, families, and communities impacted by the negative health effects of incarceration. Incarcerated individuals face a number of negative health impacts during incarceration, and many negative effects follow them after release as well. Post-release, previously incarcerated individuals experience higher rates of morbidity, higher susceptibility to diseases, higher risk of hospitalization, and may also struggle in receiving adequate treatment for mental illnesses and substance abuse (AAFP, n.d.). The negative health impacts on incarcerated individuals are expectedly difficult for their families and may even impact their health outcomes as well. A recent study finds that individuals with an incarcerated family member have a lower standard of well-being and face shorter life spans than those without an incarcerated family member by 2.6 years (Sundaresh et al., 2021).

Unfortunately, the negative health effects of incarceration disproportionately impact people of color, seeing that they are unfairly subjected to higher incarceration rates without cause.<sup>17</sup> This issue is especially prevalent in the state of Iowa, as the ACLU (2020) names Iowa the "fifth-worst in the nation in racial disparities for marijuana arrests". They find that, despite research indicating that black and white people use marijuana at the same rates, black people are 7.3 times more likely to be arrested

<sup>15</sup> This is not meant to imply that Iowa has the highest incarceration rate of any state, but instead to contextualize Iowa's incarceration rate on a global scale.

<sup>16</sup> See *Economic Impact* sections of "Status Quo" (page 24) and "Legalize Recreational" (page 31) for more specific data.

<sup>17</sup> The American Academy of Pediatrics cites unproportionately high incarceration rates for minorities, and the general negative effect of a criminal record on adolescents, in a report where they strongly endorse decriminalization as a policy option (COA, 2015).

for marijuana possession in Iowa<sup>18</sup> (ACLU, 2020). The impact of these statistics likely does not stop at the effects of incarceration, but also indicates that marijuana arrests are a large contributor to the broader inequality experienced by black Iowans. A recent study goes as far as to list Iowa as the third-worst state for black Americans, citing incarceration rates among many other socioeconomic factors (Garcia-Franceschini, 2022; Stebbins, 2022).<sup>19</sup>

Research in the area of how public safety is impacted by decriminalization is, once again, unfortunately limited or unclear. There is a variety of existing data on how policies other than complete prohibition impact crime rates, however this data is largely contradictory, inconclusive, or statistically insignificant (Austin; Maier et al., 2017; Wu et al., 2021). Studies have found that decriminalization has either a minimal or nonexistent effect on use of marijuana among adolescents as a group, though it may lead to small increases or decreases in use among different adolescent groups (Coley et al., 2019; Dryden, 2018). Research regarding patterns in adult use following the adoption of decriminalization policies is limited or outdated. Uncertainty about how this policy could affect patterns in overall prevalence of the drug contribute to concerns over traffic safety and potential DUIs. Measuring the true prevalence of impaired driving due to drugs is complicated by the reality that DUIs due to cannabis use are difficult to measure. Unlike alcohol, there is

*Despite research indicating that black and white people use marijuana at the same rates, black people are 7.3 times more likely to be arrested for marijuana possession in Iowa.*

no standardized measure, or “legal limit” which determines an acceptable level of influence. The little research that does exist regarding decriminalization policy and DUIs indicates that decriminalization may lead to an increase in DUIs, and that this effect is likely concentrated among young men (Berg et al., 2017; Cook et al., 2020).

Decriminalization would unfortunately not address issues such as regulating the sale of marijuana to provide an avenue for safe consumption. This prompts recreational users to continue to obtain the drug through illicit markets or legally across state borders. In addition to concerns over potential fentanyl lacing and inadequate product

knowledge, cannabis obtained from illicit markets also poses further risks. A report done on black market cannabis in New York found that

cannabis samples were riddled with contaminants such as harmful bacteria and chemicals (Southall, 2022)<sup>20</sup>. In this sense, decriminalization does not substantially address concerns over safe consumption.

### Legalize Recreational

Legalizing recreational marijuana in Iowa is a subject largely at debate given recent changes that other states have made. Following the 2022 midterm elections, marijuana is legalized for recreational use in 21 states and the District of Columbia. Legalizing

completely addressed by policies such as decriminalizing recreational marijuana, it should not be a factor that is ignored when considering if Iowa should reevaluate its marijuana policies.

<sup>20</sup> Southall (2022) evaluates existing illicit markets in New York, a state which provides legal, regulated avenues for consumption. As this source demonstrates, the presence of a safe avenue for consumption does not completely eliminate black market sales, but does allow consumers increased product knowledge for safer and more informed use.

<sup>18</sup> Several counties have significantly higher racial disparities in marijuana arrests, such as Pottawattamie County where black Iowans are 17 times as likely to be arrested for marijuana charges (ACLU of Iowa, 2020).

<sup>19</sup> The negative impacts of pervasive racism are a problem that marijuana policy does impact, but is not solely responsible for. It is important to note that the levels of inequality experienced by black Americans in Iowa are extreme and have severe consequences. This issue must be addressed outside of the purview of marijuana policy. While the negative health impacts borne by black Americans due to racism cannot be

recreational marijuana would entail removing all legal prohibitions against its use for adults ages 21 and older, legalizing its purchase and sale. This policy would also allow marijuana to be taxed and regulated in a manner akin to the current status of tobacco and alcohol.

The policy of full legalization has numerous advantages. First, given that many bordering states such as Missouri and Illinois have legalized recreational marijuana, Iowa could feasibly do the same given the broad popularity of legalization in the state. Additionally, Iowa will simultaneously save money on the administrative costs of incarceration while having a steady stream of new tax revenue from cannabis sales, to the benefit of the state's economy. Finally, negative health and safety concerns tend to be overblown, and the potential benefits from reducing incarceration outweigh the potential costs.

### ***Political Feasibility***

As previously mentioned, support for legalizing cannabis in Iowa has nearly doubled in the past decade, with over 54% of Iowan adults currently favoring legalization (Leys, 2021). As other states surrounding Iowa continue to move towards change in marijuana policy, citizens of Iowa will look towards their legislature to act accordingly. Cannabis reform in Iowa is even more plausible following the legalization in Missouri through the passage of Constitutional Amendment 3 during this year's midterm election; this amendment qualified for the 2022 election with more than 390,000 signatures and passed with over 53% of the vote, paving the way for the eventual sale of marijuana for recreational use in February 2023 (Clancy, 2022). This clear indicator of public support—especially from a state that is culturally and politically very similar to our own—serves as a testament to the political feasibility of this policy.

### ***Economic Impact***

When considering the economic implications of legalizing cannabis, it is evident that legalization would provide a plethora of economic benefits for Iowans. This policy would give the state the potential

to generate revenue on cannabis taxes, while providing Iowans access to a job market within a new industry. In recent years, a growing concern for businesses has been the steady decline of young Iowans joining the workforce upon completion of their education. Though legalizing cannabis would not completely solve this problem, it might be a mitigating factor; cannabis legalization has the potential to create between 4,000 and 5,000 new jobs, while generating between \$60 million and \$100 million in state revenue that could then be reinvested into other opportunities for young Iowans (Terrell, 2021). Examples of this can be seen elsewhere; an RCG Economics and Marijuana Policy Group study found that the state of Nevada, which has already legalized marijuana, “could support over 41,000 jobs till 2024 and generate over \$1.7 billion in labor income” in the aftermath of cannabis legalization (Krishna, 2022).

Additionally, cannabis law enforcement is incredibly expensive, and legalization would “free up [enforcement costs] and boost the economy in Iowa, especially with the high incarceration rate” (DI Editorial Board, 2022). Nationally, marijuana arrests cost billions of dollars every year, and between 2001 and 2010, police nationwide made more than 8.2 million marijuana arrests. In addition, U.S. taxpayers pay upwards of \$3.6 billion every year to fund cannabis possession arrests. Given this rate, studies estimate that “police spent \$4,390 per arrest between 2001 and 2010, or \$73,170 per felony conviction” (Hickey and McLaughlin, 2019). Iowa similarly spends a large amount on the enforcement of cannabis laws, making up as much as 20% of total arrests for some police departments (Spellman Law P.C., 2019). As previously mentioned, it is estimated that enforcing marijuana prohibition cost Iowa \$59 million when measured in 2016 (Miron, 2016). Evidently, a substantial amount of state funds are spent enforcing marijuana possession laws, and legalization frees these funds for better uses.



Iowa can further reap economic benefits of legalization by levying taxes on the product. To set the perspective with national-level data, a federal tax of \$23 per pound of product (which is similar to the federal tax on tobacco) could produce upwards of \$500 million per year, and a 10 percent sales surtax could produce around \$5.3 billion per year (Ekins and Henchman, 2016). Iowa could similarly generate significant revenue under this policy, especially if cannabis were taxed at higher rates as other states like Washington have done. Using average excise tax figures in conjunction with the number of cannabis users in each state, the Tax Foundation estimated that the possible revenue with a fixed market for at least three years would generate \$50,183,462 for the state of Iowa (Bieber, 2022).

Iowa is currently losing millions of potential tax dollars to Illinois. Illinois dispensaries made about \$3.2 million on the day cannabis was legalized and \$11 million in the first week alone; by the end of 2020, dispensaries in Illinois had made over \$750 million, and raised \$205 million for the state's general fund, law enforcement, and more (Rivers, 2022). Iowans contributed a significant amount of these funds to the state of Illinois, yet Iowans reap none of the benefits. If Iowa legalizes cannabis, Iowans will see a large economic boom as businesses and consumers from surrounding states begin to look to Iowa for their needs. Further, the approaching legalization of recreational marijuana in Missouri will be accompanied by a 6% sales tax, with local towns having the option to tax an additional 3% (Clancy, 2022). This legalization is expected to generate millions in yearly revenue and has the potential to contribute greatly to the state of Missouri. This will only make it easier for Iowans to cross the border and contribute to other states' tax revenues.

### ***Health and Safety***

Arguments opposing cannabis legalization on health and safety grounds are often unfounded. For instance, one study examining cannabis legalization in Colorado, Washington, Oregon, and Alaska found that although deaths from opioids are

spiking nationwide, these four states have not suffered increasing mortality rates like other states have and their opioid overdose rates have remained below the national average (LiveStories, 2017). Further, although overall marijuana use has risen since the 1970s, addiction rates have remained steady—even as the majority of U.S. states move toward reform (Silvermist, 2017). Arguments that legalizing cannabis may lead to increased adolescent use are similarly unfounded. One study comparing

*The Tax Foundation estimated that the possible revenue with a fixed market for at least three years would generate \$50,183,462 for the state of Iowa (Bieber, 2022).*

high school students in states with legal marijuana to students without legal marijuana found “no evidence that legalization for medical or recreational purposes has led to increased teen use” (Zimlich, 2019).

It is also a widespread concern that fentanyl and other opioid use have a correlation with the legalization of marijuana. There is data, though limited, that points to an association between medical cannabis and a reduction in mortality from prescription opioid use (Wendelboe et al., 2019). Further, one study concerning opioid-prescribing patterns comparing “prescriptions filled in a state” and “year of marijuana legalization” found that “1826 fewer daily doses for pain medication were filled per physician per year” in states with medical cannabis laws (Wendelboe et al., 2019, p. 270).

An increase in criminal activity following the legalization of marijuana is a large concern for those hesitant about legalizing recreational use. In 2020, researchers studied whether adult-use marijuana legalization in Washington and Colorado impacted crime rates in neighboring states. The study concluded that the passing of recreational cannabis laws may have led to the reduction of major crimes in nearby jurisdictions (Jaeger, 2021). Similar observations have been made by local officials; for

example, Rock Island County Sheriff Gerry Bustos said the impact of recreational legalization has been minimal in the state of Illinois (Faggart, 2021). However, it is difficult to look at the effects of crime as most states have recently legalized cannabis in the past few years and can only provide minimal data regarding crime rates.

Another aspect of health and safety that is crucial to explore is the impact of marijuana legalization on DUI rates. Marijuana can stay in an individual’s system for weeks, thus appearing in roadside tests even when no longer causing impairment.

marijuana-impaired driving head on and ensure that the state has a law that, in some manner, deals with the issue and its specifics. For instance, Colorado’s reasonable inference law states that if THC is found in a driver’s blood in a value of 5ng/ml or higher, it is legitimate to infer the driver was under the influence. However, such laws also ensure fair justice as unlike per se laws, “they allow drivers who are charged to introduce an affirmative defense to show that despite having tested at or above the legal limit, they were not impaired” at that moment (Kitch, 2022).

	<b>Political Feasibility</b>	<b>Economic Impact</b>	<b>Health and Safety Impact</b>	<b>Total /15</b>
<b>Status Quo</b>	2	1	2	5
<b>Expand Medical</b>	4	3	2	9
<b>Decriminalization</b>	2	4	3	9
<b>Legalize Recreational</b>	3	5	3	11

*Table 1. 1 = most negative rating | 5 = most positive rating | 15 = ideal policy*

Tracking marijuana-impaired driving is further made complex because drivers under the influence of both marijuana and alcohol are often only cited for a high blood alcohol concentration rather than being tested for additional substances<sup>21</sup>. Thus, it is hard to tell to what extent marijuana affects DUI rates and whether they are increasing or not. To address this issue, the best tactic is to address

**Recommendation**

Based on our evaluations of each policy alternative, we recommend that the Iowa Legislature legalizes and regulates the recreational use and sale of cannabis. Though none of the policies we evaluated are without potential drawbacks, legalizing cannabis is the policy with the most combined benefits. All other alternatives would

<sup>21</sup> However, as stated, individuals can wrongly be cited for driving under the influence of marijuana as the drug stays in the individual’s system for weeks. This creates a troubling

dichotomy and contributes to the difficulty in examining effects of cannabis use on DUI’s.

either leave money on the table or leave critical issues unsolved.

None of our policy alternatives reach the highest level of political feasibility. The status quo is growing in unpopularity, and although it is convenient in the short-term to keep this issue off of the legislative calendar, it is unfeasible to continue strong criminalization of marijuana as public opinion shifts and neighboring states loosen their own restrictions. Expansion of medical use is the most politically feasible alternative, given the Reynolds administration's prior willingness to expand cannabis programs as well as the nearly unanimous popularity of medical cannabis in Iowa. However, this alternative is once again impacted by the increasing prevalence of marijuana in neighboring states, as medical expansion unintentionally encourages black market purchases and out-of-state purchases due to the high costs of medical cannabis. Decriminalization is generally politically unfeasible as it is unpopular in comparison to other reforms, both in the eyes of Iowans and in the eyes of the legislature. Finally, although our recommendation is full legalization, we recognize the hurdles in the legislature that this policy would need to overcome, despite its gradual increase in popularity over the past decade.

Economic impact varies among each policy alternative, with the status quo providing the fewest economic benefits and the legalization of recreational cannabis providing the most. The status quo continues massive government spending on enforcement of cannabis laws which continue to incarcerate Iowans for nonviolent crimes. There is no tax benefit or state revenue stream from the current iteration of Iowa's cannabis laws. Expanding medical marijuana could potentially raise tax revenue for the state of Iowa, but continued criminalization does not sufficiently relieve administrative costs on the state in the manner that decriminalization or legalization would. Recreational legalization is the only solution that would both lower administrative costs and raise substantial tax revenue that the state could use to better the lives of Iowans.

Unfortunately, there are many relatively unknown factors associated with the health and safety impacts of cannabis reform. The effects these policies, and of marijuana use in general, may have on areas like crime are difficult to determine or limited in scope. Similarly, expansion of medical cannabis would be a policy built on the shaky ground of its literature; although many other states have pursued this alternative, evidence on the medical benefits of cannabis is largely mixed, and the incarceration issue is then left unaddressed. Comparatively, the status quo clearly contributes to the dangerous cycle of mass incarceration in Iowa, which remains a detriment to public health. However, both decriminalization and legalization substantively addresses the incarceration issue, freeing Iowans from the constraints of criminal punishments for a drug that does not cause danger to others.

We qualify our recommendation by noting that each policy alternative has some degree of additional benefit to Iowans when compared to the status quo, bringing about the undeniable conclusion that Iowa should indeed re-evaluate its policies surrounding the use of cannabis. Though we maintain that Iowans would benefit the most from full legalization, it is undeniable that a political hurdle exists that proponents of our recommended policy will need to overcome. Nevertheless, we are encouraged by the progress of surrounding states on this front and we urge the Iowa Legislature to follow suit.

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## How to First Address the Issue of PFAS in Iowa Waterways

*Delaney Behning, Reese Bobitt, Patrick Johnson, and Yunseo Ki*

### Executive Summary

As per- and polyfluoroalkyl substances (PFAS) persist in products on the market— infiltrating our waterways and negatively affecting Iowans—addressing the issues PFAS cause in Iowa water has never been more pertinent. The negative health effects of PFAS exposure have been studied and acknowledged by federal agencies, effects that include increased cholesterol levels, decreased vaccination response in children, increased risk of thyroid disease, increased cancer risk, and problems associated pregnancy (ASTDR, 2022; NTP, 2016; Rickard et al., 2021). PFAS contamination also has adverse effects on Iowa's agricultural industry. When PFAS-polluted water is used on farms, it permeates the soil and grass (Cosier, 2021). These chemicals have been found to reduce soil fertility, effectively shortening a farmland's longevity (Jha et al., 2021).

While other states have actively worked to address the detrimental effects PFAS inflict on water quality, Iowa lags far behind in both monitoring and mitigation of the issue. Iowa currently relies on a severely outdated action plan, and the state's testing resources are incredibly deficient compared to other states. Iowa must first understand its position regarding PFAS so that a concrete plan to control PFAS can be later developed. One recommended alternative is to require increased funding allocations to the Iowa Department of Natural Resources (IDNR) and the Iowa State Hygienics Lab (ISHL). In this scenario, Iowa could improve its resources aimed at testing and monitoring units, and the IDNR and ISHL would be able to take equitable actions by identifying and targeting treatment towards particularly vulnerable communities. Another recommended course of action is to allow funding within the Grants to Counties (GTC) Program to treat PFAS in private wells, in addition to the funding it provides to test these private wells; this would

incentivize the use of this currently underutilized program and increase knowledge available from private well monitoring. To equitably and effectively address the issue of PFAS in our waterways, Iowa's first response should be to allocate significant resources to the IDNR and ISHL as well as the GTC program.

### Background

Man-made chemical substances possess qualities capable of both enhancing and harming our daily lives. A group of chemicals called per- and polyfluoroalkyl substances (PFAS) fit this criterion. The term “forever chemicals” has been used synonymously with PFAS to describe their nearly

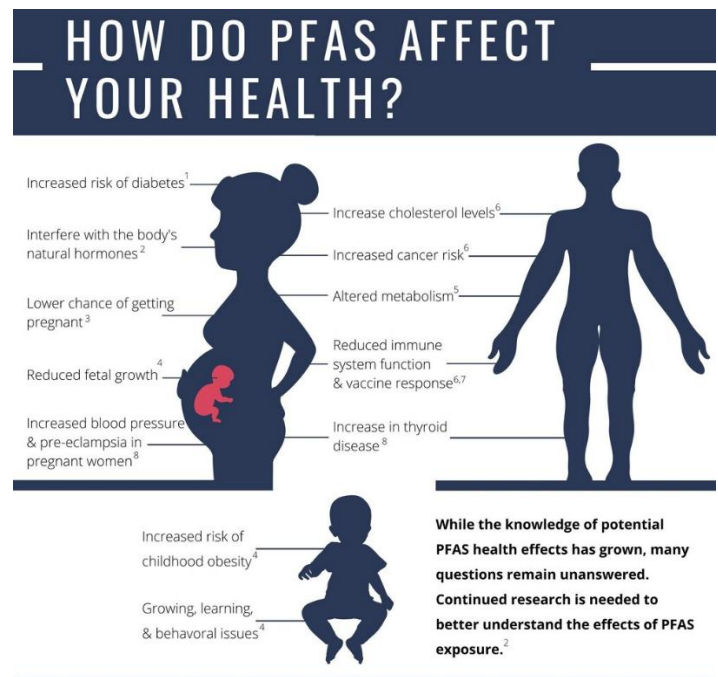


Figure 1: PFAS Negative Health Risks

This chart displays the health risks found as a result of exposure to PFAS. (Wisconsin Environmental Health Network, n.d.).

perdurable composition. According to the Environmental Protection Agency (EPA), PFAS are essentially long-lasting chemicals whose components break down at a pace which will far exceed our lifetimes (U.S. EPA, 2022).

PFAS are very widespread, and these “forever chemicals” have been around for decades. “Forever chemical” substances in products have proved useful in improving daily life. For example, PFAS are used to create the non-stick coating on frying pans and the aqueous film-forming foam used to quickly extinguish fires (NIEHS, 2022). Such benefits explain why PFAS are highly circulating within the manufacturing industry. Other common products that include PFAS in their manufacturing process are fabrics, paints, makeup products, shampoo, fast-food wrappers, carpets, and furniture (Wisconsin DHS, 2022).

The ubiquitous and persisting nature of PFAS has allowed it to become a particularly pervasive chemical. PFAS have been found in waterways, air, soil, and the blood of humans and animals alike (U.S. EPA, 2022). In a joint report conducted by the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease

Registry (ATSDR) in January 2022, PFAS were detected in the blood of Berkeley County residents in West Virginia, whose drinking groundwater contaminated with PFAS (ATSDR, 2022). If PFAS were not harmful, then the issue of its prevalence would not be of concern; however, exposure to PFAS is known to result in adverse health outcomes and agricultural effects, both of which hold immense power over the well-being of Iowans. Concerningly, in 2022, a dozen Iowa water supplies—out of 70 tested sites—were found with PFAS levels far exceeding advisories set by the EPA (Strong, 2022). While other cities—such as Cedar Rapids and Iowa City—did not detect PFAS in treated water sources, some private wells in those areas did. As it stands, the prevalence of PFAS in Iowa only seems to be growing.

**Why Should We Be Concerned About PFAS?**

The exposure and concentration of PFAS is of concern to Iowans because there are various negative implications on human health, agricultural production, and economic institutions. Studies by the CDC and ATSDR have presented data relating human exposure to PFAS with increased cholesterol

EPA PFAS Standard under June 2022 Health Advisory	Under 0.004 ppt for PFOA Under 0.02 ppt for PFOS
— Ames Water Treatment Plant:	9.6 parts per trillion
— Burlington Municipal Waterworks:	7.2 parts per trillion
— Camanche Water Supply:	12 parts per trillion
— Davenport:	6 parts per trillion
— Kammerer Mobile Home Park:	29 parts per trillion
— Keokuk Municipal Water Works:	4.3 parts per trillion
— Muscatine Power & Water:	7.6 parts per trillion
— Rock Valley Water Supply:	2.1 parts per trillion
— Sioux City Water Supply:	9.2 parts per trillion
— Tama Water Supply:	5.5 parts per trillion
— West Des Moines Water Works:	5.3 parts per trillion

Figure 2: Iowa Cities with detected PFAS over limits as of June 2022 (Strong, 2022)  
 This chart details the cities in Iowa that have tested their water and detected PFAS levels far exceeding the EPA Health Advisory limits of 0.02 for PFOS and 0.004 for PFOA (both categories of PFAS). After this finding in June 2022, it is clear that PFAS is a more prevalent issue in Iowa than previously thought.

levels; decreased vaccination response in children; higher risk of high blood pressure and pre-eclampsia in pregnant women; small decreases in infant birth rates; increased risk of kidney and testicular cancer; and disruption in female reproduction, hormones, fertility, and menstruation (ASTDR, 2022; NTP, 2016; Rickard et al., 2021). Further, these health effects have been recognized by the EPA, through the Federal Register, and the Iowa Department of Natural Resources (Fox, 2022; IDNR, n.d.).

Additionally, the presence of PFAS in Iowa water supplies poses immediate threats to the state’s agricultural industry through harming and contaminating livestock and dairy products. For example, farmers in New Mexico were forced to dispose of 15,000 gallons of contaminated milk per day, and multi-generational dairy farmers such as Fred Stone in Maine had no choice but to close, as a direct result of PFAS contamination (Cosier, 2021). According to the Natural Resources Defense Council, PFAS in dairy milk is especially threatening; as PFAS infiltrates

the soil and grass, and cows consume much of that grass, and PFAS highly concentrates in their milk (Cosier, 2021). Not only is this harmful for animals, but it also harms customers who purchase and consume these products. These chemicals also reduce the long-term fertility of a farm’s soil, which decreases a farmer’s agricultural and economic capabilities in the future; exposed groundwater contributes to the persistence of PFAS through each component of the food chain, particularly impacting cattle, crops, and the humans consuming them (Jha et al., 2021).

With these risks in mind, PFAS have been detected in groundwater, soil, air, sediment, surface water, and drinking water across the United States, raising the potential health and agricultural impacts on both a state and national level.

While Midwestern peers such as Michigan and Wisconsin have taken definitive steps to combat PFAS contamination across their state, the State of Iowa currently operates on an outdated action plan to craft monitoring policy. In June 2022, the EPA issued revised health guidelines, reducing their recommended PFAS levels to 0.004 parts per trillion

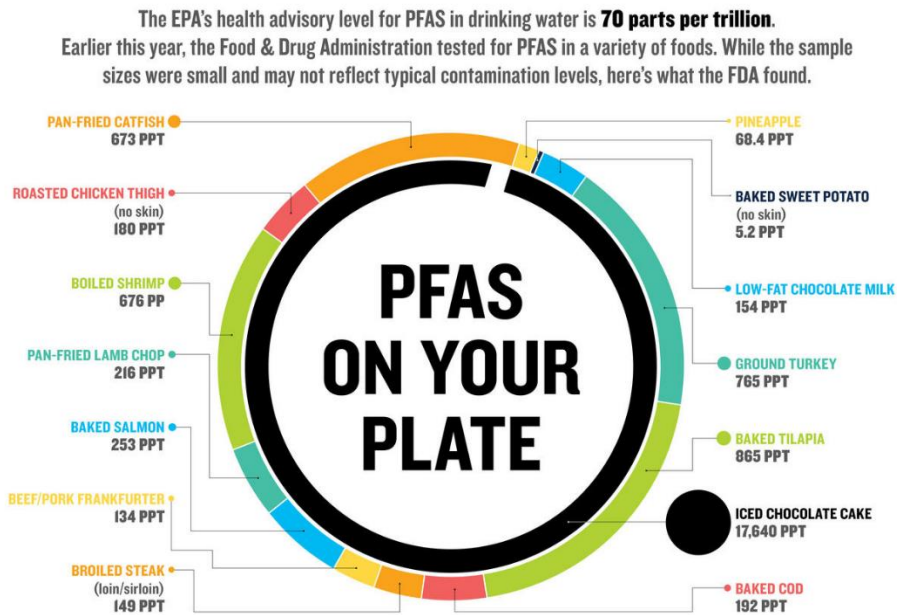


Figure 3: Food products found containing substantial levels of PFAS

Detailed above are the many different food and animal products found containing high and dangerous levels of PFAS. It notes the outdated EPA advisory of PFAS levels at 70 ppt, so the significance of this chart following the current health advisory of 0.02 and 0.004 has only increased. These commonly consumed items are likely affecting the health of consumers to an undeterminable extent. This graphic is from the U.S. Food and Drug Administration. (Cosier, 2021).

(ppt) and 0.02 ppt for PFOA and PFOS, respectively. This revision away from the previous standardized 70 ppt finds Iowa's 2020 Action Plan to be far exceeding these new levels and leaves the state unaware of which areas are contaminated with unsafe PFAS levels. To date, Iowa's testing capabilities limit PFAS detection to 10 ppt or higher, indicating that the state is not able to monitor contamination to the extent recommended by the EPA.

indicating levels are higher than recommended EPA standards. This presents a concerning, unmitigated risk to Iowa residents and the state's agricultural sector.

The ambiguity of PFAS presence in Iowa waterways hampers the state's ability to further mitigation techniques, as state agencies are unaware of which areas possess the highest levels of contamination and which are of the highest risk.

The 2020 PFAS IDNR Action Plan possesses

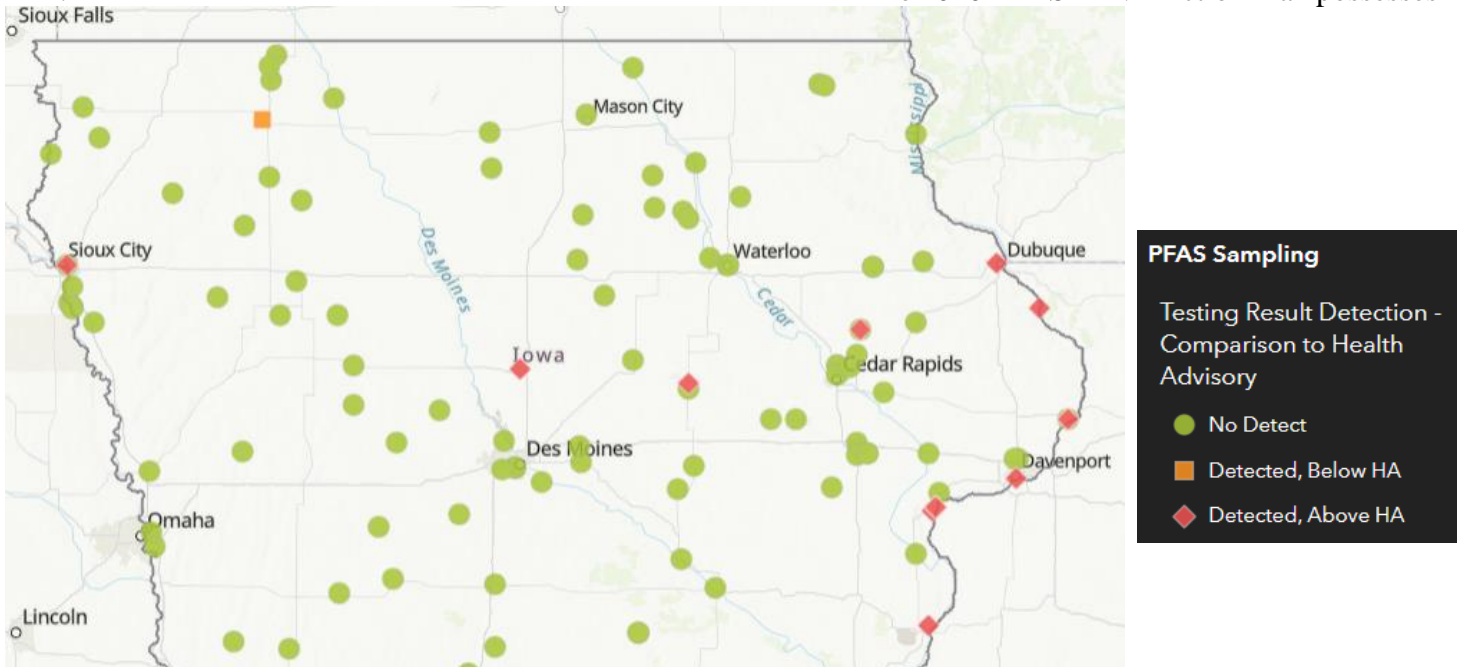


Figure 5: Map sample of PFAS locations in Iowa

This map details the tested sites in Iowa. These tests were conducted over different times between 2020 and 2022 by the United States Geographical Survey. The map follows the updated interim EPA health advisories because this was primarily conducted nationally. The map neglects to show expansive testing or testing of rural areas that are at risk of PFAS (IDNR, 2022).

Additionally, Iowa's testing capabilities are significantly below their regional counterparts, in part due to ambiguity between departments on the diffusion of responsibilities for regulatory monitoring and enforcement. The state currently employs one individual capable of testing and monitoring PFAS levels across the state, while Wisconsin houses 13 PFAS-certified laboratories, each with multiple employees (WDNR, 2021), and Michigan contains nine (Michigan Department of Environment, Great Lakes, and Energy, 2021). As a result, there are unknown concentrations of PFAS in Iowa waterways, with our available testing measures

no explicit steps to take once PFAS are discovered in waterways, and no mention of mitigation techniques is included to prevent further contamination. However, proper mitigation cannot be explored unless effective and consistent monitoring is implemented across the state, and areas of highest risk for PFAS contamination can be identified throughout Iowa. Upon implementation of proper monitoring techniques, further reports may detail the possibilities for mitigation expansion within the state.

Thus, the focus of this policy analysis rests on the discussion of monitoring PFAS in Iowa.

State	PFAS Action Plan	Updated testing standards to EPA	Mitigating PFAS	Dedicated team/oversight	Legislative or legal action regarding PFAS
Iowa	+	-	-	-	-
Illinois (State of Illinois, 2022)	+	+	+	-	+
Kansas*	-	+	+	-	+
Michigan (State of Michigan, 2022)	+	+	+	Michigan PFAS Action Response Team (MPART)	+
Missouri (Missouri Department of Natural Resources, 2021)	-	-	+	-	+
Minnesota (Minnesota Pollution Control Agency, n.d.)	+	+	+	Minnesota Pollution Control Agency	+
Nebraska*	-	+	+	-	+
Wisconsin (WDNR, 2022; WisPAC, 2022)	+	+	+	Wisconsin PFAS Action Council (WisPAC)	+

Figure 6. This chart compares the differences between Iowa's actions and protocols on PFAS with other Midwestern states. As evident in outlining these differences, Iowa has neglected to take the proper steps necessary to address PFAS. \*- supported by the U.S. EPA's Region 7 programs to address PFAS (U.S. EPA, 2020)

Given the lack of understanding that currently exists on this issue, especially in the state, this crucial step must be considered prior to considering mitigation techniques at a state-level.

## Alternatives

### Iowa's Current Action

The first alternative to consider is continuing with Iowa's current approach to PFAS in water; with this, the 2020 PFAS Action Plan put forth by the IDNR and the current resources allocated to testing and monitoring PFAS would be maintained.

In comparison to other regional states such as Wisconsin and Michigan, Iowa's PFAS Action Plan is not up to date with current EPA standards and

allocates inadequate resources to testing and monitoring Iowa waterways for PFAS. Other Midwestern states have emphasized the importance of testing and treating water, reduced the amount of PFAS going into their water, and have engaged their citizens by providing information and awareness about PFAS (WisPAC, 2022; State of Michigan, 2022).

The current action plan outlined by the IDNR was published in January 2020 and is outdated considering the health advisory from the EPA in June 2022. While only two years old, the action plan was constructed under limited and now-inaccurate information, with no mention of detections of PFAS in Iowa's public water and using the old EPA health

advisory detection measurements. Further, the 2020 Action Plan has no outlined approach for steps to take once PFAS is discovered in waterways. With three focus areas labeled “Identify and Minimize Exposure of Iowans to PFAS,” “Preventing or reducing future releases of PFAS,” and “Education, Outreach, and Communication,” no mention of mitigation techniques is included, and inadequate action in these areas has been taken since publication of the plan (IDNR, 2020).

The current monitoring and testing levels in Iowa are insufficient in comparison to the amount of testing needed to allow for an accurate understanding of PFAS levels. While Iowa has conducted tests in different locations across the state, these tests have been few in number, most recently testing only 53 of the 1,100 public water-well locations that were likely to have PFAS in 2021, which is inadequate to understand the extent of PFAS in Iowa (Mok, 2021). The locations that have been tested by the state focus on cities and relatively suburban populations, largely neglecting rural areas that could be most affected by PFAS (IDNR, 2022). Much of the testing that has been done in Iowa has been conducted by national and federal agencies like the United States Geological Survey (USGS) and the Environmental Protection Agency (USGS, 2022). Given these components within Iowa, PFAS have yet to be significantly addressed in monitoring on a state-level through use of adequate resources.

#### **Iowa Department of Natural Resources (IDNR) and Iowa State Hygienics Lab (ISHL)**

By increasing funding to the Iowa Department of Natural Resources, Iowa could implement higher levels of monitoring and employ more personnel. More funding directed to the IDNR would allow for increased source monitoring, meaning that the Iowa government would be able to locate origins of PFAS exposure. Next steps would allow for preventing PFAS from being introduced to Iowa’s water in the first place. With more personnel, the IDNR could work on updating their action plan to coincide with the updated EPA health advisory guidelines.

Considering the severe lack of funding, equipment, and personnel maintained by the Iowa State Hygienics Lab, there is not currently an adequate way for the state to effectively test for PFAS levels. Having the responsibility to test PFAS in Iowa’s water, the ISHL needs resources to do this but is currently deprived of those. In looking at states like Wisconsin and Michigan that have allocated millions to their PFAS issue, Iowa would need to do the same. Thus, with increased funding allocated to the ISHL for more testing and more personnel, the PFAS issue could first be addressed. Further, employees need to be uniquely trained in PFAS measurement and detection. With the updated, significantly lower health advisory, specific instruments are required to detect levels that low; right now, the testing materials available in Iowa are not “capable of detecting PFAS at the parts per quadrillion levels” outlined by the EPA (City of Ames, 2022). Thus, in order to accurately find information about the health of Iowa’s waters, the ISHL needs more resources to build upon both their personnel and technological deficiencies.

This additional funding would fill in Iowa’s missing pieces in regard to PFAS. From source testing and better-quality equipment that can measure to levels below 1.9 ppt, the IDNR and ISHL can provide an in-depth understanding of where PFAS is located, who it is affecting most, and what the next best steps would be.

This alternative’s increased funding could be accomplished through funding Iowa’s Natural Resources and Outdoor Recreation Trust Fund with 3/8 of a cent out of a one-cent sales tax increase being directed toward the fund; this is better explained in more detail under the “Funding” section. Directing funding to these state agencies is crucial to understanding the state-wide extent of PFAS in Iowa water, especially since the IDNR and ISHL carry a significant burden in being responsible for testing and monitoring public waterways.

#### **Grants to Counties/Private Wells**

While the IDNR and ISHL are responsible for state-level monitoring, these agencies focus primarily on public waterways; thus, insight into

private waterways through other mechanisms is necessary in understanding the extent of PFAS in Iowa.

Created in 1987 under Iowa's Groundwater Protection Act, the Grants to Counties (GTC) Program provides \$300,000 across Iowa's 99 counties for private water wells (Secchi & Cwiertny, 2019). These funds can currently be used for well rehabilitation, plugging abandoned wells, and to test for nitrate, arsenic, bacteria, and any chemical that is regulated or has a health advisory, such as PFAS (IDPH, 2022). Under the GTC Program, no funding has been made available to help homeowners if water from their private wells is polluted; the program provides funding for testing, but if pollutants are detected in waterways, there is no financial assistance in water treatment or in creating alternative sources of water (IDNR, 2022). The IDNR does not have the authority to monitor private water supplies under Iowa's regulatory jurisdiction. Given this, a program is necessary for many Iowans that use private wells to have access to testing and data on their water (IDNR, 2022). Considering the lack of funding available for treatment once pollutants are detected after testing, there is little incentive for private well owners to test their water.

The Grants to Counties alternative would allow funding through the GTC program to be used for assisting with treatment actions in private wells once PFAS are detected. These corrective actions could include reconstructive projects, implementation of private reverse osmosis or activated carbon treatment, or finding alternative sources of drinking water. This policy should first focus on those with private wells in high-risk areas, such as near landfills, airports, and industrial sites, as well as farms with natural and animal products that would be consumed by Iowans. While the current GTC Program includes \$300,000 available for testing grants, the budget would need to be expanded to account for the increased utilization of the program and the costs of individual treatment techniques that require funding.

This alternative serves mainly to monitor the PFAS issue in Iowa. While household mitigation actions would be included under this alternative,

monitoring is still the focus of our analysis because these techniques only address PFAS on an individual level, by merely treating household water supplies as opposed to overall treatment of the underlying groundwater issue. Later state-wide treatment would be necessary to engage in once there is a clearer understanding of PFAS levels in Iowa to move forward in mitigation. Our aim at including individual mitigation actions is primarily to incentivize the use of the GTC Program to collect a more uniform, large-scale data set of PFAS concentration in private waterways that is currently unavailable. A more robust GTC Program could fill in the blanks with information the IDNR cannot provide.

### Criteria Used to Evaluate

In evaluating each of these alternatives, we will measure them based on the following criteria: effectiveness, equity, and feasibility.

- **Effectiveness** concerns whether the policy alternative will produce measurable results and whether the alternative will be successful in addressing the problem of monitoring and understanding PFAS.
- **Equity** concerns whether the policy alternative meets the needs of each party affected by PFAS, prioritizes those most at risk, and addresses environmental concerns.
- **Feasibility** focuses on both political and economic feasibility:
  - **Political Feasibility** concerns whether the policy alternative could be supported in a bi-partisan nature and whether the alternative could be accomplished in recognizing the political nature of Iowa.
  - **Economic Feasibility** concerns whether the policy alternative can be reasonably accomplished using available economic means at the state's disposal or economic means that can be easily made available, such as those through Iowa's Natural Resources and Outdoor Recreation Fund.

## **Funding**

In comparison to Iowa, other states have responded to PFAS with much more readiness in funding monitoring and mitigation. For example, the state of Michigan allocates \$25 million a year to its Michigan PFAS Action Response Team (State of Michigan, 2022). Wisconsin took a different approach, receiving \$142.7 million from the EPA to address PFAS and other water challenges in underserved communities. This funding was part of a larger \$1 trillion infrastructure bill signed into law on November 15, 2021 (Kaeding, 2021). Wisconsin also provided tools and resources to local and municipal governments to address PFAS through a system of municipal grant programs.

While funding a state-wide monitoring program may seem like a large undertaking of the Iowa government, there is a fund already created for such water quality management. Currently in place in Iowa, but not funded, is Iowa's Natural Resources and Outdoor Recreation Trust Fund. This fund was created in 2010 by voters and would include the allocation of 3/8 of a cent from a 1-cent sales tax increase (Fund the Trust, 2022). This is already created and supported by Iowans, given that more than 63% of Iowans voted for this constitutional amendment which included "establishing a permanent source of funding for clean water, outdoor recreation, soil quality, and wildlife habitat" (Fund the Trust, 2022). Having passed SJR 2002 with 90% approval in the Iowa legislature, the constitutional amendment guarantees that if Iowa increases the sales tax by a cent, 3/8 of each cent would be dedicated to natural resources such as water quality (Sustainable Funding Coalition, 2018). Estimations of this one-cent sales-tax increase project that Iowa would generate an additional \$540 million dollars annually (McCullough, 2020). Given this estimation, the fund would receive \$202.5 million each year.

Unfortunately, since the Iowa state legislature has not increased the sales tax accordingly, this fund has remained empty. Our recommendation would be for the Iowa state legislature to take action and allow this fund to serve the purpose for which it was established. This would include implementing the one-cent sales tax increase

and allocating 3/8 of that to the fund, as promised in the Trust Fund Legislation, SJR 2002. By using this fund for its intended purpose, any of our proposed alternatives would be economically feasible. And while there are other different environmental components which can receive money through Iowa's Natural Resources and Outdoor Recreation Trust Fund, allocating money toward the testing and monitoring of PFAS in Iowa waterways would be an excellent way of utilizing these funds as there are innumerable questions left unanswered surrounding the issue.

## **Evaluations Based on Criteria**

### **Iowa's Current Action**

#### ***Effectiveness:***

Although there are national sources of information, such as the U.S. Geological Survey (USGS), available to provide context of the PFAS situation nationally, these studies are supplemental and cannot be the only source of information on which Iowa bases its PFAS monitoring and mitigation strategy. Since these sources are national, they are limited in giving specific information to states and are insufficient for Iowa. Thus, the status quo of an outdated PFAS action plan and reliance on national studies for information is ineffective in monitoring and eventually addressing the issue of PFAS. Considering the detected levels of PFAS in Iowa waterways, even despite under-testing in Iowa, and that there is no updated action plan or process outlined in moving forward, Iowa's current approach is extremely ineffective in addressing the PFAS problem.

#### ***Equity:***

The current approach is inequitable to most of the parties affected by PFAS. The agriculture industry and small farms in Iowa are being set up for failure by Iowa by inadequately addressing PFAS at the state level. The health of the public is being neglected by not placing active protocols in place for measuring PFAS and knowing which Iowans are most at risk of health problems resulting from PFAS exposure. Environmental concerns are not fairly met



under the status quo, as animals, especially farm animals and fish, are highly in danger of consuming PFAS. By being in Iowa waterways without being addressed, monitored, or mitigated, PFAS are posing a significant environmental threat to the state.

***Feasibility:***

Following Iowa's current action would be the most politically and economically feasible option. Considering that maintaining the status quo would require no change to current policies and no change in funding allocations from the Iowa legislature, this would be the easiest option if only considering feasibility. Acknowledging this, however, the long-term economic effects of failing to monitor or address PFAS in Iowa waterways could be devastating to the agricultural industry in Iowa. Considering farming constitutes an enormous portion of Iowa's economy, and PFAS have damaged agriculture in other states, it would not be economically wise in the long term to continue down this path. Further, it is important to note that addressing the issue on a state level would allow for Iowa to control the testing, monitoring, and mitigation of its waterways before federally required action is inevitably put in place. If Iowa were to stick to its current approach, it would be behind once federal action takes place. While it may be economically feasible now, this will not be economically feasible once costly actions are required by the federal government and once the agriculture industry is disproportionately harmed.

**Iowa Department of Natural Resources and Iowa State Hygienics Lab**

***Effectiveness:***

With more funding allocated toward the Iowa Department of Natural Resources and the Iowa State Hygienics Lab, Iowa would have a much better idea of the sources of PFAS, location in specific waterways, concentration levels, and the extent of the issue in Iowa. States such as Michigan and Wisconsin that have increased funding directed to their testing and monitoring units have effectively been able to recognize the intensity of PFAS in their

states and have made progress in treatment and prevention as well. In Michigan, increased funding to create the Michigan PFAS Action Response Team allowed for a statewide testing survey and testing public waterways outside larger communities that served at-risk populations. From this increased testing, Michigan found 80 public water supplies with PFAS levels greater than 10 ppt in 2020; Michigan would not have discovered these areas without the higher funding allocations they received to address the issue and plan for further action (State of Michigan, n.d.). Given the current state of monitoring and testing in Iowa, funds—like those allocated in other states—would prove to be highly effective and a big improvement in allowing Iowa to create a better understanding of PFAS concentration in Iowa and plan for moving forward with mitigation and prevention.

***Equity:***

An increase in the level of testing and monitoring through more funding to the IDNR and ISHL would allow these agencies to direct more attention to the populations that have not received testing. These tests could focus primarily on rural areas in which PFAS concentration levels are relatively undetermined, and subsequently monitor more heavily the areas found most at-risk and affected. While this alternative is overall equitable to the state in monitoring public waterways, increased funding to the IDNR and ISHL would neglect to increase attention to the monitoring of private wells. Given the need for private waterway testing, the IDNR and ISHL alternative is not as equitable as one would desire, considering the lack of resources available for private-well owners, that are at an elevated risk for PFAS exposure.

With better testing equipment and more in-depth monitoring through increased funding, the IDNR and ISHL would be able to not only prioritize the areas they find to be more vulnerable and affected by PFAS contamination, but also be able to understand where treatment would need to be directed later. In addressing environmental concerns, this alternative would not directly meet the specific needs of the environment, but it would pave the way

for eventual environmental needs to be met since testing would be prioritized and a better understanding of PFAS in Iowa would be accomplished.

***Feasibility:***

Increased funding or an increase in sales tax to facilitate this funding to the IDNR and ISHL is unlikely to be popular in a Republican-controlled Iowa legislature. Considering the political dynamics involved in the legislature, this alternative is not necessarily politically feasible. Since a single PFAS test may cost up to \$300, increased funding for the IDNR and ISHL may not be economically feasible to an extent that a comprehensive data outline of PFAS levels in Iowa could be created (State of Michigan, 2022). Fortunately, with the Natural Resources and Outdoor Recreation Trust Fund mentioned above, Iowa could surely make this alternative economically achievable.

**Grants to Counties/Private Wells**

***Effectiveness:***

Given the decentralized nature of the Grants to Counties Program, this alternative may be less effective in creating the necessary foundational data on PFAS in Iowa before moving forward in treatment. For Iowans who source their drinking water from private wells, this testing program is voluntary, and people must apply for testing through their county's health department. Considering the noncompulsory nature of the GTC Program, many could be unwilling to undergo the process to request testing, even if household well water treatment would be covered under the program.

Underutilization currently threatens the effectiveness of the GTC Program. GTC is not currently used to its full extent; this indicates that increased funding and mitigation availability might not correlate to increased effectiveness. In 2018 alone, 44% of the awarded funds dispersed across 98 counties went unspent; and in 2015, 55% of these funds went unspent (Secchi & Cwiertny, 2019). The effectiveness of this alternative relies on the eagerness of citizens to participate in testing.

To be effective in our policy goals, this alternative would need to be dispersed evenly across the state at a rate that would provide an accurate and comprehensive understanding of PFAS measurements in Iowa waterways. However, as it stands, the program's decentralized and noncompulsory nature lowers its utilization rate as evidenced by the percentage of unspent GTC funds. This indicates that the GTC Program is likely to be ineffective in providing data on Iowa's concentration of PFAS when acting alone. While this would allow for a more comprehensive understanding of PFAS in private water, this alternative would not produce a broad enough picture to move forward in state-wide treatment, especially in public waterways.

***Equity:***

While adding treatment to the capacities of the GTC Program would prioritize a large portion of those most at risk—private well owners—and would be equitable in that sense, this alternative lacks some important components to equity. The GTC alternative would address the disparity currently faced by private well owners that are able to test their water but are not assisted in treating their water. But since most Iowans source their water publicly or through other means than a private well, this alternative would not address those populations or determine whether they are at risk for exposure to PFAS. So, although the GTC alternative would be successful in prioritizing a group of the Iowan population vulnerable to PFAS—though not all of those at risk—it would not be equitable as a policy adoption overall.

***Feasibility:***

In terms of political feasibility, the component of allowing the GTC Program to add treatment to private wells to the program's abilities is likely to be feasible. The GTC Program is an already established and popular program. With a majority-Republican legislature, support of a decentralized program such as GTC is likely, especially since the program is available to all counties. Political feasibility would lessen depending

on the extent of increase the program’s funding would require, being less feasible when demanding a large increase and more feasible with a smaller increase.

In 2020, there were 96,497 active wells counted in Iowa through the Private Well Tracking System (PWTS). Of these, only 6,310 wells were tested (IDPH, n.d.). Considering this, a uniform report of water quality in private wells would require expanded testing to cover a sizeable portion of roughly 90,000 additional wells. And if these PFAS tests cost up to \$300 each, as mentioned before, this expansion of the GTC Program could quickly become extremely costly. Even if 1/3 of these private wells were tested, the additional cost would become \$9 million, which may have a negative effect on the alternative’s economic and political feasibility. If Iowa were to increase the sales tax by one cent, thus funding the Natural Resources and Outdoor Recreation Fund would receive roughly \$202.5 million a year, which could undoubtedly cover these additional testing and private treatments needed under the GTC Program.

Alternative	Effectiveness	Political Feasibility	Economic Feasibility	Equity
Iowa’s Current Action	-	+	+	-
IDNR and ISHL	+	-	+	/
Grants to Counties	/	+	+	-

The “+” indicates a positive relationship with that criterion for that alternative. The “-” indicates a negative relationship with that criterion for that alternative. The “/” indicates a neutral or inconclusive relationship with that criterion for that alternative.

**Our Policy Recommendation**

Considering the information and proposed solutions discussed, we advocate for the adoption of both the Iowa Department of Natural Resources and State Hygienics Lab alternative and Grants to Counties alternative. This is because each measures different things, but both are very important in understanding PFAS in Iowa. This two-pronged

approach would allow for the uniform and expanded monitoring of PFAS in public waterways through the IDNR and ISHL as well as allowing for increased testing and understanding of PFAS infiltration in private wells. This combination would create the most comprehensive insight into PFAS across Iowa, which would position the state to treat and prevent the issue once a foundation of knowledge is set. While neither the IDNR and ISHL alternative nor the Grants to Counties alternative was found to be positively equitable, when combined, these alternatives could create a highly equitable response to PFAS monitoring by addressing at-risk Iowans using both public and private waterways.

**Discussion of Mitigation**

Another important element to the issue of PFAS that needs to be addressed is how to mitigate the problem and protect Iowa waterways. While mitigation is only possible with proper monitoring and testing systems in place, there are a few ways to begin addressing and correcting the PFAS problem:

Taking PFAS out of waterways is the first step in preventing the damage it can cause, and research is currently being done by the U.S. federal government and research institutions to find ways to permanently destroy it.

Removing PFAS from waterways is a complicated but necessary step in the process of mitigating the problem. PFAS can be filtered out of water using activated carbon, ion exchange treatment, and reverse osmosis filters (U.S. EPA, 2018). However, after it is taken out of the water, the chemical still exists, and there are currently no easy or affordable solutions for completely destroying the “forever chemical.”

Preventing PFAS from entering waterways in the first place is important. States such as Michigan and Wisconsin have begun the process of placing rules and regulations on the companies that produce the chemical, even going as far as to sue them for putting PFAS into the environment

(State of Michigan, 2022). Even so, states that are responding to PFAS are also finding ways to become less reliant on products that contain PFAS.

The Iowa legislature should begin the process of understanding how mitigation of PFAS can effectively be done in the state. While there is an immediate need for an increase in monitoring strategies and resources for PFAS in Iowa, looking toward the future of mitigation is an important and impending step in addressing the presence of PFAS in Iowa's water.

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***Thank you for reading the 2022/2023 Hawkeye Policy Report***

*Please forward any questions to Prof. Martini ([Nicholas-martini@uiowa.edu](mailto:Nicholas-martini@uiowa.edu))*

*Any students interested in joining the Iowa Policy Research Organization (IPRO) should contact Prof. Martini for permission to join our Fall course (POLI:3127 - Legislative Policy Seminar)*

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