HUMBOLDT COUNTY SHERIFF'S OFFICE'S EDUCATION, ANALYSIS, & ENFORCEMENT PROJECT LOCAL EVALUATION REPORT

Funded by: Board of State Community Corrections (BSCC)
Proposition 64 Public Health & Safety Grant Program: Cohort 1

Project Cycle: October 1, 2020 through September 30, 2023

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Executive Summary

This report provides an overview of the accomplishments achieved by the Humboldt County Sheriff's Office's Proposition 64 Cohort 1 Education, Analysis, & Enforcement Project. The grant period started on October 1, 2020 and concluded on September 30, 2023. The project addressed the challenges created by the legalization of marijuana through a multi-pronged approach specifically focused on youth development/youth prevention and intervention; public safety; and public health & environmental impact.

The project addressed the impacts of a booming marijuana industry on Humboldt County youth focusing its efforts on the underserved students of Southern Humboldt County by partnering with the Southern Humboldt Family Resource Center to fund a Youth Prevention/Diversion Program and Youth Prevention Coordinator position. Over the course of the grant project, 47 unduplicated participants received services, 5 of which are still working to complete the program.

To address the public safety concerns, the Humboldt County Sheriff's Office increased the resources of its Marijuana Enforcement Team by adding a Deputy and Crime Analyst to the team. The addition of these personnel resulted in a 76% increase in illegal cultivation investigations and a 95% increase in the number of illegal marijuana plants eradicated than in the previous 3 years.

Humboldt County partnered with the Integral Ecological Research Center, a local nonprofit, to address public health and environmental issues stemming from illegal marijuana cultivation sites by the identification of high need restoration missions that pose risks to natural resources, as well as to the public through contamination of drinking water and farmlands. These efforts resulted in the creation of 5 environmental reclamation plans of 5 public land environmental inspection sites and 1 environmental report detailing the environmental damages and hazardous materials at an illegal cultivation site on public land located within the Six Rivers National Forest.

While challenges were encountered, the overall project accomplishments were beneficial to the citizens of Humboldt County. New collaborative relationships were established to bridge gaps in services that will continue to provide societal benefits beyond the grant.

Project Background

Humboldt County is a rural county in northwestern California containing seven incorporated cities. Over half of Humboldt County's approximately 135,000 citizens live in isolated and unincorporated areas and rely on the Humbolt County Sheriff's Office (HCSO) as their primary law enforcement agency. The county population is comprised of the following ethnic groups: 82.3% Caucasian, 13.2% Hispanic/Latino, 6.4% Native American Indian/Alaska Native, 3.1% Asian, 1.6% African American, 0.4% Native Hawaiian/Other Pacific Islander, and 6.2% other races. Humboldt County is a densely forested and mountainous rural county and is geographically large, ranking as the 14 largest of California's 58 counties at approximately 4,052 square miles, however is only the 35th most populous county in the state.

Humboldt County is economically depressed in comparison to national averages of median household income and poverty rates. According to the United States Census Bureau's report Poverty in the United States: 2022 dated September 2023, the national median household income was $74,580 and the poverty rate was 11.5%.[1] Humboldt County, however, has a median household income of only $57,881 with a substantially higher poverty rate of 18.0%.[2]

With fewer economic opportunities than elsewhere in California, many Humboldt County residents have turned to cannabis cultivation as their source of income. Humboldt attracts cannabis activity due to its vast rural jurisdiction, small population, and temperate climate. Humboldt County has the second most cannabis cultivation licenses in the state according to data in a confidential license and application list database from the California Department of Cannabis Control (DCC), which is updated on a weekly basis. However, there are also an estimated 9,700 unpermitted grow sites within the county. These numbers demonstrate the prevalence and cultural normalization of cannabis within the community which subsequently negatively affects youths and the natural environment of Humboldt County.

In October of 2020, the California Board of State and Community Corrections (BSCC) awarded the County of Humboldt with a grant for youth reinvestment, public safety, public health, and environmental impact program. The youth reinvestment component is designed to reduce the truancy rate and usage of illegal substances through education and engagement. The County's main goal regarding youth is to decrease the potential for involvement in the cultivation industry and increase the overall number of students who graduate from high school. The program addresses socio-economic disparities by prioritizing relevant service delivery to economically depressed areas to the youth in the communities where cultivation is most prevalent.

HCSO had developed its project design and budget with the intent of hiring a qualified Community Services Officer (CSO) to serve in the capacity of a youth outreach and marijuana use/misuse educator within the 5 Humboldt County school districts. The CSO was to develop curriculum and engage with students through a series of presentations and job shadowing opportunities. Several months into the project, the selected candidate failed in their employment background process and subsequent recruitment attempts did not produce any viable candidates to fulfill this role. Due to the recruitment and hiring challenges, the HCSO felt it was necessary

[1] Shrider, Emily A. and Creamer, John Poverty in the United States: 2022, United States Census Bureau, September, 2023, Poverty in the United States: 2022 (census.gov)
[2] Quick Facts, Humboldt County, California, United States Census Bureau, July 1, 2022, U.S. Census Bureau QuickFacts: Humboldt County, California

to modify its original youth outreach and engagement plan component of the grant project. The HCSO began looking to partner with an outside organization that already had prior relevant experience with youth outreach regarding marijuana/substance abuse, established educational programs, and relationships within the Southern Humboldt Area School District.

Through further research and examination of internal department statistics, the HCSO determined that these youth outreach services would be most effective if fully focused upon the youth of Southern Humboldt. The Arcata Police Department has an established juvenile diversion program, which is funded through Humboldt County's Measure Z Public Safety tax and serves the Northern Humboldt Area School District which is comprised of students from Arcata, Samoa/Manila, McKinleyville, Blue Lake, and Trinidad. Keeping in mind limited resources, the HCSO feels that allocating further youth outreach services to the Northern Humboldt Area would be a duplication of efforts and would contribute to the disparity of services provided to the students within the Southern Humboldt Area School District. Additionally, after review of the Marijuana Enforcement Team's 2019 – 2021 operation statistics it was determined that 74.3% of their eradications occur in the southern portion of the county, which supports the need for youth outreach services in Southern Humboldt due to the potential for increased exposure to the illegal marijuana industry.

The HCSO sought and secured a budget modification through the BSCC Field Representative, with justification for the need to partner with an outside organization to fulfill this grant requirement. HCSO contracted with the Southern Humboldt Family Resource Center (FRC) to fund a new Youth Prevention Coordinator position with BSCC Prop 64 Grant funds. The FRC's Youth Prevention Coordinator has an office on the Miranda Junior High/South Fork High School campus, which is accessible to both junior high and high school students during normally scheduled school days.

Students enter the program either through educator/administrator referrals or self-referrals. Program participation is voluntary and requires parental/guardian authorization. The diversion and education program provides services focused on youth outreach, substance abuse prevention, and education (with a specific focus on marijuana). The Youth Prevention Coordinator acts as a mentor to program participants, addressing marijuana substance use/misuse through use of curriculum based out of the United States Department of Health and Human Services Substance Abuse and Mental Health Administration (SAMHSA) and the National Institute of Drug Abuse (NIDA), developed by the Healthy Communities division of Public Health and Allies of Substance Abuse Prevention. This curriculum is utilized by many of the schools in Humboldt County. The Youth Prevention Coordinator also helps facilitate career exploration and intervenes to promote healthy behaviors using Youth ALIVE! model.

In addition to the negative impacts on the youth population, Illegal cannabis cultivation also contributes to the County's crime rate. It is estimated that there are approximately 9,700 illegal cultivation sites within Humboldt County. These illegal cultivation sites pose a threat to public safety by increasing criminal activity such as robberies, burglaries, and homicides that have a marijuana nexus, however illegal cultivation sites are not contributing to the funding of the public safety resources necessary to address these criminal incidents due to their black-market sales which deprive the County and the State of California of necessary tax revenue to provide adequate public health and safety resources.

The Humboldt County Sheriff's Office utilized its Marijuana Enforcement Team (MET) to work towards the goal of disrupting the illegal marijuana industry and monitor compliance among marijuana producers in Humboldt County. MET planned to achieve this goal by working to identify and disrupt one drug trafficking operation, conduct 90 illegal cultivation site investigations, and eradicate 210,000 unpermitted marijuana plants annually. The grant funded Crime Analyst also planned to contribute towards the goal by reviewing all crime incidents in HCSO's records management system (RIMS) on a monthly basis in search of any incidents with a marijuana nexus, identify new illegal marijuana cultivation sites through tips received from citizens via crime tip email and voicemail, and internal intelligence gathering using Geographic Information System (GIS) mapping.

The initial public safety goal in the project proposal also addressed monitoring compliance among the marijuana producers in Humboldt County. Monitoring and enforcement of legal cultivation sites falls under the authority of the California Department of Cannabis Control (DCC), however MET communicates and works with the DCC in the event that illicit activities at legal cultivation sites are identified during the investigation of illegal sites. The expectation is that conducting enforcement activities should encourage compliance and yield an increase in legally permitted cultivation operations, potentially causing a decrease in the number of illegal cultivation sites.

The third and final project goal addresses the public health risks that illegal marijuana cultivation sites pose to the community. HCSO entered into a partnership with the 501(c)(3) nonprofit, Integral Ecology Resource Center (IERC) to evaluate the environmental impacts and potential public health risks associated with illegal marijuana cultivation sites in Humboldt County and identify solutions and seek funding to reverse these negative impacts.

To accomplish this goal, the IERC was asked to conduct an environmental and public health risk assessment of 3 marijuana cultivation sites annually, including analyzing a variety of environmental risk to the ecosystem from other factors such as water diversions, habitat modification, and soil erosion; Develop plans identifying the presence of hazardous materials risks, required resources and an implementation plan for removing all hazardous and non-hazardous refuse within assessed sites, and provide an estimated cost of full reclamation for at least one of the highest need sites annually; Attempt to identify and utilize other funding opportunities and cooperative agreements to leverage funds to implement reclamation operations at the highest need sites; Work with MET to add at least 3 sites per year to IERC's database of environmental impacts identified at nearly 400 cannabis sites throughout the state of California to aid with future landscape scale risk assessments of cannabis cultivation.

Process Evaluation Method and Design

The variety of goals and activities involved in this project dictated that a mixed methods research design was best suited to determine program effectiveness, with a main emphasis being the youth engagement segment, where a longitudinal-panel research design was used to compare pre- and post-program data. This design incorporated quantitative and qualitative data collection and analysis through youth participant program completion rate, number of truancy days pre- and post-program completion, whether participants academic performance improved (yes, or no), participants self-reported post-program drug use (continue to use, cutdown usage, or stopped), type of program enrollment (self-referral or incident based referral), participant age, participant grade level, participant gender identity, participant race/ethnicity, number of enforcement operations conducted, number of illegal plants eradicated, and number of environmental hazards located. All data was tracked and evaluated internally by HCSO's Crime Analyst.

Evaluation Questions	Areas of Inquiry
How much did we do?	Number of youth referred/enrolled
	Number of cultivation site investigations
	Number of illegal marijuana plants eradicated
	Number of cultivation site environmental and public health risk assessments
	Number of reclamation plans
How well did we do it?	Participant evaluation responses/satisfaction
	Implementation successes and challenges
	Effectiveness of system coordination
	Effectiveness of social media campaigns

Youth Engagement and Education

The full-time HCSO's Special Services Lieutenant was accountable for all activities focused on youth development, prevention, and intervention. The HCSO's Undersheriff took over as the Project director after the Special Services Lieutenant resigned in late 2021. The Undersheriff completed the International Association of Chiefs of Police Youth Focused Policing Agency Self-Assessment Tool in November 2021. Upon completion of the self-assessment and subsequent decision to partner with an outside organization to fulfill the youth engagement and education project goals, it was determined that the self-assessment tool was no longer an effective tool for in-house use within the HCSO as the youth focused activities had been shifted to the Southern Humboldt Family Resource Center.

The FRC's full-time Youth Prevention Coordinator documented how many students were enrolled as participants, program completion, and dropouts throughout the program. Performance measures such as academic performance, truancy days, and post-program drug use were documented by the FRC Youth Prevention Coordinator and provided to the HCSO's Crime Analyst via access to a Google Sheets file. The number of program participants who completed the program compared to the number expected to complete the program was used to determine how well the program's proposed activities were implemented to fidelity.

Data Collected	Variable Type	How Data Was Collected
Days of school missed/school-year (truancy) pre- and post-program completion	Numeric	Youth Prevention Coordinator gathered data from school data management system (Aries), Data was included in a spreadsheet and provided to the Crime Analyst
Marijuana/drug use frequency post-program completion	Categorical	Youth Prevention Coordinator gathered data from participant self-reporting via Google Forms post-program exit survey and Youth Diversion Program (YDP) "Moving Forward" survey. Data was included in a spreadsheet and provided to the Crime Analyst
Improved Academic Performance	Categorical	Youth Prevention Coordinator gathered data from school data management system (Aries) and participant self-reporting via Google Forms post-program exit survey. Data was included in a spreadsheet and provided the Crime Analyst
Program Completion	Categorical	Youth Prevention Coordinator to track participant completion. Data to be included in a spreadsheet and provided to the Crime Analyst
Program Referral Type	Categorical	Youth Prevention Coordinator gathered data from YDP "Student Assessment" interview form. Data was included in a spreadsheet and provided to the Crime Analyst
Participant Age	Numeric	Youth Prevention Coordinator gathered data from YDP "Student Assessment" interview form and YDP Exit Survey. Data was included in a spreadsheet and provided to the Crime Analyst
Participant Grade Level	Categorical	Youth Prevention Coordinator gathered data from YDP "Student Assessment" interview form and YDP Exit Survey. Data was included in a spreadsheet and provided to the Crime Analyst
Participant Gender Identity	Categorical	Youth Prevention Coordinator gathered data during program intake interviews. Data was included in a spreadsheet and provided to the Crime Analyst
Participant Race/Ethnicity	Categorical	Youth Prevention Coordinator gathered data during program intake interviews. Data was included in a spreadsheet and provided to the Crime Analyst

This project goal was measured using qualitative and quantitative data analysis to produce a complete set of findings.

Quantitative Data Analysis

A longitudinal panel study was used with a research hypothesis that there will be some change in the participants before and after participating in the diversion and drug abuse/use education program. We examined the same set of participants and assessed progress/change through the measurable variable of truancy rates. A test of the difference between means for our sample will show if participation in the diversion and drug abuse/use education programs influenced the truancy rate for program participants. We are interested in determining the impact of program participation on truancy in the pre-program participants versus truancy rates in post-program

participants. In this case, then μ_1 is the mean of truancy rates at time 1 (before program participation), and μ_2 is the mean of truancy rates at time 2 (after program participation).

Therefore,

Null hypothesis: $(\mu_1=\mu_2)$	*The truancy rate does not differ before and after program participation.*
Research hypothesis: $(\mu_1\neq\mu_2)$	*The truancy rate differs before and after program participation.*

To test the impact of program participation on truancy rates we compare these numbers both before and after program participation. Using the paired *t*-test, the before-after comparison will focus our attention on the difference between time 1 and time 2, as reflected in the formula to obtain the standard deviation (for the distribution of before-after difference frequencies). Calculations were completed for High School participants and Middle School participants separately.

Respondent	Truancy days before program participation (x_1)	Truancy days after program participation (x_2)	Difference ($D = x_1-x_2$)	(Difference)^2 (D^2)
Participant 1				
Participant 2				
Participant 3				
Participant 4				
Participant 5				
	$\Sigma x_1 =$	$\Sigma x_2 =$		$\Sigma D^2 =$

$$SD = \sqrt{\frac{\Sigma_D 2}{N} - (\bar{X}_1 - \bar{X}_2)^2}$$

where SD = standard deviation of the distribution of before-after frequencies
D = after participation frequency subtracted from before participation frequency
N = number of participants in the sample

Further statistical computations were completed to calculate the *t* ratio, to determine whether the null hypotheses could be rejected at the .05 significance level giving us a 95% confidence rate that the statistical result did not occur by chance or sampling error.

Qualitative Data Analysis

A nonnumerical examination and interpretation of respondent self-reporting of the variable marijuana/drug use frequency post-program completion and respondent self-reporting of the variable whether there was improved academic performance post-program completion was assessed using variable-oriented cross-case data analysis. We are interested in determining the impact of program participation focusing on the variables "Marijuana/drug use frequency post-

program completion," "Improved Academic Performance," and "Truancy Days Change." We examined participant responses to determine their correlation.

Respondent	Marijuana/drug use frequency post-program completion (v1)	Improved Academic Performance (v2)	Truancy Days Change (v3)
Participant 1			
Participant 2			
Participant 3			
Participant 4			
Participant 5			

Research Hypothesis 1: Program participants that report they either stopped or cutdown their marijuana/drug use after program completion would also have reduced truancy days per school year.

Research Hypothesis 2: Program participants that report improved academic performance would also have reduced truancy days per school year.

Research Hypothesis 3: Program participants that report that they either cutdown or stopped their marijuana drug use would have improved academic performance.

Comparisons of these data variables were performed using Microsoft Excel and Microsoft Power BI to determine correlation.

Public Safety

The public safety, public health, and environmental impact portion of this project utilized a non-experimental research design. There was no control or comparison group, only outcomes were measured. The outcome evaluation identifies the results and impact of the project's strategies.

A full-time MET Sergeant with the Humboldt County Sheriff's Office was accountable for the day-to-day operations focused on the reduction of illegal cannabis cultivation. Deputies assigned to MET utilized the Daily Statistical Report in Google Forms (Appendix A) to document marijuana enforcement activities. Data from these forms was used by the Crime Analyst to track progress relative to HCSO's goal to disrupt the illegal marijuana industry and monitor compliance. Examples of some process measures used to determine how well the program's activities have been implemented to fidelity include:

- The number of cultivation site investigations completed (compared to the number of investigations expected to be completed, and number completed in previous years)
- The number of drug trafficking organizations disrupted (compared to the number expected to be disrupted)
- The number of unpermitted marijuana plants eradicated (compared to the number expected to be eradicated, and number of plants eradicated in previous years)

Data Collected	Variable Type	How Data was Collected
Cultivation site investigations	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Illegal Marijuana Plants Eradicated	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Arrests Made by MET	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Pounds of Illegal Bulk Processed Marijuana Seized	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Number of Firearms Seized	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Environmental Violations Identified	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review
Pounds of Illegal Butane Honey Oil (BHO)	Numeric	Review of Daily Statistical Reports completed by MET Deputies; Crime Analyst to complete monthly review

Public Health and Environmental Impact

The IERC will assess the element of public health risk at least 3 cannabis cultivation sites annually, identified by the MET Sergeant. IERC will conduct field research to determine the presence of contaminants in the soil, vegetation, and water that can be directly tied to cannabis production. The IERC will provide its findings to the MET Sergeant on a quarterly basis. Examples of some process measures used to determine how well the program's activities have been implemented to fidelity include:

- The number of public health risk assessments at marijuana sites completed (compared to the number expected to be completed)
- The number of marijuana site reclamation plans created (compared to the number expected to be completed)
- The number of marijuana sites added to the IERC's environmental impact database (compared to the number expected to be added)

Data to Be Collected	Variable Type	How We Will Collect It
Illegal cultivation environmental hazards	Numeric, Narrative	IERC staff to complete annual reports

Outcome Evaluation Method and Design

The outcome evaluation utilized a pre-post design comparing the same group at two points in time. The group of student participants were identified through referrals received and outcomes for this group were tracked. Outcomes related to marijuana enforcement were tracked on a numeric basis to determine project fidelity. Project impacts were measured against a baseline of MET's 2018 – 2020 enforcement activities, i.e. quantity of illicit plants eradicated, and number of enforcement activities completed each year.

Evaluation Questions

A set of self-evaluation questions were used to determine whether the project objectives were achieved. Success of the project was determined based upon the answers to these questions, which should illustrate how closely the project has adhered to the goals set forth in the proposal.

Evaluation Question	Areas of Inquiry
Is anyone better off?	Program completion status
	Improvements in academic performance
	Reduction in marijuana/drug use
	Reduction in truancy
	Decrease in illegal marijuana cultivation sites
	Increase in state permitted cultivation sites

All project outcome data was collected from the FRC Youth Prevention Coordinator and the IERC Executive Director on a quarterly basis and provided to the HCSO Crime Analyst. Data was compiled into the BSCC Quarterly Progress Reports (QPRs) and saved to an in-house database. The outcome evaluation analyzed program participant information in the above table to examine whether the project has achieved its objectives.

Participant exit survey data was also collected and can be used to determine participant satisfaction, however not all participants completed the survey so data is limited. Of the 39 participants who successfully completed the program only 10 completed the exit survey, just a 25.6% response rate. The exit survey was made up of 14 Agree/Disagree questions and one open ended suggestion for improvement question. The survey was administered via Google Forms to the participants and none of the questions required responses in order to submit the form, therefore data responses were not received for each question from every participant. Survey questions can be broken into two categories: Rating of the Youth Outreach Coordinator and Rating of the Youth Diversion Program.

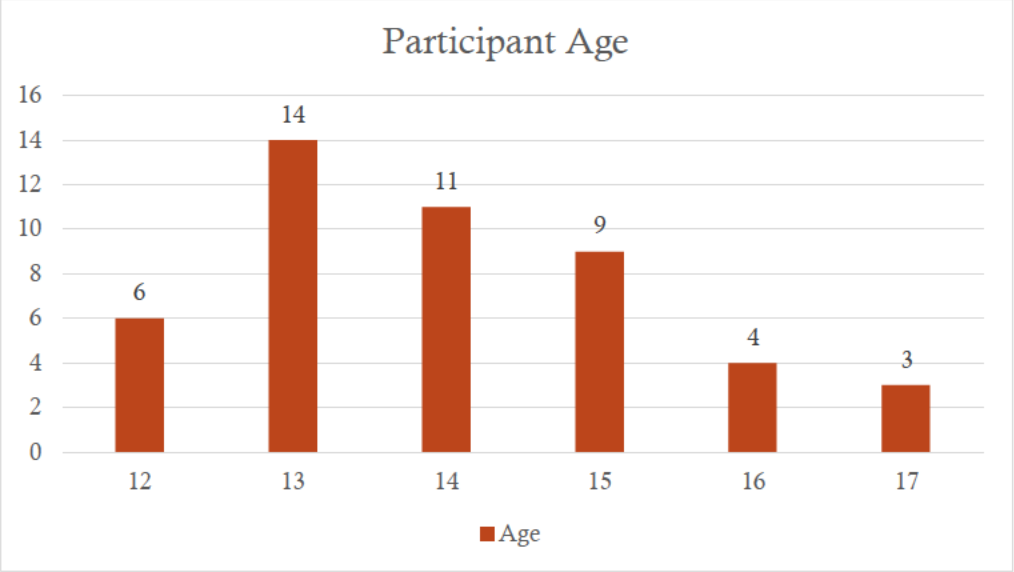
Category	Survey Question
Rating of Youth Outreach Coordinator	I was treated respectfully by the coordinator
	I felt that the coordinator protected my right to privacy
	I felt that the coordinator genuinely understood my problems, thoughts, and feelings
	The coordinator and I worked well together
	I felt comfortable talking about my issues with the coordinator
	The coordinator helped me to find my own solutions to my problems
	The coordinator could have done more to make the Youth Diversion Program more useful to me
Rating of the Youth Diversion Program	I have learned new skills to help me manage future problems because of the Youth Diversion Program
	I have learned new skills to help me manage my coping skills and behaviors in the classroom because of the Youth Diversion Program
	I have gained new knowledge into the process of addiction because of the Youth Diversion Program
	The circumstances that brought me to the Youth Diversion Program have improved as a result of the program
	I am satisfied with the accomplishments that I made with the Youth Diversion Program
	My academic performance has improved as a result of my participation in the Youth Diversion Program
	I could have done more to make the Youth Diversion Program more useful to me

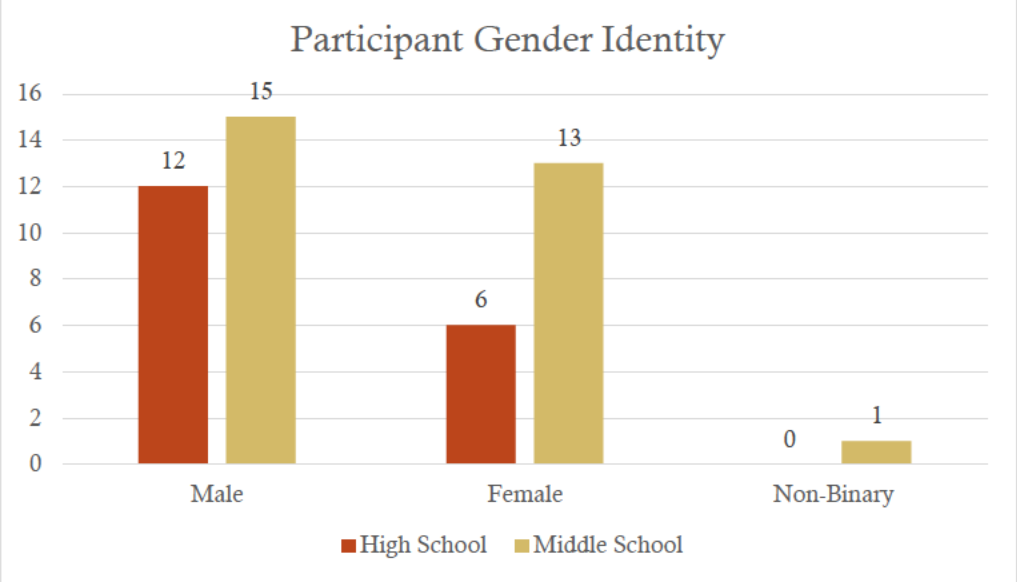
Responses to these questions determine the degree to which the Youth Diversion Program and the Youth Prevention Coordinator can be attributed to positive change of measured variables in program participants.

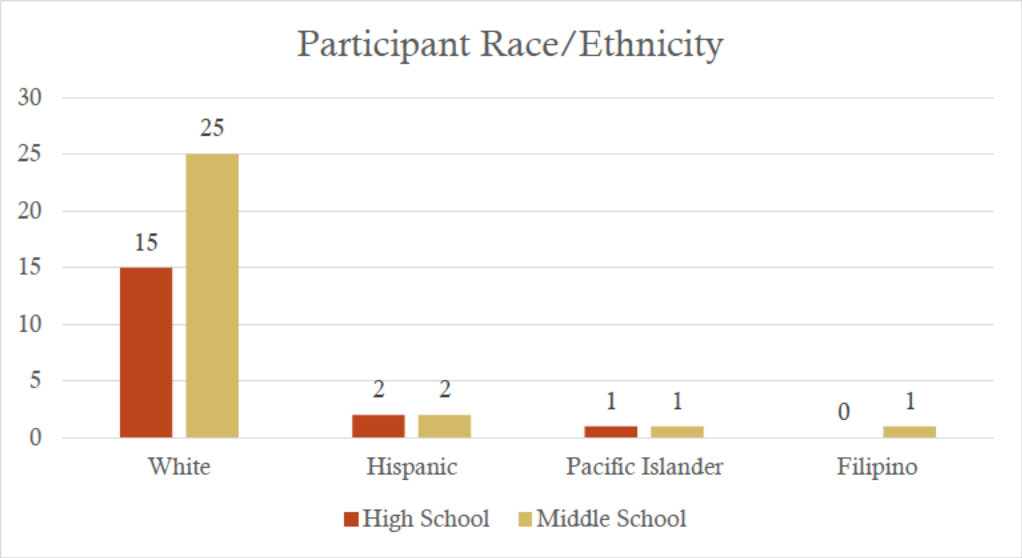
Evaluation Results

Youth Engagement and Education

There was a total of 47 individual program participants. Three participants did not complete the program either due to moving away or refusal to complete, and there are 5 unduplicated participants still currently enrolled, therefore exit data is not available for 8 of the 47 individual program participants thus they are not included in outcome evaluation data, however, are represented in the demographic charts.







High School Respondent	Before Program Participation Truancy Days (x_1)	After Program Participation Truancy Days (x_2)	Difference ($D = x_1-x_2$)	(Difference)^2 (D^2)
Participant LB	28	1	27	729
Participant SR	12	3	9	81
Participant CG	16	1	15	225
Participant IC	No Data	No Data	No Data	No Data
Participant EG	14	12	2	4
Participant JM	31	5	26	676
Participant HB	32	58	-26	676
Participant MK	47	20	27	729
Participant OH	20	46	-26	676
Participant SD	2	9	-7	49
Participant JO	26	33	-7	49
Participant IC-2	7	20	-13	169
Participant CN	No Data	No Data	No Data	No Data
Participant JE	8	3	5	25
Participant IM	10	21	-11	121
Participant GR	10	12	-2	4
	$\Sigma x_1 = 263$	$\Sigma x_2 = 244$		$\Sigma D^2 = 4{,}213$

(Participant "IC" and "CN" were excluded from the statistical formulas due to both moving away and not completing the program. They are pictured in the above table for data continuity)

Middle School Respondent	Before Program Participation Truancy Days (x_1)	After Program Participation Truancy Days (x_2)	Difference ($D = x_1-x_2$)	(Difference)^2 (D^2)
Participant AK	16	6	10	100
Participant LC	20	17	3	9
Participant TF	5	4	1	1
Participant OH-2	25	3	22	484
Participant JH	4	3	1	1
Participant DB	12	7	5	25
Participant AG	6	9	-3	9
Participant SE	No Data	No Data	No Data	No Data
Participant BE	31	38	-7	49
Participant KH	39	15	24	576
Participant RD	4	23	-19	361
Participant AH	8	8	0	0
Participant AF	15	36	-21	441
Participant AO	1	0	1	1
Participant BF	19	54	-35	1225
Participant LH	6	2	4	16
Participant BR	1	2	-1	1
Participant LW	1	1	0	0
Participant PL	4	9	-5	25
Participant HL	0	0	0	0
Participant JS	0	0	0	0
Participant RN	13	3	10	100
Participant WT	16	18	-2	4
Participant HS	22	6	16	256
Participant MB	5	24	-19	361
Participant JA	4	4	0	0
	$\Sigma x_1 = 277$	$\Sigma x_2 = 292$		$\Sigma D^2 = 4{,}045$

(Participant "SE" was excluded from the statistical formulas due to moving away and not completing the program. They are pictured in the above table for data continuity)

As both tables above show, making a before-after comparison focuses our attention on the difference between time 1 and time 2, as reflected in the formula to obtain the standard deviation (for the distribution of before-after number of truancy day difference):

$$SD = \sqrt{\frac{\Sigma_D 2}{N} - (\bar{X}_1 - \bar{X}_2)^2}$$

where SD = standard deviation of the distribution of before-after frequencies
D = after participation frequency subtracted from before participation frequency
N = number of participants in the sample

Further statistical computations were completed to calculate the *t* ratio, which determined whether we can reject our null hypotheses at the .05 significance level with a 95% confidence rate that the statistical result did not occur by chance or sampling error.

The below statistical computation steps are provided to display that for both populations (High School participants and Middle School participants) the data supports the null hypotheses that participating in the diversion and drug abuse/use education program did not have an impact on truancy rates in a statistically significant value, therefore we must reject the research hypotheses.

High School Participants:

$\Sigma X_1 = 263$ $\Sigma X_2 = 244$ $\Sigma D^2 = 4{,}213$ $N = 14$

Step 1: First find the mean for each point in time for high school program participants:

$\bar{x}_1 = \frac{\Sigma x_1}{N} = \frac{263}{14} = \mathbf{18.79}$ $\bar{x}_2 = \frac{\Sigma x_2}{N} = \frac{244}{14} = \mathbf{17.43}$

Step 2: Find the standard deviation for the difference between time 1 and time 2:

$SD = \sqrt{\frac{\Sigma D^2}{N} - (\bar{X}_1 - \bar{X}_2)^2} = \sqrt{\frac{4213}{14} - (18.78 - 17.43)^2}$

$= \sqrt{\frac{4213}{14} - (1.35)^2} = \sqrt{300.93 - 1.82} = \sqrt{299.11} = \mathbf{17.29}$

Step 3: Find the standard error of the mean difference:

$s_{\bar{D}} = \frac{s_D}{\sqrt{N-1}} = \frac{17.29}{\sqrt{14-1}} = \frac{17.29}{3.61} = \mathbf{4.79}$

Step 4: Translate the sample mean difference into units of standard error of the mean difference:

$t = \frac{\bar{x}_1 - \bar{x}_2}{s_{\bar{D}}} = \frac{18.79 - 17.43}{4.79} = \frac{1.36}{4.79} = \mathbf{.28}$

Step 5: Find the number of degrees of freedom:

$df = N - 1 = 14 - 1 = \mathbf{13}$

Step 6: Compare the obtained *t* ratio with the appropriate *t* ratio shown in the critical values of *t* for two-tailed tests: obtained *t* ratio = .28 table *t* ratio = 2.160

df = 13 $\alpha = .05$

Critical values of *t* for two-tailed tests

Significance level (α)

Degrees of freedom *(df)*	.2	.15	.1	.05	.025	.01	.005	.001
1	3.078	4.165	6.314	12.706	25.452	63.657	127.321	636.619
2	1.886	2.282	2.920	4.303	6.205	9.925	14.089	31.599
3	1.638	1.924	2.353	3.182	4.177	5.841	7.453	12.924
4	1.533	1.778	2.132	2.776	3.495	4.604	5.598	8.610
5	1.476	1.699	2.015	2.571	3.163	4.032	4.773	6.869
6	1.440	1.650	1.943	2.447	2.969	3.707	4.317	5.959
7	1.415	1.617	1.895	2.365	2.841	3.499	4.029	5.408
8	1.397	1.592	1.860	2.306	2.752	3.355	3.833	5.041
9	1.383	1.574	1.833	2.262	2.685	3.250	3.690	4.781
10	1.372	1.559	1.812	2.228	2.634	3.169	3.581	4.587
11	1.363	1.548	1.796	2.201	2.593	3.106	3.497	4.437
12	1.356	1.538	1.782	2.179	2.560	3.055	3.428	4.318
13	1.350	1.530	1.771	2.160	2.533	3.012	3.372	4.221
14	1.345	1.523	1.761	2.145	2.510	2.977	3.326	4.140
15	1.341	1.517	1.753	2.131	2.490	2.947	3.286	4.073
16	1.337	1.512	1.746	2.120	2.473	2.921	3.252	4.015
17	1.333	1.508	1.740	2.110	2.458	2.898	3.222	3.965
18	1.330	1.504	1.734	2.101	2.445	2.878	3.197	3.922
19	1.328	1.500	1.729	2.093	2.433	2.861	3.174	3.883
20	1.325	1.497	1.725	2.086	2.423	2.845	3.153	3.850
21	1.323	1.494	1.721	2.080	2.414	2.831	3.135	3.819
22	1.321	1.492	1.717	2.074	2.405	2.819	3.119	3.792
23	1.319	1.489	1.714	2.069	2.398	2.807	3.104	3.768
24	1.318	1.487	1.711	2.064	2.391	2.797	3.091	3.745
25	1.316	1.485	1.708	2.060	2.385	2.787	3.078	3.725
26	1.315	1.483	1.706	2.056	2.379	2.779	3.067	3.707
27	1.314	1.482	1.703	2.052	2.373	2.771	3.057	3.690
28	1.313	1.480	1.701	2.048	2.368	2.763	3.047	3.674
29	1.311	1.479	1.699	2.045	2.364	2.756	3.038	3.659
30	1.310	1.477	1.697	2.042	2.360	2.750	3.030	3.646
40	1.303	1.468	1.684	2.021	2.329	2.704	2.971	3.551
50	1.299	1.462	1.676	2.009	2.311	2.678	2.937	3.496
60	1.296	1.458	1.671	2.000	2.299	2.660	2.915	3.460
70	1.294	1.456	1.667	1.994	2.291	2.648	2.899	3.435
80	1.292	1.453	1.664	1.990	2.284	2.639	2.887	3.416
100	1.290	1.451	1.660	1.984	2.276	2.626	2.871	3.390
1000	1.282	1.441	1.646	1.962	2.245	2.581	2.813	3.300
Infinite	1.282	1.440	1.645	1.960	2.241	2.576	2.807	3.291

In order to reject the null hypothesis for high school participants (the truancy rate does not differ before and after program participation) at the .05 significance level with 13 degrees of freedom the calculated *t* ratio needed to be 2.160. Because the obtained *t* ratio is only .28 (less than the required table value) the null hypothesis must be retained and the research hypothesis must be rejected.

Middle School Participants:

$\Sigma x_1 = 277$ $\Sigma x_2 = 292$ $\Sigma D^2 = 4{,}045$ $N = 25$

Step 1: First find the mean for each point in time for high school program participants:

$\bar{x}_1 = \frac{\Sigma x_1}{N} = \frac{277}{25} = \mathbf{11.08}$ $\bar{x}_2 = \frac{\Sigma x_2}{N} = \frac{292}{25} = \mathbf{11.68}$

Step 2: Find the standard deviation for the difference between time 1 and time 2:

$SD = \sqrt{\frac{\Sigma D^2}{N} - (\bar{X}_1 - \bar{X}_2)^2} = \sqrt{\frac{4045}{25} - (11.08 - 11.68)^2}$

$= \sqrt{\frac{4045}{25} - (-.6)^2}$ $= \sqrt{161.8 - .36}$ $= \sqrt{161.44}$ $= \mathbf{12.71}$

Step 3: Find the standard error of the mean difference:

$s_{\bar{D}} = \frac{s_D}{\sqrt{N-1}} = \frac{12.71}{\sqrt{25-1}} = \frac{12.71}{4.91} = \mathbf{2.59}$

Step 4: Translate the sample mean difference into units of standard error of the mean difference:

$t = \frac{\bar{x}_1 - \bar{x}_2}{s_{\bar{D}}} = \frac{11.08 - 1\ .68}{2.59} = \frac{-.6}{2.59} = \mathbf{-.23}$

Step 5: Find the number of degrees of freedom:

$df = N - 1$ $= 25 - 1$ $= \mathbf{24}$

Step 6: Compare the obtained *t* ratio with the appropriate *t* ratio shown in the critical values of *t* for two-tailed tests: obtained *t* ratio = -.23 table *t* ratio = 2.064

df = 24 α = .05

Critical values of *t* for two-tailed tests

Significance level (α)

Degrees of freedom *(df)*	.2	.15	.1	.05	.025	.01	.005	.001
1	3.078	4.165	6.314	12.706	25.452	63.657	127.321	636.619
2	1.886	2.282	2.920	4.303	6.205	9.925	14.089	31.599
3	1.638	1.924	2.353	3.182	4.177	5.841	7.453	12.924
4	1.533	1.778	2.132	2.776	3.495	4.604	5.598	8.610
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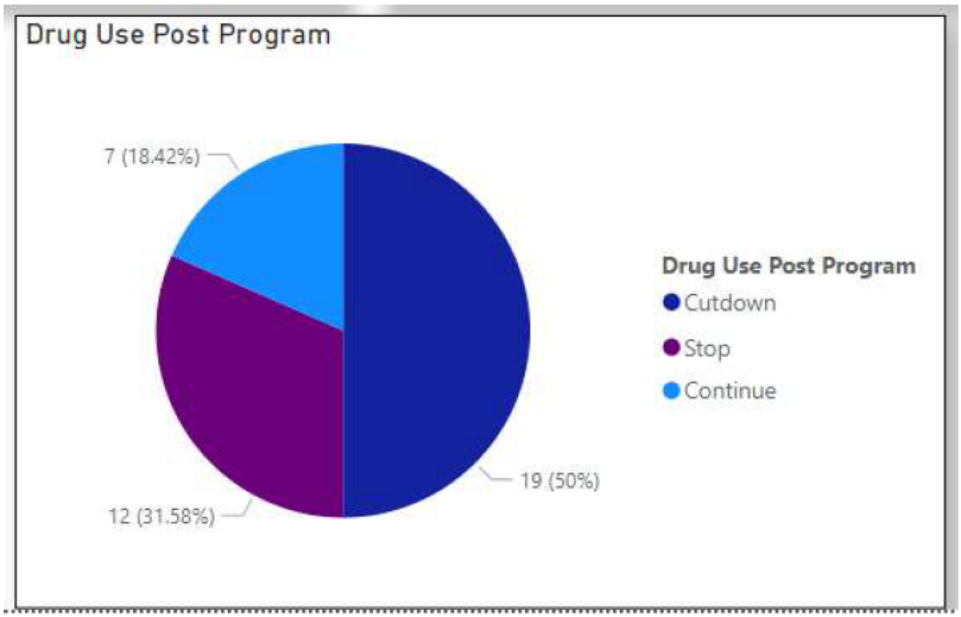
30	1.310	1.477	1.697	2.042	2.360	2.750	3.030	3.646
40	1.303	1.468	1.684	2.021	2.329	2.704	2.971	3.551
50	1.299	1.462	1.676	2.009	2.311	2.678	2.937	3.496
60	1.296	1.458	1.671	2.000	2.299	2.660	2.915	3.460
70	1.294	1.456	1.667	1.994	2.291	2.648	2.899	3.435
80	1.292	1.453	1.664	1.990	2.284	2.639	2.887	3.416
100	1.290	1.451	1.660	1.984	2.276	2.626	2.871	3.390
1000	1.282	1.441	1.646	1.962	2.245	2.581	2.813	3.300
Infinite	1.282	1.440	1.645	1.960	2.241	2.576	2.807	3.291

In order to reject the null hypothesis for middle school participants (the truancy rate does not differ before and after program participation) at the .05 significance level with 24 degrees of freedom the calculated *t* ratio needed to be 2.064. Because the obtained *t* ratio is only -.23 (less than the required table value) the null hypothesis must be retained and the research hypothesis must be rejected.

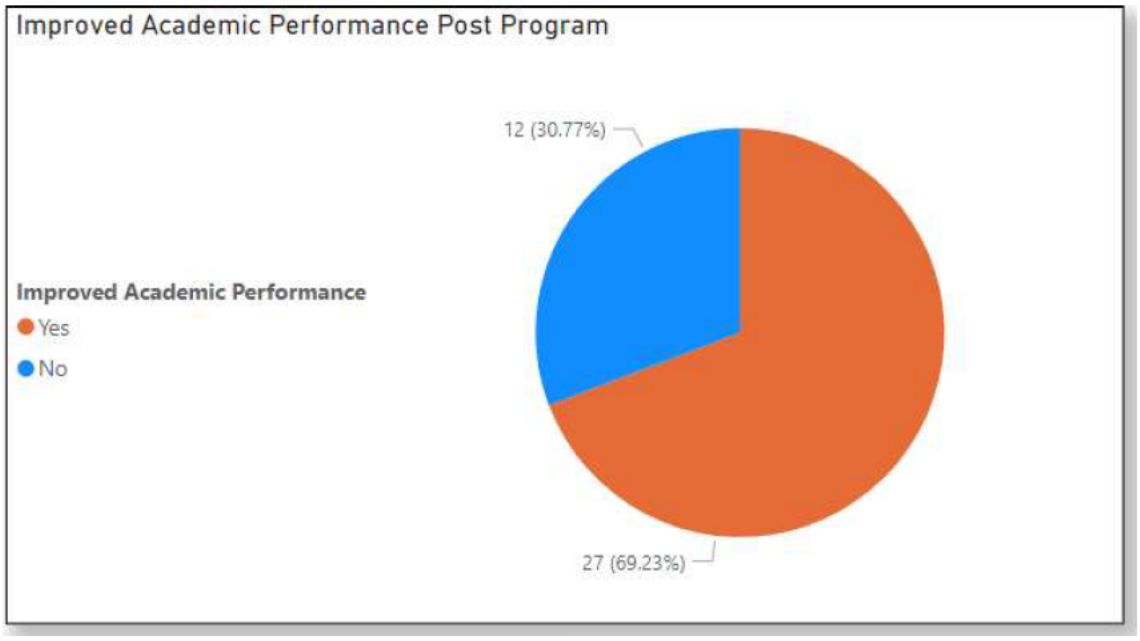
The chart below depicts the unduplicated high school and middle school participant combined data for the variables Marijuana/drug use frequency post-program completion (v1), Improved Academic Performance post-program completion (v2), and Truancy days post-program change (v3).

Respondent	Marijuana/drug use frequency post-program completion (v1)	Improved Academic Performance (v2)	Truancy Days Change (v3)
Participant AK	Cutdown	Yes	Decreased
Participant LC	Continue	Yes	Decreased
Participant TF	Cutdown	Yes	Decreased
Participant OH-2	Cutdown	Yes	Decreased
Participant JH	Cutdown	No	Decreased
Participant DB	Continue	No	Decreased
Participant AG	Cutdown	Yes	Increased
Participant BE	Stop	Yes	Increased
Participant KH	Stop	Yes	Decreased
Participant RD	Stop	Yes	Increased
Participant AH	Cutdown	No	No Change
Participant AF	Cutdown	Yes	Increased
Participant AO	Stop	Yes	Decreased
Participant BF	Stop	No	Increased
Participant LH	Continue	Yes	Decreased
Participant BR	Continue	No	Increased
Participant LW	Stop	Yes	No Change
Participant PL	Stop	Yes	Increased
Participant HL	Stop	Yes	No Change
Participant JS	Stop	Yes	No Change
Participant RN	Cutdown	Yes	Decreased
Participant WT	Cutdown	No	Increased
Participant HS	Stop	Yes	Decreased
Participant MB	Cutdown	Yes	Increased
Participant JA	Cutdown	Yes	No Change
Participant LB	No Data	Yes	Decreased
Participant SR	Continue	Yes	Decreased
Participant CG	Cutdown	No	Decreased
Participant EG	Cutdown	Yes	Decreased
Participant JM	Continue	Yes	Decreased
Participant HB	Cutdown	No	Increased
Participant MK	Continue	Yes	Decreased
Participant OH	Stop	Yes	Increased
Participant SD	Stop	No	Increased
Participant JO	Cutdown	No	Increased
Participant IC-2	Cutdown	No	Increased
Participant JE	Cutdown	Yes	Decreased
Participant IM	Cutdown	No	Increased
Participant GR	Cutdown	Yes	Increased

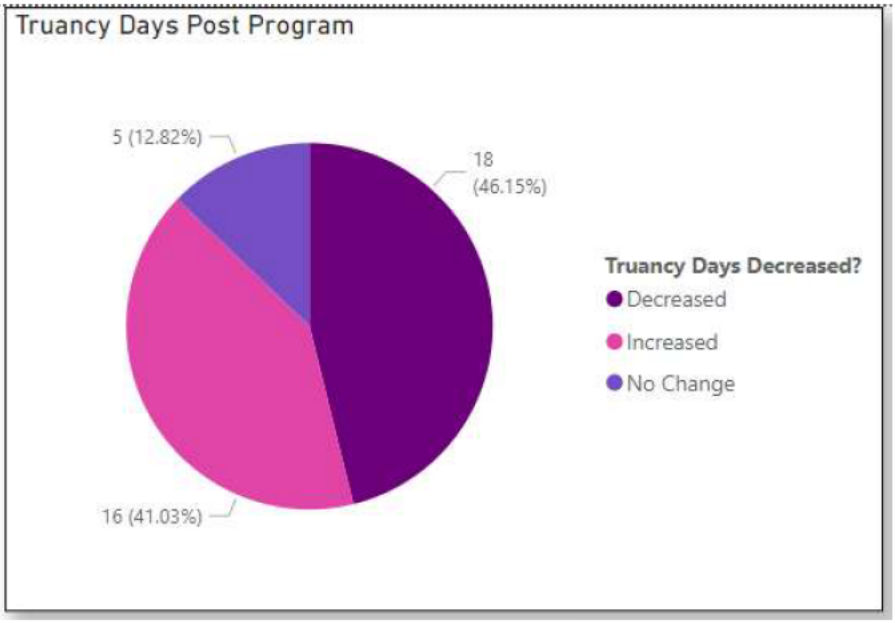
The below pie chart depicts data responses for v1. This stand-alone data depicts that there were more program participants who reported that they reduced their marijuana/drug use post-program than those participants who reported that they continued their marijuana/drug use frequency post-program. When adding those participants who reported that they stopped their marijuana/drug use post-program to those who cutdown on their usage, since both indicate positive change in program participants, the data would depict that 68.4% of program participants either stopped their marijuana/drug use, or cutdown on their usage upon successful completion of the program.



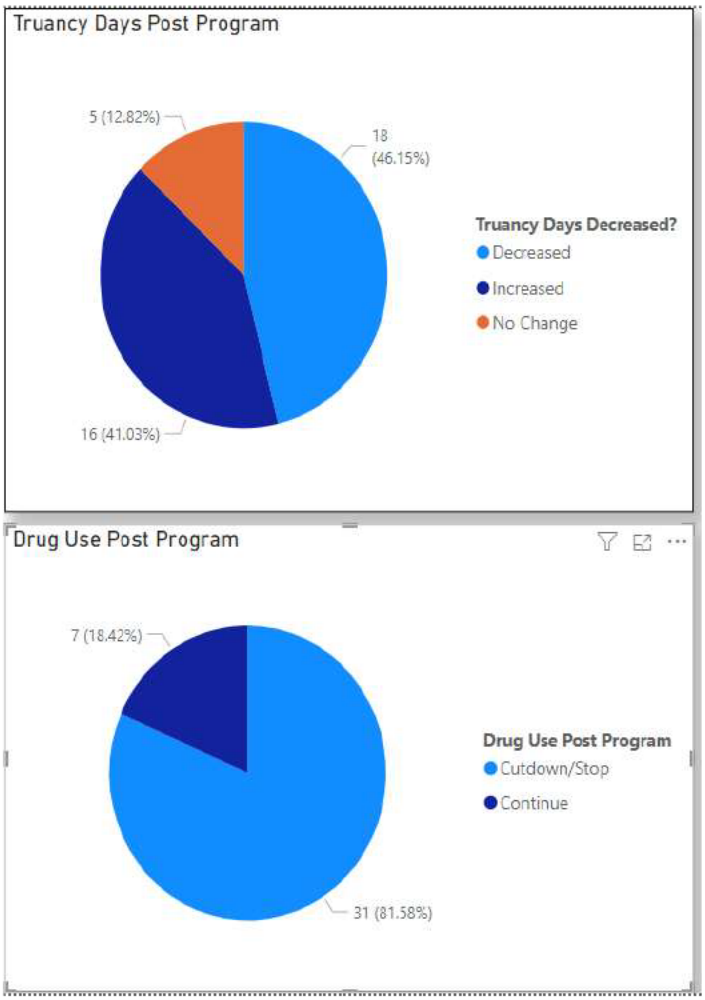
The below pie chart depicts data responses for v2. This stand-alone data depicts that there were slightly more program participants with decreased post-program truancy days than those participants whose post-program truancy days increased.



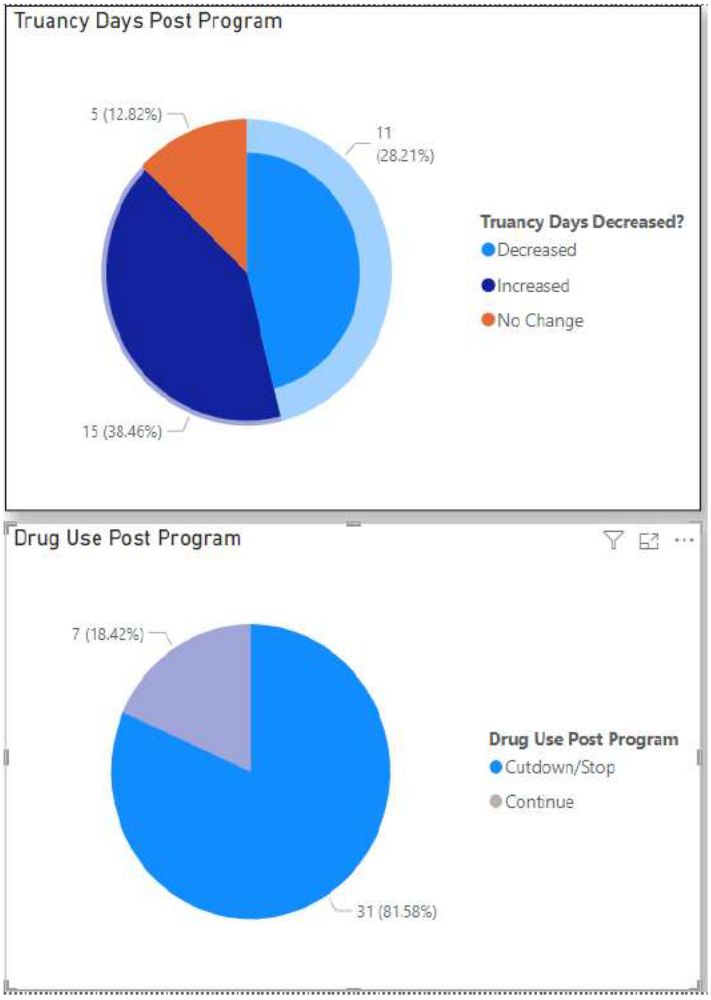
The below pie chart depicts data responses for v3. This stand-alone data depicts that there were slightly more program participants with decreased post-program truancy days than those participants whose post-program truancy days increased. Five of the participants had no change in their truancy rate post-program, therefore program participation cannot be shown to have any impact (positive or negative) on their truancy rate.



Research Hypothesis 1: Program participants that report they either stopped or cutdown their marijuana/drug use after program completion would also have reduced truancy days per school year.



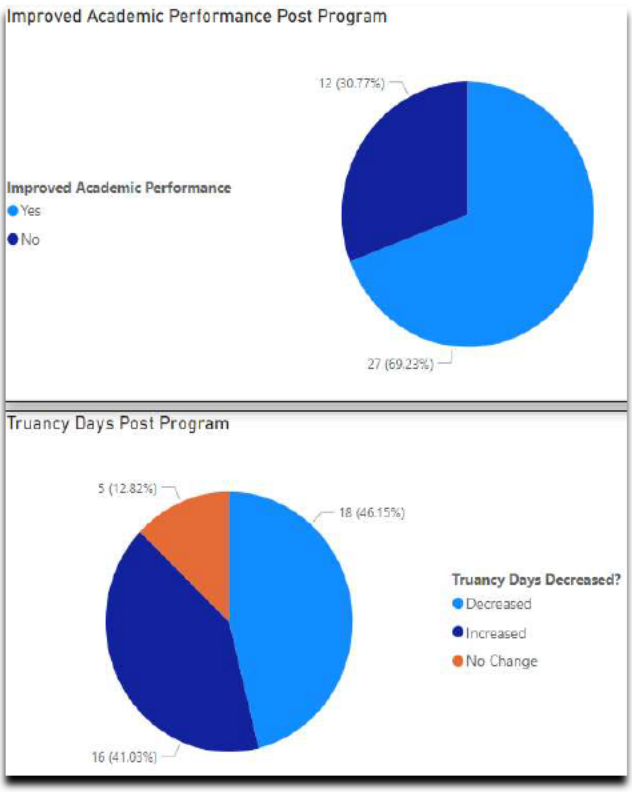
(Figure 1)



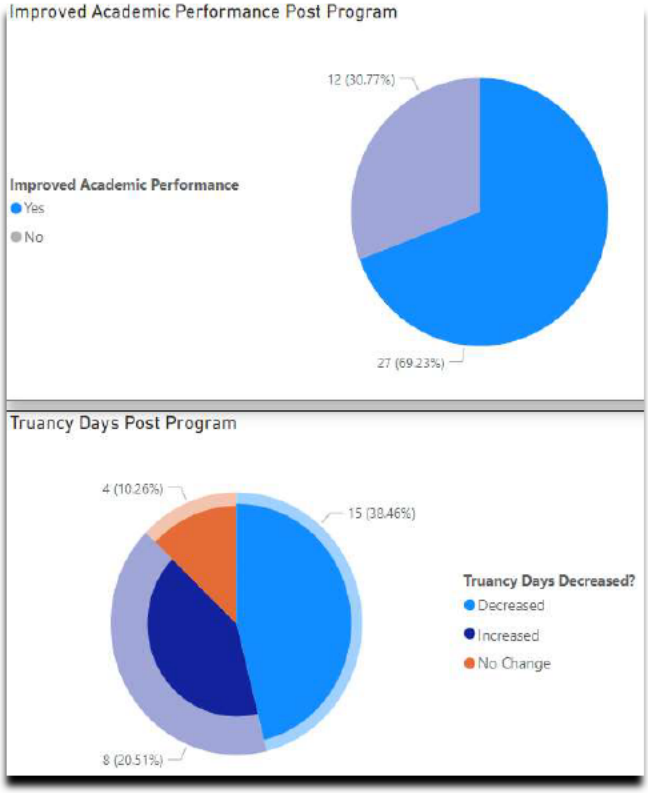
(Figure 2)

Based upon the above displayed data, Research Hypothesis 1 must be rejected, as *Figure 2* indicates that of the 31 participants who cutdown or stopped their marijuana drug use after program completion, only 11 decreased their truancy days compared to 15 of the participants whose truancy days increased.

Research Hypothesis 2: Program participants that report improved academic performance would also have reduced truancy days per school year.



(Figure 3)

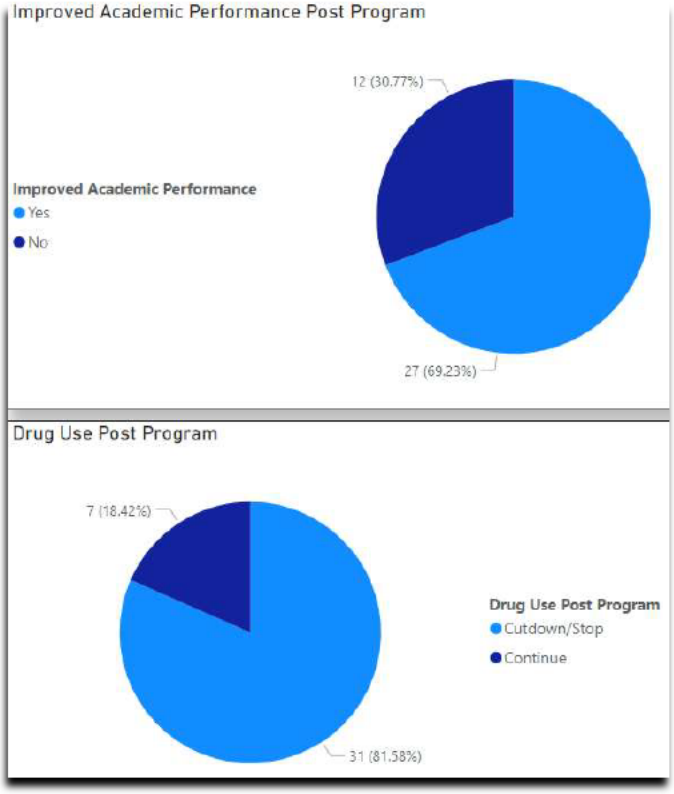


(Figure 4)

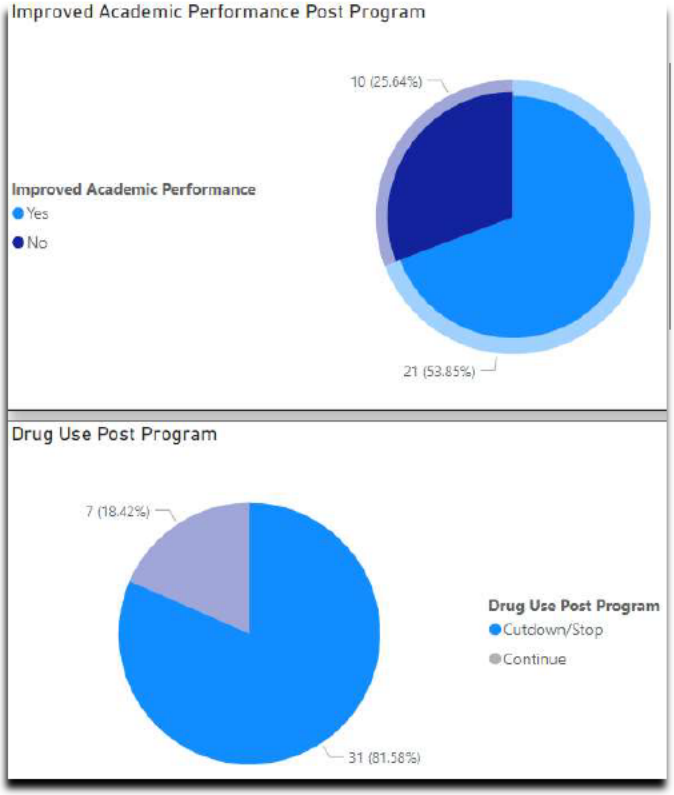
Based upon the above displayed data, Research Hypothesis 2 is supported, as *Figure 2* indicates that of the 27 participants who reported academic improvement after program completion, 15 of them decreased their truancy days compared to 8 of the participants whose truancy days increased.

Research Hypothesis 3: Program participants that report that they either cutdown or stopped their marijuana drug use would have improved academic performance.

QUESTION



(Figure 5)

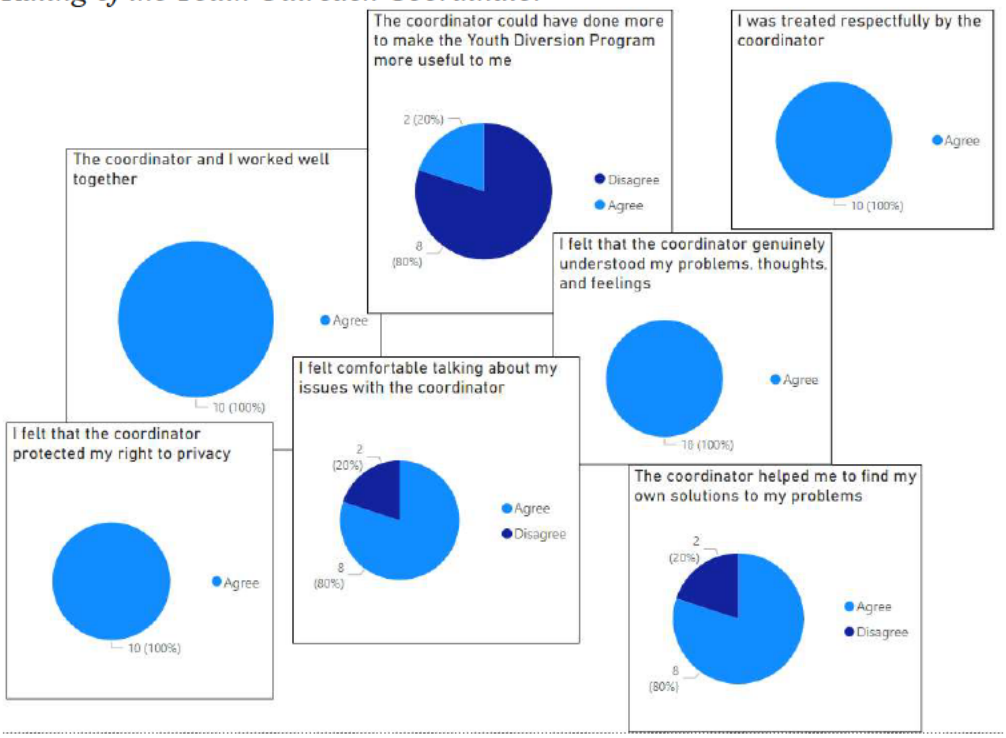


(Figure 6)

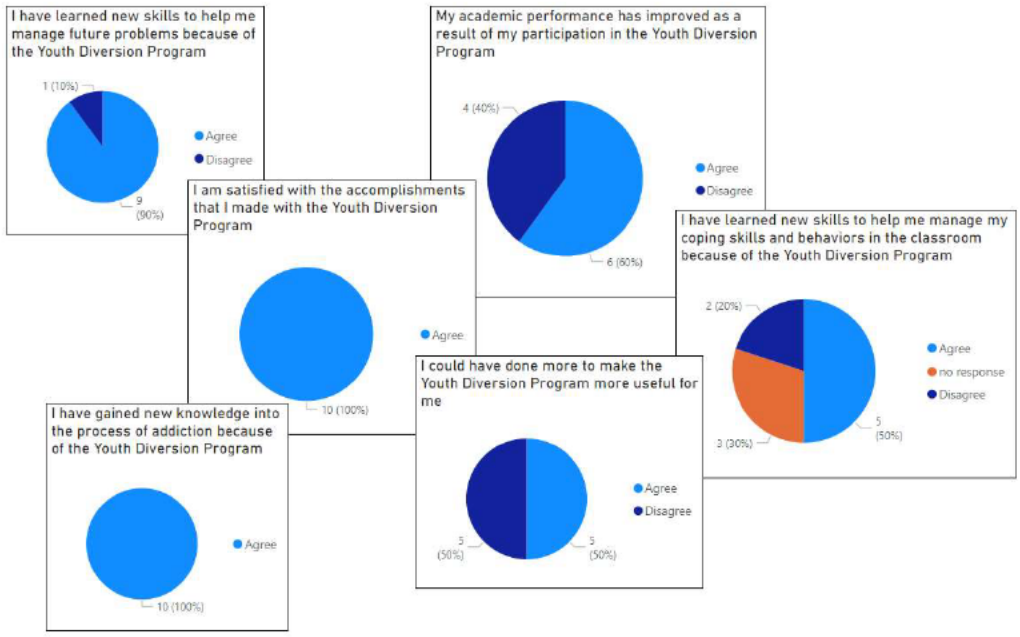
Based upon the above displayed data, Research Hypothesis 3 is supported, as *Figure 6* indicates that of the 31 participants who reported they cutdown or stopped their marijuana/drug use after program completion, 25 of them reported improved academic performance compared to 10 of the participants who reported their academic performance did not improve.

Lastly are the results of the participant exit survey ratings of the Youth Outreach Coordinator and the Youth Diversion Program. Although there are only 10 survey responses, the data appears to paint a favorable sentiment for both the coordinator and the program as a whole.

Rating of the Youth Outreach Coordinator



Rating of the Youth Diversion Program



Public Safety

QUESTION 6 |

The below table shows data of the HCSO Marijuana Enforcement Team for the years 2018 through 2023. The shaded data (years 2021, 2022, 2023) was all from activities conducted during the BSCC Proposition 64 grant cycle. Data from the 3 previous years is included in the table to provide a baseline of prior year's activities to determine the impacts the grant had on MET's outputs.

Year (Oct – Sept)	Warrants Served	Plants Eradicated	Bulk Processed Marijuana Seized (lbs)	Weapons Seized	Arrests Made	Environmental Violations Identified
2018	37	109,003	18,903.94	16	8	126
2019	63	134,100	33,509.08	28	11	178
2020	35	161,760	18,835.48	25	5	118
2021	111	483,081	118,079.55	76	32	540
2022	77	193,971	53,850.91	121	15	106
2023	50	110,683	9,067.14	79	8	63

During the first year a grant funded Deputy (Jan. 2021) and Crime Analyst (Feb. 2021) were added to the Marijuana Enforcement Team. The addition of these two positions to the MET contributed to the following data achievements:

- Increase in the number of search warrants served by MET: A total of 238 warrants were served during the 3-year grant project timeframe. That's 103 more warrants served than the previous 3 years combined (135 warrants served), which translates to a 76% increase in warrants served by MET.
- Increase in the number of illegal plants eradicated by MET: A total of 787,735 illegal plants were eradicated during the 3-year grant project timeframe. That's 382,872 more illegal plants eradicated than the previous 3 years combined (404,863 illegal plants eradicated), which translates to a 95% increase in illegal plants eradicated by MET.
- Increase in the number of arrests by MET: A total of 55 arrests were made during the 3-year grant project timeframe. That's 31 more arrests than the previous 3 years combined (24 arrests), which translates to a 129% increase in arrests made by MET.
- Increase in the number of firearms seized by MET: A total of 276 illegally possessed firearms were seized during the 3-year grant project timeframe. That's 207 more firearms seized than the previous 3 years combined (69 firearms seized), which translates to a 300% increase in firearms seized by MET.
- Increase in the number of illegal bulk processed marijuana seized by MET: A total of 180,997.6 pounds of illegal bulk processed marijuana was seized during the 3-year grant project timeframe. That's 109,749.1 pounds more illegal bulk processed marijuana seized than the previous 3 years combined (71,248.5 pounds illegal bulk processed marijuana seized), which translates to a 154% increase in illegal bulk processed marijuana seized by MET.

Public Health and Environmental Impact

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The below table is a depiction of the activities that the Integral Ecology Research Center (IERC) conducted over the course of the Proposition 64 grant.

Year	Environmental Inspections	Environmental Tests	Reclamation Plans	Environmental Reports
2021				
2022	2	16	1	1
2023	3	2	5	

The MOU between HCSO and the IERC was finalized and signed in July of 2021, which is when began interfacing with the MET to coordinate possible illegal grow sites. The IERC focuses on public land illegal grow sites. These sites typically involve rough terrain and miles of hiking. Since the passing of Proposition 64 in 2016, legalizing marijuana for recreational use in California, Humboldt County has seen a decrease in the amount of illegal public land grow sites. Due to this decrease, a majority of the IERC's work with MET focused on historical illegal grow sites that were already eradicated by MET however, were still in need of environmental reclamation. Efforts to identify new public land illegal grow sites were mainly unfruitful, as only one new site was located via aerial imagery review and reconnaissance flights.

Hazardous materials were found to be present at two of the five environmental inspection sites and possibly at a third site, pending toxicological testing results. Additionally, approximately 6,875 meters (4.27 miles) of irrigation pipe and 68 55-gallon trash bags worth of refuse were located on the sites.

While public land grow sites for environmental impact review were sparse, environmental violations were located at the illegal private land grow sites that the MET eradicated throughout the 3-year grant project. Wardens from the California Department of Fish and Wildlife (CDFW) frequently conducted joint operations with HCSO's MET. CDFW Environmental Science Specialists accompany the Wardens and MET Deputies and have identified 709 environmental violations between 2021 and 2023 at illegal grow sites, which is 287 more environmental violations than the preceding 3-year period (a 68% increase). Violations that were commonly identified were water pollution/alteration/diversion, illegal use of pesticides, poaching, and hazardous waste disposal.

Discussion of Results

While much of the data presented in the preceding segments indicate project outcomes that exceeded proposed project goals, there were challenges encountered within each project goal. As this was the first iteration of this grant project for Humboldt County, there were overall challenges with the hiring of personnel to fulfill the project goals and therefore delays in project commencement. The most severe of these personnel delays being the Youth Prevention Coordinator, as the creation of that position was a result of the inability to hire an internal HCSO Community Service Officer to fulfill the youth outreach role. Although this was a significant delay, once the partnership relationship was established with the Southern Humboldt FRC and work had begun in July 2022, the youth diversion program was able to serve more students than the initial project goal had projected.

Another challenge encountered regarding the youth diversion segment was that the program still had to be created and processes were evolving over time, which made data collection less efficient. Going forward, data collection and recording by the youth prevention coordinator should be completed in a timelier manner in an effort to capture more participant responses and evaluate if tactics may need to be adjusted to make the program more effective for participants and to support program fidelity. For example, the youth prevention coordinator administers a substance use assessment for each student who enrolls in the program detailing which substances they use and the frequency with which they use them. This data should also be collected upon exiting the program or perhaps throughout the program to show even more acute changes. Going forward, it may be beneficial for the grantee's day-to-day contact to collect data from the youth prevention coordinator monthly rather than a quarterly basis to ensure collection efforts are at their maximum.

Regarding the public safety portion of the grant project, the addition of another deputy and crime analyst to the MET proved to be effective within the first year of the project yielding 76 more investigations into illegal cultivation sites than the previous year. The increased number of enforcement activities that the MET was able to conduct was likely a contributing factor to the increase in state licensed cultivation properties that Humboldt County saw during the grant cycle. According to a Department of Cannabis Control license list sent to vetted law enforcement officials, the number of state licensed cultivation properties within Humboldt County in March 2021 was just 1,734 sites. At the end of the grant cycle in September 2023 this number jumped by 505 to 2,239 state licensed cultivation properties, which represents a 29% increase.

While nearly all public safety goals were met or exceeded there were some obstacles that were encountered by the MET. MET is a specialty team within the HCSO and tends to get assigned to assist the Special Services Division when natural disasters occur, such as snowstorms, wildfires, and earthquakes. During the grant project cycle MET was reassigned to assist Special Services with multiple Search & Rescue operations during winter snowstorms, wildfire evacuations/safety patrol, and response to the December 2022 magnitude 6.4 earthquake in Rio Dell that caused significant damage and injuries. Response to these events pulls staff away from their day-to-day

duties and impacts the number of investigations that can be initiated during grant reporting periods. Another event that occurred during the grant project cycle was an Officer Involved Shooting (OIS) in April 2023 that involved a MET Deputy and Sergeant. Per policy, the Deputy and Sergeant were both placed on administrative leave during the investigation of the OIS, again halting illegal cultivation investigations. While these unforeseen circumstances did hinder the number of activities that the MET was able to accomplish, the team's diligence throughout the grant project cycle kept them on target with most of their goals and only falling 32 investigations shy of their target goal of 270 illegal cultivation investigations during the 3-year grant cycle.

Current Project Logic Model

Goal 1 Logic Model

Goal: To foster a mentoring relationship between the FRC Youth Prevention Coordinator and the underserved Southern Humboldt County students while offering marijuana/drug use and abuse education.

Program: Humboldt County Sheriff's Office's Education, Analysis, and Enforcement Project: Proposition 64 Public Health & Safety Grant Program				
INPUTS	**ACTIVITIES**	**RESULTS**		
Key Resources	Community Outreach, Prevention & Intervention	Outputs (Grant Cycle)	Outcomes	Impacts
• Southern Humboldt Family Resource Center Staff: 1 fulltime Youth Prevention Coordinator • Budget: $72,383	• Create a youth outreach & diversion program • Provide marijuana and other substance use/abuse prevention education & counseling	• 1 Youth Diversion Program established • At least 15 students served through youth diversion program during grant cycle	• Decreased frequency of marijuana/drug usage by participants • Improved academic performance by participants • Decreased truancy by participants	• Decreased occurrence of overdoses • Decreased occurrence of mental health illnesses • Improved emotional well-being

Goal 2 Logic Model

Goal: To disrupt the illegal marijuana industry and monitor compliance among producers in Humboldt County

Program: Humboldt County Sheriff's Office's Education, Analysis, and Enforcement Project: Proposition 64 Public Health & Safety Grant Program				
INPUTS	**ACTIVITIES**	**RESULTS**		
Key Resources	Law Enforcement & Prosecution	Outputs (Grant Cycle)	Outcomes	Impacts
• HCSO Staff: 1 full time Deputy Sheriff, 1 full time Crime Analyst • Budget: $691,080	• Identify illegal cannabis cultivation sites • Identify and disrupt drug trafficking organizations • Eradicate unpermitted marijuana plants • Monitor marijuana related crimes	• Investigate at least 270 illegal cultivation sites • Eradicate at least 630,000 unpermitted marijuana plants	• Increase in illegal cultivation site investigations compared to previous years • Increase in unpermitted marijuana plants eradicated compared to previous years	• Reduction in number of illegal cannabis grow sites • Reduction in illegal cannabis on the market • Increase in state permitted (legal) grow sites • Increased tax revenue base

Goal 3 Logic Model

Goal: Evaluate the environmental impacts and potential public health risks associated with illegal marijuana cultivation sites in Humboldt County, and identify solutions and seek funding to reverse these negative impacts

Program: Humboldt County Sheriff's Office's Education, Analysis, and Enforcement Project: Proposition 64 Public Health & Safety Grant Program				
INPUTS	**ACTIVITIES**	**RESULTS**		
Key Resources	Prevention & Intervention	Outputs (Grant Cycle)	Outcomes	Impacts
• Integral Ecology Resource Center (IERC) staff • HCSO Staff: Marijuana Enforcement Team (MET) • Budget: $21,093	• Identify high-need cannabis cultivation sites • Develop detailed assessments of the high-need cannabis cultivation sites • Test for pesticides and other contaminants in soil, vegetation, and water samples	• 9 illegal marijuana cultivation site environmental and public health risk assessments • 3 reclamation plans detailing hazardous material risks, resources required for abatement, estimated cost for full reclamation for the highest need cultivation sites • 9 environmental impact sites identified and added to the IERC database	• Increase in number of environmental violations identified at illegal cultivation sites compared to previous years	• Enhance the existing IERC database • Increased public health risk awareness associated with illegal marijuana cultivation sites • Reduction of environmental impacts related to illegal marijuana cultivation sites

Grantee Highlight

On June 7-8, 2023, deputies with the Humboldt County Sheriff's Office Marijuana Enforcement Team (MET) served a search warrant resulting from a month-long investigation into an illegal commercial cannabis cultivation operation in the McClellan Mountain area. Representatives with the California Department of Fish and Wildlife, Humboldt County DHHS Environmental Health – HazMat Unit and Humboldt County Code Enforcement assisted in the service of the warrant.

One parcel located above Little Larabee Creek was investigated during the service of the warrant. The parcel did not possess the required county permit and state license to cultivate cannabis commercially. Upon deputies' arrival to the property, multiple individuals fled into the surrounding wooded area.

During the search of the parcel, deputies located 13 large, multi-story grow houses being powered by 14 commercial-size generators. Over 200,000 gallons of diesel, used to power the generators was found improperly stored on the parcel in the aboveground storage tanks. Nearby these tanks and generators, HazMat investigators documented evidence of fuel spills. Additionally, deputies observed numerous discarded burnt generators and evidence of small wildland fires, including torched trees, within close proximity to these grow houses.

Environmental scientists on scene located four man-made dams which had been placed in the Little Larabee Creek to supply the operation with water.

During the service of the warrant, deputies eradicated approximately 18,511 growing cannabis plants, destroyed over 1,370 pounds of processed cannabis, and seized four firearms. In addition to the illegal cultivation violations, 29 environmental violations were also identified carrying a combined total of $822,000 in fines per day.


Stream impoundment and point of diversion.


Stream impoundment.


Fuel storage with no secondary containment.


Multiple generators used to power operation.


Outside of one multi-story grow house.


Large fuel storage tank.


Burnt generator discarded on the roadside.


Burnt generator discarded on the roadside.


Indoor cannabis cultivation operation.

Appendix A. Youth Diversion Program Substance Use Assessment Form

Youth Diversion Program | Substance Use Assessment

Student Name: _____ Interview Date: _____

Interview By: _____ Location: _____

QUESTION 1 |

Which of the following substances have you ever used non-medically or recreationally?

Nicotine | Vapes, Cigarettes, Chewing Tobacco

Yes | No

Cannabis | Marijuana, Weed, Dabs

Yes | No

Alcohol | Liquor, Beer, Wine

Yes | No

Hallucinogens | LSD, Acid, Mushrooms

Yes | No

Inhalants | Nitrous, Glue, Gas, Paint Thinner

Yes | No

Stimulants | Meth, Cocaine, Ecstasy

Yes | No

Sedatives | Diazepam, Alprazolam (Xanax)

Yes | No

Opioids | Heroin, Phentanyl, Morphine, Suboxone, Codeine

Yes | No

QUESTION 2 |

For the substances that you answered yes to, **circle the number** in the box that correlates to how often you have used them **in the past 3 months**?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 3 |

For the substances that you answered yes to, **circle the number** in the box that correlates to how often you have had an overwhelming desire to use them **in the past 3 months**?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 4 |

During the past three months, how often have you failed to do what was normally expected of you because of your use?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 5 |

During the past three months, how often has your use led to **health, social, legal, financial, or school** trouble?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 6 |

Has a friend or relative or anyone else ever expressed concern about your use?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 7 |

How often have you tried to cut down on using, if ever?

	Never	A Few Times	Once A Month	Once A Week	Daily
Nicotine	0	2	3	4	6
Cannabis	0	2	3	4	6
Alcohol	0	2	3	4	6
Hallucinogens	0	2	3	4	6
Inhalants	0	2	3	4	6
Stimulants	0	2	3	4	6
Sedatives	0	2	3	4	6
Opioids	0	2	3	4	6

Never = **0** Once or twice = **2** Monthly = **3** Weekly = **4** Daily or almost daily = **6**

QUESTION 8 |

For **each substance add up your scores** for questions 2 through 7.

Nicotine _____ Cannabis _____ Alcohol _____ Hallucinogens _____

Inhalants _____ Sedatives _____ Cocaine _____ Opioids _____

Specific substance involvement Score and Risk Level

Substance	Risk Level	Risk Level	Risk Level
a) Nicotine	0 – 3 Lower	4 – 26 Moderate	27+ High
b) Cannabis	0 – 3 Lower	4 – 26 Moderate	27+ High
c) Alcohol	0 – 10 Lower	11 – 26 Moderate	27+ High
d) Hallucinogens	0 – 3 Lower	4 – 26 Moderate	27+ High
e) Inhalants	0 – 3 Lower	4 – 26 Moderate	27+ High
f) Stimulants	0 – 3 Lower	4 – 26 Moderate	27+ High
g) Sedatives	0 – 3 Lower	4 – 26 Moderate	27+ High
i) Opioids	0 – 3 Lower	4 – 26 Moderate	27+ High

Appendix B. Youth Diversion Program Self Assessment Form

Youth Diversion Program | Self Assessment

Student Name: _____ Interview Date: _____

Interview By: _____ Location: _____

Self Inventory On Coping Skills

On a scale of 1 - 10, how would you rate your reaction to difficult situations? 1 being not well and 10 being extremely well.

1 2 3 4 5 6 7 8 9 10

Can you identify a recent difficult experience? What happened, what was it like and how did you handle it?

How would you say that you typically react to difficult situations with your teachers? With your homework?

On a scale of 1 - 10, how would you rate your ability to get through the school day without using drugs or alcohol or thinking about them?

1 2 3 4 5 6 7 8 9 10

1 would signify that it is very difficult to make it through your day without thinking about or taking drugs or alcohol. 10 signifying that it is extremely easy for you to get through your day.

How would you describe a typical way in which you handle needing help? Do you have a recent time in which you needed help as an example?

How do you typically handle a perceived injustice regarding yourself? Regarding others?

Appendix C. Youth Diversion Program Student Assessment Form

Youth Diversion Program | Student Assessment

Student Name: _____ Interview Date: _____

Interview By: _____ Location: _____

DOMAIN 1 | LEGAL

Why were you placed in this program?

Have you ever gotten in trouble where the law or a referral to a disciplinary program was involved? If yes, please describe.

How did your parents react when they were notified that you were involved in a drug and alcohol incident on campus?

Have you ever been suspended or expelled from school?

Do you get along easily with others?

What percentage of your time is spent in conflict with others (parents, teachers, friends)?

DOMAIN 2 | SCHOOL

How old are you and what grade are you enrolled in?

Have you ever lost a grade due to any special circumstances?

How is your attendance? How many absences have you had in the last month?

Are there any specific circumstances that make it difficult for you to get to school or to stay in school for the full day?

How are your grades?

DOMAIN 3 | RELATIONSHIPS

What are your friends like and why do you like them?

Do you have any friends that you no longer talk to or hang out with? What happened?

Have you ever struggled with repeated, negative attention from other classmates?

Do you consider yourself a leader, a follower, or more of an independent person?

DOMAIN 4 | FAMILY

Where do you live and who do you live with?

In your family, how do you get along with the easiest? Who do you find it the most difficult to get along with?

Would you consider your family chaotic or calm? Would you consider it loving or hostile?

What is your family's communication style? Passive, aggressive, or assertive?

Assertive people respectfully share their opinions while listening to others. Passive people avoid conflict and withhold their opinion. Aggressive people attack or ignore others' opinions in favor of their own.

Have you ever run away from home?

Have you ever been kicked out of your house?

Are there any mental health issues or drug or alcohol use/abuse in your home?

Does anyone have a severe physical health issue or any severe financial difficulties at home?

DOMAIN 5 | MENTAL HEALTH

Have you ever seen a counselor? When, who, and what for? Was it a good experience?

Have you ever been diagnosed with a mental health disorder or been prescribed any medication for mental or behavioral health?

Are you currently taking any medication for mental or behavioral health? How do you feel about taking them?

Do you ever hear people or voices who might not be there?

Do you ever have a significant struggle with eating, sleeping, or concentrating?

DOMAIN 6 | SELF

Can you name three of your strengths? What are you strong in?

Can you name three weaknesses? What do you struggle with?

Is there anything that you are just so-so at?

On a scale of one to ten, how well would you say that you cope with life in general?

If how well you are coping with life is compared to someone swimming, would you say that you are swimming extremely well, swimming poorly, holding onto a buoy in rough waters, or drowning?

DOMAIN 7 | SUPPORT

Can you name three areas you would like support from us?

Appendix D. Youth Diversion Program Moving Forward Form

Youth Diversion Program | Moving Forward

Student Name: _____ Date: _____

Now that you have completed this program, would you like to continue using substances, cut down on using substances, or quit using substances?

	Continue Using Substances
	Cut down On Using Substances
	Quit Using Substances

What are the good things about making my desired change?

What are the downsides to making this change?

What are the three best reasons to make this change?

On a scale of 1 to10, how important would it be to make this change?

What are three steps that you can take to make this change?

Appendix E. Youth Diversion Program Exit Survey

Youth Diversion Program

Please submit feedback regarding the Youth Diversion Program.

humboldtcosheriff@gmail.com Switch account

Not shared

* Indicates required question

Demographics

Grade Level *

	7th	8th	9th	10th	11th	12th
Grade	○	○	○	○	○	○

Age *

	12	13	14	15	16	17	18
Age	○	○	○	○	○	○	○

Rate The Coordinator

I was treated respectfully by the coordinator. *

- ○ Disagree
- ○ Agree

I felt that the coordinator protected my right to privacy. *

- ◯ Disagree
- ◯ Agree

I felt like the coordinator genuinely understood my problems, thoughts and feelings. *

- ◯ Disagree
- ◯ Agree

The coordinator and I worked well together. *

- ◯ Disagree
- ◯ Agree

I felt comfortable talking about my issues with the coordinator. *

- ◯ Disagree
- ◯ Agree

The coordinator helped me to find my own solutions to my problems. *

- ◯ Disagree
- ◯ Agree

Rate The Program

I have learned new skills to help me manage future problems because of the Youth Diversion Program. *

- ◯ Disagree
- ◯ Agree

I have learned new skills to help me manage my coping skills and behaviors in the classroom because of the Youth Diversion Program. *

- ◯ Disagree
- ◯ Agree

I have gained new knowledge into the process of addiction because of the Youth Diversion Program. *

- ◯ Disagree
- ◯ Agree

The circumstances that brought me to the Youth Diversion Program have improved as a result of the program. *

- ◯ Disagree
- ◯ Agree

I am satisfied with the accomplishments that I made with the Youth Diversion Program. *

- ◯ Disagree
- ◯ Agree

My academic performance has improved as a result of my participation in the Youth Diversion Program. *

- ◯ Disagree
- ◯ Agree

I could have done more to make the Youth Diversion Program more useful for me. *

- ◯ Disagree
- ◯ Agree

The coordinator could have done more to make the Youth Diversion Program more useful for me. *

- ◯ Disagree
- ◯ Agree

Improvement

Suggestions for Improvement

Your answer

Appendix F. Environmental Reclamation Plans

Pump Iron Annex

Pump Iron Annex is a multi-year public land Cannabis cultivation site (PLCCS) located on the Hoopa Valley Indian Reservation in Humboldt County, CA. It is a historic site provided by Hoopa Tribal Forestry. The site was last active in 2019 and was never eradicated. There is a lot of intact hose in the plot.

Location of PLCCS Features:

Pump Iron Annex 41 06.388N 123 35.615W
Plot 1 41 06.358N 123 35.597
Trash Pit 1 41 06.375N 123 35.598W
Trash Pit 2 41 06.346N 123 35.594W
Processing Area 41 06.360N 123 35.591W
Source 41 06.350N 123 35.497W

Access:
41 06.448N 123 35.536W

Estimated Personnel Required:
4

Trash Estimate:
5 55-gal. bags (approximately 200 lbs.)

Irrigation Source:
Unknown

Irrigation Pipe Estimate:
At least 800 meters (thick brush made it difficult to provide an accurate estimate)

Hazardous Materials:
None

Oak Knob Complex 2014

Oak Knob Complex 2014 is a public land Cannabis cultivation site (PLCCS) located on the Six Rivers National Forest in Humboldt County, CA. The site was eradicated and reclaimed in 2014, and was revisited based on reports that the site had been reactivated. No evidence of additional post-reclamation cultivation was discovered but a sprayer and minimal refuse were documented during the revisit.

Location of PLCCS Features:

Trash: N40 51.878 W123 35.968

Access:
40 51.896N 123 36.003W

Estimated Personnel Required:
2

Trash Estimate:
1 55-gal. bag (less than 40 lbs.)

Irrigation Source:
Already reclaimed

Irrigation Pipe Estimate:
50 meters

Hazardous Materials: One 4-gallon sprayer was discovered on-site and staged at N40 51.878 W123 35.968. Following confirmatory toxicological testing, the sprayer tested positive for malathion.

Mill Creek USFS

Mill Creek USFS is a public land Cannabis cultivation site (PLCCS) in the Six Rivers National Forest in Humboldt County, CA. The site is moderate in size and requires an easy one kilometer hike down a decommissioned road and the site is located approximately 100 meters off the road. The site was eradicated on 9/1/2016 and has one main camp, five plots, and an in-stream reservoir. The site was partially burned in 2020 by the Red Salmon fire complex. While the plots are obvious in Google Earth's 2016 imagery, no pipe was discovered indicating the pipe is likely either burned or buried below ground.

Location of PLCCS Features:

Plot 1: N41 08.556 W123 32.259
Plot 2: N41 08.492 W123 32.480
Plot 3: N41 08.517 W123 32.378
Plot 4: N41 08.564 W123 32.220
Plot 5: N41 08.417 W123 32.582
Plot 6: N41 08.401 W123 32.623
Camp 1: N41 8.776 W123 32.924
Trash: N41 08.498 W123 32.404
Burned Pipe: N41 08.425 W123 32.571

Access:
41 8.776N 123 32.924W

Estimated Personnel Required:
6

Trash Estimate:
10 55-gal. bags (approximately 450 lbs.)

Irrigation Source:
Source 1: N41 08.513 W123 32.483
Source 2: N41 08.572 W123 32.305

Irrigation Pipe Estimate:
250 meters

Hazardous Materials:

Two sprayers were discovered within the Camp area. They were mitigated, set aside and sampled for confirmatory toxicological analysis. The result are currently pending.

Long Ridge

Long Ridge is a cultivation site on the Hoopa Valley Indian Reservation from 2016. The site is of small size and is accessed by an approximately 315 meter hike. The site has two old plots that are overgrown by vegetation with little trash and irrigation piping. The infrastructure discovered on-site is minimal enough that all site refuse can be manually packed and removed from the site with two people.

Location of Site Features:

Plot 1: 41° 07.353'N 123° 34.1916'W
Plot 2: 41° 07.3878'N 123° 34.122'W

Access:
41° 07.523'N 123° 34.284'W

Estimated Personnel Required:
2

Trash Estimate:
2 55-Gallon bags

Source:
Unknown.

Irrigation Pipe Estimate:
25 meters plus one roll of approximately 150m

Hazardous Materials:
No hazardous materials discovered at site.

Estimated Cost: $1,000

CDFW_82

CDFW 82 is an older public land Cannabis cultivation site (PLCCS) located on the Hoopa Valley Indian Reservation in Humboldt County, CA. The site was eradicated by law enforcement officials in either 2010 or 2011. During the assessment, two plots were discovered but a very low amount of trash and piping was documented potentially not warranting reclamation efforts.

Location of PLCCS Features:

Plot 1: N41 05.692 W123 35.121
Plot 2: N41 05.752 W123 35.139

Access:
41 05.827N 123 35.264W

Estimated Personnel Required:
1

Trash Estimate:
0.5 55-gal. bags (approximately 20 lbs.)

Irrigation Source:
Unknown

Irrigation Pipe Estimate:
10 meters; mostly drip irrigation pipe

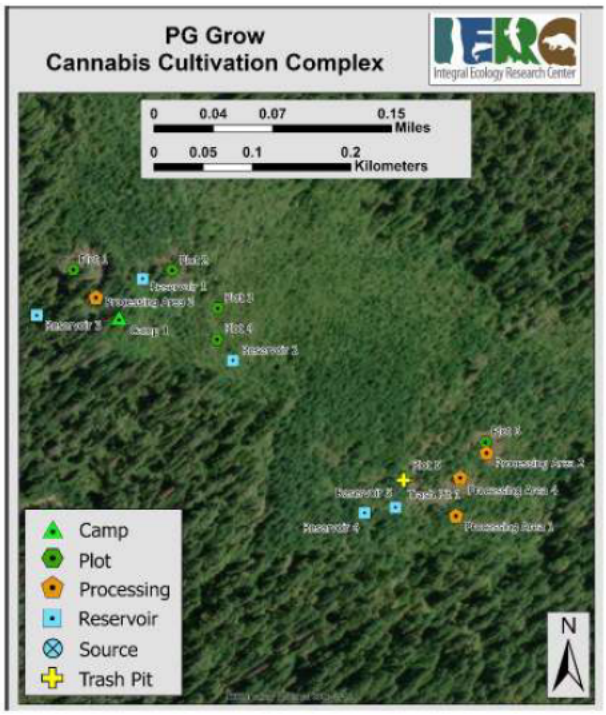
Hazardous Materials:
None

PG Grow

PG Grow is a cultivation site in the Six Rivers National Forest. The site is of moderate size and is accessed by approximately about 160 meters hike. Site has 6 plots, 4 processing areas ("Procs. Area" below), 5 reservoirs, and a trash pit. The site will require a helicopter for reclamation.

Location of TMCC Features:

Camp 1: 40° 47.308'N 123° 39.063'W
Plot 1: 40° 47.333'N 123° 39.097'W
Plot 2: 40° 47.335'N 123° 39.026'W
Plot 3: 40° 47.315'N 123° 38.992'W
Plot 4: 40° 47.298'N 123° 38.991'W
Plot 5: 40° 47.226'N 123° 38.852'W
Plot 6: 40° 47.247'N 123° 38.795'W
Proc. Area 1: 40° 47.206'N 123° 38.814'W
Proc. Area 2: 40° 47.241'N 123° 38.794'W
Proc. Area 3: 40° 47.318'N 123° 38.080'W
Proc. Area 4: 40° 47.227'N 123° 38.812'W
Reservoir 1: 40° 47.329'N 123° 39.047'W
Reservoir 2: 40° 47.287'N 123° 38.979'W
Reservoir 3: 40° 47.307'N 123° 39.122'W
Reservoir 4: 40° 47.206'N 123° 38.880'W
Reservoir 5: 40° 47.209'N 123° 38.858'W
Trash Pit 1: 40° 47.224'N 121° 33.540'W



Access:
40° 47.238'N 123° 39.203'W

Estimated Personnel Required:
12

Trash Estimate:
50 55-Gallon bags

Source:
Unknown.

Irrigation Pipe Estimate:
5750 meters (3.5 miles) estimated.

Hazardous Materials:
Six sprayers texted positive for malathion, malaoxon, and chlorothalonil. Two of those sprayers also tested positive for methamidophos. The sprayers are located at Plots 1 and 6, Camp 1, and Reservoir 1.

Appendix G. Environmental Reclamation Report

Q

PG Grow Public Land Cannabis Cultivation Complex

Environmental Damage and Hazardous Materials Report

Prepared by Integral Ecology Research Center (IERC)

Corresponding Supervisor: Greta Wengert (gwengert@iercecology.org)

Date Visited by IERC: 07/27/2022
Complex Name: PG Grow Cannabis Cultivation Complex (also known as Spike Mountain)
Location: Six Rivers National Forest, Lower Trinity Ranger District, Humboldt County, CA
Integral Ecology Research Center Scientists: Dr. Greta Wengert, Kevin Smith, Haley Jones

Background

During an aerial imagery review of portions of the Six Rivers National Forest in 2020 and 2021, Integral Ecology Research Center (IERC) scientists located multiple forest alterations and clearing of vegetation in the area of Spike Mountain on the Lower Trinity Ranger District that was consistent with known imagery of previously detected trespass cannabis cultivation plots in other locations (Figure 1). Google Earth imagery suggested that many of the clearings occured in 2016 and 2019. After two follow-up reconnaissance flights by U.S. Forest Service Law Enforcement and Investigations and Humboldt County Sheriff's Office Marijuana Enforcement Team (HCSO-MET), a large cannabis cultivation complex was confirmed at the site.

On July 27, 2022, HCSO-MET and scientists from IERC entered the PG Grow Cannabis Cultivation Complex ("Complex") on the Six Rivers National Forest at approximate coordinates 40° 47.333'N, 123° 39.097'W. Upon entry, HCSO-MET determined that the Complex was not currently active. Three IERC scientists were present to conduct environmental sampling, document all grow site features and environmental damages at the Complex, and identify and potentially mitigate any hazardous materials. IERC scientists identified expiration dates on refuse that indicated that this complex was likely active in 2016, 2020, and 2021.

All discovered items were documented and left in-place. Coordinates for all site infrastructure and major features are listed and mapped in Appendix A.

Environmental Damage

Water Diversions: Irrigation water was being diverted from an unknown source that was unvisited by IERC scientists, but likely originates from several hundred meters from the upslope-most cultivation plot.

Water Storage Reservoirs: Five above-ground reservoirs, with storage capacities of 1,915 (Reservoir 1), 1,100 (Reservoir 2), 3,366 (Reservoir 3), 4,336 (Reservoir 4), and 1,303 (Reservoir 5) gallons were documented by IERC scientists. Water was present only within Reservoir 5 (Figure 2). Reservoirs 2 and 3 had their tarps removed, and were likely used in cultivation seasons before 2021.

Cultivation Plots: Six cultivation plots were discovered within the Complex. The area of two plots were measured to be 0.34 (plot 1) and 0.16 (Plot 6) acres in size. Two of the six plots appeared to not be active in 2021. The understory had been cleared of most native vegetation and all trees and small shrubs left within the plots were trimmed back to increase space and exposure to sunlight for *Cannabis* spp. cultivation (Figure 3).

Integral Ecology Research Center

Camps: One camp (Camp 1) was discovered within the Complex (Figure 4). The camp contained a cooking area with propane tanks, stove, sleeping bags, and two tents. A plastic grocery bag containing *Cannabis* spp. was located in Camp 1 and sampled. Four processing areas with drying wires and trim were located throughout the Complex.

Total Refuse Estimate: The total amount of refuse discovered within this Complex is conservatively estimated at 3,359 lbs. The volume of refuse (not including irrigation pipe) is estimated at fifty 55-gallon trash bags equating to roughly 2,785 lbs., and length of observed irrigation pipe is at least 3 miles equating to roughly 574 lbs.

Hazardous Materials and Contamination Monitoring

Labeled Hazardous Materials

Fertilizer: Evidence of 4,271 lbs. of concentrated soluble and 17.5 gallons of liquid fertilizer were documented by IERC scientists (Figure 5).

Other: One empty 40 fl oz. container of Gamma-cyfluthrin (Brand name: Spectracide) was found in Camp 1 and documented by IERC scientists (Figure 6).

Toxicological Sampling

Toxicological results for all 12 samples collected by IERC scientists at the Complex are presented in Appendix B.

Unlabeled Containers and Sprayers: Six 4-gallon backpack sprayers were discovered within the Complex and 3 pooled samples of two sprayers each were collected from them. The sprayers were documented and left in place. The sprayer samples all tested positive for malathion, malaoxon, and chlorothalonil with two of the three samples also testing positive for methamidophos (Accession IDs: 15030, 15018, 15020; Figure 7). Malathion is an insecticide available over the counter while malaoxon is a more toxic breakdown product of malathion. Chlorothalonil is a broad-spectrum fungicide. Methamidophos is an acutely toxic insecticide with no legal uses in the United States, currently.

Two unlabeled container samples were collected from this Complex. One pooled sample consisting of a 16 oz. empty Pepto Bismol bottle and one ~32 oz. glass jar with a white powder was collected in Camp 1 (Accession ID: 15022; Figure 6). One sample from an aluminum can with holes punched in it was taken from near Reservoir 4 (Accession ID: 15029).

Environmental Contamination Monitoring: Seven environmental media samples were collected for confirmatory analysis. Soil samples were collected within plots 1, 2, 5, and 6. A plastic bag of processed *Cannabis* spp. was discovered in Camp 1 and a sample was collected (Figure 8). Desiccated plants from 2021 were also sampled opportunistically from Plot 1 and Processing Area 1. Malathion was detected in one *Cannabis* spp. plant sample (Accession ID: 15024).

Figure 1. Google Earth Imagery showing vegetation cleared and removed between 2016 and 2019 (white arrows) documented by Integral Ecology Research Center scientists of the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

Figure 2. Reservoir 1 (top) and Reservoir 5 (bottom) documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

Figure 3. Plot 1 with understory cleared of most native vegetation; all trees and small shrubs left within the plot were trimmed back to increase space and exposure to sunlight for *Cannabis* spp. (top). Photograph (bottom) of a drying area found within Plot 1 documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

Figure 4. Large amounts of refuse, propane tanks, stove, sleeping bags, and three tents within Camp 1 documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

Figure 5. Large amounts of fertilizer refuse near one of the reservoirs documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

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Figure 6. Photograph of two suspicious containers, a pesticide and fungicide (top), and a aluminum can with holes punched (bottom) documented and sampled by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA. Toxicological results are provided in Appendix B.

Figure 7. Photograph of two of the five 4-gallon sprayers (Accession ID: 15018) located within Camp 1 (top), and another 4-gallon sprayer found near Reservoir 1 (bottom) documented and sampled by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA. Toxicological results are provided in Appendix B.

Figure 8. Photograph of a bag containg processed *Cannabis* spp. found in Camp 1 documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

APPENDIX A

List and maps of all grow site features and infrastructure and their coordinates discovered and documented by Integral Ecology Research Center scientists on July 27, 2022 within the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA.

PG Grow Site Features

Thursday, September 29, 2022
8:41:14 AM

Site Feature	Coordinates
Camp 1	40 47.308N 123 39.063W
Plot 1	40 47.333N 123 39.097W
Plot 2	40 47.335N 123 39.026W
Plot 3	40 47.315N 123 38.992W
Plot 4	40 47.298N 123 38.991W
Plot 5	40 47.226N 123 38.852W
Plot 6	40 47.247N 123 38.795W
Processing Area 1	40 47.206N 123 38.814W
Processing Area 2	40 47.241N 123 38.794W
Processing Area 3	40 47.318N 123 39.080W
Processing Area 4	40 47.227N 123 38.812W
Reservoir 1	40 47.329N 123 39.047W
Reservoir 2	40 47.287N 123 38.979W
Reservoir 3	40 47.307N 123 39.122W
Reservoir 4	40 47.206N 123 38.880W
Reservoir 5	40 47.209N 123 38.858W
Trash Pit 1	40 47.224N 123 38.853W

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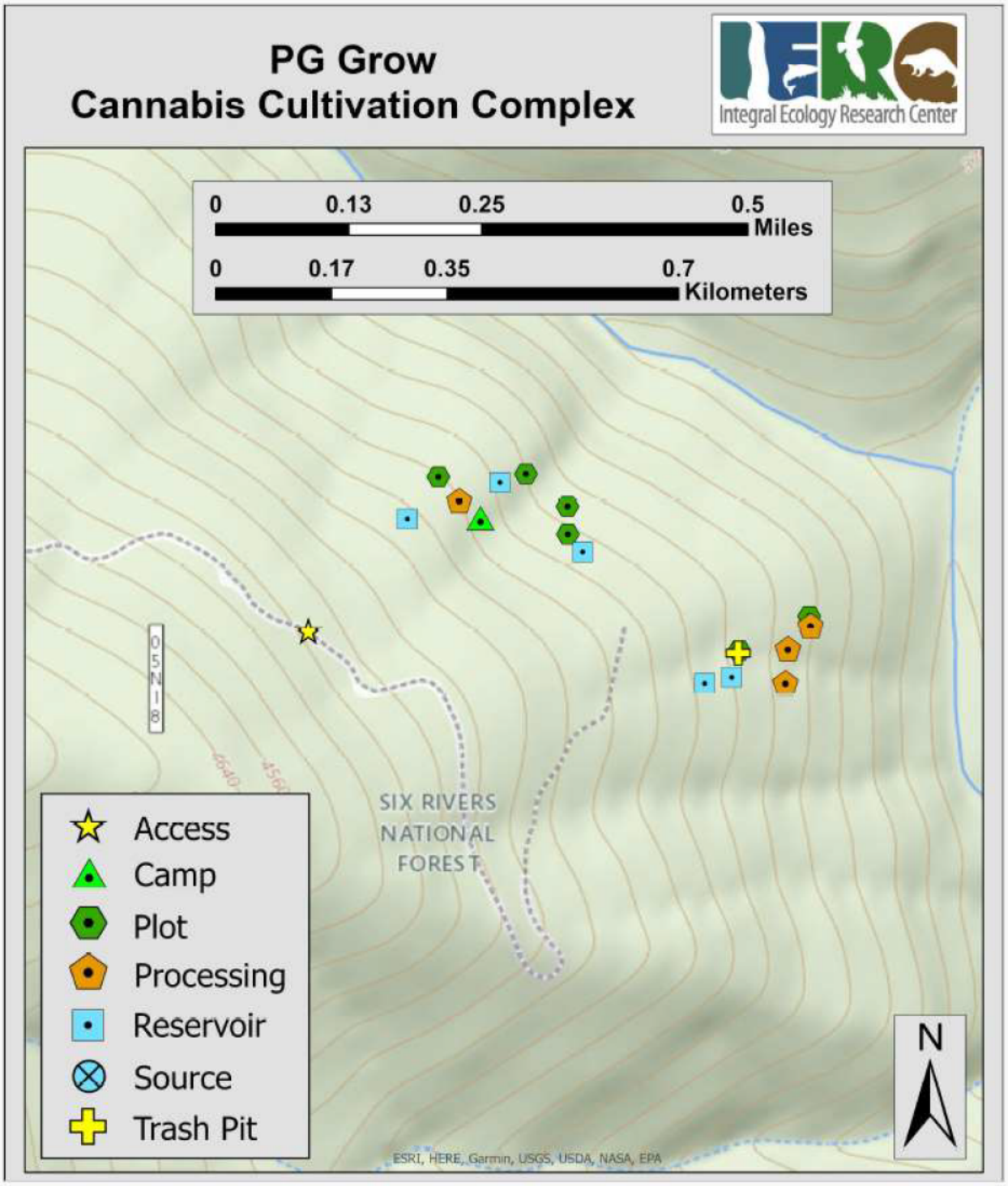
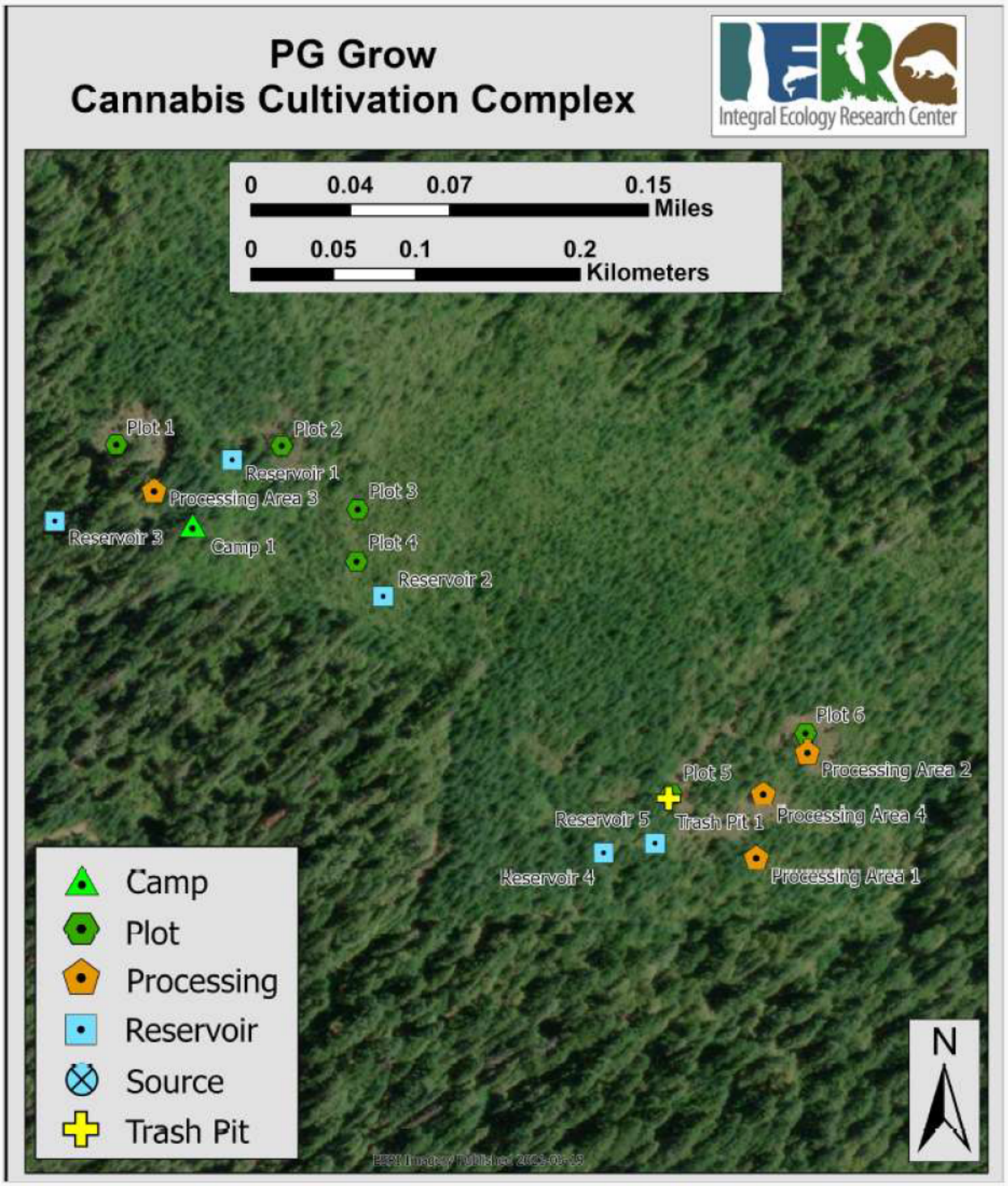

PG Grow
Cannabis Cultivation Complex
Integral Ecology Research Center
0 0.13 0.25 0.5 Miles
0 0.17 0.35 0.7 Kilometers
SIX RIVERS
NATIONAL
FOREST
Access
Camp
Plot
Processing
Reservoir
Source
Trash Pit
N
ESRI, HERE, Garmin, USGS, USDA, NASA, EPA


PG Grow
Cannabis Cultivation Complex
Integral Ecology Research Center
0 0.04 0.07 0.15
Miles
0 0.05 0.1 0.2
Kilometers
Plot 1
Plot 2
Reservoir 1
Processing Area 3
Plot 3
Reservoir 3
Camp 1
Plot 4
Reservoir 2
Plot 6
Processing Area 2
Plot 5
Reservoir 5
Trash Pit 1
Processing Area 4
Reservoir 4
Processing Area 1
Camp
Plot
Processing
Reservoir
Source
Trash Pit
N

APPENDIX B

Collection dates, nearest site feature (see Appendix A), coordinates, and results listed by sample type for toxicology samples collected by Integral Ecology Research Center (IERC) scientists from the PG Grow Public Land Cannabis Cultivation Complex located on the Six Rivers National Forest in Humboldt County, CA on July 27, 2022. Samples were processed by AGQ, Inc. for a suite of pesticides known to be used within cannabis cultivation complexes. The 'IERC Reference ID' column is used only for internal IERC sample tracking purposes and is not referenced within this report.

Cannabis spp. plant samples and ten mL of soil were collected and composited from each of five pooled planting holes along each 50 m transect. Sterile dacron swabs were used to collect container and sprayer samples. Following collection, all samples were stored in a -40F freezer before submission to the laboratory for confirmatory analysis.

PG Grow Toxicology Results

Thursday, September 29, 2022
8:26:51 AM

Accession ID	Sample Type	IERC Reference ID	Date Collected	Site Feature	Coordinates	Lab Results*
15029	Container	1_GMW	7/27/2022	Reservoir 4	40 47.213N 123 38.890W	Chlorothalonil
15022	Container	1_KPS	7/27/2022	Camp 1	40 47.308N 123 39.063W	Chlorothalonil, Malaoxon, Malathion
15033	Plant	1_HMJ	7/27/2022	Plot 1	40 47.330N 123 39.080W	No Analytes Detected
15024	Plant	1_KPS	7/27/2022	Camp 1	40 47.308N 123 39.063W	Malathion
15025	Plant	2_KPS	7/27/2022	Processing Area 1	40 47.318N 123 39.080W	No Analytes Detected
15028	Soil	1_GMW	7/27/2022	Plot 5	40 47.227N 123 38.848W	No Analytes Detected
15031	Soil	1_HMJ	7/27/2022	Plot 6	40 47.236N 123 38.788W	No Analytes Detected
15026	Soil	1_KPS	7/27/2022	Plot 2	40 47.338N 123 39.031W	No Analytes Detected
15032	Soil	2_HMJ	7/27/2022	Plot 1	40 47.330N 123 39.080W	Malathion
15030	Sprayer	1_HMJ	7/27/2022	Reservoir 1	40 47.204N 123 38.880W	Chlorothalonil, Malaoxon, Malathion, Methamidophos
15018	Sprayer	1_KPS	7/27/2022	Camp 1	40 47.308N 123 39.063W	Chlorothalonil, Malaoxon, Malathion, Methamidophos
15020	Sprayer	3_KPS	7/27/2022	Plot 1	40 47.338N 123 39.096W	Chlorothalonil, Malaoxon, Malathion

*Additional analytes may have been detected that fall outside the scope of the reporting parameters.

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