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EXECUTIVE OFFICE
POLICE ADMINISTRATION BUILDING
100 WEST FIRST STREET, SUITE 134
LOS ANGELES, CA 90012-4112

(213) 236-1400 PHONE
(213) 236-1410 FAX
(213) 236-1440 TDD

July 12, 2022

BPC #22-145

The Honorable Eric Garcetti
Mayor, City of Los Angeles
City Hall, Room 303
Los Angeles, CA 90012

The Honorable City Council
City of Los Angeles, Room 395
c/o City Clerk's Office

Dear Honorable Members:

RE: TRANSMITTAL OF THE GRANT APPLICATION AND AWARD ACCEPTANCE FOR
THE 2022/24 CHP CANNABIS TAX FUND GRANT PROGRAM – TOXICOLOGY
LABORATORY

At the regular meeting of the Board of Police Commissioners held Tuesday, July 12, 2022 the Board APPROVED the Department's report relative to the above matter.

This matter is being forwarded to you for review and approval.

Respectfully,

BOARD OF POLICE COMMISSIONERS

A handwritten signature in blue ink that reads "Maria Silva".

MARIA SILVA
Commission Executive Assistant

Attachment

c: Chief of Police

INTRADEPARTMENTAL CORRESPONDENCE

REVIEWED BY: *Richard M. Tefank* 7/5/22
RICHARD M. TEFANK
EXECUTIVE DIRECTOR
DATE

July 6, 2022
1.14

RECEIVED
JUL 05 2022
POLICE COMMISSION

TO: The Honorable Board of Police Commissioners

FROM: Chief of Police

SUBJECT: TRANSMITTAL OF THE GRANT APPLICATION AND AWARD ACCEPTANCE FOR THE 2022/2024 CHP CANNABIS TAX FUND GRANT PROGRAM – TOXICOLOGY LABORATORY

RECOMMENDED ACTIONS

1. That the Board of Police Commissioners (Board) REVIEW and APPROVE this report.
2. That the Board TRANSMIT the attached grant application and award for the Fiscal Year (FY) 2022/2024 Cannabis Tax Fund Grant Program – Toxicology Laboratory pursuant to Administrative Code Section 14.6(a), to the Mayor, Office of the City Administrative Officer (CAO), Chief Legislative Analyst, and to the City Clerk for committee and City Council consideration.
3. That the Board REQUEST the Mayor and City Council to:
 - A. AUTHORIZE the Chief of Police or his designee to retroactively apply for and ACCEPT the FY 2022/2024 Cannabis Tax Fund Grant Program – Toxicology Laboratory award in the amount of \$450,000 from the State of California, Department of California Highway Patrol for the period of July 1, 2022 through June 30, 2024;
 - B. AUTHORIZE the Chief of Police or his designee to execute an Award Agreement with the Department of California Highway Patrol, subject to the City Attorney’s approval as to form;
 - C. AUTHORIZE the Los Angeles Police Department (LAPD) to spend up to \$450,000 in accordance with the grant award agreement;
 - D. AUTHORIZE the Controller to set up a grant receivable and appropriate \$450,000 to appropriation account number to be determined in Fund No. 339, Department No. 70, for the disbursement of the FY 2022/2024 Cannabis Tax Fund Grant Program – Toxicology Laboratory funds;

- E. AUTHORIZE the LAPD to submit grant reimbursement requests to the grantor and deposit grant receipts in Fund No. 339, Department No. 70; and,
- F. AUTHORIZE the LAPD to prepare the Controller instructions for any technical adjustments, subject to the approval of the CAO, and INSTRUCT the Controller to implement the instructions.

DISCUSSION

The Department of California Highway Patrol's (CHP) Cannabis Tax Fund Grant Program provides education, prevention, and enforcement of impaired driving laws related to driving under the influence of alcohol and other drugs, including cannabis. For FY 2022/2024, the CHP extended the funding opportunity to toxicology laboratories to improve and advance the standardization of practices in toxicology laboratories supporting and aiding in the enforcement of Driving Under the Influence (DUI)/Driving Under the Influence of Drugs (DUID) traffic laws related to alcohol and other drugs, including cannabis and cannabis products.

The Forensic Science Division was awarded \$450,000 to continue in its efforts to implement the Cannabinoid Confirmation Test Improvement Program. The goal is for the LAPD Toxicology Unit to (1) be fully compliant with the standards for screening DUID blood specimens; (2) include the top five most prevalent fentanyl analogues in the DUID screening panel at forensically relevant cutoffs; (3) include common designer benzodiazepines, phencyclidine (PCP), and ketamine in the DUID screening panel at forensically-relevant cutoffs; and, (4) use the same amount of blood specimen to provide more screening results.

Funds will be used to purchase a Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph. It is a high-resolution mass spectrometer that offers exceptional sensitivity, resolving power, accurate mass determination, and targeted drug detection. It will increase the Toxicology Unit's ability to be fully compliant with sensitivity recommendations and ensure investigators receive accurate and comprehensive laboratory results, ultimately improving driving safety within the City of Los Angeles.

If you have any questions regarding this transmittal, please contact Senior Management Analyst Stella Larracas, Officer in Charge, Grants Section, at (213) 486-0380.

Respectfully,



MICHEL R. MOORE
Chief of Police

**BOARD OF
POLICE COMMISSIONERS**
Approved *July 12, 2022*
Secretary *Maria Silva*

Attachments

INTRADEPARTMENTAL CORRESPONDENCE

July 1, 2022

1.14

TO: Chief of Police

FROM: Director, Office of Constitutional Policing and Policy

SUBJECT: TRANSMITTAL OF THE GRANT APPLICATION AND AWARD
ACCEPTANCE FOR THE 2022/2024 CHP CANNABIS TAX FUND
GRANT PROGRAM – TOXICOLOGY LABORATORY

Attached for your approval and signature is an Intradepartmental Correspondence to the Board of Police Commissioners, requesting approval to transmit the attached Grant Application and Award for the Fiscal Year (FY) 2022/2024 Cannabis Tax Fund Grant Program – Toxicology Laboratory, pursuant to Administrative Code Section 14.6(a), to the Mayor, Office of the City Administrative Officer, Office of the Chief Legislative Analyst and to the City Clerk for Committee and City Council consideration. The Los Angeles Police Department is requesting authorization to accept the grant funding in the amount of \$450,000 from the State of California for the period of July 1, 2022 through June 30, 2024.

The Forensic Science Division was awarded \$450,000 to improve and advance the standardization of practices in toxicology laboratories supporting and aiding in the enforcement of Driving Under the Influence (DUI)/Driving Under the Influence of Drugs (DUID) traffic laws related to alcohol and other drugs, including cannabis and cannabis products.

The goal is for the LAPD Toxicology Unit to (1) be fully compliant with the standards for screening DUID blood specimens; (2) include the top five most prevalent fentanyl analogues in the DUID screening panel at forensically relevant cutoffs; (3) include common designer benzodiazepines, PCP, and ketamine in the DUID screening panel at forensically-relevant cutoffs; and (4) use the same amount of blood specimen to provide more screening results.

Funds will be used to purchase one new Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph. It is a high-resolution mass spectrometer (HRMS) that offers exceptional sensitivity, resolving power, accurate mass determination, and targeted drug detection. It will increase the Toxicology Unit's ability to be fully compliant with sensitivity recommendations and ensure investigators receive accurate and comprehensive laboratory results, ultimately improving driving safety within the City of Los Angeles.

If you have any questions, please contact Senior Management Analyst Stella Larracas, Officer in Charge, Grants Section, at (213) 486-0380.



LIZABETH RHODES, Director
Office of Constitutional Policing and Policy

Attachments

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

601 North 7th Street
Sacramento, CA 95811
(916) 843-3330
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)



June 10, 2022

Barbra Montesquieu
Attn: Grants
Los Angeles Police Department, Fiscal Group
P.O. Box 30158, Room 774
Los Angeles, CA 90030

Dear Ms. Montesquieu:

On behalf of the California Highway Patrol (CHP), it is my pleasure to inform you, the Los Angeles County Sheriff's Department, is conditionally approved for Cannabis Tax Fund Grant Program (CTFGP) funding in the amount of \$450,000.00. The purpose of this grant funding is to help your agency reduce and mitigate the impacts of impaired driving in your community.

The official Grant Agreement for signature is forthcoming. In order to execute your Grant Agreement, please provide documentation from a local governing body, authorizing your organization to receive this grant funding, to the Cannabis Grants Unit, by email at CGUGrants@chp.ca.gov, as soon as possible. Refer to California Code of Regulations Title 13, Division 2, Chapter 13, Section 1890.13(g) for additional information.

The CHP looks forward to partnering with you and your agency on this project in an effort to make California's roadways a safer place to travel. If you have any questions, please feel free to contact the Cannabis Grants Unit at (916) 843-4360.

Sincerely,

A handwritten signature in blue ink that reads "K. M. Davis".

K. M. DAVIS, Chief
Enforcement and Planning Division





City of Los Angeles - Los Angeles Police Department

Prepared by Los Angeles Police Department
for California Highway Patrol (CHP) Toxicology: Crime Laboratories FY 2022/2023

Primary Contact: Barbra Montesquieu



Opportunity Details

Opportunity Information

Title

Toxicology: Crime Laboratories FY 2022/2023

Description

Toxicology Laboratory grants provide assistance to California county, and/or city crime laboratories that service local governments to improve and advance the standardization of practices in toxicology laboratories supporting and aiding in the enforcement of Driving Under the Influence (DUI)/Driving Under the Influence of Drugs (DUID) traffic laws related to alcohol and other drugs, including cannabis and cannabis products.

Awarding Agency Name

California Highway Patrol

Agency Contact Name

Cannabis Grants Unit

Agency Contact Phone

916-843-4376

Agency Contact Email

CGUGrants@chp.ca.gov

Opportunity Manager

Cannabis Grants Unit (CGU)

Opportunity Posted Date

1/7/2022

Assistance Listings Number

Public Link

<https://www.gotomygrants.com/Public/Opportunities/Details/3ce15a3b-5160-478b-b103-3b6eac01e7bb>

Is Published

Yes

Funding Information

Funding Sources

State

Funding Source Description

With the passage of Proposition 64 in 2016, The Control, Regulate, and Tax Adult Use Marijuana Act (AUMU), California voters mandated the state to set aside funding for the CHP to provide grants to local governments and qualified non-profit organizations for the education, prevention, and enforcement of impaired driving laws pursuant to Section 34019 (f)(3)(B) Revenue and Taxation Code (RTC).

Funding Restrictions

State Agencies/Departments please refer to Section 34019 (f)(3)(b) RTC and California Code of Regulations, Title 13, Division 2, Chapter 12, for additional information.

Award information

Award Range

\$2,000,000.00 Ceiling



Award Period
07/01/2022 - 06/30/2024

Award Type
Competitive

Indirect Costs Allowed
No

Matching Requirement
No

Submission Information

Submission Window
01/07/2022 8:00 AM - 03/18/2022 11:59 PM

Submission Timeline Type
One Time

Submission Timeline Additional Information

Applicants are advised not to wait until the deadline to ask submittal questions since the CHP Cannabis Grant Unit cannot guarantee immediate response and the online system will automatically close at 5:00 PM PST. Once an application has been submitted, no corrections or adjustments may be made.

Question Submission Information

Question Submission Email Address
CGUGrants@chp.ca.gov

Eligibility Information

Eligibility Type
Public

Additional Eligibility Information

California county and/or city crime laboratories conducting forensic toxicology testing related to DUI/DUID.

Additional information

Additional Information URL
<https://www.chp.ca.gov/programs-services/programs/cannabis-tax-fund-grant-program>

Award Administration information

State Award Notices
Award announcements will be made May thru June 2022.

Administrative and National Policy Requirements

The California Highway Patrol (CHP) adopted regulations within Title 13 of the California Code of Regulations (CCR), Division 2, by adding Chapter 13, which govern the CHP Cannabis Tax Fund Grant Program.

These regulations outline: grant provisions, grant project types, specific application requirements, grant evaluation criteria, and necessary administrative procedures for the program.

Regulation can be found at:
<https://www.chp.ca.gov/programs-services/programs/cannabis-tax-fund-grant-program/program-regulations>



Reporting

Quarterly Reporting is required and is due within 14 calendar days after the close of each quarter.

First Quarter: July 1 thru September 30

Second Quarter: October 1 thru December 31

Third Quarter: January 1 thru March 31

Fourth Quarter: April 1 thru June 30



Project Information

Application Information

Application Name

City of Los Angeles - Los Angeles Police Department

Award Requested

\$450,000.00

Total Award Budget

\$450,000.00

Primary Contact Information

Name

Barbra Montesquieu

Email Address

n3202@lapd.online

Address

100 West First Street, Suite 1061
Los Angeles, CA 90012

Phone Number

(213) 486-0380



Project Description

1. Agency Representatives

Agency Section/Unit (subdivision) to administer Grant:
Los Angeles Police Department

Agency Representative

Please complete the following fields with appropriate Agency representatives, as applicable.

- The Authorized Official is authorized to enter into an agreement with signing authority.
- The Authorized Financial Contact maintains financial records, documentation and recipient of warrant.
- The Administrative Contact is responsible for day-to-day administration.

Note: Information requested is for application purposes only. Security Roles (titles) differ from those within the GMS.

Authorized Official Name (First and Last):

Michel R. Moore

Authorized Official Title:

Chief of Police

Authorized Official Address (street, city, state, zip code):

100 West First Street

Address for Payment Reimbursement (street, city, state, zip code):

LAPD, Fiscal Group, PO Box 30158, Rm 774 Attn: Grants, LA CA 90030

Authorized Official Phone Number:

213486-0150

Authorized Official Email Address:

grants@lapd.online

Authorized Financial Contact Name (First and Last):

Ms. Stella Larracas

Authorized Financial Contact Title:

Sr. Management Analyst II

Authorized Financial Contact Phone Number:

213-486-0380

Authorized Financial Contact Email Address:

N3371@lapd.online

Administrative Contact Name (First and Last):

Barbra Montesquieu

Administrative Contact Title:

Sr. Management Analyst

Administrative Contact Phone Number:

2134860380

Administrative Contact Email Address:



n3202@lapd.online



2. Senate/Assembly/Congressional/County Information

Instructions:

To determine the State Senate district(s) and State Assembly district(s), copy and paste the URL:
http://www.legislature.ca.gov/legislators_and_districts/districts/districts.html in your browser and search.

To determine the Congressional District(s), copy and paste the URL:
<https://www.govtrack.us/congress/members/CA> in your browser and search.

To make multiple selections, hold down the **Ctrl** key and click each one.

Select one or more of the State Senate districts where the proposed project activities will occur.

State Senate 18, State Senate 24, State Senate 25, State Senate 26, State Senate 27, State Senate 30, State Senate 33, State Senate 35

Select one or more of the California State Assembly districts where the proposed project activities will occur.

State Assembly 38, State Assembly 39, State Assembly 43, State Assembly 45, State Assembly 46, State Assembly 50, State Assembly 51, State Assembly 53, State Assembly 54, State Assembly 59, State Assembly 62, State Assembly 64, State Assembly 66, State Assembly 70

Select one or more of the California Congressional districts where the proposed project activities will occur.

California Congressional District 25, California Congressional District 28, California Congressional District 29, California Congressional District 30, California Congressional District 33, California Congressional District 34, California Congressional District 37, California Congressional District 40, California Congressional District 43, California Congressional District 44

Select one or more of the California Counties where the proposed project activities will occur.

Los Angeles

Population/residents in your jurisdiction.

4000000



3. Statistical Data

This form is for data collection only. Please ensure the responses provided below are accurate and align with the statistical data provided within the application.

If a question is not applicable, please input "0" or "N/A"

Approximately how many qualified analysts are conducting Driving Under the Influence (DUI)/Driving Under the Influence of Drugs (DUID) testing at your laboratory?*

	Estimate per month	Average per year
Number of Analysis	13	13

Approximately how many DUID cases does your laboratory analyze for drugs only?*

	Estimate per month	Average per year
Number of cases	80	960

Approximately how many DUI cases are does your laboratory analyze for alcohol only?*

	Estimate per month	Average per year
Number of cases	70	840

Approximately how many cases are tested for both alcohol and drugs?*

	Estimate per month	Average per year
Number of cases	25	300

Estimated turn around time for case analysis.*

	DUI case	DUID case	DUI/DUID case
Average number of days	3	35	40

Estimated DUI case backlog?*

	Estimate per month	Average per year
Number of cases	0	0

Approximately how many times each year does your laboratory provide court testimony related to DUI?*

	DUI cases	DUID cases	DUI/DUID cases
Number per year	100	40	15

Does your agency track which samples have an associated DRE evaluation performed?

- Yes
 No

If yes to the above, what is the percentage?

Does your laboratory make an administrative decision to stop testing if a blood alcohol concentration (BAC) result is at or above a specific BAC?



- Yes
- No

If yes to the question above, what is that BAC concentration result concentration?

When a customer requests "alcohol only" testing, the blood specimen is only screened for drugs when the blood alcohol result is less than or equal to 0.08 g%. When a customer requests "drugs and alcohol" testing, the testing is NOT stopped regardless of blood alcohol concentration.

Please list the top 10 drugs present in your laboratory current DUID case work (number 1-10; 1 = most prevalent), if unknown or not tracked, please provide any known information.

1. Cannabis (THC/THCCOOH)
2. Methamphetamine/Amphetamine
3. Cocaine (Cocaine/Benzoyllecogine/Cocaethylene)
4. Alprazolam
5. Fentanyl
6. Diazepam
7. Morphine
8. PCP
9. Oxycodone
10. Carisoprodol/Meprobamate

What equipment does your laboratory use (make/model)? How many of each?

Drug Screening

Tecan Freedom EVO 75 [Quantity 2]

Beckman Coulter AU480 [Quantity 1]

Drug Confirmation Testing

Sciex 3200 Triple Quadrupole with Agilent 1200 Series Liquid Chromatograph (LC/MS/MS) [Quantity 1]

Sciex 5500 Triple Quadrupole with ExionLC Liquid Chromatograph (LC/MS/MS) [Quantity 1]

Thermo Altis Quadrupole with Vanquish Liquid Chromatograph (LC/MS/MS) [Quantity 1]

Hewlett Packard Gas Chromatograph 6890 with Mass Spectrometer 5973 (GC/MS) [Quantity 1]

Agilent Technologies Gas Chromatograph 7890A with Mass Spectrometer 5975C (GC/MS) [Quantity 2]

Agilent Technologies Gas Chromatograph 7890B with Mass Spectrometer 5977B (GC/MS) [Quantity 2]

Agilent Technologies Gas Chromatograph 6890N with Mass Spectrometer 5975 (GC/MS) [Quantity 1]

Alcohol Analysis

Shimadzu GC-2010 Gas Chromatograph with Flame-Ionization Detector [Quantity 2]

What equipment is currently needed? Please provide details about the need and the equipment.

The Los Angeles Police Department's (LAPD) Toxicology (TOX) Unit receives approximately 1,260 DUID-related blood specimens for testing each year. The general testing process for these specimens involves two steps: first the blood specimen is screened for numerous drug classes using direct enzyme-linked immuno-sorbent assay (ELISA) technology and second, positive drug screening results are confirmed by a second analytical technique using mass spectrometry. The current ELISA-based drug screening procedure utilized in the first step has several inherent limitations including lack of specificity, lack of sensitivity, and analytical inflexibility. These technological limitations have been especially problematic in recent years due to increased poly-drug use, shifting drug trends (e.g. novel psychoactive substances/analogues), and the publishing of national standards by the American Academy of Forensic Sciences (AAFS) Standards Board (ASB) and the National Safety Council's (NSC) Alcohol, Drug, and Impairment Division. To overcome these problems, many laboratories have switched from immunoassay to high-resolution mass spectrometry (e.g. Time-of-Flight, Orbitrap) for drug screening.

To improve the drug screening procedure for DUID-related blood specimens the TOX Unit must purchase a liquid chromatograph with high-resolution mass spectrometer (HRMS). The Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph is designed to resolve drugs of interest from interferences, allowing for targeted drug screening and/or confirmation. With HRMS technology, the Orbitrap Exploris 120 is capable of discriminating ions of interest at very small mass increments with mass-to-charge ratios as low as m/z 40. As a result, this technology substantially reduces the likelihood of false positives and negatives when analyzing complex sample matrices like blood.

With the new technology described above, the TOX Unit will develop a comprehensive DUID drug screening panel that meets the NSC and ASB standard and includes fentanyl analogues (e.g. carfentanil), designer benzodiazepines (e.g. flualprazolam), phencyclidine (PCP), and ketamine.

If equipment is needed, will it be able to test for Delta-9-Tetrahydrocannabinol(THC), 11-Hydroxy-THC and Carboxy-THC?

- Yes
- No



If new equipment is purchased, will training be needed for staff?

- Yes
- No

If yes to above, what training will be needed?



4. Project Description

Provide a brief overview (a paragraph) of the proposed project. Include a summary of the problem, explanation of how the grant funding will be used, and the desired outcome(s).

The Los Angeles Police Department's (LAPD) Toxicology (TOX) Unit receives approximately 1,260 DUID-related blood specimens each year for testing. The drug testing process for these specimens involves two steps: first the blood specimens are screened for numerous drug classes using direct enzyme-linked immuno-sorbent assay (ELISA) technology and second, positive drug screening results are confirmed by a second analytical technique utilizing mass spectrometry. In 2020, the TOX Unit expanded the blood screening panel described in the first step to 15 ELISA assays, specifically to include all Tier 1 drugs as recommended by the National Safety Council's (NSC) Alcohol, Drug, and Impairment Division. While now compliant with this scope of target drugs, the TOX Unit has not been able to meet the NSC's drug screening sensitivity recommendations (i.e. cutoffs) due to poor cross-reactivity of certain drugs with the ELISA assays. Additionally, due to the inflexible nature of ELISA technology, the TOX Unit is not able to address customer requests for specific drugs not in the current scope. With funds acquired through the CHP Cannabis Tax Grant FY 22/23, the TOX Unit will purchase a Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph for the screening of blood specimens collected in DUID investigations. This new instrument will offer several improvements over the current immunoassay drug screening method including targeted screening, greater sensitivity, and ease of adding new analytes to the screening method. With the new Orbitrap technology, the LAPD's TOX Unit will fully meet the NSC (Tier 1) standards for drug screening on every DUID blood specimen, offering more positive findings to customers and eliminating the false negative reports. The new instrument also provides the technology for projects beyond the grant period to address specific customer requests, NSC Tier 2 drugs, drug-facilitated sexual assault testing standards, and future updates to national standards.



5. Problem Statement

Clearly identify the problem and/or need that will be addressed by the project. If applicable, provide statistical data to support the problem and/or need.

The Los Angeles Police Department's (LAPD) Toxicology (TOX) Unit receives approximately 1,325 blood specimens per year for drug testing, with 1,260 (95%) related to drug-impaired driving (DUID). The TOX Unit's general testing procedure for DUID blood specimens involves two steps: first the blood specimen is screened for drugs of abuse using direct enzyme-linked immuno-sorbent assay (ELISA) kits and second, positive drug screening results are confirmed by a second analytical technique using either a gas chromatograph with mass spectrometer (GC/MS) or a liquid chromatograph with tandem mass spectrometers (LC/MS/MS). The results of the drug screening direct all further confirmation testing.

In 2017, the National Safety Council's (NSC) Alcohol, Drug, and Impairment Division first published recommendations for toxicological investigation of drug-impaired driving and motor vehicle fatalities and then updated them in June 2021 (1). Later in 2021, the American Academy of Forensic Sciences (AAFS) Standards Board (ASB) published ASB Standard 120, "Standard for the Analytical Scope and Sensitivity of Forensic Toxicological Testing of Blood in Impaired Driving Investigations" (2). Both standards, having identical scopes, were created by experts in the field to standardize toxicology testing across the nation. To meet the scope of testing recommended by the NSC and ASB, the TOX Unit created a 15-kit ELISA drug screening panel (see Note 1); however, due to technological limitations with ELISA-based testing, the TOX Unit has not been able to meet the sensitivity recommendations. Of the 23 drugs listed in the standards, only eight meet the sensitivity recommendations (i.e. cutoff levels).

ELISA assays are by nature non-specific. Each assay has a target compound that the kit is calibrated against. For drug classes with many similarly-structured compounds, the goal would be for one kit to strongly cross-react with as many of the other compounds as possible. For example, the ELISA assay used to screen for benzodiazepines (benzos) targets oxazepam, and the assay in general shows excellent cross-reactivity with high-dose benzos such as temazepam and diazepam but not toward low-dose benzos such as alprazolam, clonazepam, and lorazepam. These low-dose benzos could easily be missed by the ELISA drug screen even at concentrations that could severely impair driving ability in naïve or poly-drug users. Since the drug screening results obtained in Step 1 are used to direct confirmation testing in Step 2, this is a serious problem. Any other drug with poor cross-reactivity such as 7-aminoclonazepam, hydromorphone, and fentanyl analogues may go undetected and unreported in DUID blood specimens.

ELISA assays can also cross-react with less-relevant substances or metabolites outside the scope of the TOX Unit's confirmation testing. For example, the ELISA assay utilized for the screening of 11-nor-9-carboxy-tetrahydrocannabinol (THCCOOH) strongly cross-reacts with a wide range of other cannabinoids. This broad cross-reactivity sometimes leads to false positive THCCOOH screening results. This phenomenon also occurs with the ELISA assay that targets morphine, which exhibits broad cross-reactivity with other opiates and morphine metabolites (e.g. morphine-3-glucuronide). These false positive screening results are misleading to customers and unnecessarily increase the drug confirmation workload in TOX Unit.

ELISA assay cross-reactivity not only affects drug screening specificity and sensitivity, but it also leads to analytical inflexibility. The process of adding new drugs to the screening panel is laborious and potentially impossible. The TOX Unit must find an ELISA assay that cross-reacts with the drug(s) of interest, if available from the vendor, obtain certified reference materials of the target compound to prepare in-house calibrators and controls, and run a performance verification. Cross-reactivity again becomes an issue in that multiple assays may be needed to expand testing to detect new drugs of interest, and the required sensitivity may not be achievable for all compounds. Additionally, the TOX Unit receives requests from DUID investigators to screen blood specimens for specific drugs of abuse such as fentanyl analogues, ketamine, LSD, psilocyn, and dextromethorphan. It is not possible to address drug -specific screening requests from customers with ELISA technology. These requests are either sent to a private laboratory for testing or the requests are canceled by the customer due to the extra fees associated with subcontracted testing. The TOX Unit needs a more flexible screening technology to respond to these requests.

For decades, ELISA-based technology has been a reliable, high-throughput technology for drug screening; however, many toxicology laboratories have abandoned immunoassay screening to better serve their customers. Dynamic drug trends (e.g. novel psychoactive substances (NPS) such as spice, bath salts, and fentanyl analogues), increased poly-drug use, and standardized testing scopes have created a need for more sophisticated technology. The current spectrometric techniques incorporating time-of-flight or orbitrap technology offer significant advantages over ELISA for drug screening. The TOX Unit must incorporate this technology to improve the level of service provided to DUID investigators.

Citations:

(1) D'Orazio, Amanda et al, Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities—2021 Update. *Journal of Analytical Toxicology*, 2021;45:529–536.

(2) ANSI/ASB. 2021. Standard 120, First Edition: Standard for the Analytical Scope and Sensitivity of Forensic Toxicological Testing of Blood in Impaired Driving Investigations [Internet]. [Cited 18 February 2022.] Available from



<https://www.aafs.org/asb-standard/standard-analytical-scope-and-sensitivity-forensic-toxicological-testing-blood>.

Note 1: Current ELISA-based drug screening panel [target drug, cutoff]: amphetamine [amphetamine, 125 ng/mL], barbiturates [secobarbital, 100 ng/mL], benzodiazepines [oxazepam, 100 ng/mL], buprenorphine [buprenorphine, 1 ng/mL], cannabinoids [11-nor-9-carboxy-THC, 25 ng/mL], carisoprodol [carisoprodol, 250 ng/mL], cocaine [benzoylecgonine, 50 ng/mL], fentanyl [fentanyl, 1 ng/mL], methadone [methadone, 50 ng/mL], methamphetamine [methamphetamine, 50 ng/mL], opiates [morphine, 50 ng/mL], oxycodone [oxycodone, 10 ng/mL], phencyclidine [phencyclidine, 20 ng/mL], tramadol [cis-tramadol, 50 ng/mL], and zolpidem [zolpidem, 15 ng/mL]. The manufacturer and ELISA kit numbers have been left out of this description to protect the interests of the manufacturer.

Statistical Data/Report(s)

If applicable, please upload any statistical data/reports to support your problem statement.



6. Proposed Solution

Provide a proposed solution for the problem and/or need by describing what will be accomplished during the project. Include why it is important to address and the need for funding in order to alleviate the problem. In addition, provide a brief overview of resources (budgeted items) needed/requested to successfully complete the project. Note: detailed budget line items and narrative will be requested within the Budget form.

The TOX Unit will purchase a Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph to improve the drug screening step for DUID-related blood specimens. The new instrument, equipped with a liquid chromatographic and high-resolution mass spectrometer, will be used to create a comprehensive drug screening panel that has several advantages over the current ELISA panel including targeted drug screening, higher sensitivity, and greater analytical flexibility. The Orbitrap-based drug screening panel will fully meet the NSC and ASB's published recommendations while also including the top five fentanyl analogues, designer benzodiazepines, ketamine, and phencyclidine (PCP).

With lower cutoffs and targeted drug screening, the TOX Unit will eliminate the false positive and false negative drug screening results currently obtained by ELISA. This means that more DUID-related blood specimens with forensically-relevant drug concentrations will screen positive in Step 1 and can proceed to the confirmation testing in Step 2. When the cutoffs are lowered to bring all drugs into compliance, the positivity rate will increase. The LAPD and CHP officers who book blood evidence in DUID investigations will receive more accurate reports documenting possible causes of impairment because of the Orbitrap technology.

Having a spectrometric method for the screening of blood specimens is also useful for directing the confirmation testing in Step 2. Because ELISA-based drugs screening is non-specific, a positive result does not necessarily mean that a drug of interest is present in the specimen; substances other than the target drug(s) can trigger a positive screening result (i.e. false positive). These false positive results are problematic because they unnecessarily increase the drug confirmation testing workload. However, with Orbitrap technology, the TOX Unit will know exactly which drugs are present in the specimen, and that information can be used to direct relevant confirmation testing. Resources will no longer be wasted confirming false positive drugs screening results obtained by ELISA.

The Orbitrap is a powerful instrument that will easily allow the TOX Unit to expand its future testing capabilities beyond this current grant cycle, which is important given the explosion of novel psychoactive substances (NPS) continually being found in toxicology casework nationwide. It is relatively straightforward to add more analytes to the targeted drug screen, requiring far less analyst time and fewer consumables than adding ELISA kits to the immunoassay method. When a certified reference material (CRM) for the new NPS is produced by a reputable vendor, the analyte can be added to the Orbitrap method. It takes much longer for a vendor to produce an ELISA kit for an NPS, and cross-reactivity again becomes an issue with how many relevant drugs cross-react with a single kit. With Orbitrap, each NPS can be added to the method with a low limit of detection. Even isotopes can be differentiated with the high-resolution mass spectrometry technology. Also, for future expanded screening panels, the amount of blood specimen and the amount of sample preparation is expected to stay the same while the number of analytes reported can increase significantly. The Orbitrap can eventually be used to screen for the NSC Tier 2 drugs (currently recommended but not required for DUID blood samples) and for urine samples booked in drug-facilitated sexual assault cases.

The substantial upfront cost of purchasing the Orbitrap has led to the continued use of immunoassay technology for screening in a lot of toxicology laboratories, especially public labs. Overcoming this cost barrier will allow the TOX Unit to make enormous strides in providing more accurate and comprehensive results to its customers with this grant project and with future projects.



7. Performance Measures

Provide project goals and objectives (goals and objectives should be directly related to impaired driving and applicable to the proposed project), activities with estimated timelines (e.g., monthly, quarterly), and quantitative measurements (e.g., reduction of DUI/DUID by %).

The goal of this project is for the LAPD TOX Unit to:

- [1] be fully compliant with the NSC and ASB standard for screening DUID blood specimens.
- [2] include the top five most prevalent fentanyl analogues in the DUID screening panel at forensically-relevant cutoffs.
- [3] include common designer benzodiazepines, PCP, and ketamine in the DUID screening panel at forensically-relevant cutoffs.
- [4] use the same amount of blood specimen (200 μ L) to provide more screening results.

Currently, the TOX Unit is compliant with the scope of target drug requirements but not the sensitivity. Only 35% of the drugs on the list (8 out of 23) are screened for at the required cutoff. The other fifteen drugs have higher cutoffs, resulting in DUID samples being reported as not detected. Being fully compliant with the sensitivity recommendations will ensure DUID investigators receive accurate and comprehensive laboratory results, ultimately improving driving safety within the City of Los Angeles.

The proposed implementation timeline for the 24-month program is as follows:

- **First Quarter:**
 - The LAPD Grants Section will obtain the Los Angeles City Council's resolution to enter into a grant contract for the CHP Cannabis Tax Fund Grant Program.
- **Second Quarter:**
 - The TOX Unit and Grants Section will initiate the purchasing process with the City of LA and CHP Cannabis Tax Grant Program guidelines.
- **Third Quarter:**
 - The TOX Unit and Grants Section will complete the purchasing process with the City of LA and CHP Cannabis Tax Grant Program guidelines.
 - The TOX Unit will validate a DUID blood screening method on the Orbitrap. Validation is expected to be completed within eight weeks after instrument installed.
- **Fourth Quarter:**
 - The TOX Unit will validate a DUID blood screening method on the Orbitrap. Validation is expected to be completed within eight weeks after instrument installed.
- **Fifth Quarter**
 - All TOX Unit staff that use the current LC/MS/MS will be trained on the Orbitrap in this new screening method, which is anticipated to be completed in two weeks.
- **Sixth Quarter**
 - Collect Data and Metrics
- **Seventh Quarter**
 - Collect Data and Metrics
- **Eighth Quarter**
 - Collect Data and Metrics

The program objectives should be met once all the program activities completed.



8. Project Performance Evaluation

Provide the method of evaluation to show project effectiveness and positive impact(s) on the community. These strategies shall include quantitative/qualitative data captured and communication plan in place to share project results with both internal and external stakeholders.

The LAPD's Forensic Science Division (FSD) uses a Laboratory Information Management System (LIMS) to track laboratory activities, chain of custody, services performed, personnel, and other statistical information throughout the entire laboratory. LIMS data is stored on the LAPD's local area network, routinely checked for integrity, and backed up daily. LIMS reports will be used to collect data to support the following performance measures and will be reported to CHP Cannabis Tax Grant Program personnel.

The FSD will track and report the following dates to the Grant Coordinator:

- (1) Date the Los Angeles City Council approves the spending of funds received for this grant project.
- (2) Date the purchase order (P/O) is submitted to the Vendor for the Orbitrap system.
- (3) Date of installation of the Orbitrap system.
- (4) Date of the start and end of the method validation for the new DUID blood screening test method.
- (5) Date the new instrument and DUID screening test method are released by the FSD's Quality Assurance Unit for use on forensic DUID casework.

The FSD will report a summary of the new DUID blood screening test method to the Grant Coordinator and include the following parameters:

- (1) Percentage of total drugs (out of the ASB's list of 23) that are screened for the required cutoff.
- (2) Additional drugs that have been added to the screening panel.
- (3) Number and percentage of DUID blood specimens reported as "not detected" per month with new method employing ASB cutoffs versus number and percentage using current ELISA method.
- (4) Percent compliance after validation of new screening method.
- (5) Sample lab report.



9. Program Sustainability

Describe the plan for reducing reliance on future state funding. Include a summary and timeframe to continue efforts when the funds are either not available or significantly reduced.

The LAPD will assume responsibility for the personnel, supplies, and service maintenance that the program will need after the grant performance period. The funding that is currently put toward maintaining the inventory of ELISA kits will be available to maintain the Orbitrap beyond the grant cycle in addition to divisional funds.

It is anticipated that all major components of the Orbitrap will come with a three-year warranty. Once the warranty has expired, the LAPD will assume maintenance costs and add the instruments to the laboratory's general service contract. The TOX Unit procures and maintains service contracts for all instruments as a regular course of business and will include the Orbitrap. Service contracts include annual planned/preventative maintenance and any repairs required to maintain the instruments in proper working condition. The TOX Unit will take responsibility for purchasing all consumable supplies required to sustain the program for the life of the instrument. Consumable supplies include solvents, analytical gases (i.e. argon and nitrogen), autosampler vials, pipette tips, and glassware.



10. Administrative Support

Describe administrative support including the organization's grant experience, personnel, and physical resources needed for successful implementation of this project.

The FSD is a full-service crime laboratory accredited by the American National Standards Institute – American Society for Quality National Accreditation Board (ANAB) to the International Organization of Standardization – International Electrotechnical Commission's 17025 standard. In March 2019, the FSD was assessed for re-accreditation by the ANAB under the same standard and successfully obtained re-accreditation through March 28, 2023. The FSD has a full-service Toxicology (TOX) Unit that performs drug screening and confirmation testing, blood alcohol testing, and breath-alcohol instrument calibration and maintenance. The TOX Unit personnel also testify as expert witnesses in court proceedings to the effects of alcohol and drugs on driving performance and in drug-facilitated sexual assault cases. The unit's workload consists almost entirely of blood specimens associated with driving under the influence of alcohol and/or drugs (DUI/DUID) crimes or misdemeanors. In 2020 the TOX Unit received 2,094 blood specimens, 94% of which were DUI and/or DUID-related. Since 2017, the TOX Unit has validated several test methods to confirm designer benzodiazepines, zolpidem, carisoprodol, fentanyl, methadone, and cocaethylene in blood specimens. The TOX Unit is fully staffed with 14 personnel: one Supervising Criminalist, two Criminalist IIIs (Technical Leads), 10 Criminalist IIs, and one laboratory technician. The unit has two instrument specialists, one with 13 years of experience and another with 8 years of experience in developing and validating methods on both the UHPLC/MS/MS and ultra-high-performance liquid chromatography/high resolution mass spectrometry. For this grant, the FSD has the technical staff required to complete and sustain the program long-term.

The proposed program will be staffed with a program manager, assistant program manager, and a grant analyst. The Program Manager, Vanessa Gould, has been a Criminalist with the LAPD's FSD for 29 years, with 12 years of experience in a supervisory position managing technical staff and various FSD projects, including grant management. The assistant Program Manager, Aaron McElrea, has been a Criminalist with LAPD's FSD for 15 years, with 4 years of experience in a supervisory position managing technical staff and projects. In that time, he has coordinated numerous validations for drug confirmation test methods using the gas chromatograph with mass spectrometer (GC/MS) and liquid chromatograph with tandem mass spectrometers (LC/MS/MS). An LAPD Grant Analyst will be assigned to the proposed program to submit all financial and progress reports as well as manage all grant administration duties.

The LAPD has many years of experience in managing grants. It has been awarded and has successfully managed grants ranging from \$100,000 to \$16,000,000 from various local, state, and federal entities including FEMA, DOJ, and the FY 2021/2022 CHP Cannabis Grant - Law Enforcement and Toxicology. The LAPD Grants Section consists of a Grants Manager and six Grants Analysts to oversee and report on over 30 active grants. The FSD has also demonstrated the ability to manage federal grants with its DNA Capacity Enhancement and Backlog Reduction Program (2009 through 2020) and the Coverdell Competitive Grant (2008, 2010, 2014, and 2019).



11. Other Grant Programs

Impaired Driving Enforcement Funding

Has grant funding been received in the past for impaired driving enforcement?

- Yes
 No

If yes, what was the outcome?

The Department has received grant funds from the California Office of Traffic Safety (OTS) for over 20 years to fund DUI and traffic enforcement operations. The OTS grant funding for DUI enforcement has been an integral part of the Department's overall DUI enforcement plan. In 2021, the Selective Traffic Enforcement Program (STEP) Grant funded 146 DUI checkpoints, which resulted in the following:

- 246,717 Vehicles Through the Checkpoints
- 116,518 Drivers Screened
- 1,195 SFSTs Performed
- 427 Drivers Arrested for DUI
- 332 Drivers Arrested for DUID
- 17 Drivers Arrested for Combination DUI/DUID

In addition to the checkpoints, the STEP Grant funded 145 DUI saturation patrols, which resulted in the following:

- 2,172 Traffic Stops
- 489 SFSTs Performed
- 234 Drivers Arrested for DUI
- 94 Drivers Arrested for DUID
- 14 Drivers Arrested for Combination DUI/DUID

Application to Other Grant Programs

Has or will a proposal be submitted to another grant program for this project (i.e., that would fund the same project components applied for in this project, or for related project components to be completed during the same time period as those described in this project)?

- Yes
 No

If yes, identify granting agency or organization(s), grant program name(s), proposal title, date submitted (or to be submitted), and relationship between proposals. In addition, clearly distinguish which tasks would be funded by CHP, and which would be funded by other organizations.



12. Terms and Conditions

By submitting your grant application, you agree to the following terms and conditions:

I certify under penalty of perjury that the information I have entered in this grant application is true and complete to the best of my knowledge. I further understand that any false, incomplete, or incorrect statements may result in my disqualification from the grant process or dismissal from receiving grants funded from the California Highway Patrol (CHP), Cannabis Tax Fund Grant Program. I authorize the California Highway Patrol to investigate referenced documents or other documents submitted to the program to check the accuracy of the information provided.

I agree with the Request for Application, the above terms and conditions, and the California Code of Regulations, Title 13, Division 2, Chapter 13, Sections 1890.00 through 1890.27.

I Agree

When using AMPLIFUND, I authorize the state to take my requested action by an electronic means and authorize the state to accept the combination of my USER ID and password in lieu of my written signature.

I Agree

My password is unique to me and is to remain confidential. I will not allow other individuals to use my USER ID and password to access AMPLIFUND.

I Agree

It is my responsibility to maintain the confidentiality of AMPLIFUND information.

I Agree

Once I submit the grant application, I am unable to add, edit, or delete any grant application information.

I Agree

Confidentiality Notice: All documents submitted as a part of the Cannabis Tax Fund Grant Program grant application are public documents and may be subject to a request pursuant to the California Public Records Act. The CHP cannot ensure the confidentiality of any information submitted in or with this grant application. (Gov. Code, § 6250 et seq.)

I Agree

Disclaimer: "Generated income disclaimer: There will be no program income generated from this grant. Nothing in this grant agreement shall be interpreted as a requirement, formal or informal, that a particular law enforcement officer issue a specified or predetermined number of citations in pursuance of the goals and objectives. Although special emphasis will be placed upon violations specific to this grant agreement, appropriate enforcement action will be taken for all observed violations."

I Agree

Vendor ID or Financial Information System for California Taxpayer ID

A STD. 204 form or FISCAL form is required for reimbursement. If applicant does not have a completed form at final grant application submission time, applicant may submit completed form via email prior to execution of the Grant Agreement. Forms are located on the Cannabis Tax Fund Grant Program's Web page at <https://www.chp.ca.gov/programs-services/programs/cannabis-tax-fund-grant-program>.

I Agree

STD. 204 or FISCAL form
LAPD_STD204

City Council or County Resolution

A City Council or County Resolution will be submitted to the CHP prior to the execution of the Grant Agreement.

I Agree

A county, city, district, or other public body shall provide a copy of a resolution, order, motion, or ordinance of local governing body, which by law has the authority to enter into an agreement authorizing execution of a Grant Agreement. If applicant does not have a signed resolution at final grant application submission time, applicant may submit signed resolution via email prior to execution of the Grant Agreement. The resolution must explicitly state the agency has delegated authority to enter into an agreement for the requested amount.



Budget

Proposed Budget Summary

Expense Budget

	Grant Funded	Total Budgeted
Equipment		
Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph	\$450,000.00	\$450,000.00
Subtotal	\$450,000.00	\$450,000.00
<hr/>		
Total Proposed Cost	\$450,000.00	\$450,000.00

Revenue Budget

	Grant Funded	Total Budgeted
Grant Funding		
Award Requested	\$450,000.00	\$450,000.00
Subtotal	\$450,000.00	\$450,000.00
<hr/>		
Total Proposed Revenue	\$450,000.00	\$450,000.00

Proposed Budget Detail

See attached spreadsheet.

Proposed Budget Narrative

Equipment

Equipment are non-expendable, tangible, personal property having a normal useful life of more than one year and an acquisition cost of at least \$5,000. For each line item, narrative shall include: description, how it will be used for the project, how it will enhance/support the project, quantity, unit cost and total cost for each equipment purchase. Note: equipment costs include all accessories. Please only include the portion of the cost that will be used for project activities.

Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph

The LAPD's Toxicology (TOX) Unit will purchase one new Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph. The cost of the instrument as of February 2022 was \$399,000. The LAPD is seeking grant funds in the amount of \$450,000 to cover the cost of the instrument and any price increases due to inflation. All grant funds will go toward the purchasing of the instrument, anything remaining after the purchase will be returned to the grantor. The Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph is a high-resolution mass spectrometer (HRMS) that offers exceptional sensitivity, resolving power, accurate mass determination, and targeted drug detection. The instrument is ideal for detecting a wide range of drugs in complex matrices such as blood with very low limits of detection. The TOX Unit will use this instrument to create a comprehensive drug screening panel for DUID-related blood specimens that meets the NSC and ASB published standards. Additionally, the instrument will provide the analytical flexibility needed to address customer requests (e.g. fentanyl analogues, ketamine) and to expand the drug screening panel to keep up with regional drug trends. The TOX Unit has the staff



and the technical expertise required to complete the project but lacks HRMS technology. With the Thermo Scientific Orbitrap Exploris 120 with Vanquish Liquid Chromatograph, the TOX Unit technical staff will finally have the technology needed to significantly improve the drug screening scope for DUID-related blood specimens.