CALIFORNIA AIR RESOURCES BOARD
RESEARCH DIVISION
P.O. BOX 2815
SACRAMENTO, CA 95812

GUIDELINES FOR:
UNIVERSITIES OF CALIFORNIA AND CALIFORNIA STATE UNIVERSITIES
FOR
PREPARING AND SUBMITTING
PROPOSALS TO THE
CALIFORNIA AIR RESOURCES BOARD

April 2022

A. Proposal Cover Sheet (see Example A).

Submit a proposal cover sheet addressed to Elizabeth Scheehle, Chief, Research Division, California Air Resources Board (CARB). The cover sheet must be signed by the appropriate officer in the University's Contracts and Grants office. The cover sheet must include:

1. The title of the proposal.

2. The name, title, university, address, telephone numbers, and email addresses of those persons authorized to sign the administrative documents and to bind the cost and technical proposals, including:

    a. the principal investigator (PI)
    b. the contract officer

B. Scope of Work.

Submit one electronic copy of the scope of work to the CARB Contract Project Manager. The scope of work shall be submitted using the California Model Agreement forms (see Attachment 1)

Exhibit A – Scope of Work

The scope of work should be clear and concise, no more than approximately 100 pages in length using single or one-and-a-half spacing. Avoid the use of pronouns throughout this document. If acronyms are used, write out the first reference followed by the acronym itself enclosed by parentheses.

The scope of work must include the following parts:

1. Indication if project includes research. Research is defined as an investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.

2. PI name and project title.

3. Project Summary/Abstract. A succinct description of the proposed work. This section should include the proposal's long-term objectives and the specific aims of the proposed work.

4. Statement of significance. The proposal must contain a one-page discussion of the relevance of this project to the California Air Resources Board (CARB). Please include in this discussion, the objectives of this project and how the results will be beneficial to CARB.

5. Technical plan (Scope of Work). This shall include at least the following topics:

    a. A detailed description of experimental techniques or research methods to be employed, including requirements for test specimens, laboratory animals, or human subjects.
    b. A discussion of the tasks to be conducted and how those tasks will be performed. All tasks must be clearly defined and labeled
    c. A description of all deliverables to be submitted by the University. The description of the final report must indicate that it will be submitted in an Americans with Disabilities Act compliant format. A notation in the Final Report task should denote that the University will incorporate a one-page Public Outreach Document into the Final Report, that will be widely used to communicate, in clear and direct terms, the key research findings from the study to the public. The format for the Public Outreach Document is outlined in Exhibit A1, Section 2.
    d. A data management plan that identifies the data to be collected, the sample size required to assure statistical validity of the data, methods of data handling, reduction, and analyses, data format, and approach to addressing quality assurance of the data.
    e. A description of testing procedures necessary to demonstrate required performance of equipment to be used in the study, if applicable.
    f. Project schedule (see Example B). List each task specified in the work plan. Task names should be consistent with task names included in the body of the scope of work. Addressing each task, display the projected timespan of each individual task over the life of the contract. Denote progress review meeting dates and dates of deliverables such as the draft final report.
    g. Project management plan. Identify key personnel (e.g., PI, project manager, subcontractors, researchers) required to conduct the proposed research and summaries each individual assigned responsibilities. Include an organization chart for all personnel involved in the project.
    h. A description of existing facilities available for conducting the proposed research, including the physical plant, laboratory, other equipment, and requisite instrumentation.
    i. If applicable, a description of proposed human or animal subjects, including criteria for inclusion/exclusion, overview of recruitment plans, and need plans for Institutional Review Board (IRB) approval.
    j. References to publications describing similar work done by others.

Exhibit A1 – Schedule of Deliverables

The schedule of deliverables shall include all items that will be delivered to the CARB under this agreement. Include a brief description and due date (use project month rather than specific date). The final report is subject to Section 19. Copyrights, paragraph B of the University Terms and Conditions and must be listed as such.

Exhibit A2 – Key Personnel

List all key personnel required to conduct the proposed research. Key personnel include all individuals who contribute to the scientific development or execution of the project in a substantive, measurable way, whether or not they receive salaries or compensation under the agreement.

Exhibit A3 – Authorized Representatives & Notices

The University shall include the name and contact information for the University contacts.

Exhibit A4 – Use of Intellectual Property & Data

Section A will be completed by CARB.

Section B is to be completed if the University knows of any third-party or pre-existing intellectual property or data that have restrictions on use and will be included in Deliverables listed at Exhibit A1, then the University shall list all such pre-existing intellectual property or data and the nature of the restriction.

Section C is to be completed if the PI anticipates that any of the Project Data generated during the performance of the Scope of Work will have a restriction on use (such as laws preventing the use or disclosure of personally identifiable subject information contained in a data set) then the University is to list all such anticipated restrictions.

Exhibit A5 – Résumé/BioSketch

Include a Résumé/BioSketch for all key personnel listed in Exhibit A2.

Exhibit A6 – Current & Pending Support

University will provide current & pending support information for Key Personnel identified in Exhibit A2. The proposal being submitted is the first project that should be listed in the table.

Exhibit A7 – Third Party Confidential Information Requirement - Confidential Nondisclosure Agreement

This exhibit is not required to be submitted as part of the proposal.

C. Cost Proposal (Budget).

Submit one electronic copy of the completed budget summary and justification in the same email as the technical proposal. The budget summary and justification is required for the contractor and all subawardees/subrecipients. The University must complete the AB20 Budget template (Microsoft EXCEL format) provided by CARB. Please note all totals will automatically be calculated when the appropriate detail is entered into the table.

Exhibit B – Budget Summary

The Budget Summary page will auto populate when detail is entered into the budget justification tables. The University shall complete the PI name and project title.

Exhibit B1 – Budget Justification

Cost justifications are required. These should be complete, stand- alone statements. A mere reference to another part of the proposal (such as “see page 20") will not be acceptable.

1. **Personnel**

   Starting with the Principal Investigator list the names, monthly salary, and % of effort of all known personnel who will be involved on the project during the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as “to be determined” (TBD) or “to-be-appointed” (TBA). The total salary will automatically calculate when the salary and % of effort fields are populated.

   Justifications. Describe the role of each individual listed on the project. Provide budget narrative for ALL personnel by position, function, and a percentage level of effort. Include any “to be determined” (TBD) or “to-be-appointed” (TBA) positions.

2. **Fringe Benefits**

   Fringe benefits will be requested in accordance with institutional guidelines for each position. Tuition and fee remission for graduate student employees is part of a graduate student’s benefit package. Most often, such costs are listed under the Fringe Benefits category. Alternatively, tuition and fee remission for graduate student employees may be listed in the “Other Direct Costs” category.

   To the extent possible, the University shall include all anticipated increases to fringe benefit rates in the initial proposal.

   Justifications. Explain the costs included in the budgeted fringe benefit percentages used (including actual and anticipated increases). If tuition and fee remission is included provide the University basis to include such costs and identify the amount per semester/quarter and the number of semesters/quarters.

3. **Travel**

   Travel costs include expenses incurred by employees for transportation, lodging, subsistence, and related items while traveling on official business necessary for the contract. Travel expenses and per diem rates for the

University shall be at the University's approved travel rates, and any private subcontractors must be set at the rate specified by the California Department of Human Resources (https://www.calhr.ca.gov/employees/pages/travel-reimbursements.aspx) for similar employees or verification must be supplied that indicates such rates are not available to the subcontractor.

Justifications. Itemize all travel requests separately by trip and justify in accordance with University travel guidelines. Provide the purpose, destination, travelers (name or position/role), and duration of each trip. Include detail on airfare, per diem, lodging and ground transportation (including car rental, ride share, parking, and mileage expenses), if applicable.

4. Materials & Supplies

This consists of the cost of materials and supplies necessary to carry out the project. Items include direct purchases or withdrawals from stockrooms. Itemize materials and supplies in separate categories, such as instructional supplies, chemicals, radioisotopes, etc. Theft sensitive equipment (under $5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29

List the item description, vendor, unit cost, and number of units for each item.

Justification. Describe exactly why each item is needed in this project.

5. Equipment

Equipment is all tangible personal property that has a normal useful life (including extended life due to repairs) of at least four years and has a unit acquisition cost of at least $5,000. The cost of equipment includes the purchase price plus all costs to acquire, install, and prepare equipment for its intended use.

List the item description, vendor, unit cost, and number of units for each piece of equipment.

Justifications. Describe exactly why each listed equipment item is needed in this project.

6. Consultant(s)

Consultants are individuals/organizations who provide expert advisory or other services for brief or limited periods and do not provide a percentage of effort to the project or program. Consultants are not involved in the scientific or technical direction of the project as a whole. Provide the names and organizational affiliations of all consultants.

Justification. Describe the services to be performed by each consultant. Include the number of days/hours of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs. Describe exactly why each consultant is needed in this project (i.e., their role in the project).

7. **Subawardee(s) (Consortium/Subrecipient)**

A subawardee/subreceipient is a collaborating entity of the University that is responsible for programmatic decision making and completing a portion of the Scope of Work.

Justification. Describe exactly why each subawardee/subrecipient is needed in this project (i.e., their role in the project). Describe, for each subawardee/recipient, the services to be performed. A separate detailed budget, including the Summary Page, is required for each subawardee/subrecipient (Exhibit B2 – Subawardee Budgets).

8. **Other Direct Costs**

Other direct costs might include animal maintenance (unit care costs and number of care days), tuition remission (if not treated as a fringe benefit by University policy), participant payments, publication/printing costs, computer charges, equipment maintenance, service contracts and rental expense (apart from off-site facility rental, described below). Contractual costs for support services, such as the laboratory testing of biological materials, clinical services, or data processing, are occasionally sufficiently high to warrant a categorical breakdown of costs. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication/IT costs are charged as a direct expense, explain reason and methodology.

If the scope of work will be performed in an off-campus facility rented from a third party for a specific project or projects that is not included in the University's negotiated IDC rate, rent may be charged as a direct expense and will not be subject to the indirect cost calculation.

List the item description, vendor, unit cost, and number of units for each item.

Justification. Describe exactly why each item is needed in this project.

9. **Indirect Costs**

Indirect costs are incurred for common or joint objectives and therefore cannot be identified readily and specifically with a particular agreement. The indirect cost rate shall be applied to the Modified Total Direct Cost (MTDC). MTDC includes the total personnel (including labor and fringe benefits, travel, materials and supplies, consultants, subawards (up to the first $25,000 of each entity), and other direct costs. Equipment, tuition remissions, rental costs of off-campus facilities, and the portion of each /subaward exceeding $25,000 is not included in the modified total direct cost.

The indirect cost rate provided shall be 25% of the MTDC.

Exhibit B2 – Subawardee Budgets

Each participating subawardee organization must submit a separate detailed budget(s). Exhibit B2 for each subawardee should follow the same format as Exhibit B and Exhibit B1 (for the University).

D. Administrative Requirements

1. In the event that subawardees or subrecipients are to be used who are not a University of California campus, a California State University campus, another state’s public university, or federal or local government, and are more than 25 percent of the total budget, they should be competitively bid. If they are not competitively bid, the University must provide sufficient justification for the inclusion of that particular subawardee or subrecipient.

2. Any private subcontract over $10,000 must comply with Disabled Veterans Business Enterprise (DVBE) participation requirements.

3. This agreement will use the model agreement negotiated by the Department of General Services, University of California, and California State University. The model contract terms can be found on the University of California Office of the President website (https://www.ucop.edu/research-policy-analysis-coordination/research-sponsors-agreements/state-of-california/cma-templates.html). Do not submit Exhibits C-G as part of the proposal. These Exhibits will be completed by the CARB Contract Analyst during the contract development phase.

E. Research Screening Committee Review

The Board's legislatively mandated Research Screening Committee (RSC) consists of scientists, engineers, and others knowledgeable, technically qualified, and experienced in air pollution problems. The Committee meets approximately four times a year to review proposed and completed research projects. Full proposals and draft Final Reports for research projects are distributed to the RSC prior to each meeting.

EXAMPLE A

Cover Sheet
University Proposal to State

Proposal To:	<state agency>	Due Date:	<date>
	<state agency address>	Submitted:	<date>

State Agency Contact:	<contact name>	Phone #:	<contact phone#>
	<contact title>	Email:	<email>

Project Title:	<title>			
University Name:	<University Name>			
Award To:	<Official Name of Awardee>			
Project Period:	<start date>	to	<end date>	Funding Amount: <project cost>

IT Activity/Component?	No	X	Yes		*If yes, then explain in a coversheet addendum.*

University PI:	<PI name>	Phone #:	<contact phone#>
	<University>	Email:	<email>
	<Department>		
	<address>		

Authorized University Official:	<AO name>	Alternate Contact:	<Alternate contact name>
	<address>		<contact phone#>
			<email>
	<telephone>		
	<email>		

I certify that this proposal is compliant with the State & University Proposal and Administration Manual and that the Principal Investigator has approved the Scope of Work and Proposed Budget Estimate, which are compliant with University Policy.

Authorized Official Signature	
<AO name> <AO title>	Date: <date>

EXAMPLE B

PROJECT SCHEDULE

Task 1:
Task 2:
Task 3:
Task 4:
Task 5:
Task 6:
Task 7:

	MONTH	1	2	3	4	5	6	7	8	9	10	11	12
TASK													
1													
2													
3													
4													
5													
6													
7													
		m		pm			dm			m			fm

p = Quarterly progress report
d = Deliver draft final report (to be submitted 6 months prior to contract expiration)
f = Deliver final report
m = Meeting with CARB staff

ATTACHMENT 1

STATE OF CALIFORNIA
STANDARD AGREEMENT
STD 213 (Rev 02/20)

	AGREEMENT NUMBER
STATE CONTROLLER'S OFFICE IDENTIFIER **3900-**	REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME
California Air Resources Board (CARB or State)

CONTRACTOR'S NAME
The Regents of the University of California, (, University, or Contractor)

2. The term of this Agreement is: through

3. The maximum amount of this Agreement is: $

4. The Parties agree to comply with the terms and conditions of the following Exhibits, which by this reference are made a part of the Agreement.

Exhibit A – **A7**: A–Scope of Work; A1–Deliverables; A2–Key Personnel; A3–Authorized Representatives; A4–Use of Intellectual Property & Data; A5–Resumes/Biosketch; A6–Current & Pending Support; A7-Third Party Confidential Information (if applicable)	pages
Exhibit B – B–Budget; B1–Budget Justification; B2– Subawardee Budgets (if applicable); B3–Invoice Elements	pages
Exhibit C* – University Terms and Conditions	UTC-220

Check mark additional Exhibits below, and attach applicable Exhibits or provide internet link:

☐ **Exhibit D** – Additional Requirements Associated with Funding Sources	1 page
☐ **Exhibit E** – Special Conditions for Security of Confidential Information	1 page
☐ **Exhibit F** – Access to State Facilities or Computing Resources	1 page
☐ **Exhibit G** – Negotiated Alternate UTC Terms	1 page

Items shown with an Asterisk (*) are hereby incorporated by reference and made part of this agreement as if attached hereto. You can find these documents on the University of California, Office of the President and the California Department of General Services websites.

IN WITNESS WHEREOF, this Agreement has been executed by the Parties hereto.

CONTRACTOR

CONTRACTOR'S NAME *(if other than an individual, state whether a corporation, partnership, etc.)*
The Regents of the University of California,

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING

ADDRESS

STATE OF CALIFORNIA

AGENCY NAME
California Air Resources Board

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING
Brandy Hunt, Chief, Contracts, Procurement, and Grants Branch

ADDRESS
1001 I Street, 19th Floor, Sacramento, CA 95814

California Department of General Services Use Only

☐ Exempt per:

EXHIBIT A

SCOPE OF WORK

☒ Contract ☐ Grant

Does this project include Research (as defined in the UTC)? ☐ Yes ☐ No

PI Name:

Project Title:

Project Summary/Abstract

Briefly describe the long-term objectives for achieving the stated goals of the project.

If Third-Party Confidential Information is to be provided by the State:

☐ Performance of the Scope of Work is anticipated to involve use of third-party Confidential Information and is subject to the terms of this Agreement; ***OR***

☐ A separate CNDA between the University and third-party is required by the third-party and is incorporated in this Agreement as Exhibit A7.

Scope of Work

Describe the goals and specific objectives of the proposed project and summarize the expected outcomes. If applicable, describe the overall strategy, methodology, and analyses to be used. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate. Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the goals and objectives.

Project Tasks

Meetings

A. Initial meeting. Before work on the contract begins, the Principal Investigator and key personnel will meet with the CARB Contract Project Manager and other staff to discuss the overall plan, details of performing the tasks, the project schedule, items related to personnel or changes in personnel, and any issues that may need to be resolved before work can begin.

B. Progress review meetings. The Principal Investigator and appropriate members of his or her staff will meet with CARB's Contract Project Manager at quarterly intervals to discuss the progress of the project. This meeting may be conducted by phone.

C. Technical Seminar. The Contractor will present the results of the project to CARB staff and a possible webcast at a seminar at CARB facilities in Sacramento or El Monte.

HEALTH AND SAFETY

Contractors are required to, at their own expense, comply with all applicable health and safety laws and regulations. Upon notice, Contractors are also required to comply with the state agency's specific health and safety requirements and policies. Contractors agree to include in any subcontract related to performance of this Agreement, a requirement that the subcontractor comply with all applicable health and safety laws and regulations, and upon notice, the state agency's specific health and safety requirements and policies.

EXHIBIT A1 SCHEDULE OF DELIVERABLES

List all items that will be delivered to the State under the proposed Scope of Work. Include all reports, including draft reports for State review, and any other deliverables, if requested by the State and agreed to by the Parties.

If use of any Deliverable is restricted or is anticipated to contain preexisting Intellectual Property with any restricted use, it will be clearly identified in Exhibit A4, Use of Preexisting Intellectual Property & Data.

Unless otherwise directed by the State, the University Principal Investigator shall submit all deliverables to State Contract Project Manager, identified in Exhibit A3, Authorized Representatives.

Deliverable	**Description**	**Due Date**
Initial Meeting	Principal Investigator and key personnel will meet with CARB Contract Project Manager and other staff to discuss the overall plan, details of performing the tasks, project schedule, items related to personnel or changes in personnel, and any issues that may need to be resolved before work can begin.	Month 1
Progress Reports & Meetings	Quarterly progress reports and meetings throughout the agreement term, to coincide with work completed in quarterly invoices.	Quarterly
Draft Final Report	Draft version of the Final Report detailing the purpose and scope of the work undertaken, the work performed, and the results obtained and conclusions.	Six (6) months prior to agreement end date.
Data	Data compilations first produced in the performance of this Agreement by the Principal investigator or the University's project personnel.	Two (2) weeks prior to agreement end date.
Technical Seminar	Presentation of the results of the project to CARB staff and a possible webcast at a seminar at CARB facilities in Sacramento or El Monte.	On or before agreement end date.
The following Deliverables are subject to paragraph 19. Copyrights, paragraph B of Exhibit C		
Final Report	Written record of the project and its results. The Final Report shall be submitted in an Americans with Disabilities Act compliant format. The Public Outreach Document, as described in Exhibit A1, Section 2, shall be incorporated into the Final Report.	Two (2) weeks prior to agreement end date.

1. Reports and Data Compilations

A. With respect to each invoice period University shall submit, to the CARB Contract Project Manager, one (1) electronic copy of the progress report. When emailing the progress report, the "subject line" should state the contract number and the billing period. Each progress report must accompany a related invoice covering the same billing period. Each progress report will begin with the following disclaimer:

The statements and conclusions in this report are those of the University and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.

B. Each progress report will also include:

1. A brief summary of the status of the project, including whether the project is on schedule. If the project is behind schedule, the progress report must contain an explanation of reasons and how the University plans to resume the schedule.

2. A brief narrative account of project tasks completed or partially completed since the last progress report.

3. A brief discussion of problems encountered during the reporting period and how they were or are proposed to be resolved.

4. A brief discussion of work planned, by project task, before the next progress report. and

5. A graph or table showing percent of work completion for each task.

C. Six (6) months prior to Agreement expiration date, University will deliver to CARB an electronic copy of the draft final report in both PDF and Microsoft Word formats. The draft final report will conform to Exhibit A1, Section 2 – Research Final Report Format.

D. Within forty-five (45) days of receipt of CARB's comments, University will deliver to CARB's Contract Project Manager an electronic copy of the final report incorporating all reasonable alterations and additions. Within two (2) weeks of receipt of the revised report, CARB will verify that all CARB comments have been addressed. Upon acceptance of the amended final report approved by CARB in accordance to Exhibit A1, Section 2 – Research Final Report Format, University will within two (2) weeks, deliver to CARB an electronic copy of the final report in both PDF and Microsoft Word formats.

E. As specified in Exhibit A1, Section 2, Final Report will be submitted in an Americans with Disabilities Act compliant Format.

F. Together with the final report, University will deliver a set of all data compilations as specified in Exhibit A1 – Schedule of Deliverables.

G. University's obligation under this Agreement shall be deemed discharged only upon submittal to CARB of an acceptable final report in accordance to Exhibit A1, Section 2 – Research Final Report Format, all required data compilations, and any other project deliverables.

2. Research Final Report Format

The research contract Final Report (Report) is as important to the contract as the research itself. The Report is a record of the project and its results and is used in several ways. Therefore, the Report must be well organized and contain certain specific information. The CARB's Research Screening Committee (RSC) reviews all draft final reports, paying special attention to the Abstract and Executive Summary. If the RSC finds that the Report does not fulfill the requirements stated in this Exhibit, the document will not be approved for release, and final payment for the work completed may be withheld. This Exhibit outlines the requirements that must be met when producing the Report.

Note: In partial fulfillment of the Final Report requirements, the Contractor shall submit a copy of the Report in PDF format <u>and</u> in a word-processing format, preferably in Word – Version 6.0 or later. The electronic copy file name shall contain the CARB contract number, the words "Final Report", and the date the report was submitted.

Accessibility. To maintain compliance with California Government Code Sections 7405 and 11135, and Web Content Accessibility Guidelines, Assembly Bill No. 434, the final Report must be submitted in an Americans with Disabilities Act compliant format. The final Report will be posted on the CARB website and therefore must but be in an accessible format so that all members of the public can access it.

Watermark. Each page of the draft Report must include a watermark stating “DRAFT.” The revised report should not include any watermarks.

Title. The title of the Report should exactly duplicate the title of the contract. However, minor changes to the title may be approved provided the new title does not deviate from the old title. These minor changes must be approved in writing by the contract manager. Significant changes to the title would require a formal amendment.

Page size. All pages should be of standard size (8 ½" x 11") to allow for photo-reproduction.

Corporate identification. Do not include corporate identification on any page of the Final Report, except the title page.

Unit notation. Measurements in the Reports should be expressed in metric units. However, for the convenience of engineers and other scientists accustomed to using the British system, values may be given in British units as well in parentheses after the value in metric units. The expression of measurements in both systems is especially encouraged for engineering reports.

Section order. The Report should contain the following sections, in the order listed below:

Title page
Disclaimer
Acknowledgment (1)
Acknowledgment (2)
Table of Contents
List of Figures
List of Tables
Abstract
Public Outreach Document
Executive Summary
Body of Report
References
List of inventions reported and copyrighted materials produced
Glossary of Terms, Abbreviations, and Symbols
Appendices

Page numbering. Beginning with the body of the Report, pages shall be numbered consecutively beginning with “1”, including all appendices and attachments. Pages preceding the body of the Report shall be numbered consecutively, in ascending order, with small Roman numerals.

Title page. The title page should include, at a minimum, the contract number, contract title, name of the principal investigator, contractor organization, date, and this statement: "Prepared for the California Air Resources Board and the California Environmental Protection Agency"

Disclaimer. A page dedicated to this statement must follow the Title Page:

> The statements and conclusions in this Report are those of the contractor and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.

Acknowledgment (1). Only this section should contain acknowledgments of key personnel and organizations who were associated with the project. The last paragraph of the acknowledgments must read as follows:

> This Report was submitted in fulfillment of [CARB contract number and project title] by [contractor organization] under the [partial] sponsorship of the California Air Resources Board. Work was completed as of [date].

Acknowledgment (2). Health reports should include an acknowledgment to the late Dr. Friedman. Reports should include the following paragraph:

> This project is funded under the CARB’s Dr. William F. Friedman Health Research Program. During Dr. Friedman’s tenure on the Board, he played a major role in guiding CARB’s health research program. His commitment to the citizens of California was evident through his personal and professional interest in the Board’s health research, especially in studies related to children’s health. The Board is sincerely grateful for all of Dr. Friedman’s personal and professional contributions to the State of California.

Table of Contents. This should list all the sections, chapters, and appendices, together with their page numbers. Check for completeness and correct reference to pages in the Report.

List of Figures. This list is optional if there are fewer than five illustrations.

List of Tables. This list is optional if there are fewer than five tables.

Abstract. The abstract should tell the reader, in nontechnical terms, the purpose and scope of the work undertaken, describe the work performed, and present the results obtained and conclusions. The purpose of the abstract is to provide the reader with useful information and a means of determining whether the complete document should be obtained for study. The length of the abstract should be no more than about 200 words. Only those concepts that are addressed in the executive summary should be included in the abstract.

Example of an abstract:

A recently developed ground-based instrument, employing light detecting and ranging (lidar) technology, was evaluated, and found to accurately measure ozone concentrations at altitudes of up to 3,000 meters. The novel approach used in this study provides true vertical distributions of ozone concentrations aloft and better temporal coverage of these distributions than other, more common methods, such as those using aircraft and ozonesonde (balloon) techniques. The ozone and aerosol measurements from this study, in conjunction with temperature and wind measurements, will provide a better characterization of atmospheric conditions aloft and the processes involved in the formation of unhealthful ozone concentrations than can be achieved with traditional ground-based monitors.

Public Outreach Document. The public outreach document is a one-page document that will be widely used to communicate, in clear and direct terms, the key research findings from the study to the public. CARB will be translating the document into other languages. This document must adhere to the following guidelines:

- Single space, limited to one-page or about 500 words.
- Use narrative form and active voice.
- Incorporate a graphic that it is easy to interpret and captures the results' central message.
- Avoid jargon and technical terms. Use a style and vocabulary level comparable to that of sixth grade reading level.
- The document should contain a title and the following five sections: Issue/s, Main Question, Key Research Findings, Conclusion/s, and More Information. Guidance on how to write these sections is described below.

  TITLE: Adopt a short, non-technical title to make the topic clear and concise. The title will likely differ from the original title of the contract.

  ISSUE/S: In one to two paragraphs, describe why the project was needed. In this section, identify the problem leading to this study and what the study was set to accomplish to help address the problem. Reference any history that is relevant such as a regulation, legislation, program, law, or other. Without going into detail and disclosing the research findings, mention the methods used in the study and how it informed the results.

  MAIN QUESTION: Present a concise central research question driving this project.

  KEY RESEACH FINDING/S: This section covers the key research findings. List key points and or findings.

  CONCLUSION/S: In one to two paragraphs, discuss how the results could be used. Mention its relevance to policies, rules, regulations, legislations, or CARB programs. Include suggestions for next steps, additional research, or other actions.

  MORE INFORMATION: In two to three short sentences provide specifics about the study. This section should include the full title of the study, sponsor, authors, and where the full report can be found (the final report will be posted on the CARB website). In addition to a direct contact to gain more information (author and CARB contract manager).

Executive Summary. The function of the executive summary is to inform the reader about the important aspects of the work that was done, permitting the reader to understand the research without reading the entire Report. It should state the objectives of the research and briefly describe the experimental methodology[ies] used, results, conclusions, and recommendations for further study. All of the concepts brought out in the abstract should be expanded upon in the Executive Summary. Conversely, the Executive Summary should not contain concepts that are not expanded upon in the body of the Report.

The Executive Summary will be used in several applications as written; therefore, please observe the style considerations discussed below.

Limit the Executive Summary to two pages, single spaced.

Use narrative form. Use a style and vocabulary level accessible to the general audience. Assume the audience is being exposed the subject for the first time.

Do not list contract tasks in lieu of discussing the methodology. Discuss the results rather than listing them.

Avoid jargon.

Define technical terms.

Use passive voice if active voice is awkward.

Avoid the temptation to lump separate topics together in one sentence to cut down on length.

The Executive Summary should contain four sections: Background, Objectives and Methods, Results, and Conclusions, described below.

THE BACKGROUND SECTION. For the Background, provide a one-paragraph discussion of the reasons the research was needed. Relate the research to the Board's regulatory functions, such as establishing ambient air quality standards for the protection of human health, crops, and ecosystems; the improvement and updating of emissions inventories; and the development of air pollution control strategies.

THE OBJECTIVES AND METHODS SECTION. At the beginning of the Objectives and Methods section, state the research objectives as described in the contract. Include a short, one or two sentences, overview of what was done in general for this research.

The methodology should be described in general, nontechnical terms, unless the purpose of the research was to develop a new methodology or demonstrate a new apparatus or technique. Even in those cases, technical aspects of the methodology should be kept to the minimum necessary for understanding the project. Use terminology with which the reader is likely to be familiar. If it is necessary to use technical terms, define them. Details, such as names of manufacturers and statistical analysis techniques, should be omitted.

Specify when and where the study was performed if it is important in interpreting the results. The findings should not be mentioned in the Objectives and Methods section.

THE RESULTS SECTION. The Results section should be a single paragraph in which the main findings are cited, and their significance briefly discussed. The results should be presented as a narrative, not a list. This section must include a discussion of the implications of the work for the Board's relevant regulatory programs.

THE CONCLUSIONS SECTION. The Conclusions section should be a single short paragraph in which the results are related to the background, objectives, and methods. Again, this should be presented as a narrative rather than a list. Include a short discussion of recommendations for further study, adhering to the guidelines for the Recommendations section in the body of the Report.

Body of Report. The body of the Report should contain the details of the research, divided into the following sections:[1]

INTRODUCTION. Clearly identify the scope and purpose of the project. Provide a general background of the project. Explicitly state the assumptions of the study.

Clearly describe the hypothesis or problem the research was designed to address. Discuss previous related work and provide a brief review of the relevant literature on the topic.

MATERIALS AND METHODS. Describe the various phases of the project, the theoretical approach to the solution of the problem being addressed, and limitations to the work. Describe the design and construction phases of the project, materials, equipment, instrumentation, and methodology.
Describe quality assurance and quality control procedures used. Describe the experimental or evaluation phase of the project.

RESULTS. Present the results in an orderly and coherent sequence. Describe statistical procedures used and their assumptions. Discuss information presented in tables, figures, and graphs. The titles and heading of tables, graphs, and figures, should be understandable without reference to the text. Include all necessary explanatory footnotes. Clearly indicate the measurement units used.

DISCUSSION. Interpret the data in the context of the original hypothesis or problem. Does the data support the hypothesis or provide solutions to the research problem? If appropriate, discuss how the results compare to data from similar or related studies. What are the implications of the findings?
Identify innovations or development of new techniques or processes. If appropriate, discuss cost projections and economic analyses.

SUMMARY AND CONCLUSIONS. This is the most important part of the Report because it is the section that will probably be read most frequently. This section should begin with a clear, concise statement of what, why, and how the project was done. Major results and conclusions of the study should then be presented, using clear, concise statements. Make sure the conclusions reached are fully supported by the results of the study. Do not overstate or overinterpret the results. It may be useful to itemize primary results and conclusions. A simple table or graph may be used to illustrate.

RECOMMENDATIONS. Use clear, concise statements to recommend (if appropriate) future research that is a reasonable progression of the study and can be supported by the results and discussion.

References. Use a consistent style to fully cite work referenced throughout the Report and references to closely related work, background material, and publications that offer additional information on aspects of the work. Please list these together in a separate section, following the body of the Report. If the Report is lengthy, you may list the references at the end of each chapter.

List of inventions reported and publications produced. If any inventions have been reported, or publications or pending publications have been produced as a result of the project, the titles, authors, journals or magazines, and identifying numbers that will assist in locating such information should be included in this section.

Glossary of terms, abbreviations, and symbols. When more than five of these items are used in the text of the Report, prepare a complete listing with explanations and definitions. It is expected that every abbreviation and symbol will be written out at its first appearance in the Report, with the abbreviation or symbol following in parentheses [i.e., carbon dioxide (CO2)]. Symbols listed in table and figure legends need not be listed in the Glossary.

Appendices. Related or additional material that is too bulky or detailed to include within the discussion portion of the Report shall be placed in appendices. If a Report has only one appendix, it should be entitled "APPENDIX". If a Report has more than one appendix, each should be designated with a capital letter (APPENDIX A, APPENDIX B). If the appendices are too large for inclusion in the Report, they should be collated, following the binding requirements for the Report, as a separate document.
The contract manager will determine whether appendices are to be included in the Report or treated separately. Page numbers of appendices included in the Report should continue the

page numbering of the Report body. Pages of separated appendices should be numbered consecutively, beginning at “1”.

3. Other Deliverables

A. Any other deliverables shall be provided in a mutually agreed upon format unless the deliverable format is already specified in Exhibit A.

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[1] Note that if the research employs multiple distinct methods, analyses, etc., the final report can include separate materials/methods, results, and discussion sections to allow for coherent discussion of each set of analyses and findings. However, the executive summary and conclusions sections should synthesize the collective findings of the entire study.

EXHIBIT A2

KEY PERSONNEL

List Key Personnel as defined in the Agreement starting with the PI, by last name, first name followed by Co-PIs. Then list all other Key Personnel in alphabetical order by last name. For each individual listed include his/her name, institutional affiliation, and role on the proposed project. Use additional consecutively numbered pages as necessary.

Last Name, First Name	Institutional Affiliation	Role on Project
Principal Investigator (PI):		
Co-PI(s) – if applicable:		
Other Key Personnel:		

EXHIBIT A3

AUTHORIZED REPRESENTATIVES & NOTICES

The following individuals are the authorized representatives for the State and the University under this Agreement. Any official Notices issued under the terms of this Agreement shall be addressed to the Authorized Official identified below, unless otherwise identified in the Agreement.

State Agency Contacts Agency Name: **CARB**	**University Contacts** University Name:
Contract Project Manager (Technical) Name: Address: Research Division 1001 I Street, 5th Floor Sacramento, CA 95814 Telephone: (916) Fax: (916) 322-4357 Email: @arb.ca.gov	***Principal Investigator (PI)*** Name: Address: Telephone: Fax: Email: Designees to certify invoices under Section 14 of Exhibit C on behalf of PI: 1. <Name>, <Title>, <EmailAddress> 2. <Name>, <Title>, <EmailAddress> 3. <Name>, <Title>, <EmailAddress>
Authorized Official (contract officer) Name: Brandy Hunt, Chief Address: Contracts, Procurement, and Grants Branch 1001 I Street, 19th Floor Sacramento, CA 95814 ***Send notices to (if different):*** Name: Address: Research Division 1001 I Street, 5th Floor Sacramento, CA 95814 Telephone: (916) Fax: (916) 322-4357 Email: @arb.ca.gov	***Authorized Official*** Name: Address: ***Send notices to (if different):*** Name: Address: Telephone: Fax: Email:

Administrative Contact Name: Address: Research Division 1001 I Street, 5th Floor Sacramento, CA 95814 Telephone: (916) Fax: (916) 322-4357 Email: @arb.ca.gov	***Administrative Contact*** Name: Address: Telephone: Fax: Email:
Financial Contact/Accounting Name: Accounts Payable Address: P.O. Box 1436 Sacramento, CA 95814 Email: AccountsPayable@arb.ca.gov **Send courtesy copy to Sarah Szepesi:** Fax: (916) 322-4357 Telephone: (916) 327-1256 Email: sarah.szepesi@arb.ca.gov	***Authorized Financial Contact/Invoicing*** Name: Address: Telephone: Fax: Email: Designees for invoice certification in accordance with Exhibit C – University Terms and Conditions, Section 14 on behalf of the Financial Contact: 1. 2. 3.

EXHIBIT A4

USE OF PREEXISTING INTELLECTUAL PROPERTY & DATA

If either Party will be using any third-party or pre-existing intellectual property (including, but not limited to copyrighted works, known patents, trademarks, service marks and trade secrets) “IP” and/or Data with restrictions on use, then list all such IP and the nature of the restriction below. If no third-party or pre-existing IP/Data will be used, check “none” in this section.

A. State: Preexisting Intellectual Property (IP)/Data to be provided to the University from the State or a third party for use in the performance in the Scope of Work.

☐ None or ☐ List:

Owner (State Agency or 3rd Party)	Description	Nature of restriction:

B. University: Restrictions in Preexisting IP/Data included in Deliverables identified in Exhibit A1, Deliverables.

☐ None or ☐ List:

Owner (University or 3rd Party)	Description	Nature of restriction:

C. Anticipated restrictions on use of Project Data.
If the University PI anticipates that any of the Project Data generated during the performance of the Scope of Work will have a restriction on use (such as subject identifying information in a data set), then list all such anticipated restrictions below. If there are no restrictions anticipated in the Project Data, then check “none” in this section.

☐ None or ☐ List:

Owner (State Agency or 3rd Party)	Description	Nature of restriction:

EXHIBIT A5

RÉSUMÉ / BIOSKETCH

Attach 2-3 page Résumé/Biosketch for Key Personnel listed in Exhibit A2.

EXHIBIT A6

CURRENT & PENDING SUPPORT

University will provide current & pending support information for Key Personnel identified in Exhibit A2 at time of proposal and upon request from State agency. The "Proposed Project" is this application that is submitted to the State. Add pages as needed.

PI: NAME OF INDIVIDUAL

Status (currently active or pending approval)	**Award #** (if available)	**Source** (name of the sponsor)	**Project Title**	**Start Date**	**End Date**
PROPOSED PROJECT					

EXHIBIT A7

THIRD PARTY CONFIDENTIAL INFORMATION REQUIREMENT

CONFIDENTIAL NONDISCLOSURE AGREEMENT

(Identified in Exhibit A, Scope of Work – will be incorporated, if applicable)

If the Scope of Work requires the provision of third party confidential information to either the State or the Universities, then any requirement of the third party in the use and disposition of the confidential information will be listed below. The third party may require a separate Confidential Nondisclosure Agreement (CNDA) as a requirement to use the confidential information. Any CNDA will be identified in this Exhibit A7.

Or

Exhibit A7 is not applicable for this Agreement.

Principal Investigator (Last, First): ____________________

EXHIBIT B

BUDGET SUMMARY:

Budget Category		TOTAL
PERSONNEL (*Salary and Fringe Benefits)*		$ -
TRAVEL		$ -
MATERIALS & SUPPLIES		$ -
EQUIPMENT		$ -
CONSULTANT		$ -
SUBRECIPIENT		$ -
OTHER DIRECT COSTS (ODC)	Subject to IDC Calc? Y	$ -
TOTAL DIRECT COSTS		**$ -**

INDIRECT (F&A) COSTS (BASE)		$ -
	MTDC Rate	25%
TOTAL F&A COSTS		**$ -**

TOTAL PROJECT COST	**$ -**

Reversion of Funds:

Fiscal Year	Amount	Reverting Date

EXHIBIT B1

BUDGET JUSTIFICATION

Personnel

Name	Mo. Salary	Est. Months	% of Effort	Total
A.				$ -
B.				$ -
C.				$ -
D.				$ -
E.				$ -
F.				$ -

TOTAL: $ -

Justifications:

Fringe Benefits

Name	Base	Rate	Total
A.	$ -		$ -
B.	$ -		$ -
C.	$ -		$ -
D.	$ -		$ -
E.	$ -		$ -
F.	$ -		$ -

TOTAL: $ -

Justifications:

Travel

Destination/Purpose	# of Trips	# of People	Duration (Days)	Airfare ($/Trip)	Per Diem ($/Day)	Ground Travel	Lodging	Total
A.								$ -
B.								$ -
C.								$ -
D.								$ -
E.								$ -
F.								$ -

TOTAL: $ -

Justifications:

Materials & Supplies

Item	Vendor	Units	Cost/Unit	Total
A.				$ -
B.				$ -
C.				$ -
D.				$ -
E.				$ -
F.				$ -

TOTAL: $ -

Justifications:

Equipment

	Item	Vendor	Units	Cost/Unit	Total
A.					$ -
B.					$ -
C.					$ -
D.					$ -

TOTAL:	**$ -**

Justifications:

Consultant Costs

	Consultant Name	Total
A.		
B.		
C.		
D.		

TOTAL:	**$ -**

Justifications:

Subawardee (Consortium/Subrecipient) Costs

	Subrecipient Name	Total
A.		
B.		
C.		
D.		

TOTAL:	$ -

Justifications:

Other Direct Costs

	Item	Vendor	Units	Cost/Unit	Total
A.					$ -
B.					$ -
C.					$ -
D.					$ -

TOTAL:	$ -

Justifications:

TOTAL DIRECT COSTS	$ -

Indirect (F&A) Costs

Base		Rate	Total
$	-	25%	$ -
			$ -
			$ -

TOTAL:	**$ -**

Justifications:

Indirect costs are calculated in accordance with the University budgeted indirect cost rate in Exhibit B.

TOTAL INDIRECT COSTS	**$ -**

TOTAL PROJECT COST	**$ -**

EXHIBIT B2

BUDGET PERTAINING TO SUBAWARDEE(S)

Use same formatting as Exhibit B and B1 for each subreceipient.

or

Exhibit B2 is not applicable for this Agreement.

EXHIBIT B3

INVOICE AND DETAILED TRANSACTION LEDGER ELEMENTS

In accordance with Section 14 of Exhibit C – Payment and Invoicing, the invoice, summary report and/or transaction/payroll ledger shall be certified by the University's Financial Contact and the PI (or their respective designees).

Invoicing frequency

☒ Quarterly ☐ Monthly

Invoicing signature format

☐ Ink ☒ Facsimile/Electronic Approval

Summary Invoice – includes either on the invoice or in a separate summary document – by approved budget category (Exhibit B) – expenditures for the invoice period, approved budget, cumulative expenditures and budget balance available[1]

- Personnel
- Equipment
- Travel
- Subawardee – Consultants
- Subawardee – Subcontract/Subrecipients
- Materials & Supplies
- Other Direct Costs
  - TOTAL DIRECT COSTS (if available from system)
- Indirect Costs
  - TOTAL

Detailed transaction ledger and/or payroll ledger for the invoice period [2]

- University Fund OR Agency Award # (to connect to invoice summary)
- Invoice/Report Period (matching invoice summary)
- GL Account/Object Code
- Doc Type (or subledger reference)
- Transaction Reference#
- Transaction Description, Vendor and/or Employee Name
- Transaction Posting Date
- Time Worked
- Transaction Amount

[1] If this information is not on the invoice or summary attachment, it may be included in a detailed transaction ledger.

[2] For salaries and wages, these elements are anticipated to be included in the detailed transaction ledger. If all elements are not contained in the transaction ledger, then a separate payroll ledger may be provided with the required elements.

EXHIBIT C

UNIVERSITY TERMS AND CONDITIONS

The University Terms and Conditions (UTC) can be found: https://www.ucop.edu/research-policy-analysis-coordination/research-sponsors-agreements/state-of-california/cma-templates.html.

EXHIBIT D

ADDITIONAL REQUIREMENTS ASSOCIATED WITH FUNDING SOURCES

If the Agreement is subject to any additional requirements imposed on the funding State agency by applicable law (including, but not limited to, bond, proposition and federal funding), then these additional requirements will be set forth in Exhibit D. If the University is a subrecipient, as defined in 2 CFR 200 (Uniform Guidance on Administrative Requirements, Audit Requirements and Cost Principles for Federal Financial Assistance), and the external funding entity is the federal government, the below table must be completed by the State agency. (Please see sections 10.A and 10.B of the Exhibit C.)

State Agency to Complete (Required for Federal Funding Source):

Federal Agency	
Federal Award Identification Number	
Federal Award Date	
Catalog of Federal Domestic Assistance (CFDA) Number and Name	
Amount Awarded to State Agency	
Effective Dates for State Agency	
Federal Award to State Agency is Research & Development (Yes/No)	

University to Complete:

Research and Development (R&D) means all research activities, both basic and applied, and all development activities that are performed by non-Federal entities. The term research also includes activities involving the training of individuals in research techniques where such activities utilize the same facilities as other R&D activities and where such activities are not included in the instruction function.

This award ☐ does ☐ does not support Research & Development.

OR

Exhibit D is not applicable for this Agreement.

EXHIBIT E

SPECIAL CONDITIONS FOR SECURITY OF CONFIDENTIAL INFORMATION

If the Scope of Work or project results in additional legal and regulatory requirements regarding security of Confidential Information, those requirements regarding the use and disposition of the information, will be provided by the funding State agency in Exhibit E. (Please see section 8.E of Exhibit C.)

OR

Exhibit E is not applicable for this Agreement.

EXHIBIT F

ACCESS TO STATE FACILITIES OR COMPUTING RESOURCES

If the Scope of Work or project requires that the Universities have access to State agency facilities or computing systems and a separate agreement between the individual accessing the facility or system and the State agency is necessary, then the requirement for the agreement and the agreement itself will be listed in Exhibit F. (Please see section 21 of Exhibit C.)

OR

Exhibit F is not applicable for this Agreement.

EXHIBIT G

NEGOTIATED ALTERNATE UTC TERMS

Exhibit C, Section 14 – Payment & Invoicing is hereby amended to incorporate the following:

Add Item A – Section 6:

6) CARB shall withhold payment equal to 10 percent after the contractor has been compensated for 90 percent of the agreement per Exhibit B1, Budget Justification. The 10 percent shall be withheld until completion of all work and submission to CARB by the University of a final report approved by CARB in accordance with Exhibit A1, Schedule of Deliverables, Section 2. It is the University's responsibility to submit one (1) original and one (1) copy of the final invoice.

Modify Item C – Invoicing, 2 is hereby replaced in its entirety with the following:

2) Invoices shall be submitted in arrears not more frequently ~~than monthly and not less frequently~~ than quarterly to the State Financial Contact, identified in Exhibit A3. Invoices may be submitted electronically by email. If submitted electronically, invoice must include the following certification for State certification to the State Controller's Office, in compliance with SAM 8422.1

   This bill has been checked against our records and found to be the original one presented for payment and has not been paid. We have recorded this payment so as to prevent later duplicate payment.

   Signed: ______________________________

   State Agency Accounting Officer

Add Item E:

E. Advance Payment

1) Nothing herein contained shall preclude advance payments pursuant to Title 2, Division 3, Part 1, Chapter 3, Article 1 of the Government Code of the State of California.

2) Upon termination or completion of this Agreement, Contractor shall refund any excess funds to the CARB. Contractor will reconcile total Agreement costs to total payments received in advance and any remaining advance will be refunded to the CARB's Accounting Office. In the event the Agreement is terminated, total project costs incurred prior to the effective date of termination (including close-out costs) will be reconciled to total project payments received in advance and any remaining advance will be refunded to the CARB. In either event Contractor shall return any balance due to CARB within sixty (60) days, of expiration or earlier termination.