CONTRACT NO. _____

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION DISTRICT

AND

CITY OF FRESNO

This Agreement, which shall be effective as of the ___ day of _____ 2022, by and between the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION DISTRICT (hereafter "DISTRICT") and CITY OF FRESNO, (hereafter "CITY").

RECITALS:

WHEREAS, California Assembly Bill 617 (AB 617) requires that the DISTRICT work with disadvantaged communities within the San Joaquin Valley as selected by the California Air Resources Board (CARB); and

WHEREAS, the DISTRICT nominated, and CARB selected, South Central Fresno as a disadvantaged community that would benefit from the development of a community emissions reduction program under AB 617; and

WHEREAS, in working with the South Central Fresno community throughout implementation of AB 617, the DISTRICT identified a high-priority emissions reduction strategy that would help build an understanding of the impacts of heavy-duty trucks emissions on the community and to study the possible benefits of rerouting the trucks to mitigate the impacts on community members; and

WHEREAS, the CITY is the agency charged with developing truck routes within the area of concern; and

WHEREAS, the DISTRICT, the CITY desire to conduct a study to assess the

feasibility of rerouting on-road heavy duty truck traffic in the South Central Fresno AB 617 community in response to community concerns (hereinafter referred to as the "Study"); and

WHEREAS, the CITY will enter into a contract with a qualified external consultant (hereinafter referred to as the "CONTRACTOR") selected through a competitive RFP process to conduct the truck traffic component of the STUDY; and

WHEREAS, the CITY will enter into a contract with a qualified external university partner (hereinafter also referred to as the "CONTRACTOR") selected to perform a health impact analysis of the STUDY; and

WHEREAS, the CITY has agreed to oversee the performance of such services pursuant to the terms and conditions of the Statement of Work (SOW), which are attached hereto and incorporated herein as Exhibit A of this Agreement; and

WHEREAS, this Agreement is not a public works contract as defined in California Civil Code section 8038 or Public Contract Code section 1101, nor is the Project a public work of improvement as defined in California Civil Code section 8050; and

NOW, THEREFORE, the parties hereby agree that the above recitals are incorporated and made a part of this Agreement and further agree as follows:

1. PROJECT

1.1. The STUDY, consisting of both a feasibility analysis of rerouting on-road heavy-duty truck traffic in the South Central Fresno AB 617 community and a health impact analysis of said truck routes, is set forth in the SOW described in Exhibit A to this Agreement and incorporated herein by reference. CITY will responsibly oversee and administer the CONTRACTORS performance of the tasks and services and work

products requested in Exhibit A of the Agreement.

1.2. In consideration of the CITY's execution of a contract with the CONTRACTORS, DISTRICT agrees to reimburse the CITY up to Five Hundred Thousand Dollars ($500,000) subject to the following conditions:

1.2.1. All reports that the CITY receives from the CONTRACTORS per Exhibit A shall be delivered to DISTRICT according to the deadlines identified in Exhibit A.

1.2.2. The CITY agrees to participate in teleconference calls and South Central Fresno Community Steering Committee Meetings to discuss the progress reports upon request by the DISTRICT.

1.2.3. The CITY shall ensure that the CONTRACTORS place the following language in a conspicuous place on all progress reports and on the final report:

> **"The statements and conclusions in this report are those of the CONTRACTOR(S) and not necessarily those of the CITY and its representatives, the DISTRICT, its Governing Board, or employees. 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."**

1.3. DISTRICT shall not require, and the CITY shall not undertake, any extra services in excess of the total compensation specified in the Agreement without formal amendment to the Agreement executed in the same manner as the Agreement.

2. PERIOD OF PERFORMANCE/TIMETABLE

2.1. The project shall proceed in accordance with the work schedule and deadlines for

performance identified in Exhibit A of the Agreement, and shall continue until terminated as provided herein. In no event shall the term of the Agreement extend past March 31, 2024 without the express, written consent of the parties hereto.

2.2. The parties hereto may mutually agree to terminate the Agreement at any time, and in such case, upon any terms as are mutually agreeable, provided that such agreement is made pursuant to a written amendment to the Agreement.

3. COMPENSATION AND INVOICING

3.1. DISTRICT agrees to pay the CITY and the CITY agrees to receive a cost-reimbursable total sum not to exceed Five Hundred Thousand Dollars ($500,000) for satisfactory services performed under the Agreement.

3.2. The amount to be paid to the CITY under the Agreement includes all sales and use taxes incurred pursuant to the Agreement, if any, including any such taxes due on equipment purchased by the CITY. The CITY shall not receive additional compensation for reimbursement of such taxes and shall not decrease work to compensate therefor.

3.3. Advance payments shall not be permitted. Payments will be permitted only when specified services and work products have been satisfactorily delivered. Progress payments shall be subject to review by the DISTRICT Program Manager. Progress payments shall be made upon receipt of a work product or deliverable specified in this Agreement, an invoice, and a completed claim for payment form, which is attached as Exhibit C and incorporated herein by reference. Invoices shall be sent to:

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Jessica Olsen

Director of Community Strategies and Resources

San Joaquin Valley Air Pollution Control District

1990 E. Gettysburg Avenue, Fresno, California 93726

Jessica.Olsen@valleyair.org

3.4. With respect to the service or work product delivered, the invoice shall set forth in detail, in accordance with the Agreement budget, the amount of time expended on the project, including the classification of personnel involved in such time expenditure. The invoice shall also contain an itemization of all materials used for the project, including the purpose of their use and their cost. Payment shall be made within thirty (30) days of receipt of the invoice.

3.5. Upon request by DISTRICT, the CITY shall certify (i.e., through copies of issued invoices, checks, or receipts) that complete payment has been made to any and all subcontractors and subconsultants.

3.6. It is understood that all expenses incidental to the CITY's performance of services under the Agreement shall be borne exclusively by the CITY.

3.7. DISTRICT shall be solely responsible for payment and not any of the parties to the Joint Powers Agreement forming the DISTRICT.

3.8. In no event shall compensation paid by DISTRICT to the CITY for the performance of all services under the Agreement exceed Five Hundred Thousand Dollars ($500,000).

3.9. The CITY shall submit all invoices before the termination of the Agreement.

4. FUNDING REQUIREMENT

CITY shall be required to contribute funding of not less than Two Hundred Thousand Dollars ($200,000) for the consultant agreement related to the truck rerouting portion of the STUDY and Fifty Thousand Dollars ($50,000) for all City staff costs and traffic counts. Should the truck reroute analysis cost more than Two Hundred Thousand Dollars ($200,000), the District shall reimburse the CITY for any remaining costs. Additionally, the District shall reimburse the CITY for the total cost of the university study on the health impact analysis. Prior to the end of the Project Term, the CITY shall provide District sufficient documentation on the amount of CITY funds committed and contributed for the truck reroute analysis.

5. INDEPENDENT CONTRACTOR(S)

5.1. In performance of the work, duties, and obligations assumed by the CITY under this Agreement, it is mutually understood and agreed that the CITY, including any and all of the CITY's officers, agents, and employees, will at all times be acting and performing as an independent contractor, and shall act in an independent capacity and not as an officer, agent, servant, employee, joint venturer, partner, or associate of the DISTRICT or the Policy Committee.

5.2. Furthermore, DISTRICT shall have no right to control, supervise, or direct the manner or method by which the CITY shall perform its work and function. However, DISTRICT shall retain the right to administer the Agreement so as to verify that the CITY is performing its obligations in accordance with the terms and conditions thereof. The CITY and DISTRICT shall comply with all applicable provisions of law and the rules and regulations, if any, of governmental authorities having jurisdiction over matters the subject thereof.

5.3. Because of its status as an independent contractor, the CITY shall have absolutely no right to employment rights and benefits available to DISTRICT employees. The CITY shall be solely liable and responsible for providing all legally required employee benefits. In addition, the CITY shall be solely responsible and save DISTRICT harmless from all matters relating to payment of the CITY's employees, including compliance with Social Security, withholding, and all other regulations governing such matters. It is acknowledged that during the term of the Agreement, the CITY may be providing services to others unrelated to DISTRICT or to the Agreement.

6. INDEMNIFICATION AND INSURANCE

6.1. CITY agrees to indemnify, save, defend and hold one another, its boards, committees, representatives, officers, agents, and employees harmless from and against any and all costs and expenses (including reasonable attorney fees and litigation costs), damages, liabilities, claims, and losses (whether in contract, tort, or strict liability, including, but not limited to, personal injury, death, property damage or copyright infringement) which arises or is alleged to arise directly or indirectly from any act or omission of the CITY, its officers, agents, or employees in their performance of the Agreement, and from any and all costs and expenses (including reasonable attorney fees and litigation costs), damages, liabilities, claims, and losses (whether in contract, tort, or strict liability, including, but not limited to, personal injury, death, and property damage) occurring or resulting to any person, firm, corporation, or entity who may be injured or damaged when such injury or damage arises from any act of omission of the CITY, its officers, agents, or employees in their performance of

the Agreement, save and except claims arising out of the sole negligence or sole willful misconduct of DISTRICT. Provided nothing herein shall constitute a waiver by City of Fresno of governmental immunities including California Government Code section 810 et seq..

6.2. The CITY warrants that it is self-insured and that it has sufficient funds and assets to provide coverage of at least One Million Dollars ($1,000,000) per occurrence for general commercial liability and One Million Dollars ($1,000,000) per occurrence for commercial automobile liability, without contribution from the DISTRICT or its insurers. The CITY's responsibility for worker injuries is governed by California law, and/or other applicable statutes.

6.3. In the event that the CITY fails to keep in effect at all times insurance coverage as herein required, DISTRICT may, in addition to other remedies it may have, suspend or terminate the Agreement upon the occurrence of such event.

7. AUDITS AND INSPECTIONS

7.1. The CITY shall at mutually agreeable times during business hours, and as often as DISTRICT may deem necessary, make available to DISTRICT for examination all of its records and data with respect to the matters covered by the Agreement. The CITY shall, upon request by DISTRICT, permit DISTRICT to audit and inspect all of such records and data necessary to ensure the CITY's compliance with the terms of the Agreement.

7.2. The CITY shall maintain books, records, documents, and other evidence pertaining to the reimbursable time and materials and hold them available for audit and inspection

by DISTRICT for a minimum of three (3) years from the date the Agreement is completed or otherwise terminated.

8. NOTICES

8.1. The persons and their addresses having authority to give and receive notices under the Agreement include the following:

Samir Sheikh
Executive Director/APCO
San Joaquin Valley Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, California 93726-0244

Scott Mozier
Public Works Director
City of Fresno, Public Works Department
2600 Fresno Street, 4th Floor
Fresno, California 93721-3623

8.2. Any and all notices between DISTRICT and the CITY provided for or permitted under the Agreement or by law shall be in writing and shall be deemed duly served when personally delivered to one of the parties, or in lieu of such personal services, when deposited in the United States mail, postage prepaid, addressed to such party.

9. GOVERNING LAW

9.1. Venue for any action arising out of or relating to this Agreement shall only be in Fresno County, California.

9.2. The rights and obligations of the parties and all interpretation and performance of this Agreement shall be governed in all respects by the laws of the State of California.

10. DISPUTES

In the event, there is a dispute regarding or related to the Agreement, the CITY and DISTRICT shall meet and will attempt to resolve the dispute. If the dispute cannot be resolved within sixty (60) days from the notice of the dispute, the CITY and DISTRICT shall try in good faith to settle the dispute by mediation before resorting to arbitration or litigation.

11. COMPLIANCE WITH LAWS

The CITY shall comply with all federal and state laws, statutes, regulations, rules, and guidelines which apply to its performance under the Agreement.

12. CONFLICT OF INTEREST

No officer, employee, or agent of DISTRICT who exercises any function or responsibility for planning and carrying out the services provided under the Agreement shall have any direct or indirect personal financial interest in the Agreement. The CITY shall comply with all applicable federal and state conflict of interest laws, statutes, and regulations which shall be applicable to all parties and beneficiaries under the Agreement and any officer, agent, or employee of DISTRICT.

13. MODIFICATION

Any matters of the Agreement may be modified from time to time by the written consent of all the parties without, in any way, affecting the remainder.

14. SEVERABILITY

In the event that any one or more provisions contained in the Agreement shall for any reason be held to be unenforceable in any respect by a court of competent jurisdiction, such holding shall not affect any other provisions of the Agreement, and the Agreement shall then be construed as if such unenforceable provisions are not a part hereof.

15. NON-ASSIGNMENT

Neither party shall assign, transfer, or subcontract the Agreement nor their rights or duties under the Agreement without the prior, express written consent of the other party.

16. BINDING UPON SUCCESSORS

This Agreement, including all covenants and conditions maintained herein, shall be binding upon and inure to the benefit of the parties, including their respective successors-in-interest, assigns, and legal representatives.

17. WAIVER

No waiver of any breach of the Agreement shall be held to be a waiver of any other or subsequent breach. All remedies afforded in the Agreement shall be taken and construed as cumulative, that is, in addition to every other remedy provided therein or by law. The failure of DISTRICT to enforce at any time any of the provisions of the Agreement or to require at any time performance by the CITY of any of the provisions therefor, shall in no way be construed to be a waiver of such provisions nor in any way affect the validity of the Agreement or any part thereof or the right of DISTRICT to thereafter enforce each and every such provision.

18. ENTIRE AGREEMENT

This Agreement, including all attached exhibits and documents which are referred to and incorporated herein, constitutes the entire Agreement between the CITY and DISTRICT with respect to the subject matter hereof and supersedes all previous negotiations, proposals, commitments, writings, advertisements, publications, and understandings of any nature whatsoever unless expressly included in the Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first herein above written through their respective duly appointed and authorized representatives.

CITY OF FRESNO,
a California municipal corporation

_____
By: Scott Mozier, PE, TE
Director
Public Works Department

APPROVED AS TO LEGAL FORM:
DOUGLAS T. SLOAN
City Attorneys

_____
By: Taylor W. Rhoan
Deputy City Attorney

ATTEST:
TODD STERMER, CMC
City Clerk

_____
By: Amanda Martin
Deputy Clerk

DISTRICT
San Joaquin Valley Unified Air Pollution Control District

_____
By Monte Reyes
Chair, Governing Board

San Joaquin Valley Unified Air Pollution Control District

_____
By Samir Sheikh
Executive Director/APCO

Approved as to legal form:
San Joaquin Valley Unified Air Pollution Control District

_____
Annette Ballatore
District Counsel

Approved as to accounting form:
San Joaquin Valley Unified Air Pollution Control District

_____
Mehri Barati, C.P.A.
Director of Administrative Services

Project Understanding, Approach, and Scope of Services

The South Central Fresno community is located in the center of the San Joaquin Valley in the SJVAPCD and includes the communities of Calwa and Malaga. The community is approximately 29 square miles and has a population of approximately 97,000 people. The community is comprised of the downtown core and a mix of residential single-family homes. The industrial area is located in the southwest portion of the community and includes a fossil fuel electric power generation facility along with several other industrial sources. The community is also traversed by Highways 99, 41, and 180. The area is dominated by industrial uses due to the proximity to rail and highways. Primary businesses include manufacturing, recycling, and distribution.

The South Central Fresno community has a high cumulative air pollution exposure burden, a significant number of sensitive receptors (including but not limited to schools, daycares, and hospitals), and includes census tracts that have been designated as disadvantaged communities. The community has high asthma rates and cardiovascular disease impacts, along with high rates of poverty, unemployment, and linguistic isolation. The San Joaquin Valley has been the focus of numerous air quality studies which lay the necessary foundation for the development of an emissions reduction program in this urban community. The community was also prioritized by the San Joaquin Valley's AB 617 Environmental Justice Steering Committee.

The Truck Reroute Study will identify, analyze, and evaluate potential strategies that freight impacted communities in the AB 617 area might take in cooperation with the City of Fresno to abate truck impacts. Such truck impacts include air pollution, noise, polluted runoff, traffic crashes, traffic congestion, active transportation conflicts, residential and school impacts, and excess wear for local pavements and bridges.

The Truck Reroute Study is envisioned to develop innovative, creative, and implementable mobility solutions and strategies to support South Central Fresno community. The IBI Group Team recognizes that this is a vital and important project that is intended to respond to the mobility challenges and opportunities of the study area, focusing on the critical role that truck traffic plays in the health, happiness, and well-being of its residents.

Based on our review of the RFP and the study goals and objectives, the team we have assembled is very excited to have the opportunity to submit this proposal to the City and District to complete this study effort. Our team is purpose-selected to bring unparalleled expertise and creativity to address the regional and local truck mobility challenges in order to update the 2005 Fresno Designated Truck Map. Our robust knowledge of the City and County of Fresno and all aspects of mobility—freight, active transportation, truck, vehicular—has prepared us to deliver a thorough and effective implementation plan.

TECHNICAL APPROACH

Our technical approach begins with having the right people for the project. Each member of the IBI Team is purpose-selected to deliver on the stated objectives. They have their hands on the pulse of the ever-changing transportation climate specifically related to goods movement and truck traffic. This integration of resources is why we are in a unique position to provide innovative solutions to a space we are very familiar with.

IBI Group understands that there are two main focuses of this study. The first focus is not just in identifying the gaps that exist in the current regional transportation network and planning to address them but doing so in a way that incorporates the lessons of current and past planning efforts and emphasizes the local knowledge and expertise of the community, key stakeholders, and neighboring jurisdictions as they relate to truck-based impacts. The second focus is in creating prioritization, action and implementation plan that is at its core achievable and useful, but also responsive to the social equity issues that are often under-addressed or sidelined in planning studies. Over the course of the study, we will incorporate these considerations in the public engagement, needs and opportunities assessment, and the overall transportation-related recommendations.

Underpinning our knowledge of the study setting detailed above is a clear understanding of the challenges created by the COVID-19 pandemic and the uncertainty that it has injected into all planning processes. As a technology-oriented global firm with extensive experience with smart cities infrastructure, IBI Group was well-prepared to transition to a completely remote work environment and experienced no downtime at the onset of this crisis. Since that time, we have rapidly developed new digital engagement tools that have already proven successful for community outreach and will apply our lessons learned to this study. Finally, the experts included within our California practices are leading our firm's global COVID-19 recovery recommendations and strategy, including through the use of parametric planning and computational design to rapidly iterate reconfigurations of space in response to public health guidelines. Should these tools become potentially useful to City and District during the course of the study, we are ready to deploy them.

The project study area presents a complex mobility challenge for a variety of reasons. These include:

- The facilities in the study area are under the jurisdiction of multiple local and state municipalities. These include the City of Fresno, Fresno County and Caltrans and require coordination and cooperation to achieve mutual benefits and uniform policy.
- The study area is a gateway for global trade. Goods movement here significantly contributes to the economic health of the City and County of Fresno. However, increased truck activity in the community unfortunately comes with undesirable effects. These can extend past the transportation realm into social, economic, physical, safety, health, and environmental impacts.
- The study area demographics are diverse and complex, with residents from a variety of backgrounds and cultures, some who have lived in the City for multiple generations and some who are recent immigrants. This unique mix and diversity of culture, economics, and language requires a robust and relative community engagement approach that seeks out people and participation rather than forcing residents to find us, understanding that the specific community may have reservations in speaking their concerns due to citizenship status.

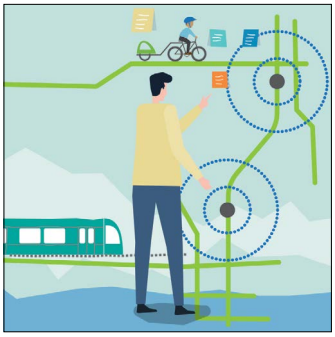
Within this context, our approach to the Truck Reroute Study is focused on three components:

1 Investigation

Review and understand the existing conditions within the project study area. A data-oriented approach to understanding the community and its needs will be augmented by a robust and participatory community engagement effort.

2 Innovation

Create a bold vision for truck movements in the area that is informed by the project team's expertise and that incorporates and updates best practices, past ideas and planning efforts. The community will also be engaged to craft this vision and contribute to the identification of solutions that meet their existing and future infrastructure needs.



3 Solutions

The result of this effort will be an implementation plan that is actionable and that contains a range of solutions, addressing needs for new or improved truck routes, policy considerations, levels of coordination needed, and estimated costs and funding opportunities.

The **INVESTIGATION** phase of work begins with the establishment of clear protocols and a project implementation plan to deliver the project in a remote work environment, with options to transition back to in-person meetings. It includes opportunities for input from the general public, as well as other key stakeholders, on existing conditions assessments and policy reviews, and an identification of priorities. Most importantly, investigation will be informed by a robust, inclusive, and expansive community engagement that gathers local knowledge and expertise.

The **INNOVATION** phase of work will connect the investigation with potential solutions, supported by spatial GIS modeling analysis, conceptual engineering, community impact analysis, and environmental analysis. Measures of social equity, truck GPS data, and other analysis of the built environment will be centered in the analysis and will be responsive to community feedback, visioning, and needs.

The **SOLUTIONS** identified by the study will include not just traditional infrastructure such geometric changes, but also the policy changes informed by our team's decades of experience in coordinating across multiple jurisdictions. The solutions will include concrete recommendations to reduce greenhouse gas emissions, reduce truck VMT, improve travel safety, increase accessibility, and provide for a more equitable and sustainable transportation network for the community.

We have found that organizing our approach to complex, multi-agency projects similar to this study around these three primary components helps to guide the project work plan, maintain the project schedule, and communicate these project goals, progress, and process effectively to stakeholders and the community. With this approach, project participants can understand how the study process will flow and progress and how their input and participation will be incorporated within the planning process. These project phases also help to tell the story of the project development process and study effort, forming the organization of the final plan and providing valuable and organized input that can be utilized for the development of grant applications, funding, and actions for project implementation.

Scope of Services

Task 1: Project Management

The project management effort will be led by Mike Arizabal, who will serve as the primary point of contact for project partners and will be responsible for the deliverables submitted under this contract. The project management effort will be ongoing throughout the duration of the project. This task includes oversight of the consultant team, and the administrative tasks required to support the overall project. Within this task, IBI Group will manage and oversee all administrative, contractual, and technical aspects, of the study to ensure timely and integrated production of tasks to achieve the study objectives.

Kick-Off Meeting

Our first order of work after the Notice to Proceed (NTP) will be to schedule a project kick-off meeting with all project partners including at a minimum City of Fresno, the District, Fresno COG, and the County of Fresno. This meeting will have the purpose to introduce the team, review project objectives and requirements, and establish lines of communication and procedures/protocol, recurring project meeting frequency, progress reporting, scheduling and invoicing, and other relevant project information. IBI will have reviewed all previous and current planning efforts related to the AB 617 area and ensure work efforts are coordinated and that information is shared accordingly. The IBI Team shall be responsible for providing a summary of the meeting and identification of key action items.

Work Plan

This proposal and associated deliverables within this proposal are the first steps in creating an effective work plan. The work plan is intended to serve as a quick reference to the project management team, task leads, and the City and District. The work plan will include procedures and protocol for managing resources, communications, budgeting and the project milestones and schedule. The work plan will also allow for clear monitoring, reporting, and quality assurance of each individual task status. The work plan will identify and foresee all potential issues and constraints and prepare for their effective resolution before they may potentially occur.

Project Schedule

The project schedule will also be presented at the kick-off meeting. The schedule will be finalized as a Gantt chart and will include individualized and detailed work tasks, start dates, activity durations, product submittal dates, key project milestones, and relationships among work tasks, including critical path items. The project schedule will be no greater than 18 months from the start date as stated in the RFP. IBI Group understands that the submitted draft project schedule will be reviewed by the City Project Manager and key stakeholders throughout the study process. A final schedule will be included in the work plan.

Project Management Calls/Meetings

IBI Group will conduct regular project status meetings with the City and District Project Managers on a bi-weekly basis throughout the duration of the project (up to 20 meetings). These meetings would be conducted via video conference call (Teams, Zoom, or Skype) and will be scheduled for an hour depending on project needs. We will establish a regular meeting schedule and time that works for all parties. The purpose of these meetings will be to discuss ongoing and upcoming project work efforts and to ensure that IBI and project partners are on the same page with regard to the project progress. A key element of these progress meetings will be to discuss work efforts in relation to the overall project schedule and budget. IBI's Project Manager, Mike Arizabal, will be available for impromptu "check-ins" via phone or email throughout the duration of the project.

KPA will participate in these project team meetings to provide community meeting and stakeholder meeting summaries, issues, and attitudes towards mitigation measures. KPA will also respond to phone calls and emails to maintain communication with the team through the duration of the project. For budget purposes, KPA is assuming 6 hours a month for every month of project communications. Well before each meeting, IBI Group will send out agendas for the Project Management Calls that will include the project status, updates on the project schedule, deliverables, and summaries of meetings with the advisory committee and stakeholders. These meetings will be complete with notes, minutes, and summaries that will be uploaded to a file sharing system soon after the conclusion of each project management meeting.

Filing Sharing System

IBI Group will set up a file sharing system shortly after the conclusion of the initial Project Kick-off Meeting. The service platform that will serve as the file sharing system will be chosen in the Kick-off meeting. In past projects, IBI Group has used a secure and protected Microsoft SharePoint project folder that would be specifically created for this project. The file sharing system would be a site to exchange draft and final work products, schedule information, contact information, meeting info and minutes, and all necessary information required to complete the study. IBI also uses Microsoft Teams, Miro, and Google Drive as means to share files and collaborate if necessary.

Project Invoicing and Quarterly Reports

In the management of this project, IBI Group will prepare invoice packages with the City to submit these to District staff for review and approval based on milestone completion. The invoices and progress reports will conform to City requirements. The invoicing will include the budgeted amount, percent complete, and the remaining balance for each task and subtask. The purpose of the monthly invoices and progress reports is to document the project progress against projected efforts and allow for timely payment of prime and sub-contractors consistent with efforts expended and progress achieved.

IBI Group is aware that the City and District will be submitting quarterly reports to the AB 617 Community Steering Committee (CSC) and City Council members providing a summary of project performance and funding expenditures. IBI Group will coordinate with the City and District on these reports.

Task 1 Deliverables

- *Kick-off Meeting Materials and Summary Notes*
- *Project Work Plan and Schedule*
- *Bi-Weekly Project Call Meeting Notes and Summaries*
- *Project File Sharing System, Invoicing Template and Quarterly Reports*

Task 2: Outreach and Engagement

The IBI Group Team understands that the public and agency outreach effort is an important component of the project and has teamed with Katherine Padilla & Associates to deliver a public outreach approach that will integrate the input of stakeholders within the South Central Fresno community, while providing the best possible solutions. The IBI Team recognizes the importance of developing a robust and dynamic public outreach approach to engage as many community members and stakeholders as possible and to expand the reach of the project to a diverse audience.

IBI understands the challenges related to outreach, especially in disadvantaged communities. Traditionally, outreach to disadvantaged communities can be a challenge as residents are apprehensive to engage with public officials and staff due to immigration status or distrust of the traditional planning process. The IBI Team has a long history of implementing public outreach strategies that are truly innovative and engaging across California. As a part of our recent work efforts on the Metro Transit Supportive Planning Toolkit, we helped to identify a variety of public outreach tools and strategies for local agencies to use to communicate their projects. The toolkit outlines specific public outreach tools for engaging a wide variety of community members and to keep them engaged. Some of these tools and strategies that would be applied for the South Central Fresno community include:

- **Multiple Modes of Communication –** Using multiple modes of communication can extend project reach and ensure multiple groups feel heard. Aside from the conventional in-person community meetings, other engagement tools such as live streaming or web streaming of meetings should be made available to those who are unable to attend.
- **Make Engagement Interactive –** Using action-oriented, interactive, and in-the-field outreach strategies makes it easier for people to digest projects and to submit input to revise, test, and fix ideas. Interactive engagement also casts a wider net of measurable responses because citizens are encouraged to participate, not just listen to potential solutions.
- **Use Visual Tools to Engage –** Visual tools such as 3D models or renderings should be incorporated into community outreach efforts to illustrate how projects can be tailored to fit and remain consistent with existing community characteristics.

Stakeholder and Public Engagement Plan

At the kick-off meeting, or shortly thereafter, KPA proposes holding a Stakeholder Analysis Session with City and District staff to discuss key stakeholders, such as community-based organizations, key trucking companies and their representatives, and representatives from affected neighborhoods, in order to match outreach tactics with the stakeholders' communication needs and the appropriate level of engagement. KPA will present a preliminary list of CBOs, businesses, transportation groups, government entities, and other stakeholders for discussion purposes.

After the stakeholders analysis session, KPA will produce a Stakeholder and Public Engagement Plan which will include social media and traditional media strategies, development of press releases, and describe how we will tap into the city's channels of information and those of other key organizations to maximize the exposure of project information and input opportunities. Engagement strategies may include briefings, interviews with stakeholders, focus groups, announcements and presentations to CBOs, or emails and invitations, social media and press releases.

As part of the Stakeholder and Public Engagement Plan, KPA will also develop Key Messages ("talking points") that describe the project, its goals and objectives, the schedule, and opportunities for community input and feedback, especially to seek the opinions to traditionally disenfranchised communities. The Key Messages serve as a foundation for communication about the project. Additionally, KPA will produce a "process diagram" which will graphically illustrate in a community-friendly manner all strategies, community input opportunities, and how they are aligned with decision points leading to Study milestones. It is understood that KPA will work closely with the City and District to finalize and execute the Stakeholder and Engagement Plan.

The Plan will include the methodology for soliciting, responding to, and documenting stakeholder input and will also describe the role of stakeholders in the decision-making process and will detail how study progress will be disseminated. The Plan will include a section outlining and identifying procedures for integrating and accommodating diverse and conflicting priorities among stakeholders.

The Plan will include a full methodology describing the specific outreach strategies used to accommodate participation for those who speak various languages, with a focus on Spanish and Hmong speakers as over 44% of residents in the affected region are of either of Hispanic or Hmong origin and about a quarter of residents in the same region speak English less than "very well". In this task, outreach will be provided in other languages as deemed beneficial to reach as many members of the public as possible. Not only will the Spanish and Hmong languages be full represented in all community outreach events, but IBI Group will ensure an equal opportunity for all community members to participate. Importantly, community input will provide the foundation for guiding principles, evaluation criteria for mitigation measures, and recommendations, which shall also be informed by technical analysis and best practices presented by the Project Team.

Project Database

Over the course of this study, IBI Group and KPA will foster a deep knowledge and understanding of stakeholders and their issues, concerns, and recommendations. For this study, we recommend strategically targeting our engagement efforts and developing a project database to facilitate on-going communication with key property owners, residents, local businesses (especially the affected industrial complexes), local schools, Chambers of Commerce, major employers, City offices, elected officials, civic groups, transportation and transit agencies, sensitive receptors, emergency responders, private entities, community organizations, and other identified local stakeholders to be determined. IBI Group and KPA will build upon existing lists provided by the City/ District and original research. The contact list will be updated on a regular basis and/or as needed.

Technical Steering Group and Community Advisory Group

In coordination with the Project Team and the City, the IBI Group and KPA will assist with the formation of a Technical Steering Group (TSG) and Community Advisory Group (CAG) comprised of representatives of key stakeholder groups to serve as a sounding board. These groups would offer input to the project team about our methodology, assumptions, project milestones, and key deliverables, including outreach strategies, Guiding Principles, evaluative criteria for mitigation strategies, and draft recommendations. IBI Group Team will work with the City and District to schedule TSG and CAG meetings to solicit feedback

about the overall project, as well as on specific deliverables, including the Project Guiding Principles.

KPA will establish the CAG and TSG in coordination with the City and District. KPA will provide a draft email-letter to send to invitees that describes the project background, objectives, expected number of meetings, committee role and responsibilities. KPA will support TSG and CAG meetings by conducting the following tasks: coordinate the logistics of meetings, notifications, attend the meetings, and provide action-oriented minutes with 48 hours of the meetings. It is understood that Technical Team members will provide the content and agenda for the meetings. KPA shall attend up to six (6) TSG meetings as needed and shall convene and facilitate six (6) CAG meetings and provide summary notes.

IBI Group will prepare a schedule for each TSG and CAG meeting that will show project objectives and deliverables. Coordination activities include securing meeting venues, notification, agendas, exhibits and presentation materials. Meetings may be in-person, via videoconference or teleconference.

Stakeholder Interviews (up to 16)

In collaboration with the Project Team, KPA shall interview two groups of 6-8 key stakeholders to be selected by the City and District to identify key concerns and opportunities for mitigation options. Group 1 shall consist of businesses and Group 2 to be composed of residents. KPA shall work with the team to develop the interview guide to explore key questions and shall write a report summarizing key issues and opportunities.

Task 2 Deliverables

- *Engagement Strategy, Final Version*
- *Stakeholder Coordination and Public Engagement Plan*
- *Outreach and Engagement Summaries, Materials, and Attendance Lists*
- *Project Guiding Principles, Draft Version*
- *Establish TSG and CAG, with preparation and attendance at up to six (6) meetings per group (12 total), along with meeting materials, agendas, and minutes*
- *Up to 16 interviews with stakeholder groups, with interview guides and written summaries*

Task 3: Existing Conditions Report

Creating a foundation of data of existing conditions is crucial for the accurate assessment of the study area. The existing conditions will serve as the baseline for all recommended improvements related to truck rerouting. The Existing Conditions Report will include an introduction (background and purpose), study area description (location, regional significance, transportation facilities), demographic conditions (population and employment), land use (existing land use, key destinations/activity centers/employment centers), relevant planning documents and data (transportation/mobility, general plans, specific plans, regional plans, climate plans, etc.), truck mobility conditions (volumes, VMT, OD, collisions), policy review (local transportation policies, regional and state policies and guidelines), and equity analysis (disadvantaged communities, public health metrics/ conditions and demographic conditions. Highlights of the Existing Conditions report include:

Literature Review and Data Synthesis

IBI Group has already began the literature review process of relevant previous studies, plans, and other documents for the South Central Fresno area, for developing a meaningful and thoughtful project understanding. The extended review will include City, County, and Caltrans truck permitting processes, National Freight Network, current truck routes, and local agency plans such as truck restriction ordinances and routing plans. IBI Group will synthesis and summarize all the pertinent studies, policies, plans, and other documents with the goal of identifying gaps and/or areas that need updating. This information will be crucial in identifying alternative truck routes and what level of coordination is needed.

Existing Data Sources

IBI Group will review and obtain all existing data related to truck trip origin-destination, traffic volumes on current and proposed truck routes, truck GPS data. Understanding who the major truck trip generators are and where they originate and where they are destined to is paramount to this study. IBI Group will obtain outputs from the Regional Travel Demand Model (Fresno Council of Governments (COG) Activity Based Model (ABM)) related to travel patterns, VMT, and volumes. IBI Group will work with

the City, County, Caltrans and District to identify and obtain all sources of existing traffic count and classification data. Recent and/or current planning studies in the area will also be reviewed to identify additional sources of traffic data.

Data Collection Plan

While synthesizing data that currently exists is only one aspect of the data collection process, IBI Group recognizes that much of the necessary traffic data is not readily available through existing avenues. Because of this, a strategy will be implemented outlining best practices to acquire all necessary traffic data required to accurately present existing conditions. It is assumed that the City of Fresno will collect and provide classified count data along all existing and proposed truck routes for the South Central Fresno Community, as shown on the September 2005 Truck Route Map. Additional classified count data will be provided by the City of Fresno along potential routes proposed through the community engagement process or as requested by the AB 617 subcommittee on Truck Re-Route Study. However, IBI will develop an existing data collection plan based on any gaps identified in the existing literature and data source review. New data collection can include, but not be limited to, traffic counts, vehicle classification counts, OD studies, license plate surveys, street geometries/signage, active transportation data, rail volumes and train frequencies.

Existing Physical Characteristics and Community Impacts

IBI Group will provide a comprehensive summary of all existing physical characteristics of the study area, along with an identification of community impacts related to truck movements. IBI will conduct a search of the Statewide Integrated Traffic Records System (SWITRS) and the Transportation Injury Mapping System (TIMS) to review collision reports for the most recent five-year period in the area and research air quality issues through the California Air Resources Board (CARB) Community Air Monitoring Plan for the South Central Fresno community. IBI will also utilize GIS along with the California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen to develop indicators related to exposure, environmental effects, sensitive population, and socioeconomic factors to score the South Central Fresno Community. This task will also inventory roadway characteristics and pavement condition, noise issues, VMT impacts (from the model), operational impacts (localized intersection, freeway, and roadway segment level of service and capacity analysis), and the interface between high volume truck routes and school, pedestrian, and bicycle facilities.

Conceptual Design

IBI's Civil and Traffic Engineers will develop conceptual plans and truck turning templates (AutoTurn) along all identified new truck routes, with samples at up to ten (10) locations. Conceptual drawings will be planning-level with the purpose of showing sample cross-sections and improvements within available right-of-way.

Task 3 Deliverables

- *Truck Routing Study Existing Conditions Report, Final Version*

Task 4: Report National Best Practices for Accommodating Trucks

IBI Group has an existing data base of national best practices related to minimizing truck impacts in and around neighborhood communities. This data base was created for IBI's work on the Wilmington Freight Mitigation Study and will be utilized for this study. This includes literature from Federal Highway Administration (FHWA), various Departments of Transportations across the United States, and various NCHRP reports that discuss truck parking, truck demand management (alternative delivery schedules), and neighborhood intrusion.

Task 4 Deliverables

- *Truck Management Approaches Report*

Task 5: Recommended Truck Routes, Community Strategies, and Implementation Plan

The culmination of all work in the previous tasks will be presented in the Truck Routing and Implementation Plan. The elements from Tasks 2 through 4 will culminate in a "state of the system" chapter of the Implementation Plan. This will include socioeconomic data, transportation policies, major truck origin/destination patterns, roadway conditions, and regulatory framework. The IBI Group team will use the data from the existing conditions analysis, previous planning efforts and public outreach feedback to design and map the proposed new truck routes. Connectivity to existing and planned facilities in adjacent cities will be considered to develop a complete and detailed list of future projects that will be prioritized for implementation. Each project will include a brief project description, including project-specific information and potential constraints, such as right-of-way acquisition and grades.

Prioritization directly supports future grant applications since most grants require evidence that prioritization was considered when ranking potential projects. The IBI team will work with City and District staff to create a framework and metrics for prioritizing and ranking projects based on the data and input collected during previous tasks, giving special emphasis to values and priorities expressed by the public. Criteria may be weighted to reflect relative importance for achieving project objectives and goals. The criteria may be presented to the TSG and CAG, or publicly via community engagement events, for feedback to verify the prioritization approach.

The prioritization process will also consider community needs; regional, county, physical and social barriers, safety, and statewide policy and funding frameworks; and the timeframe for implementation, including TSG, CAG, City, County, and District staff input.

The IBI Group Team has extensive experience developing prioritization frameworks that reflect local values and consider both the strategic and implementation criteria needed to inform decision making. Strategic criteria are used to inform program design, reflecting core values and longer-term ambitions, whereas implementation criteria include elements such as readiness and partner support.

The outreach and engagement effort, coupled with the existing context and challenges for the future of the transportation system will inform the potential truck routing solutions that will be developed. The IBI Group team will focus on recommendations that address equity, safety, and community concerns, while maintaining the efficient movement of goods.

The IBI Group Team collectively brings a deep and diverse understanding of local, state, and federal funding sources and programs. Additionally, our team's extensive work with regional planning agencies allows us to provide the City and district with the benefit of our experience in evaluating how available funding should be allocated as part of a regional plan to ensure equitable access to funding opportunities. As part of this element of the Implementation Plan, we will prepare a funding matrix that identifies sources, pursuit requirements, potential uses of funding, timelines, and eligible projects and programs.

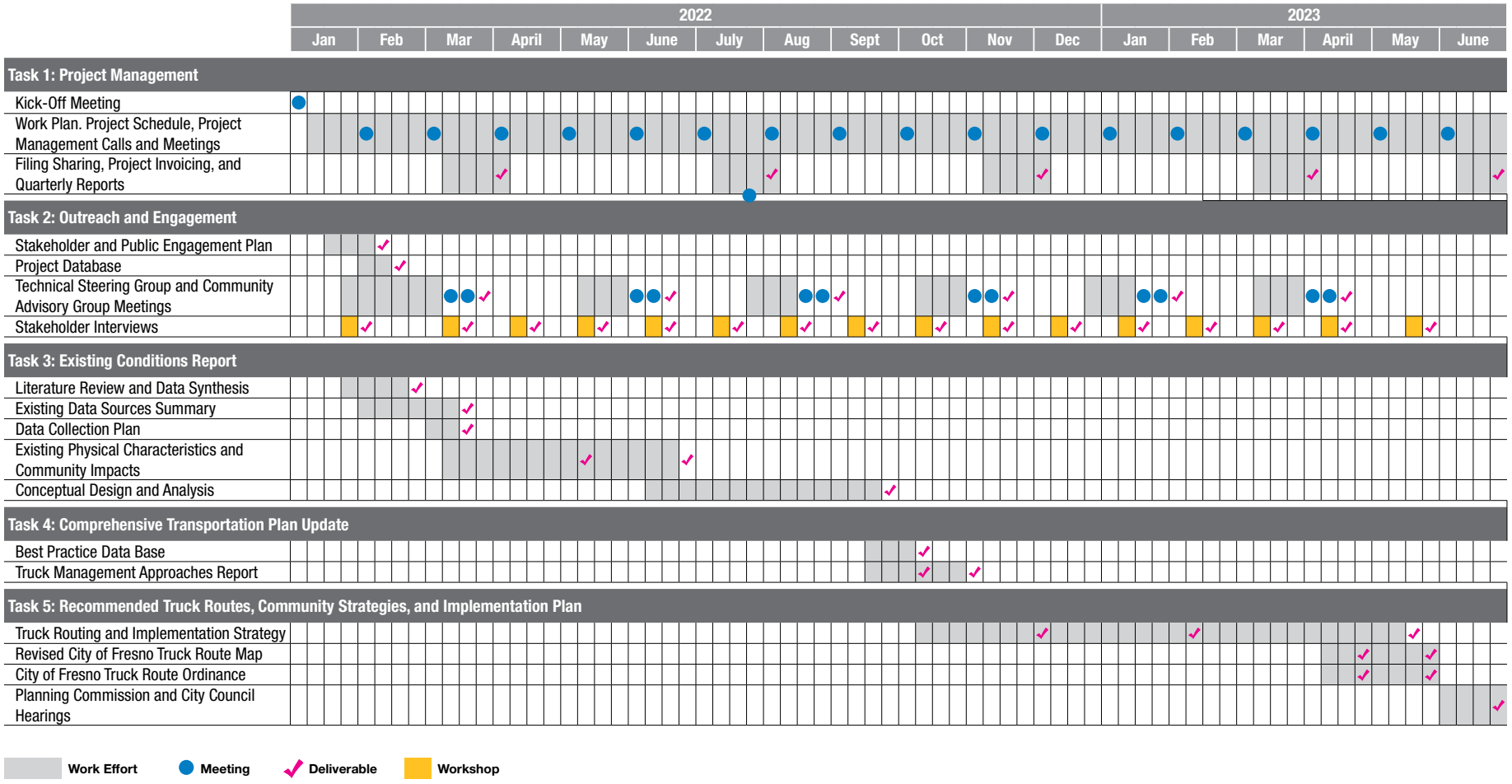
IBI Group will provide a complete, clear, and concise report that documents all the work efforts from Tasks 2 through 4, including tables, maps, and/ or other graphics. One of the maps will be the proposed updated to the 2005 City of Fresno Truck Route Map. IBI will also provide the City and District with a section that describes any modifications to the City's Truck Route Ordinance. The report format and structure will lean towards one that is easily digestible by the public or others that may wish to utilize the document for guidance on future planning efforts and grants in the South Central Fresno community area.

IBI assumes up to two (2) rounds of review of the Draft Implementation Plan by the City and District and one (1) round of public review. IBI will provide one (1) set of consolidated and reconciled comments on all draft documents to the City and District. IBI Group has also allocated time for up to one (1) Planning Commission Hearing and two (2) City Council Hearings.

Task 5 Deliverables

- *Truck Routing and Implementation Strategy*
- *Revised City of Fresno Truck Route Map*
- *City of Fresno Truck Route Ordinance*

Schedule


2022
2023
Jan
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April
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June
Task 1: Project Management
Kick-Off Meeting
Work Plan. Project Schedule, Project Management Calls and Meetings
Filing Sharing, Project Invoicing, and Quarterly Reports
Task 2: Outreach and Engagement
Stakeholder and Public Engagement Plan
Project Database
Technical Steering Group and Community Advisory Group Meetings
Stakeholder Interviews
Task 3: Existing Conditions Report
Literature Review and Data Synthesis
Existing Data Sources Summary
Data Collection Plan
Existing Physical Characteristics and Community Impacts
Conceptual Design and Analysis
Task 4: Comprehensive Transportation Plan Update
Best Practice Data Base
Truck Management Approaches Report
Task 5: Recommended Truck Routes, Community Strategies, and Implementation Plan
Truck Routing and Implementation Strategy
Revised City of Fresno Truck Route Map
City of Fresno Truck Route Ordinance
Planning Commission and City Council Hearings
Work Effort
Meeting
Deliverable
Workshop

Cost

	IBI Group (Prime)									Katherine Padilla & Associates (Subconsultant)						
Title	Principal-in-Charge	Project Manager	Deputy PM/Traffic Engineer	Community Impacts/ GIS Lead	Engineering Lead/Civil Engineer	Planning Support	Engineering Support	Graphic Design	IBI	Principal	Senior Associate	Senior Outreach Specialist	Outreach Specialist	KPA	Project Totals	
Staff	B. Delo	Mike Arizabal	Lydia LaPoint, PE	Cristina Martinez	Karen Sujata, PE	Brooke Acosta	Vivian Hang, EIT	Staff		Katherine Padilla	Jessica Padilla	Thelma Herrera	J.A Rosel			
Billing Rate	$260.00	$155.00	$175.00	$105.00	$115.00	$80.00	$85.00	$95.00		$210.00	$180.00	$175.00	$85.00		Hours	Fees
Task 1: Project Management																
Kick-Off Meeting	2	2	2	2	1	1	1	1	12	24	0	24	0	48	60	$11,005
Work Plan. Project Schedule, Project Management Calls and Meetings	4	40	40	4	0	0	0	0	88					0	88	$14,660
Filing Sharing, Project Invoicing, and Quarterly Reports	2	32	24	2	2	0	0	0	62					0	62	$10,120
SUBTOTAL	**8**	**74**	**66**	**8**	**3**	**1**	**1**	**1**	**162**	**24**	**0**	**24**	**0**	**48**	**210**	**$35,785**
Task 2: Outreach and Engagement																
Stakeholder and Public Engagement Plan	2	16	4	0	0	0	0	4	26	4	4	18	12	38	64	$9,810
Project Database	0	2	2	0	0	0	0	0	4	0	0	4	20	24	28	$3,060
Technical Steering Group and Community Advisory Group Meetings	2	16	16	0	0	0	0	24	58	60	48	84	32	224	282	$46,740
Stakeholder Interviews	2	8	8	0	0	0	0	24	42	36	0	36	16	88	130	$20,660
SUBTOTAL	**6**	**42**	**30**	**0**	**0**	**0**	**0**	**52**	**130**	**100**	**52**	**142**	**80**	**374**	**504**	**$80,270**
Task 3: Existing Conditions Report																
Literature Review and Data Synthesis	1	4	2	4	4	20	20	0	55					0	55	$5,410
Existing Data Sources Summary	0	2	2	2	2	24	24	0	56					0	56	$5,060
Data Collection Plan	2	4	2	2	2	36	36	0	84					0	84	$7,870
Existing Physical Characteristics and Community Impacts	4	8	12	24	16	24	32	0	120					0	120	$13,380
Conceptual Design and Analysis	2	2	16	0	48	0	60	32	160					0	160	$17,290
SUBTOTAL	**9**	**20**	**34**	**32**	**72**	**104**	**172**	**32**	**475**	**0**	**0**	**0**	**0**	**0**	**475**	**$49,010**
Task 4: Report National Best Practices for Accommodating Trucks																
Best Practice Data Base	1	2	0	4	2	0	2	0	11					0	11	$1,390
Truck Management Approaches Report	2	10	8	4	24	8	32	8	96					0	96	$10,770
SUBTOTAL	**3**	**12**	**8**	**8**	**26**	**8**	**34**	**8**	**107**	**0**	**0**	**0**	**0**	**0**	**107**	**$12,160**
Task 5: Recommended Truck Routes, Community Strategies, and Implementation Plan																
Truck Routing and Implementation Strategy	6	32	24	36	40	80	80	24	322					0	322	$34,580
Revised City of Fresno Truck Route Map	2	2	2	2	16	4	16	8	52					0	52	$5,670
City of Fresno Truck Route Ordinance	2	2	2	12	2	16	12	0	48					0	48	$4,970
Planning Commission and City Council Hearings	0	12	16	4	4	0	0	12	48					0	48	$6,680
SUBTOTAL	**10**	**48**	**44**	**54**	**62**	**100**	**108**	**44**	**470**	**0**	**0**	**0**	**0**	**0**	**470**	**$51,900**
Total Project Person Hours	**36**	**196**	**182**	**102**	**163**	**213**	**315**	**137**	**1344**	**124**	**52**	**166**	**80**	**422**	**1,766**	
Total Project Fees	$9,360	$30,380	$31,850	$10,710	$18,745	$17,040	$26,775	$13,015	$157,875	$26,040	$9,360	$29,050	$6,800	$71,250		$229,125

DIRECT COSTS	
Travel and Mileage	$850
Traffic Counts	$15,000
Meeting and Outreach Materials	$5,000

TOTAL PROJECT COST	**$249,975**

University of California, Merced

Scope of Work Statement

Health impacts of air pollution in Fresno, CA

Sponsor: City of Fresno, California

Prepared by: Sandie Ha

Version: 3

Date: Jan 14, 2022

Last updated: March 11, 2022

Contents

1. Problem statement

Air pollutants including fine particles and ozone have been consistently linked to many health outcomes ranging from minor respiratory irritation to cardiorespiratory complications and even premature death.[1-6] Biologic mechanisms linking air pollution to adverse health outcomes include oxidative stress, systemic inflammation, and endocrine disruption.[7,8] Despite a significant body of work, very few studies have comprehensively evaluated health impacts of air pollution in central California, an area with significant air pollution levels, marked health disparities, and severely limited access to care.[9,10]

2. Objectives

The objectives of this health impact assessment are three-fold. First, we seek to **assess the extent to which air pollution impacts the risk of common health outcomes across the lifespan**. These health outcomes include infant mortality, preterm delivery, childhood asthma, and cardiovascular events in the city of Fresno, CA from 2008-2019. Second, to inform policy and planning efforts, we also **calculate the excess number of cases that are attributed to air pollution in the region**. Stated differently, these estimates refer to the number of cases that could be prevented if air pollution levels are minimized. Additionally, we will also explore whether the health impacts of air pollution differ in neighborhoods with high and low socioeconomic indicators. Third, we seek to **conduct a community-based health survey to explore residents' concerns, behaviors, health outcomes, and health needs that are relevant to air pollution in the region**. This assessment is designed to be consistent with the World Health Organization's general principles of health risk assessment of air pollution[11], while incorporating important information that is relevant to the city of Fresno.

3. Administration

The study will be led by Dr. Sandie Ha from the University of California, Merced. The assessment is expected to be completed in 18 months. During the study period, the PI will be available for public meeting to provide updates and/or discuss any potential issues or questions.

Administrative activities including IRB approval, data request, and survey design will be started prior to the study period (but after contract approval) to ensure timely completion.

4. Brief research methods

To provide a comprehensive assessment the community's health related to air pollution, the study will consist of two components including 1) **a population-based health risk assessment** and 2) **a community health survey**. The population-based health risk assessment will provide population-based estimates that are useful for health impact estimation, policy decisions and community planning. Meanwhile, the community health needs survey will provide more details about residents' concerns, behaviors, health status, and needs that will further support policy decisions and intervention efforts.

4.1 Population-based health risk assessment

4.1.1 Overview.

In the population-based health risk assessment, we will be spatiotemporally linking large population-based health databases to air pollution estimation surfaces as well as other social environment indicators (more details on data sources are described in *section 4.1.3*). The resulting dataset will provide estimation of air pollution exposures by individuals at any space-time and allows the opportunity to evaluate whether air pollution exposures are associated with the risk of specific health outcomes of interest across the lifespan.

4.1.2 Health outcomes of interest

To capture the wide range of potential health impacts of air pollution, we will be assessing multiple health effects across the lifespan in different age groups. These specific health outcomes include infant mortality and preterm birth among pregnant women and infants <1 year, asthma among children <18 years, and cardiovascular events (i.e., stroke, heart attack, etc) among adults ≥18 years in Fresno, CA. To address environmental injustice, we will also evaluate whether certain neighborhoods, indicated by area-level socioeconomic indicators, are more susceptible to the health effects of air pollution.

4.1.3 Data sources

The research team will be linking large population-based databases from a several well-known sources to ensure generalizability (Table 1). Data for air pollution, traffic/highway, truck routes, meteorological conditions, environmental injustice indicators, adverse pregnancy outcomes (i.e., infant mortality, preterm birth), and healthcare encounters (i.e. ED visits, hospitalization) for asthma and cardiovascular disease will be geocoded and spatiotemporally linked based on residential zip-code. Zip-code is the smallest geographical indicator available due to data privacy. The resulting linked file allows a comprehensive estimation of daily air pollution exposures, neighborhood characteristics, distance from major roads, and health information for each individual (e.g., all births and all emergency room visits and hospitalizations) in the databases.

For adverse pregnancy outcomes, addresses are available for more detailed spatial analyses. (See *Section 4.1.4* below)

Table 1. Data sources

Types of data	Data source	Year	Data description
Air pollution	San Joaquin Valley Air District	2007-2020	Daily concentration of air pollution estimated for all zip-codes in Fresno
Major roadways, truck routes	Caltrans	2008-2019	Major roadways, truck routes, traffic density in Fresno
Meteorological data	EPA Air Monitoring Network	2007-2020	Daily meteorological data at local monitors located in Fresno
Adverse pregnancy outcomes (e.g., infant mortality, preterm birth)	California Vital Statistics Birth Cohort Data	2008-2018 (2018 is the latest year available)	Linked birth and death certificates for all births registered in Fresno
Asthma and cardiovascular	California's Office of Statewide Health Planning and Development (OSPHD)	2008-2019 (2019 is the latest year available)	Patient-level administrative data abstracted from individual patient records and facility-level utilization data on healthcare services from hospitals and healthcare facilities in Fresno
Environmental Justice indicators	CalEnviroScreen 4.0 from the The Office of Environmental Health Hazard Assessment (OEHHA) *Note: a new version is available but the older 2018 version is closer to the study period.	2021	Environmental scores for all census tracts in Fresno based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors and prevalence of certain health conditions.
Neighborhood and contextual characteristics	American Community Survey and US Census	2010	Provides neighborhood socioeconomic indicators (e.g., income, education, etc) for all zip-codes in Fresno

4.1.4. Study design and analytic approach

We will be using the time-stratified case-crossover design and analyses to fully control for potential time-invariant confounding. This innovative approach is commonly and increasingly used to evaluate the effects of air pollution on acute outcomes in the literature.[12-16] To assess potential delayed effects of air pollution, we will evaluate risks within one week of exposure. Conditional logistic regression models will be used to calculate excess risk of health outcomes associated with air pollution exposures.

For pregnancy outcomes, we will be able to obtain residential address of the mother at delivery. Thus, in addition to the analyses mentioned above, we will also perform a more detailed spatial analysis which assesses whether proximity to major roadways, truck routes, or the distribution center are associated with elevated risk of adverse pregnancy outcomes. Such analysis will compare births

<500m away from a source to those who live further away. Potential confounders of interest will be evaluated using directed acyclic graphs.

We will also explore differences in health impacts of air pollution based on neighborhood characteristics. For example, at the same level of air pollution exposure, we will identify whether certain communities have more health impacts compared to others (i.e. more susceptible to impact of air pollution).

4.2 Community-based health survey

4.2.1 Overview

In order to supplement the population-based health risk assessment, we will also conduct a community-based health survey to obtain more details regarding residents' health status, concerns, awareness, and needs. We will be working with our established community partner to conduct a survey of ~1000-2,000 randomly selected Fresno residents living at varying distance from distribution center. The survey we will be administered by trained interviewers, and will assess residents' concerns, health status, behavior, and health needs that are relevant to air pollution exposures.

4.2.2 Health outcomes of interest

The survey will be capturing several important health domains that are relevant with respect to pollution exposures. These include address (for geocoding); demographics; health conditions; surrounding environmental conditions; employment; general health behaviors; knowledge, perception and practice related to air pollution; sources of air pollution and health information; neighborhood concerns; and healthcare utilization and access.

4.2.3 Study design and analytical approach

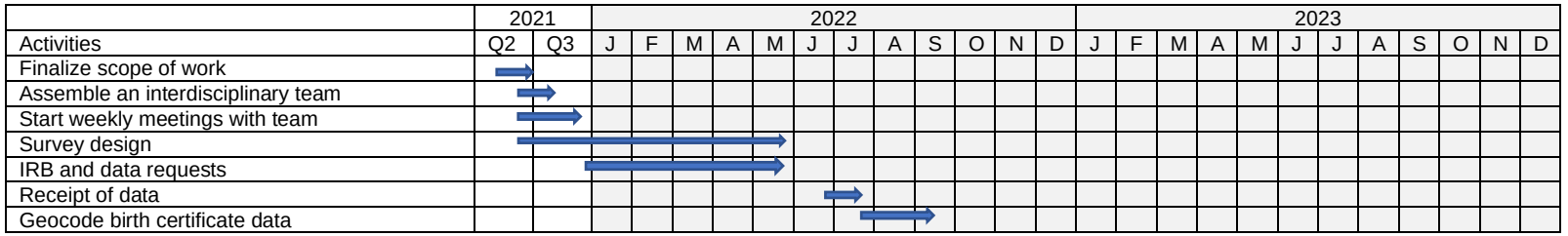
This survey will employ a cross-sectional design. We will be providing descriptive statistics of the health outcomes described in *section 4.2.2*. We will also compare needs, concerns and other health indicators across demographic groups using t-tests or chi-square tests as appropriate. Comparisons will also be made between those who live closer to the distribution center and those who live further away.

5. Deliverables

Through the contract period, the researchers and sponsor will be engaged in ongoing discussion to ensure timely and high-quality deliverables. Deliverables and their tentative due dates are presented in Table 2 below.

Table 2. Expected deliverables		
Deliverables	Description	Expected delivery
HRA 1 – Associations between air pollution and adverse pregnancy outcomes	-Descriptive statistics of characteristics of study participants and distributions of air pollution (ozone, $PM_{2.5}$) over space and time. -Associations (odds ratios, 95% confidence intervals) between air pollution exposures (ozone, $PM_{2.5}$) and infant mortality & preterm birth -Excess number of infant mortality and preterm births that were attributable to air pollution -If applicable data will be presented separately for disadvantaged and affluent neighborhoods -An assessment comparing adverse pregnancy outcomes between those who live within 500m of a major roadway/truck road vs. those who do not -Assessment comparing adverse pregnancy outcomes between those who live within 500m of the distribution center vs. those who do not.	December 31, 2022
HRA 2 – Associations between air pollution and childhood asthma emergency department (ED) visits in Fresno, CA	-Descriptive statistics of characteristics of study participants -Associations (odds ratios, 95% confidence intervals) between air pollution (ozone, $PM_{2.5}$) exposures and childhood asthma ED visits -Excess number of childhood asthma that were attributable to air pollution -If applicable data will be presented separately for disadvantaged and affluent neighborhoods	June 30, 2023
HRA 3 – Associations between air pollution and cardiovascular disease emergency department visits	-Descriptive statistics of characteristics of study participants -Associations (odds ratios, 95% confidence intervals) between air pollution exposures (ozone, $PM_{2.5}$) and cardiovascular event hospitalization and ED visits (stroke, heart attack, heart failure, etc) -Excess number of cardiovascular events that were attributable to air pollution -If applicable data will be presented separately for disadvantaged and affluent neighborhoods	August 15, 2023
Health needs assessment	-Descriptive statistics of resident's concerns, needs, and health status relevant to air pollution	December 01, 2023
FINAL REPORT		December 31, 2023

6. Expected Timeline



Health needs assessment survey																									x
Data management and linkage (Vital statistics)																									
HRA 1 (adverse pregnancy outcomes)														x											
Data management and linkage (OSHPD)																									
HRA 2 (childhood asthma)																			x						
HRA 3 (cardiovascular events)																					x				
FINAL Report																									x

7. Estimated Budget

Please see attached Excel sheet

Principal Investigator: Sandie Ha — **Budget Start Date: 1/1/22**

Sponsor: City of Fresno — **Budget End Date: 6/30/23**

Project Title: Health Impacts of air pollution in Fresno, CA

Salaries	***Monthly Rate***		***Year 1***	***Year 2: Six months***	***Year 3***	***Year 4***	***Year 5***	***Total***
PI: Sandie Ha	$ 11,322.22		33,967	11,662	-	-	-	45,629
Co-PI 1			-	-	-	-	-	-
Co-PI 2			-	-	-	-	-	-
Co-PI 3			-	-	-	-	-	-
Co-PI 4			-	-	-	-	-	-
PI Salary: Course Buyout			-	-	-	-	-	-
Postdoc Level			-	-	-	-	-	-
Staff (Exempt)			-	-	-	-	-	-
Staff (Non-Exempt)			-	-	-	-	-	-
Undergraduate Academic Year	$ 15.00	2,600	7,020	-	-	-	-	7,020
Undergraduate: summer, holidays	$ 15.00	2,600	5,850	-	-	-	-	5,850
GSR-AY (Fall): Step V	$ 4,902.83		11,009	-	-	-	-	11,009
GSR-AY (Spring): Step V	$ 4,902.83		11,009	11,340	-	-	-	22,349
GSR- Sumr: Step V	$ 4,902.83		14,679	2,520	-	-	-	17,199
Professional Research Scientist (Exempt)			-	-	-	-	-	-
Professional Research Scientist (Non-Exempt)			-	-	-	-	-	-
Project Scientist (Exempt)			-	-	-	-	-	-
Project Scientist (Non-Exempt)			-	-	-	-	-	-
Project Coordinator (Exempt)			-	-	-	-	-	-
Project Coordinator (Non-Exempt)			-	-	-	-	-	-
Total Salaries			***83,534***	***25,521***	**-**	**-**	**-**	***109,056***
Fringe: Composite Benefit Rates effective 7/1/21		**%**						
PI: Sandie Ha		3.0%	1,019	350	-	-	-	1,369
Co-PI 1		3.0%	-	-	-	-	-	-
Co-PI 2		3.0%	-	-	-	-	-	-
Co-PI 3		3.0%	-	-	-	-	-	-
Co-PI 4		3.0%	-	-	-	-	-	-
PI Salary: Course Buyout		37.0%	-	-	-	-	-	-
Postdoc Level		14.0%	-	-	-	-	-	-
Staff (Exempt)		45.7%	-	-	-	-	-	-
Staff (Non-Exempt)		53.5%	-	-	-	-	-	-
Undergraduate Academic Year		3.0%	211	-	-	-	-	211
Undergraduate: summer, holidays		3.0%	176	-	-	-	-	176
GSR-AY (Fall): Step V		3.0%	330	-	-	-	-	330
GSR-AY (Spring): Step V		3.0%	330	340	-	-	-	670
GSR- Sumr: Step V		3.0%	440	76	-	-	-	516
Professional Research Scientist (Exempt)		45.7%	-	-	-	-	-	-
Professional Research Scientist (Non-Exempt)		53.5%	-	-	-	-	-	-
Project Scientist (Exempt)		45.7%	-	-	-	-	-	-
Project Scientist (Non-Exempt)		53.5%	-	-	-	-	-	-
Project Coordinator (Exempt)		45.7%	-	-	-	-	-	-
Project Coordinator (Non-Exempt)		53.5%	-	-	-	-	-	-
Total Fringe			**2,506**	**766**	**-**	**-**	**-**	**3,272**
Total F & S			***86,040***	***26,287***	**-**	**-**	**-**	***112,327***
Equipment								
Equipment								-
Equipment								-
Equipment								-
Total Equipment			**-**	**-**	**-**	**-**	**-**	**-**
Travel								
Travel-domestic			4,000	6,000				10,000
Travel-international			2,000					2,000
Total Travel			**6,000**	**6,000**	**-**	**-**	**-**	**12,000**
Participant Support								
Stipends								-
Travel								-
Subsistence								-
Other:								-
Total Participant Support			**-**	**-**	**-**	**-**	**-**	**-**
Subawards								
Subaward 1: TBD Fresno CBO								-
Subaward 2								-
Subaward 3								-
UC Subaward 4								-
UC Subaward 5								-
UC Subaward 6								-
Total Subawards			**-**	**-**	**-**	**-**	**-**	**-**
Other Direct Costs								
Materials/Supplies: four computers, software license, data costs, da			18,550					18,550
Participant Incentives			20,000					20,000
Consultant Services: environmental justice + other TBD			37,000					37,000
SPARC lab			3,000					3,000
Other: Biostatistics recharge			5,000					5,000
Other: (Includes GSR Tuition & Fees)	**Fall**	**Spring**						
Tuition **	5,721	5,721	11,442	12,586	-	-	-	24,028
Non-resident Supplemental Tuition **	7,551	7,551	-	-	-	-	-	-
Student Services Fee **	564	564	1,128	1,241	-	-	-	2,369
Health Insurance **	1,356	1,899	3,255	3,580	-	-	-	6,835
Sub-Total Tuition & Fees			*15,825*	*17,407*	-	-	-	*33,232*
Total Other Direct Costs			**99,375**	**17,407**	**-**	**-**	**-**	**116,782**
Total Direct Costs			**191,415**	**49,694**	**-**	**-**	**-**	**241,110**
Portion of Sub-award to be charged IDC			-					-
MTDC (less equipment, Stdnt fees, & SK's > 25,000)			175,590	32,287	-	-	-	**207,877**
Total Indirect Costs		0.30	52,677	9,686	-	-	-	**62,363**
Total Request			**244,092**	**59,381**	**-**	**-**	**-**	**303,473**

GSR Totals Per Year

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Salary	36,698	13,859	-	-	-	50,557
Fringe	1,101	416	-	-	-	1,517
Consortium IDC						
Direct costs less consortium IDC	191,415	49,694	-	-	-	241,110

Composite Benefit Rates per year	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Other Academic and Exempt Staff	45.7%	45.7%	45.7%	45.7%	45.7%	45.7%
Faculty (Academic Year)	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Post Doctoral Scholars	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Limited Benefits Eligibility (including Faculty Summer Salaries)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Non Exempt Staff	53.5%	53.5%	53.5%	53.5%	53.5%	53.5%

Information for spreadsheet functionality: do not edit

GSR fees, =>55% IDC includes

Fall	Spring
4,291	4,291
5,663	5,663
423	423
1,017	1,424

GSR fees, <55% IDC

Fall	Spring
5,721	5721
7,551	7551
564	564
1356	1899

Current IDC Rate:

0.55

Budget type: 1=RR, 2=modular

1

 # Personnel Per Yr

Personnel	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
PI: Sandie Ha	1	1			
Co-PI 1					
Co-PI 2					
Co-PI 3					
Co-PI 4					
PI Salary: Course Buyout					
Postdoc Level					
Staff (Exempt)					
Staff (Non-Exempt)					
Undergraduate Academic Year	1				
Undergraduate: summer, holidays	1				
GSR-AY (Fall): Step V	1	1			
GSR-AY (Spring): Step V	1	1			
GSR- Sumr: Step V	2	1			
Professional Research Scientist (Exempt)					
Professional Research Scientist (Non-Exempt)					
Project Scientist (Exempt)					
Project Scientist (Non-Exempt)					
Project Coordinator (Exempt)					
Project Coordinator (Non-Exempt)					

# of Months Per Yr (integer value)

Personnel	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
PI: Sandie Ha	3	1			
Co-PI 1					
Co-PI 2					
Co-PI 3					
Co-PI 4					
PI Salary: Course Buyout					
Postdoc Level					
Staff (Exempt)					
Staff (Non-Exempt)					
Undergraduate Academic Year	9				
Undergraduate: summer, holidays	3				
GSR-AY (Fall): Step V	4.5				
GSR-AY (Spring): Step V	4.5	4.5			
GSR- Sumr: Step V	3	1			
Professional Research Scientist (Exempt)					
Professional Research Scientist (Non-Exempt)					
Project Scientist (Exempt)					
Project Scientist (Non-Exempt)					
Project Coordinator (Exempt)					
Project Coordinator (Non-Exempt)					

Percentage of Effort Per Month Per Yr

Personnel	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
PI: Sandie Ha	100.0%	100.0%			
Co-PI 1					
Co-PI 2					
Co-PI 3					
Co-PI 4					
PI Salary: Course Buyout					
Postdoc Level					
Staff (Exempt)					
Staff (Non-Exempt)					
Undergraduate Academic Year	30.0%				
Undergraduate: summer, holidays	75.0%				
GSR-AY (Fall): Step V	49.9%				
GSR-AY (Spring): Step V	49.9%	49.9%			
GSR- Sumr: Step V	49.9%	49.9%			
Professional Research Scientist (Exempt)					
Professional Research Scientist (Non-Exempt)					
Project Scientist (Exempt)					
Project Scientist (Non-Exempt)					
Project Coordinator (Exempt)					
Project Coordinator (Non-Exempt)					

Inflation auto-completes DO NOT EDIT 1.03

Person Months Per Year (auto-completes)

Personnel	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
PI: Sandie Ha	3	1	0	0	0	**4**
Co-PI 1	0	0	0	0	0	**0**
Co-PI 2	0	0	0	0	0	**0**
Co-PI 3	0	0	0	0	0	**0**
Co-PI 4	0	0	0	0	0	**0**
PI Salary: Course Buyout	0	0	0	0	0	**0**
Postdoc Level	0	0	0	0	0	**0**
Staff (Exempt)	0	0	0	0	0	**0**
Staff (Non-Exempt)	0	0	0	0	0	**0**
Undergraduate Academic Year	2.7	0	0	0	0	**2.7**
Undergraduate: summer, holidays	2.25	0	0	0	0	**2.25**
GSR-AY (Fall): Step V	2.2455	0	0	0	0	**2.2455**
GSR-AY (Spring): Step V	2.2455	2.2455	0	0	0	**4.491**
GSR- Sumr: Step V	2.994	0.499	0	0	0	**3.493**
Professional Research Scientist (Exempt)	0	0	0	0	0	**0**
Professional Research Scientist (Non-Exempt)	0	0	0	0	0	**0**
Project Scientist (Exempt)	0	0	0	0	0	**0**
Project Scientist (Non-Exempt)	0	0	0	0	0	**0**
Project Coordinator (Exempt)	0	0	0	0	0	**0**
Project Coordinator (Non-Exempt)	0	0	0	0	0	**0**

Fall Semester # GSR

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Tuition **	1	1	0	0	0
Non-resident Supplemental Tuition **					
Student Services Fee **	1	1	0	0	0
Health Insurance **	1	1	0	0	0

Spring Semester # GSR

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Tuition **	1	1	0	0	0
Non-resident Supplemental Tuition **					
Student Services Fee **	1	1	0	0	0
Health Insurance **	1	1	0	0	0

Tuition Increase (do not edit) 1.1

Budget period	**FY to use**
July 1, 2020-June 30, 2021	FY 2021
July 1, 2021-June 30, 2022	FY 2022
July 1, 2022-June 30, 2023	FY 2023
July 1, 2023-June 30, 2024	FY 2024

8. References

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BUDGET JUSTIFICATION:

PI: Sandie Ha
Project Title: Health impacts of air pollution in Fresno, CA
Project Period: 1/01/2022 - 6/30/2023

A. SENIOR PERSONNEL:

A.1. Dr. Sandie Ha will commit a total of 3 person months. She will work on, and supervise the research assistants working on the project.

B. OTHER PERSONNEL:

B.1. The Graduate Student Researcher (TBD) will commit 13 person academic months and 4 person summer months. The GSR will help with data management and analyses during the academic year. During summer two Graduate Student Researchers will help with survey data cleaning, management, and analysis.

B.2. The Undergraduate Student Assistant will assist with recruitment efforts, survey instrument design, data cleaning and management. The student will also be helping with administrative tasks such as IRB application and data acquisision.

Salaries are based on current actual salaries and are projected to include a 3% annual cost-of- living adjustment (and merit, if applicable) effective each year, consistent with institutional policy.

C. FRINGE BENEFITS:

a. 3% benefit rate is used for PI/Co-PIs.
b. 45.7% benefit rate is used for Research Scientists.
c. 14% benefit rate is used for Post-Doctoral Scholars.
d. 3% benefit rate is used for Graduate Student Researchers.

The University of California, Merced Composite Fringe Benefit Rates (CFBR) have been reviewed and federally approved by the Department of Health and Human Services (DHHS) for use by all fund sources for FY21. Rates beyond June 30, 2021 are estimates and are provided for planning purposes only. Future CFBR rates are subject to review and approval by DHHS on an annual or bi-annual basis. Fringe benefits are assessed as a percentage of the respective employee's salary. *For more information, please see:* https://bfs.ucmerced.edu/departments/costing-and-policy/cbr

D. TUITION AND FEES:

The University of California, Merced provides full remission of tuition, all fees, and graduate student health insurance to all graduate students who are employed on-campus at 25% time or greater during the academic year. The rates are based on current graduate fees and are escalated annually in the budget at a rate of 10% per year. Additional information regarding the fee remission program can be found at: https://catalog.ucmerced.edu/content.php?catoid=17&navoid=1626#fee_schedule

E. TRAVEL:

E.1. Domestic**:** Funding is requested for domestic travel for conferences for professional development and learn relevant methods for the project. Estimated breakdown of costs are as follows:

Item	Year 1	Year 2	Total
Airfare	1,500	1,500	3,000
Lodging	800	800	1,600
Meals	300	300	600
Conference Registration	300	300	600
Transportation	100	100	200
TOTAL:	3,000	3,000	6,000

E.2. Foreign**:** Funding is requested for foreign travel for conferences for professional development and learn relevant methods for the project. Estimated breakdown of costs are as follows:

Item	Year 1	Year 2	Total
Airfare	3,000	0	3,000
Lodging	1,500	0	1,500
Meals	300	0	300
Conference Registration	600	0	600
Transportation	600	0	600
TOTAL:	6,000	0	6,000

International per diem rates can be found here: https://aoprals.state.gov/web920/per_diem.asp

F. OTHER DIRECT COSTS:

F.1. Materials and Supplies: Funding is requested for purchasing:

F.1.1. Four (4) high performance computers for the management and linkage of large datasets.

F.1.2. Software: ArcGIS will be used to link spatial data

F.1.3. Vital statistics requests

F.1.4. Data storage: A larger server to accomondate the large amount of data necessary to conduct the proposed studies.

F.2. Consultant Services: Funding is requested for consultant (TBD). Environmental justice expert consultants will advise on issues surrounding incorporating environmental justice measures into the analyses.

F.3. UCM Biostatistics Core: An on-site recharge facility will provide comprehensive statistical and data analysis support.

F.4. Geocoding: UC Merced GIS Lab will be consulted to assist with geocoding birth certificate data.

G. INDIRECT COSTS:

Per the sponsor's policy, indirect costs have been limited to 30% of total direct costs.