

**2022**  
**CALL FOR PROJECTS**

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**SUPPLEMENTAL**  
**APPLICATION**  
**GUIDE**

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Attachment A: Sample Supplemental Application

### Introduction and Purpose of Guide

The Supplemental Application, in Excel format, has been developed to encompass all components necessary for the Orange County Transportation Authority's (OCTA's) Regional Traffic Signal Synchronization Program (RTSSP) 2022 Call for Projects. This completed Supplemental Application must be submitted in hard copy and electronically, both in PDF and Excel format, as per the latest update to the Comprehensive Transportation Funding Program (CTFP) Guidelines. A partially filled Sample Supplemental Application is included at the end of this Guide.

As much as possible, the Supplemental Application will identify what is automatically calculated versus what requires an input. For example, **green** shaded cells denote **INPUT** fields and **gray** shaded cells denote **AUTO-FILL** fields. Note that the color on your screen may vary due to screen resolution.

The following sections will detail the required updates to each tab in the Excel file to complete the Supplemental Application.

If you have additional questions or need assistance, please email [TrafficOps@octa.net](mailto:TrafficOps@octa.net).

Title Page

The cells that will require an input are as follows:

- Enter the **Date of Submittal** in Row 13
- Select the appropriate **Type of Submittal** from the drop-down in Row 14.
  - a. Application Deadline = First submittal
  - b. Revised Submittal = All versions after the initial submittal

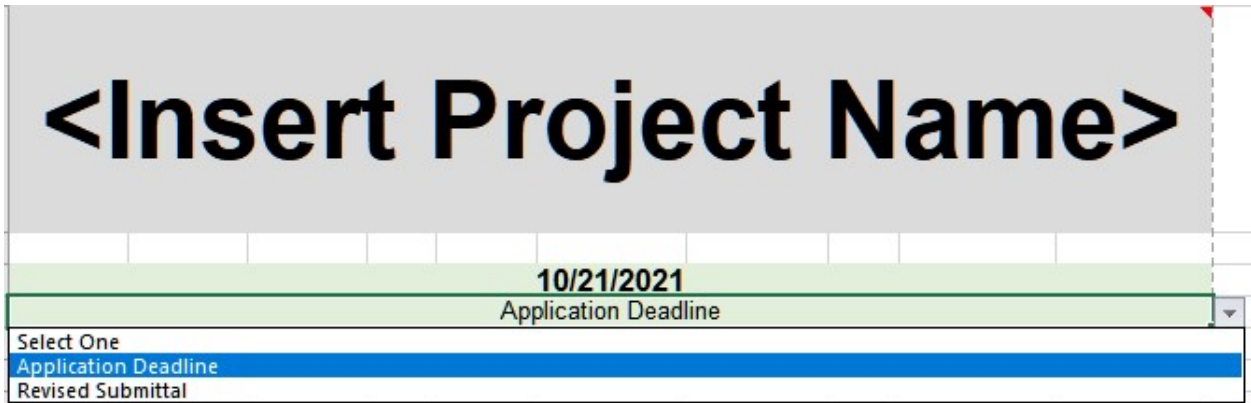


Figure 1. Use drop-down menu to select type of submittal.

- Using the dropdown menu, select the **Participating Agencies** starting with Row 27, Column I.
  - a. Use one line per agency as shown in the Sample Supplemental Application.
  - b. Only select Caltrans as a participating agency if all agencies that have Caltrans intersections are willing to sign a cooperative agreement w/Caltrans.

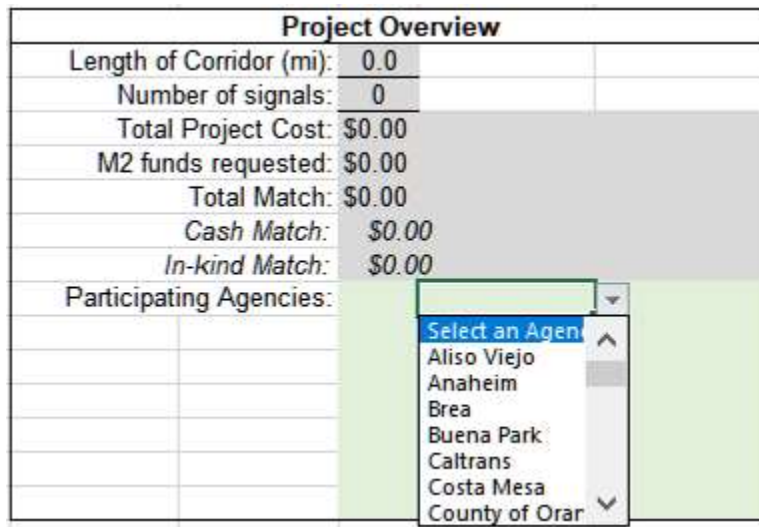


Figure 2. Use drop-down menu to select all participating agencies.

- Using the drop-down menu, select the **Applicant Agency** in Cell F38
  - a. If the County of Orange is the Applicant Agency, use the drop-down menu in Cell E38 to select the blank option to remove "City of".
    - i. An alternative way is just to select Cell E38 and hit the delete key.

<b>Applicant Agency:</b>	City of	Select an Agency
	City of	
<b>Contact Name:</b>		
<b>Contact Number:</b>		
<b>Contact Email:</b>		

Figure 3. Use this method to remove "City of" if the County is the applicant agency

- Enter the **Contact Name** for the **Applicant Agency** in Row 40
- Enter the **Contact Number** for the **Applicant Agency** in Row 42
- Enter the **Contact Email** for the **Applicant Agency** in Row 44

For the cells that will automatically populate, such as the name of the corridor and the funding request, it is recommended that these values be checked after all tabs are populated.

### Table of Contents (Checklist)

Populate the corresponding page numbers in Column B after the rest of the application is filled out. Make sure to avoid any page number overlaps.

### Section 1: Key Technical Information

This section will be completed in three different tabs (Section 1.a-j, Section 1.k-l, and Section 1.m).

#### Part a: Type and Name of Project

- Use the drop-down menu to select the type of project in Row 3. The following are the eligible types of projects per the CTFP Guidelines:
  - **Corridor:** shall be a single, multijurisdictional eligible corridor that includes at least 20 intersections; at least five (5) miles in length; at least three (3) eligible local agencies and four (4) signals per mile; or the full length of the corridor
  - **Grid:** shall be multijurisdictional with a minimum of two (2) local, eligible agencies and consist of one main corridor that is specifically identified with a maximum of two (2) crossing corridors with no more than fifty (50) intersections
  - **Route:** must be supported with simulation or actual vehicle counts showing Origin-Destination that proposes linked corridors to form a route with a maximum total of three corridors and the total number of intersections between these corridors are limited to fifty (50)
- Enter the Project Name, which is the Name of the Corridor/Grid/Route in Row 4. Be sure to include all names for a corridor that does not carry the same name from end to end.

### Part b: Project Limits

Enter the project limits in Row 7, starting with the Northern/Western limit to the Southern/Eastern limit. If it is a grid project, please enter the limits of the main corridor. The full extent of the grid should be explained in Section 2. If it's a route, enter the starting and ending intersections.

### Part c: Project Length

Enter the project length in miles to the nearest hundredth place. Include all route and grid corridors.

### Part d: Number of Signalized Intersections

Enter the number of signalized intersections along the corridor/grid/route that will be synchronized as part of this project in Cell B13.

- The count shall include all Caltrans intersections whether or not a cooperative agreement will be signed.
- This shall NOT include any offset signals that will be included with the project for synchronization. The number of offset signals should be entered in Cell H13

### Part e: Participating Agencies

Using the checkboxes, select all the participating agencies that will be a part of this project, including the applicant agency.

Caltrans shall only be selected if all Participating Agencies that have Caltrans signals in their jurisdiction pledge to sign a Cooperative Agreement with Caltrans. The pledge shall be included with the letters of support from all participating agencies. The applicant agency will pledge this in the application cover letter, if applicable.

All participating agencies, and Caltrans if included, will be required to provide a letter of support in Appendix D and an approved resolution in Appendix A.

### Part f: Lead Agency

Using the checkboxes, select the Lead Agency. The Lead Agency is responsible for delivering the project, collecting the required match, and filing the Final Report with OCTA Local Programing.

Choices include: OCTA and all eligible Orange County cities, including the County of Orange. Select only one option. Caltrans is not an eligible choice, though they may appear in the drop-down menu.

If a local agency is chosen as the Lead Agency, please use the drop-down menu to select the agency. Caltrans **CANNOT** be a lead agency. This dropdown menu pulls data from the list of Participating Agencies on the Title Page so you may see Caltrans listed.

**Note:** Applications that designate OCTA as the lead agency will be assessed a 10% inflation for the purposes of calculating the application benefit to cost ratio score. The 10% inflation will not be added to the proposed budget.

**Part g: Designation of the corridor to synchronize**

The project must be either on the Signal Synchronization Network (SSN) or on the Master Plan of Arterial Highways (MPAH) network. Technically, the entire SSN is on the MPAH, but only select MPAH if the corridor is not on the SSN. **If neither is true, then this project does not qualify for Project P funding.** If you are unsure which designation to choose, please contact [TrafficOps@octa.net](mailto:TrafficOps@octa.net).

**Part h: Project Start and End Dates**

This field will automatically populate using the information provided in Section 6.

**Part i: Previous Project P Funding**

In this section, you will indicate what percentage of the project has received previous Project P or Measure M1 Signal Improvement Program funding. Contact [TrafficOps@octa.net](mailto:TrafficOps@octa.net) if you need assistance.

Select "< 75%" if the project will include less than 75% of a previously funded corridor/route/grid or this corridor has never been synchronized before with Project P or Measure M Signal Improvement Program funding. If you are unsure, feel free to inquire by sending an email to [TrafficOps@octa.net](mailto:TrafficOps@octa.net).

Select ">= 75%" if the project will include 75% or more of a previously synchronized corridor/route/grid.

**Part j: Contact Information**

Enter the project contact for every participating agency. Each contact should include the agency, contact name, position, phone number, email, and mailing address.

**Part k (Tab Section 1.k-I): List of Signalized Intersections**

Enter the name of the main corridor and cross street under the appropriate columns. Make sure to number the entries and denote the owning agency with color. Do not differentiate Caltrans intersections by color. Label Caltrans intersections with an asterisk (\*) (See Sample Supplemental Application). Caltrans intersections will be counted towards the agency based on physical location.

k.	Signalized intersections that are part of the project:	
	<b>Main Corridor</b>	<b>Cross Street</b>
1	Main Corridor	Cross Street

*Figure 4. If it is a shared intersection, use both colors (one per cell).*

Delete unused numbering.

**Part l (Tab Section 1.k-I): List of Offset Signals**

If offset signals, signalized intersections on the Master Plan of Arterial Highways (MPAH) that are within 2,700' of the project corridor/grid/route, are going to be included in this project, enter the main street and cross street of each. Make sure to number the entries, continuing from **Part k**, and denoting the owning agency with the appropriate colors. Caltrans signals shall be in the color of the agency of its physical location and denoted with an asterisk (\*).

*Applicants are recommended to check this number with OCTA prior to submittal as changes will not be allowed after an application has been submitted.*

Part m (Tab **Section 1.m**): Project Map Depicting the Project Limits

Please include a quality map that shows the limits of the project. **Do not** use satellite view as that is hard to read. A proper map should show all the project intersections, street names, and a legend to distinguish intersections by agency. Fit the map to one page, whether letter or tabloid and portrait or landscape.

Section 2: Regional Significance

In this section, you will explain why this project is regionally significant. Any justification for a route or grid project would also be included here. Please keep this section to one page. If this is a grid, introduce the main corridor (indicate limits) and include the crossing arterials and their corresponding limits.

Section 3: Acknowledgement of Required Tasks

In **Part a**, you will acknowledge on behalf of all participating agencies that, if funded, the lead agency will execute this project per the tasks and components as written in this section. If additional tasks or exceptions to the tasks are requested, please check the designated boxes and describe it in the spaces provided (areas shaded in green).

**By checking this box, the following additional PI task(s) and/or exceptions will be made:**  
<Insert Text>

**Figure 5. Use this section to include exceptions to the PI tasks listed in this section.**

In **Part b**, you will acknowledge, on behalf of all participating agencies, to comply with environmental requirements and other permits as necessary.

In **Part c**, you will acknowledge, on behalf of all participating agencies, that this project will comply with the current CTFP Guidelines.



### Table I: Agency Improvement Preferences

The purpose of this table is to capture the equipment preferences of each participating agency and the respective cost per unit. Some of the most common specific improvements are listed for your convenience. Adjust the improvements as you see fit, but if you add additional rows, make sure to also include the change in Table II because they should be linked. If you need assistance, email [TrafficOps@octa.net](mailto:TrafficOps@octa.net).

- As with the other sections, the input fields are shaded green. Gray fields are automatically populated.

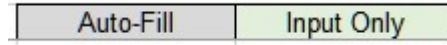


Figure 6. Only input data in the green shaded cells.

- Select the agency names from the dropdown menu starting with Cell D5.
- Item Description
  - Some examples have been provided, but feel free to revise as needed. Please delete unused items and rows.
  - Be brief with the **Item Description** as it may be cut off in Table II. Use **Vendor/Brand & Additional Notes** to elaborate on items desired, such as:
    - Brand/name of ATMS
    - Brand/model of cameras
    - Conduit thickness
    - Controller (with or without touchscreen & controller firmware)
    - Fiber/conduit segments (i.e. from Street A to Street B)
    - Fiber strand count
    - Fiber strand count for termination
    - Length of drop cable
    - Number of SFPs and speed
    - Number and type of pullboxes
    - Type of cabinet (including or excluding new/modified foundation)
- Under the **Unit Price (Material + Labor)** columns, enter the unit price per improvement.
  - Round numbers (length and cost) to the *nearest thousand* to avoid rounding errors.
  - This shall include all material, labor, flat-rate turn-on support, tax, and shipping costs for a fully operational improvement.
  - Common things that applicants forget to include:
    - Fiber termination, including number of strands that need to be terminated
    - Fiber distribution units and splice enclosures
    - SFP units (include quantity and speed)
    - Slack for fiber optic cable length
    - Conduit repair for fiber installation in existing conduit
    - New conduit due to lack of existing conduit capacity
    - Incorrect length of new conduit
    - Number of pullboxes required
  - Unit costs shall be estimated and derived from recent procurements, when possible, and rounded to the *nearest thousand*.

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- Under the **Applicable Design Cost Per Unit** column, enter any associated design cost requested as part of that improvement. Design costs are typically 10-15% of the improvement costs and it is assumed that some items will not require any design. Note that the Task 2, Data Collection, unit cost included in the Section 4 tab includes field work for signal timing and infrastructure improvement efforts.
- Enter the brand/model/specific preferences under the **Vendor/Brand & Additional Notes** columns, if known. Repeat for every applicable improvement.
- Insert more columns as necessary to include all participating agencies, but make sure the formulas are consistent with the rest of the table. If you need assistance, email [TrafficOps@octa.net](mailto:TrafficOps@octa.net).
- Delete or hide columns if they are not needed to condense the table for printing.
- Add rows as necessary to include more improvements. Contact [TrafficOps@octa.net](mailto:TrafficOps@octa.net) for assistance on adjusting formulas.
- Hide rows if they are not needed so the table will calculate the values correctly.

Table II: Description of Work by Intersection

This table will include all the improvements and associated costs proposed on this project per intersection. Input fields are shaded green. Gray fields mean the cell will be automatically populated.

- In column A, a number is assigned to every intersection based on Section 1k. For convenience, Column C is automatically populated for you based on Section 1k. However, if this format does not work because not every intersection has improvements, you can choose to renumber the intersections in Column A, but follow the numbering from Section 1k. As shown in the Sample Supplemental Application, no numbers are assigned to improvements at the Traffic Management Center. Enter the TMC improvements at the end of the table if you choose to keep the format as provided. You can also choose to renumber and include TMC improvements at the end of each agency’s list of intersections as shown in the Sample Supplemental Application.
- In column B, use the drop-down menu to select the implementing agency. Unlike Section 1, you will be selecting the agency that will be providing the match for the associated improvement costs. Therefore, Caltrans intersections might not be labeled as Caltrans if a local agency is funding the improvements, as shown in **red text** below.

LOCATION	IMPLEMEN	PROJECT CROSS STREETS
36	Orange	Sycamore Avenue/University Drive
37	Orange	Palm Avenue
38	Orange	La Veta Avenue
39	Santa Ana	SR-22 Westbound Ramp*
40	Santa Ana	SR-22 Eastbound Ramp*
41	Santa Ana	Fairhaven Avenue

Figure 6. Show agency responsible for match by using red font.

- Column C should list all project cross streets. For convenience, it is set up to reference Section 1k, but if you modify the numbering, you will need to adjust the contents of Column C to match the new numbering. In the Sample Supplemental Application, the intersection list is referenced to Section 1k to avoid having to retype the street names.
- Columns D to AE include some of the eligible improvements as approved in the CTFP Guidelines. These columns are linked to Table I, so if changes are made, make sure both tables match with the **ID** corresponding to the **Item Description**. If you need to add more columns, please copy the formula from the previous column and reference Table I. If **Item Description** needs to change, make the change in Table I and it should automatically update Table II. Contact [TrafficOps@octa.net](mailto:TrafficOps@octa.net) if you experience any issues.
- For every intersection, enter the quantity for each improvement that is proposed in the appropriate spaces as shown in the example. If a value is added to an improvement that does not currently have a cost associated in Table I, the cell will change colors to indicate that. See legend at the bottom of the table for information.

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- The spreadsheet is set up to automatically sum the total cost of improvements based on the quantity entered in Table II and the unit price information entered in Table I. If you intend to add additional columns, make sure it is referencing the correct cell.
  - In Cell AH6, enter the percentage of the construction that should be added for construction management and inspection.
  - In Cell AI6, enter the percentage of contingency that would be added to the design, construction, and construction management/inspection total.
  - In Cell AK6, enter the agency match percentage (minimum of 20%). If an agency is going to match more than 20%, please update the cells below accordingly.
    - Notice the Cash Match column is grayed out. This is automatically calculated based on the amount of in-kind match that is entered in Column AM.
- In the **Notes** column, enter any additional information, such as conduit/fiber segments, modifications required at any intersection, or any extra information that will help with procurement, pricing, and understanding the improvement. See the Sample Supplemental Application for examples.

**Important Note:** The cells in Table I and II are linked, thus adding rows may disrupt the formula. If you need assistance, please email [TrafficOps@octa.net](mailto:TrafficOps@octa.net) for assistance.

## Section 4: Funding Needs / Costs for Proposed Project by Task

In this section, you will break down the costs per tasks by agency. Input fields are shaded in **green**.

Do not input anything in **Part a**, Summary of Project Cost, as this table will automatically populate with the updates to the individual agency tables below it.

In **Part b** (Summary of Cost by Agency):

- Input Agency Name by selecting from the drop-down menu. Do not select Caltrans.
- Input number of signalized intersections that are owned and operated by the agency (exclude Caltrans intersections). If it is a shared intersection, split using .25 increments.
- Input number of signalized intersections that are owned and operated by Caltrans within the agency's jurisdiction
- Input number of offset signals (signals on MPAH that are within 2,700' of corridor) within the agency's jurisdiction that are included in this project for signal timing purposes
- Input cost per intersection per task. Task 3 will not have a cost per intersection. Instead, the total cost will be pulled from Table II.
- Input the pledged cash and in-kind match
- Repeat for every participating agency (excluding Caltrans)

Note that all fields in Task 3 will automatically populate based on the Table I and Table II tabs.

There is a mathematical check on the right to make sure the Measure M2 funding request does not exceed the max cap and that there is a minimum of 20% match per agency. Please verify all formulas as necessary to ensure that the calculations are accurate.

It is not required that all agencies use up the available budget per signal/mile caps, but each agency is required to contribute at least a 20% match towards their expenses. The overall project match must be at least 20%. Agencies with Caltrans signals shall also provide a match for timing, O&M, and any improvements proposed.

## Section 5: Detailed Local Match Commitment

Please refer to Section 4 and Table II sheets when completing the tables in this section.

- **Part 1** will automatically be filled. Fill in the required information shaded in green in **Part 2**.
- In **Part 2A**, the Agency will auto-populate based on **Section 1**. The applicant only needs to fill in the funding source for the cash match.
- If agencies intend to use specific improvements towards their required match, the information shall be entered in **Part 2Bi**. The specific improvement per agency must be entered to complete the table. Improvements proposed for in-kind match shall be an eligible improvement per the CTFP Guidelines. If no improvements will be contributed, then leave the table blank.
- In **Part 2Bii**, if in-kind match is provided, the applicant shall enter staff or consultant hours that will be contributed towards the project. The agency, staff position, type of service to project, number of hours, and fully burdened hourly rate shall be entered. Each agency will be responsible for keeping detailed records of hours worked and description of work. An accounting record of personnel, hours at fully burdened rate is expected to be included with the in-kind report submittals. Records will be subject to auditing. Refer to the Sample Supplemental Application as needed.

Additional rows shall be added as necessary to complete this section. It is also recommended that the applicant confirm the values shown to ensure consistency throughout the application.

Delete or hide blank rows as necessary for printing.

## Section 6: Project Schedule for the 3 Year Grant Period by Task

In this section, fill in your projected dates in **Part b**. Dates shall be no sooner than fiscal year July 2022 – June 2023. **Part a** will be automatically populated based on the information in **Part b**.

If the project can be implemented within 12 months, it can qualify for additional points by checking the box under **Part b**. However, if checked, this will mean the project will not be allowed to request for delays or timely use of funds extensions so select with caution. If you cannot implement within 12 months, it is best that you do not check the box. Projects requesting OCTA to lead are ineligible for this option.

**Part c** refers to additional monitoring and maintenance that is outside of the grant funding. Any related expenses shall not be a part of the requested funding. By checking the box, the applicant, on behalf of the participating agencies agree to monitor and maintain the synchronization beyond the grant period. This also qualifies for addition points, but if selected, the corridor/grid/route will be ineligible to compete for future Project P funding until this additional monitoring and maintenance has been fulfilled. Select with caution. If you intend to compete for Project P funding again in 3 years, it is best to select “Zero Years”.

## Appendix A: Agency Resolutions

Include the resolution for every participating agency in this appendix. A sample resolution with estimated dates is acceptable if a resolution is not ready at the time of submission. A sample resolution can be found in the CTFP Guidelines. A Microsoft Word copy may be requested by emailing [TrafficOps@octa.net](mailto:TrafficOps@octa.net).

## Appendix B: Vehicle Miles Traveled (VMT)

Include the vehicle miles traveled (VMT) data calculation in this table. Input the segments (Column C) within the corresponding agency (Column B), average daily traffic (ADT, Column G), and the segment length (Column H). VMT should be calculated by the smallest segmentation on which the city typically collects ADT data. ADT must be based upon actual count information taken within 36 months preceding the application date and include 24-hour, midweek, bi-directional counts for each segment. All supporting data shall be inserted after this summary table and be organized in order in which they appear for the calculation of the VMT. Data from the OCTA Traffic Flow Map shall not be used. Failure to provide the appropriate ADT data will be treated as a non-responsive application.

## Appendix C: Calculations and Estimated Points

This appendix provides the Estimated Points for your application.

Required input fields are shaded in **green**, which include the following:

- **Total number of offset signals (Cell H4)** refers to all possible offset signalized intersections whether or not it will be part of the optimized timing task. Offset signals on the project refers to the signalized intersections on the MPAH that are within 2,700 feet from either direction of the project corridor.
- **Project Characteristics in Rows 10 to 15** contain approved improvements and their associated points. Note that there is a 10-point maximum for this category.
  - **Timing Only, No Capital (10 points)**
    - If this characteristic is selected, no other characteristics may be selected
  - **Real-time traffic actuated operations and demonstration projects (4 points)** can be claimed for any one of the following:
    - Traffic Responsive only if all signals, in at least one agency on the project, are included in the system
    - Peer-to-peer program on traffic control devices
    - Adaptive traffic signal systems only if all signals, in at least one agency on the project, are included in the system
    - Bluetooth and/or connected vehicle roadside units implemented at least three (3) intersections on the project. If implemented, these items will require a data sharing agreement with OCTA.
  - **Automated Traffic Signal Performance Measures (ATSPM) (4 points)**
    - Select only if all signals, in at least one agency on the project, are included in the system, which will also be used during the O&M phase of the project. If implemented, this will require a data sharing agreement with OCTA.

- **Intelligent Cameras (3 points)**
  - Select only if price of camera includes analytics, such as automated continuous counts and other metrics, either built-in or through an analytics module

**AND**

  - A minimum of three (3) units must be implemented on this project. If implemented, these cameras will require a data sharing agreement with OCTA.
- **Detection for Automated Traffic Signal Performance Measures (ATSPM) and traffic counts (3 points)**
  - Select only if the proposed detection will increase the number of inputs into the signal controller for the purpose of signal performance measures (e.g. ATSPM) and traffic counts

**AND**

  - A minimum of three (3) locations must be implemented on this project.
- **Separate Bicycle and/or ADA Pedestrian Detection (3 points)** that will improve the accessibility, mobility, and safety of the facility for pedestrians and bicyclists
  - Inductive loops, video detection, radar, sonar, thermal, hybrids thereof, and other types of detection systems that can distinguish bicycles. This includes implementing a separate bicycle minimum and/or clearance parameter in the traffic signal controller.
  - ADA compliant Pedestrian Signals including, but not limited to, tactile and audible buttons in countdown signal heads are also included in this project characteristic.
  - Select only if a minimum of three (3) units of either or a combination of bicycle and ADA pedestrian detection systems are implemented on this project.
- **New or Upgraded Communication Systems (2 points)**
  - New contemporary communication system improvements (e.g. Ethernet) including all conduits, pull boxes, fiber optic and/or copper cabling (not to exceed 120 strands), network switches and distribution systems. These systems should be sufficiently sized for the need capacity of the Intelligent Transportation System (ITS) network. Excess capacity is deemed non-participating and also, cannot be used as part of the required project match.
  - Replacement fiber optic or copper cabling for network communication.
  - Software and hardware for system traffic control
  - Control and monitoring interconnect conduit (including upgrades or replacement of existing systems).
  - Communication closure systems of conduit, cable, and associated equipment that are outside of project limits but complete a designated communications link to an existing network for the Advanced Transportation Management System (ATMS) for an agency or agencies. Only communication links that are installed from a central location and/or communications hub to the project corridor that does not currently have a fiber connection to a central location are eligible.
- **Intersection or Field System Modernization and Replacement (2 points)**
  - Traffic signal controller replacement of antiquated units with Advanced Transportation controller (ATC) units. ATC shall comply with latest industry standards.



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- Controller cabinet (assemblies) replacements that can be shown to enhance signal synchronization.
- Closed Circuit Television (CCTV).
- Uninterruptible Power Supply (UPS) for ATMS and intersection field equipment. For ATMS, UPS shall solely provide electrical power for ATMS Server(s), one dedicated workstation (console terminal) and related communications devices. UPS for ATMS is not intended to provide power to entire TMC and approval of request for UPS is at the sole discretion of OCTA.
- Active Transportation/Pedestrian Safety related elements
  - i. High-Intensity Activated crosswalk signaling systems (HAWK)
  - ii. Pedestrian detection modules
  - iii. Bicycle detection modules.
  - iv. Rectangular Rapid Flashing Beacon Systems (RRFB) including striping, legends, and signage.
- **Minor Signal Operational Improvements (2 points)**
  - Emergency Vehicle Preempt (EVP) intersection control equipment only
  - Transit Signal Priority (TSP) intersection control equipment only
  - Channelization (signing, striping, raised pavement markers, in lane flashing guidance or warning marking systems, and legends) improvements required for traffic signal phasing.
  - Traffic signal phasing improvements that will improve traffic flow and system performance including protected permissive left turn phasing and shared pedestrian phasing, excluding display equipment and other ineligible activities as mentioned in these guidelines.
- **Traffic Management Center or Traffic Operations Center and Motorist Information (1 point)**
  - New TMCs or TOCs (any project funded under this category should plan for center-to-center communication (C2C) with nearby agencies and/or OCTA).
  - Upgrades to existing TMCs or TOCs (any project funded under this category should plan for C2C with nearby agencies and/or OCTA).
  - Motorist information systems (up to 10 percent (10%) of total project costs for PI phase only).
  - Video display equipment, including wall monitors, screens, mounting cabinets, and optical engines (up to 10 percent (10%) of total construction costs for PI phase only).
- **New or Upgraded Detection (1 points)**
  - New or upgraded vehicle, pedestrian, and bicycle detection that does not already meet the above categories can be claimed (1 point) if there are a minimum of three (3) implementations along the signal synchronization corridors to ensure necessary conditions for signal synchronization: inductive loops, video detection, radar, sonar, thermal, hybrids thereof, and other types of detection systems.
- Note that only one feature can be selected for any qualifying improvement; for example, an implementation of a new video detection system that can distinguish bicycles can be selected for points under the “Separate Bicycle/ADA Pedestrian Detection” or “New/Upgraded Detection”, but not both.

- **Number of signals** along entire length of corridor in Orange County whether or not they are part of this project.
  - For a grid network, this would be the total number of signals on the main corridor.
  - For a route, use the longest corridor.

The rest of the fields in **gray** will automatically populate. Please make sure the values are correct based on inputs in all previous sections.

### Appendix D: Additional Information

Include the letters of support for all participating agencies in this appendix. You may also include additional information that will assist in the evaluation and understanding of the project. Please **DO NOT** include the CTFP Guidelines or the MPAH maps.

### Printing the Document

The intent is for all documents to look alike so it streamlines the application reviewing process and saves paper. With that in mind, go into the **Print** menu and select **Print Entire Workbook**. Then use **Print Preview** to scroll through all the pages to ensure the contents are not inappropriately spilling onto the next page and that you have the correct page numbers.

- Make sure to check the page numbers in the Checklist (aka Table of Contents) as well.
- Make sure to update the **Headers** with the project name.
- Delete or hide columns if they are not needed to condense the sheets for printing.

### OCFundtracker

OCFundtracker Training Manual: <https://www.octa.net/trainingmanual>

### Additional Help

If you have additional questions or need assistance, please email Joe Alcock ([jalcock@octa.net](mailto:jalcock@octa.net)) or the Traffic Operations Team ([TrafficOps@octa.net](mailto:TrafficOps@octa.net)).

**FY 2022 Call for Projects**

**Regional Traffic Signal Synchronization Program**

**Project P**

**Supplemental Application**

**Kraemer Boulevard / Glassell Street / Grand Avenue**

**10/21/2021**

Application Deadline

**Project Overview**

Length of Corridor (mi): 15.1  
Number of signals: 60  
Total Project Cost: \$2,759,480.00  
M2 funds requested: \$2,207,584.00  
Total Match: \$551,896.00  
*Cash Match: \$524,196.00*  
*In-kind Match: \$27,700.00*  
Participating Agencies: Anaheim  
Brea  
Orange  
Placentia  
Santa Ana

**Applicant Agency:** City of Brea

**Contact Name:** Jane Doe

**Contact Number:** 949-567-8899

**Contact Email:** [Jane.Doe@cityofbrea.gov](mailto:Jane.Doe@cityofbrea.gov)

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- a. Project **Corridor**  
**Kraemer Boulevard / Glassell Street / Grand Avenue**

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- b. Project Limits:  
from **Lambert Road** to **SR-55 Southbound Off-Ramp**

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- c. Project Length (*miles*):  
**15.14**

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- d. Number of signalized intersections along the corridor (include all Caltrans intersections):  
**60** number of signals on project corridor(s) **0** number of offset signals included in this project

---

- e. Participating agencies / Traffic Forum Members (*including applicant agency*):
 

<input type="checkbox"/> Aliso Viejo	<input type="checkbox"/> Cypress	<input type="checkbox"/> La Habra	<input type="checkbox"/> Los Alamitos	<input type="checkbox"/> San Juan Capistrano
<input checked="" type="checkbox"/> Anaheim	<input type="checkbox"/> Dana Point	<input type="checkbox"/> La Palma	<input type="checkbox"/> Mission Viejo	<input checked="" type="checkbox"/> Santa Ana
<input checked="" type="checkbox"/> Brea	<input type="checkbox"/> Fountain Valley	<input type="checkbox"/> Laguna Beach	<input type="checkbox"/> Newport Beach	<input type="checkbox"/> Seal Beach
<input type="checkbox"/> Buena Park	<input type="checkbox"/> Fullerton	<input type="checkbox"/> Laguna Hills	<input checked="" type="checkbox"/> Orange	<input type="checkbox"/> Stanton
<input type="checkbox"/> Caltrans	<input type="checkbox"/> Garden Grove	<input type="checkbox"/> Laguna Niguel	<input checked="" type="checkbox"/> Placentia	<input type="checkbox"/> Tustin
<input type="checkbox"/> Costa Mesa	<input type="checkbox"/> Huntington Beach	<input type="checkbox"/> Laguna Woods	<input type="checkbox"/> Rancho Santa Margarita	<input type="checkbox"/> Villa Park
<input type="checkbox"/> County of Orange	<input type="checkbox"/> Irvine	<input type="checkbox"/> Lake Forest	<input type="checkbox"/> San Clemente	<input type="checkbox"/> Westminster
				<input type="checkbox"/> Yorba Linda

---

- f. Lead Agency  
 OCTA       **Select an Agency**

---

- g. Designation of the corridor to synchronize:  
 Signal Synchronization Network Corridor / Priority Corridor       Master Plan of Arterial Highways Corridor

---

- h. Project Start Date: **October 1, 2022**      Project End Date: **July 31, 2025**

---

- i. What percentage (%) of this corridor/grid/route has received past Project P or Measure M Signal Improvement Program funding?  
 < 75%       >= 75%

---

- j. Contact Information

Agency Contact	Phone	Email	Mailing Address
City of Brea Jane Doe Position	949-567-8899	<a href="mailto:Jane.Doe@cityofbrea.gov">Jane.Doe@cityofbrea.gov</a>	Street Address City, State, Zip
City of Anaheim Contact Name Contact Position			
City of Orange Contact Name Contact Position			
City of Placentia Contact Name Contact Position			
City of Santa Ana Contact Name Contact Position			

**SECTION 1: KEY TECHNICAL INFORMATION**

**k. Signalized intersections that are part of the project:**

	<b>Main Corridor</b>	<b>Cross Street</b>
1	Kraemer Blvd	Lambert Road
2	Kraemer Blvd	Birch Street
3	Kraemer Blvd	Orbiter Street
4	Kraemer Blvd	Birch Mall
5	Kraemer Blvd	Imperial Highway (SR-90)*
6	Kraemer Blvd	Buttonwood Dr/Saturn St
7	Kraemer Blvd	Golden Avenue
8	Kraemer Blvd	Patrician Lane
9	Kraemer Blvd	Bastanchury Road
10	Kraemer Blvd	Yorba Linda Boulevard
11	Kraemer Blvd	Sheffield Street/Morse Avenue
12	Kraemer Blvd	Madison Avenue
13	Kraemer Blvd	Alta Vista Street
14	Kraemer Blvd	Chapman Avenue (North)
15	Kraemer Blvd	Hawaii Way
16	Kraemer Blvd	Crowther Avenue
17	Kraemer Blvd	Orangethorpe Avenue
18	Kraemer Blvd	La Jolla Street
19	Kraemer Blvd	Miraloma Avenue
20	Kraemer Blvd	Coronado Street
21	Kraemer Blvd	La Palma Avenue
22	Kraemer Blvd	SR-91 Westbound Off-Ramp*
23	Glassell Street	Frontera Street
24	Glassell Street	Riverdale Avenue
25	Glassell Street	Riverbend Pkwy/Richland Ave
26	Glassell Street	Lincoln Avenue
27	Glassell Street	Fletcher Avenue
28	Glassell Street	Meats Avenue
29	Glassell Street	Grove Avenue
30	Glassell Street	Orange Olive Road
31	Glassell Street	Taft Avenue
32	Glassell Street	Katella Avenue
33	Glassell Street	Wilson Ave/Adams Ave
34	Glassell Street	Collins Avenue
35	Glassell Street	Walnut Avenue
36	Glassell Street	Sycamore Avenue/University Drive
37	Glassell Street	Palm Avenue
38	Glassell Street	La Veta Avenue
39	Glassell Street	SR-22 Westbound Ramp*
40	Glassell Street	SR-22 Eastbound Ramp*

	<b>Main Corridor</b>	<b>Cross Street</b>
41	Grand Avenue	Fairhaven Avenue
42	Grand Avenue	Santa Clara Avenue
43	Grand Avenue	21st Street
44	Grand Avenue	17th Street
45	Grand Avenue	I-5 Northbound Ramp*
46	Grand Avenue	Santa Ana Blvd/I-5 SB Ramp*
47	Grand Avenue	Fruit Street
48	Grand Avenue	6th Street/OC Register
49	Grand Avenue	4th Street
50	Grand Avenue	1st Street
51	Grand Avenue	Chestnut Avenue
52	Grand Avenue	McFadden Avenue
53	Grand Avenue	Century High School
54	Grand Avenue	St. Andrew Place
55	Grand Avenue	Edinger Avenue
56	Grand Avenue	St. Gertrude Place
57	Grand Avenue	Warner Avenue
58	Grand Avenue	Hotel Terrace Dr/Brookhollow Dr*
59	Grand Avenue	SR-55 SB Off-Ramp*
60	Grand Avenue	Dyer Road

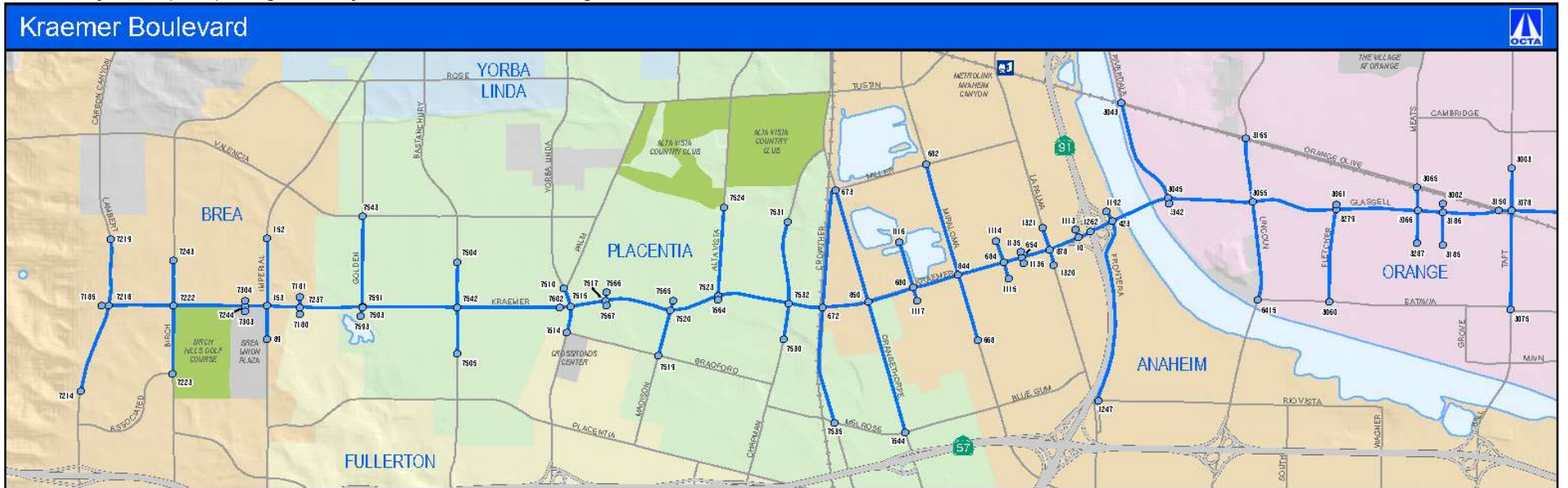
**Legend**

- Anaheim
- Brea
- Orange
- Placentia
- Santa Ana
- \* Caltrans

**l. Offset signalized intersections that are part of the project:**

	<b>Main Street</b>	<b>Cross Street</b>		<b>Main Street</b>	<b>Cross Street</b>
51			63		
52			64		
53			65		
54			66		
55			67		
56			68		
57			69		
58			70		
59			71		
60			72		
61			73		
62					

m. Project Map Depicting the Project Limits and Offset Signals



March 4, 2013  
 Portions of this map copyrighted by Thomas Bros Maps and reproduced with permission.  
 W:\projects\B PURCA\Delms\KraemerBlvd\_2013-0304.mxd

**SECTION 2: REGIONAL SIGNIFICANCE**

Explain why this project is regionally significant:

<INSERT TEXT> Use this section to also justify why a grid/route is requested, if applicable.

[Empty text box for regional significance justification]



**SECTION 3: ACKNOWLEDGEMENT OF REQUIRED TASKS**a. **PROJECT TASKS**

**By checking this box, the Applicant Agency, on behalf of all the participating agencies, agree to the following tasks:**

**Primary Implementation (PI) Phase, lasting approximately one year shall include the following:**

## Task 1: Project Management - PI Phase

*This task is ongoing throughout the duration of the PI Phase of the project. It includes day-to-day project management, such as meetings, progress reports, tracking of schedules, tracking of cost by agency, invoicing, and overall administration of the PROJECT.*

*The following list is a minimum of what is required of this task:*

- *A running record of project cost broken down by Participating Agency shall be part of this task. This information will be used by the Lead Agency to bill Participating Agencies for their respective project match.*
- *A running record of all scope changes and/or any deviations from the final approved application. This information will be used by the Lead Agency to request for Scope Changes at the Semi-Annual Review (SAR).*

## Task 2: Data Collection and Field Review

*This task shall include collecting seven-day, 24-hour machine counts, including vehicle and bike classifications, along each 1-mile segment of the corridor(s). The project shall also produce weekday and weekend peak period intersection turning movement (ITM) counts at every signalized intersection, including pedestrian and bicycle counts. ITM counts shall be conducted for two hours of each weekday peak period (AM, mid-day, and PM) and a single four-hour Saturday mid-day peak period. All counts shall be summarized in Microsoft Excel format. All data shall adhere to the CTFP Guidelines for data compatibility.*

*Data collection also includes field review of before and after conditions. The floating car method shall be utilized with software and GPS for the 'Before' Study to fine-tune the corridor operation and verify integrity of system intersection clocks. Synchronized Video shall be used to compare actual conditions to anticipated conditions dictated by the time-space diagram so that any anomalies may be corrected prior to the 'After' studies task.*

*Field review conducted as part of this task will document the existing conditions for all signal timing, infrastructure, and system improvements on the project. This includes pre-construction pictures for comparison during the post-construction walkthrough, should there be any questions or discrepancies noted by any parties. Data Collection and Field Review Memos shall be provided to all participating agencies.*

## Task 3: System Design and Construction

*The Lead Agency will hire a consultant(s), licensed contractor(s), and/or use city staff, or extension of staff, to design, procure, install, construct, and implement all desired components of the project as described in this application in accordance with the CTFP Guidelines.*

*All work and equipment supplied for the project shall comply and be done in accordance with the latest standards and provisions of each Participating Agency or latest approved California Department of Transportation (Caltrans) Standard Plans and Standard Specifications.*

*As-built plans shall be provided to match the improvements. This task is not complete until all participating agencies approve the improvements implemented in their jurisdiction.*

**SECTION 3: ACKNOWLEDGEMENT OF REQUIRED TASKS****Task 4: Signal Timing Optimization and Implementation**

*Synchronization will be inter-jurisdictional in nature. All existing traffic patterns, flows, and conditions will be taken into account. At a minimum, synchronized timing plans will be developed for a weekday AM, Mid-day, PM, and a Weekend peak period. Special generators such as schools and businesses along with cross street traffic will be considered as part of the project. Timing plans that will be developed will assist traffic in getting to its destination without regard to physical or jurisdictional boundaries.*

*The following list is a minimum of what is required of this task:*

- *A review of the basic timing parameters*
- *Concept of Operations documenting the recommended coordination strategies (e.g. segments, cycle lengths, etc.) based on existing data collection and simulations*
- *Existing and Optimized simulation networks in Synchro (version 10) that is also shared with OCTA using the OCTA designated ID numbers*
- *Implementation and fine-tuning of proposed timing plans*

*This task will not be complete until all participating agencies approve the new timing plans*

**Task 5: Final PI Report**

*A Final PI Report, with an executive summary, shall provide complete documentation of the project, including, but not limited to:*

- *Project scope, objectives, locations, findings, and recommendations*
- *Data collected: counts, travel time studies, and project benefits achieved in terms of fuel savings, travel time, and other measurable parameters*
- *For each intersection: lane configurations, signal phasing, turning movement data, and cycle lengths for existing and proposed timings for all peak periods*
- *All work performed for system construction and signal timing optimization*
- *Implementation schedule and improvements accomplished, including dates*
- *Procedures for continuing maintenance, surveillance, and evaluation of the coordinated signal system*

*The report shall document all planned and programmed improvements on the study corridor as well as recommendations based on PI tasks for further infrastructure improvements that would likely improve the corridor signal coordination project results. The report shall be completed in accordance with the current CTFP Guidelines.*

*Finally, the report shall provide recommendations with cost and benefit estimates for future improvements to traffic signal infrastructure (signal controllers, vehicle detection, communications, etc.), intersection capacity (appropriate signal phasing, lane geometrics, and alleviation of physical bottlenecks that curtail arterial capacity), and traffic management strategies. These proposed improvements should be useful in determining future enhancements to the corridor.*

*A Project Summary Sheet, one sheet front and back, that describes the project and improvements gained shall be provided to OCTA. This sheet will be used by OCTA and Participating Agencies to present to the Board and elected officials.*

- By checking this box, the following additional PI task(s) and/or exceptions will be made:**  
<Insert Text>

**SECTION 3: ACKNOWLEDGEMENT OF REQUIRED TASKS**

**ONGOING OPERATIONS AND MAINTENANCE (O&M) PHASE**, lasting approximately two (2) years, shall include the following:

**Task 6: Project Management - O&M Phase**

*This task includes day-to-day project management, such as meetings, tracking of schedules, invoicing, and overall administration of the project. This task shall continue in full force as specified in the Primary Implementation Phase.*

**Task 7: Continuing Support**

*During this 24-month period, the signal timing along the corridor/route/grid shall be observed and fine-tuned. This task shall also include the monitoring, maintaining, and repair of detection and communication implemented as part of this project. Monthly drives shall be conducted along the length of the project during all designated corridor synchronization timing plan hours of operation in order to verify that the synchronization timing is working as designed and complete any necessary adjustments. This is followed by a monthly memorandum summarizing the status and trends of the corridor based on the runs conducted. Trip logs for the month shall be provided to the Participating Agencies. The memorandum shall include all additional tasks requested and completed during that month. Performance metrics comparisons from ATSPM, where available, shall also be included in the memorandum.*

**Task 8: Final O&M Report**

*At the end of the O&M Phase, a Final O&M Report documenting the Ongoing Operations and Maintenance efforts and procedures for continuing maintenance shall be prepared. At the minimum, the memorandum shall include when travel runs were conducted and issues and solutions throughout the phase. The memorandum shall document all planned and programmed improvements on the study corridor as well as recommendations for further infrastructure improvements that would likely improve the corridor signal coordination project results.*

**By checking this box, the following additional O&M task(s) and/or exceptions will be made:**  
<Insert Text>

**b. ENVIRONMENTAL CLEARANCE AND OTHER PERMITS**

By checking this box, the Applicant Agency, on behalf of all the participating agencies, agree to obtain environmental clearance and other permits (if needed) for this project

**c. ACKNOWLEDGMENT OF MEETING CTFP GUIDELINES**

By checking this box, the Applicant Agency, on behalf of all the participating agencies, certify that all current CTFP guidelines were met for this project.

**SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK****a. Summary of Project Cost**

<b>Project Tasks</b>	<b>Total Cost</b>	<b>Match</b>	
		<b>Cash</b>	<b>In-Kind</b>
Task 1: Project Management - PI Phase	\$ 60,000.00	\$ 10,300.00	\$ 1,700.00
Task 2: Data Collection	\$ 150,000.00	\$ 29,000.00	\$ 1,000.00
Task 3: System Design and Construction	\$ 2,051,480.00	\$ 401,996.00	\$ 8,300.00
Task 4: Signal Timing Optimization and Implementation	\$ 300,000.00	\$ 49,560.00	\$ 10,440.00
Task 5: Project Report	\$ 30,000.00	\$ 4,900.00	\$ 1,100.00
Task 6: Project Management - O&M Phase	\$ 45,000.00	\$ 7,800.00	\$ 1,200.00
Task 7: Continuing Support	\$ 108,000.00	\$ 18,440.00	\$ 3,160.00
Task 8: Final Technical Memorandum	\$ 15,000.00	\$ 2,200.00	\$ 800.00
<b>Total Project Cost:</b>	<b>\$ 2,759,480.00</b>	<b>\$ 524,196.00</b>	<b>\$ 27,700.00</b>

**Total Project Cost (Including PI and O&M for a total of 3 years):**

	<b>Total</b>
<i>Total M2 Request:</i>	\$ 2,207,584.00
<i>Total Agency Match:</i>	\$ 551,896.00
<b>Total Project Cost:</b>	<b>\$ 2,759,480.00</b>

**SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK****b. Summary of Cost by Agency**

Anaheim	Agency	Caltrans	Offset	Total
Number of Signals:	5	1	0	6

Project Tasks (Anaheim)	Cost / Int	Total Cost	Match	
			Cash	In-Kind
Task 1: Project Management - PI Phase	\$ 1,000.00	\$ 6,000.00	\$ -	\$ 1,200.00
Task 2: Data Collection	\$ 2,500.00	\$ 15,000.00	\$ 2,500.00	\$ 500.00
Task 3: System Design and Construction	-	\$ 226,160.00	\$ 40,432.00	\$ 4,800.00
Task 4: Signal Timing Optimization and Implementation	\$ 5,000.00	\$ 30,000.00	\$ 660.00	\$ 5,340.00
Task 5: Project Report	\$ 500.00	\$ 3,000.00	\$ -	\$ 600.00
Task 6: Project Management - O&M Phase	\$ 750.00	\$ 4,500.00	\$ 200.00	\$ 700.00
Task 7: Continuing Support	\$ 1,800.00	\$ 10,800.00	\$ -	\$ 2,160.00
Task 8: Final Technical Memorandum	\$ 250.00	\$ 1,500.00	\$ -	\$ 300.00
<b>PI M2 Request:</b>	<b>\$ 224,128.00</b>	<b>Total Project Cost:</b>	<b>\$ 43,792.00</b>	<b>\$ 15,600.00</b>
<b>O&amp;M M2 Request:</b>	<b>\$ 13,440.00</b>	<b>Total M2 Request:</b>	<b>\$ 237,568.00</b>	<b>Total Match:</b>
				<b>\$ 59,392.00</b>

Brea	Agency	Caltrans	Offset	Total
Number of Signals:	5	1	0	6

Project Tasks (Brea)	Cost / Int	Total Cost	Match	
			Cash	In-Kind
Task 1: Project Management - PI Phase	\$ 1,000.00	\$ 6,000.00	\$ 1,200.00	
Task 2: Data Collection	\$ 2,500.00	\$ 15,000.00	\$ 3,000.00	
Task 3: System Design and Construction	-	\$ 714,380.00	\$ 142,876.00	\$ -
Task 4: Signal Timing Optimization and Implementation	\$ 5,000.00	\$ 30,000.00	\$ 6,000.00	
Task 5: Project Report	\$ 500.00	\$ 3,000.00	\$ 600.00	
Task 6: Project Management - O&M Phase	\$ 750.00	\$ 4,500.00	\$ 900.00	
Task 7: Continuing Support	\$ 1,800.00	\$ 10,800.00	\$ 2,160.00	
Task 8: Final Technical Memorandum	\$ 250.00	\$ 1,500.00	\$ 300.00	
<b>PI M2 Request:</b>	<b>\$ 614,704.00</b>	<b>Total Project Cost:</b>	<b>\$ 157,036.00</b>	<b>\$ -</b>
<b>O&amp;M M2 Request:</b>	<b>\$ 13,440.00</b>	<b>Total M2 Request:</b>	<b>\$ 628,144.00</b>	<b>Total Match:</b>
				<b>\$ 157,036.00</b>

Orange	Agency	Caltrans	Offset	Total
Number of Signals:	15	2	0	17

Project Tasks (Orange)	Cost / Int	Total Cost	Match	
			Cash	In-Kind
Task 1: Project Management - PI Phase	\$ 1,000.00	\$ 17,000.00	\$ 3,400.00	
Task 2: Data Collection	\$ 2,500.00	\$ 42,500.00	\$ 8,500.00	
Task 3: System Design and Construction	-	\$ 191,550.00	\$ 38,310.00	\$ -
Task 4: Signal Timing Optimization and Implementation	\$ 5,000.00	\$ 85,000.00	\$ 17,000.00	
Task 5: Project Report	\$ 500.00	\$ 8,500.00	\$ 1,700.00	
Task 6: Project Management - O&M Phase	\$ 750.00	\$ 12,750.00	\$ 2,550.00	
Task 7: Continuing Support	\$ 1,800.00	\$ 30,600.00	\$ 6,120.00	
Task 8: Final Technical Memorandum	\$ 250.00	\$ 4,250.00	\$ 850.00	
<b>PI M2 Request:</b>	<b>\$ 275,640.00</b>	<b>Total Project Cost:</b>	<b>\$ 78,430.00</b>	<b>\$ -</b>
<b>O&amp;M M2 Request:</b>	<b>\$ 38,080.00</b>	<b>Total M2 Request:</b>	<b>\$ 313,720.00</b>	<b>Total Match:</b>
				<b>\$ 78,430.00</b>

**SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK**

<b>Placentia</b>	Agency	Caltrans	Offset	Total
Number of Signals:	11	0	0	11

<b>Project Tasks (Placentia)</b>	<b>Cost / Int</b>	<b>Total Cost</b>	<b>Match</b>	
			<b>Cash</b>	<b>In-Kind</b>
Task 1: Project Management - PI Phase	\$ 1,000.00	\$ 11,000.00	\$ 2,200.00	
Task 2: Data Collection	\$ 2,500.00	\$ 27,500.00	\$ 5,500.00	
Task 3: System Design and Construction	-	\$ 87,120.00	\$ 17,424.00	\$ -
Task 4: Signal Timing Optimization and Implementation	\$ 5,000.00	\$ 55,000.00	\$ 11,000.00	
Task 5: Project Report	\$ 500.00	\$ 5,500.00	\$ 1,100.00	
Task 6: Project Management - O&M Phase	\$ 750.00	\$ 8,250.00	\$ 1,650.00	
Task 7: Continuing Support	\$ 1,800.00	\$ 19,800.00	\$ 3,960.00	
Task 8: Final Technical Memorandum	\$ 250.00	\$ 2,750.00	\$ 550.00	
<b>PI M2 Request:</b>	<b>\$ 148,896.00</b>	<b>Total Project Cost:</b>	<b>\$ 216,920.00</b>	<b>\$ 43,384.00</b>
<b>O&amp;M M2 Request:</b>	<b>\$ 24,640.00</b>	<b>Total M2 Request:</b>	<b>\$ 173,536.00</b>	<b>Total Match:</b> \$ 43,384.00

<b>Santa Ana</b>	Agency	Caltrans	Offset	Total
Number of Signals:	17	3	0	20

<b>Project Tasks (Santa Ana)</b>	<b>Cost / Int</b>	<b>Total Cost</b>	<b>Match</b>	
			<b>Cash</b>	<b>In-Kind</b>
Task 1: Project Management - PI Phase	\$ 1,000.00	\$ 20,000.00	\$ 3,500.00	\$ 500.00
Task 2: Data Collection	\$ 2,500.00	\$ 50,000.00	\$ 9,500.00	\$ 500.00
Task 3: System Design and Construction	-	\$ 832,270.00	\$ 162,954.00	\$ 3,500.00
Task 4: Signal Timing Optimization and Implementation	\$ 5,000.00	\$ 100,000.00	\$ 14,900.00	\$ 5,100.00
Task 5: Project Report	\$ 500.00	\$ 10,000.00	\$ 1,500.00	\$ 500.00
Task 6: Project Management - O&M Phase	\$ 750.00	\$ 15,000.00	\$ 2,500.00	\$ 500.00
Task 7: Continuing Support	\$ 1,800.00	\$ 36,000.00	\$ 6,200.00	\$ 1,000.00
Task 8: Final Technical Memorandum	\$ 250.00	\$ 5,000.00	\$ 500.00	\$ 500.00
<b>PI M2 Request:</b>	<b>\$ 809,816.00</b>	<b>Total Project Cost:</b>	<b>\$1,068,270.00</b>	<b>\$ 201,554.00</b>
<b>O&amp;M M2 Request:</b>	<b>\$ 44,800.00</b>	<b>Total M2 Request:</b>	<b>\$ 854,616.00</b>	<b>Total Match:</b> \$ 213,654.00

TABLE I: AGENCY IMPROVEMENT PREFERENCES

IMPROVEMENTS	ID	ITEM DESCRIPTION	UNIT PRICE (MATERIAL + LABOR)					APPLICABLE DESIGN COST PER UNIT					VENDOR/BRAND & ADDITIONAL NOTES									
			Brea	Placentia	Anaheim	Orange	Santa Ana	Brea	Placentia	Anaheim	Orange	Santa Ana	Brea	Placentia	Anaheim	Orange	Santa Ana					
INTERSECTION	1	EVP (GPS)					\$15,000					\$1,500						GTT Opticom GPS				
	2	Video Detection System			\$30,000		\$30,000			\$3,000		\$3,000						Econolite Autoscope	Econolite Autoscope			
	3	Battery Backup System in new cabinet	\$15,000										\$1,500					Clary SP1250 LX, 6 batteries				
	4	ADA Pushbutton Assembly					\$12,000					\$1,200							Polara Navigator iN2			
	5	Type II Service					\$10,000					\$1,000										
	6	Type III Service on new foundation	\$15,000										\$1,500									
CONTROLLERS	7	New Controller	\$5,000	\$5,000		\$5,000	\$5,000											Cobalt (no touchscreen) w/EOS	Cobalt (no touchscreen) w/ASC3	Cobalt (no touchscreen) w/EOS	Cobalt (w/touchscreen) w/EOS	
	8	ATC Engine Board (1-C)			\$2,000														w/ASC3 firmware			
CONTROLLER CABINET	9	New Cabinet with New Foundation	\$30,000									\$3,000							Type 332 cabinet			
	10	New Cabinet (Reuse exist foundation)					\$25,000					\$2,500									Type 332 cabinet	
COMMUNICATION UPGRADE	11	CCTV Camera	\$8,000		\$8,000			\$800	\$800									Cohu Rise 4220 PTZ w/analytics #6E		Bosch PTZ 7000 Autodome w/analytics		
	12	Pullbox + Conduit sweeps	\$3,000					\$300														
	13	Conduit Repair			\$100					\$10											3" Schedule 80	
	14	FDU, drop cable, splicing	\$6,000		\$6,000			\$600	\$600													
	15	Fiber In New Conduit	\$5			\$5	\$5	\$1				\$1	\$1						120-SMFO Corning		96-SMFO Corning	
	16	Fiber in Existing Conduit			\$10					\$1											120-SMFO Armored Corning	
	17	New Conduit	\$60			\$60	\$60	\$6				\$6	\$6						3" Schedule 80		3" Schedule 80	4" Schedule 80
18	Ethernet switch	\$4,000		\$4,000		\$4,000	\$400	\$400			\$400	\$400						Etherwan EX71802-0VB w/hardened power supply; 2 SFPs 100Mbps		Etherwan EX71802-0VB w/hardened power supply; 4 SFPs (Gbps)		Etherwan EX71802-0VB w/hardened power supply; 4 SFPs (2-Gbps, 2-100Mbps)
ADVANCED TRAFFIC MANAGEMENT SYSTEM (ATMS) & TMC	19	Video Mgmt System				\$50,000															Genetec	
	20	ATMS System License	\$200,000																Centracs			
	21	Workstation		\$2,000			\$2,000													Dell Workstation w/2-24" monitors		Dell Workstation w/2-24" monitors
	22	Timing Software + Training	\$15,000	\$15,000															Synchro v11 + training	Synchro v11 + training		
23	ATSPM (3 year subscription + setup)	\$120,000																Econolite ATSPM				
OTHER	24	Caltrans Coop + Fee	\$4,000		\$4,000	\$4,000	\$4,000															
	25	Railroad Encroachment Permit				\$35,000																
	26	SCE Fees	\$5,000				\$5,000															
	27	SCE Conduit	\$10,000				\$10,000															
	28	Video Inspection					\$45,000															

SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK

TABLE II: DESCRIPTION OF WORK BY INTERSECTION

LOCATION	IMPLEMENTING AGENCY	PROJECT CROSS STREETS	DESCRIPTION OF WORK																												
			EVP (GPS)	Video Detection System	Battery Backup System in new cabinet	ADA Pushbutton Assembly	Type II Service	Type III Service on new foundation	New Controller	ATC Engine Board (1-C)	New Cabinet with New Foundation	New Cabinet (Reuse exist foundation)	CCTV Camera	Pullbox + Conduit sweeps	Conduit Repair	FDU, drop cable, splicing	Fiber In New Conduit	Fiber in Existing Conduit	New Conduit	Ethernet switch	Video Mgmt System	A TMS System License	Workstation	Timing Software + Training	ATSPM (3 year subscription + setup)	Caltrans Coop + Fee	Railroad Encroachment Permit	SCE Fees	SCE Conduit	Video Inspection	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	Brea	Lambert Road																													
2	Brea	Birch Street					1			1																		1	1		
3	Brea	Orbiter Street																													
4	Brea	Birch Mall			1		1	1		1			1		1													1	1		
5	Brea	Imperial Highway (SR-90)*																													
6	Brea	Buttonwood Dr/Saturn St																													
7	Placentia	Golden Avenue						1																							
8	Placentia	Patrician Lane						1																							
9	Placentia	Bastanchury Road						1																							
10	Placentia	Yorba Linda Boulevard						1																							
11	Placentia	Sheffield Street/Morse Avenue						1																							
12	Placentia	Madison Avenue						1																							
13	Placentia	Alta Vista Street						1																							
14	Placentia	Chapman Avenue (North)						1																							
15	Placentia	Hawaii Way						1																							
16	Placentia	Crowther Avenue						1																							
17	Placentia	Orangethorpe Avenue						1																							
18	Anaheim	La Jolla Street							1			1	200	1		1500				1											
19	Anaheim	Miraloma Avenue							1			1	200	1		1500				1											
20	Anaheim	Coronado Street							1			1								1											
21	Anaheim	La Palma Avenue		1																											
22	Anaheim	SR-91 Westbound Off-Ramp*																													
23	Anaheim	Frontera Street							1																						
24	Orange	Riverdale Avenue						1																							
25	Orange	Riverbend Pkwy/Richland Ave						1																							
26	Orange	Lincoln Avenue						1																							
27	Orange	Fletcher Avenue						1																							
28	Orange	Meats Avenue						1																							
29	Orange	Grove Avenue						1																							
30	Orange	Orange Olive Road						1																							
31	Orange	Taft Avenue						1																							
32	Orange	Katella Avenue																													
33	Orange	Wilson Ave/Adams Ave						1																							
34	Orange	Collins Avenue						1																							
35	Orange	Walnut Avenue						1																							
36	Orange	Sycamore Avenue/University Drive						1																							
37	Orange	Palm Avenue						1																							
38	Orange	La Veta Avenue						1																							
39	Orange	SR-22 Westbound Ramp*																									1				
40	Santa Ana	SR-22 Eastbound Ramp*																									1				
41	Santa Ana	Fairhaven Avenue	1	1		1	1	1																				1	1		
42	Santa Ana	Santa Clara Avenue	1	1		1	1	1																					1	1	



SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK

TABLE II: DESCRIPTION OF WORK BY INTERSECTION

LOCATION	IMPLEMENTING AGENCY	PROJECT CROSS STREETS	DESCRIPTION OF WORK																													
			EVP (GPS)	Video Detection System	Battery Backup System in new cabinet	ADA Pushbutton Assembly	Type II Service	Type III Service on new foundation	New Controller	ATC Engine Board (1-C)	New Cabinet with New Foundation	New Cabinet (Reuse exist foundation)	CCTV Camera	Pullbox + Conduit sweeps	Conduit Repair	FDU, drop cable, splicing	Fiber In New Conduit	Fiber in Existing Conduit	New Conduit	Ethernet switch	Video Mgmt System	A TMS System License	Workstation	Timing Software + Training	ATSPM (3 year subscription + setup)	Caltrans Coop + Fee	Railroad Encroachment Permit	SCE Fees	SCE Conduit	Video Inspection		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
43	Santa Ana	21st Street				1			1																							
44	Santa Ana	17th Street				1	1		1																			1	1			
45	Santa Ana	I-5 Northbound Ramp*																														
46	Santa Ana	Santa Ana Blvd/I-5 SB Ramp*																														
47	Santa Ana	Fruit Street	1	1		1	1		1						1200		950		1											1		
48	Santa Ana	6th Street/OC Register				1	1		1											1												
49	Santa Ana	4th Street	1	1		1	1		1																							
50	Santa Ana	1st Street					1																									
	Brea	TMC Improvements																			1		1	1								
	Placentia	TMC Improvements																				1	1									
	Orange	TMC Improvements																			1					1						
	Santa Ana	TMC Improvements																				1										
<b>QUANTITY TOTAL =</b>			<b>4</b>	<b>5</b>	<b>1</b>	<b>7</b>	<b>7</b>	<b>2</b>	<b>33</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>400</b>	<b>4</b>	<b>2200</b>	<b>3000</b>	<b>1600</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>1</b>		

SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK

TABLE II: DESCRIPTION OF WORK BY INTERSECTION

LOCATION	IMPLEMENTING AGENCY	PROJECT CROSS STREETS	SIGNAL IMPROVEMENT COSTS					AGENCY MATCH			NOTES
			Design	Construction	Construction Management & Inspection	Contingency	TOTAL	Total Agency Match	Cash	In-Kind	
					10%	10%		20.0%			
1	Brea	Lambert Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2	Brea	Birch Street	\$ 5,300.00	\$ 68,000.00	\$ 6,800.00	\$ 8,010.00	\$ 88,110.00	\$ 17,622.00	\$ 17,622.00		
3	Brea	Orbiter Street	\$ 6,500.00	\$ 65,000.00	\$ 6,500.00	\$ 7,800.00	\$ 85,800.00	\$ 17,160.00	\$ 17,160.00		Fiber from Orbiter to Birch Mall
4	Brea	Birch Mall	\$ 7,300.00	\$ 93,000.00	\$ 9,300.00	\$ 10,960.00	\$ 120,560.00	\$ 24,112.00	\$ 24,112.00		
5	Brea	Imperial Highway (SR-90)*	\$ -	\$ 4,000.00	\$ -	\$ -	\$ 4,000.00	\$ 800.00	\$ 800.00		Timing only
6	Brea	Buttonwood Dr/Saturn St	\$ 800.00	\$ 8,000.00	\$ 800.00	\$ 960.00	\$ 10,560.00	\$ 2,112.00	\$ 2,112.00		
7	Placentia	Golden Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
8	Placentia	Patrician Lane	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
9	Placentia	Bastanchury Road	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
10	Placentia	Yorba Linda Boulevard	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
11	Placentia	Sheffield Street/Morse Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
12	Placentia	Madison Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
13	Placentia	Alta Vista Street	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
14	Placentia	Chapman Avenue (North)	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
15	Placentia	Hawaii Way	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
16	Placentia	Crowther Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
17	Placentia	Orangethorpe Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
18	Anaheim	La Jolla Street	\$ 5,300.00	\$ 55,000.00	\$ 5,500.00	\$ 6,580.00	\$ 72,380.00	\$ 14,476.00	\$ 13,276.00	\$ 1,200.00	City will install 1-C card
19	Anaheim	Miraloma Avenue	\$ 5,300.00	\$ 55,000.00	\$ 5,500.00	\$ 6,580.00	\$ 72,380.00	\$ 14,476.00	\$ 13,276.00	\$ 1,200.00	City will install 1-C card
20	Anaheim	Coronado Street	\$ 1,200.00	\$ 14,000.00	\$ 1,400.00	\$ 1,660.00	\$ 18,260.00	\$ 3,652.00	\$ 2,452.00	\$ 1,200.00	City will install 1-C card
21	Anaheim	La Palma Avenue	\$ 3,800.00	\$ 38,000.00	\$ 3,800.00	\$ 4,560.00	\$ 50,160.00	\$ 10,032.00	\$ 8,832.00	\$ 1,200.00	City will install 1-C card
22	Anaheim	SR-91 Westbound Off-Ramp*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		City will not be signing Coop w/Caltrans
23	Anaheim	Frontera Street	\$ 800.00	\$ 10,000.00	\$ 1,000.00	\$ 1,180.00	\$ 12,980.00	\$ 2,596.00	\$ 2,596.00		
24	Orange	Riverdale Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
25	Orange	Riverbend Pkwy/Richland Ave	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
26	Orange	Lincoln Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
27	Orange	Fletcher Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
28	Orange	Meats Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
29	Orange	Grove Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
30	Orange	Orange Olive Road	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
31	Orange	Taft Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
32	Orange	Katella Avenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		Timing only
33	Orange	Wilson Ave/Adams Ave	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
34	Orange	Collins Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
35	Orange	Walnut Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
36	Orange	Sycamore Avenue/University Drive	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
37	Orange	Palm Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
38	Orange	La Veta Avenue	\$ -	\$ 5,000.00	\$ 500.00	\$ 550.00	\$ 6,050.00	\$ 1,210.00	\$ 1,210.00		
39	Orange	SR-22 Westbound Ramp*	\$ -	\$ 4,000.00	\$ -	\$ -	\$ 4,000.00	\$ 800.00	\$ 800.00		Timing only
40	Santa Ana	SR-22 Eastbound Ramp*	\$ -	\$ 4,000.00	\$ -	\$ -	\$ 4,000.00	\$ 800.00	\$ 800.00		Timing only
41	Santa Ana	Fairhaven Avenue	\$ 6,700.00	\$ 87,000.00	\$ 8,700.00	\$ 10,240.00	\$ 112,640.00	\$ 22,528.00	\$ 22,028.00	\$ 500.00	Construction mgmt
42	Santa Ana	Santa Clara Avenue	\$ 6,700.00	\$ 87,000.00	\$ 8,700.00	\$ 10,240.00	\$ 112,640.00	\$ 22,528.00	\$ 22,028.00	\$ 500.00	Construction mgmt

SECTION 4: FUNDING NEEDS / COSTS FOR PROPOSED PROJECT BY TASK

TABLE II: DESCRIPTION OF WORK BY INTERSECTION

LOCATION	IMPLEMENTING AGENCY	PROJECT CROSS STREETS	SIGNAL IMPROVEMENT COSTS					AGENCY MATCH			NOTES	
			Design	Construction	Construction Management & Inspection	Contingency	TOTAL	Total Agency Match	Cash	In-Kind		
					10%	10%		20.0%				
43	Santa Ana	21st Street	\$ 1,200.00	\$ 17,000.00	\$ 1,700.00	\$ 1,990.00	\$ 21,890.00	\$ 4,378.00	\$ 4,128.00	\$ 250.00	Construction mgmt	
44	Santa Ana	17th Street	\$ 2,200.00	\$ 42,000.00	\$ 4,200.00	\$ 4,840.00	\$ 53,240.00	\$ 10,648.00	\$ 10,148.00	\$ 500.00	Construction mgmt	
45	Santa Ana	I-5 Northbound Ramp*	\$ -	\$ 4,000.00	\$ -	\$ -	\$ 4,000.00	\$ 800.00	\$ 800.00		Timing only	
46	Santa Ana	Santa Ana Blvd/I-5 SB Ramp*	\$ -	\$ 4,000.00	\$ -	\$ -	\$ 4,000.00	\$ 800.00	\$ 800.00		Timing only	
47	Santa Ana	Fruit Street	\$ 15,900.00	\$ 209,000.00	\$ 20,900.00	\$ 24,580.00	\$ 270,380.00	\$ 54,076.00	\$ 53,576.00	\$ 500.00	conduit and fiber from Fruit Street to 6th Street; Construction Mgmt	
48	Santa Ana	6th Street/OC Register	\$ 5,100.00	\$ 56,000.00	\$ 5,600.00	\$ 6,670.00	\$ 73,370.00	\$ 14,674.00	\$ 14,174.00	\$ 500.00	Construction mgmt	
49	Santa Ana	4th Street	\$ 9,200.00	\$ 97,000.00	\$ 9,700.00	\$ 11,590.00	\$ 127,490.00	\$ 25,498.00	\$ 24,998.00	\$ 500.00	Construction mgmt	
50	Santa Ana	1st Street	\$ 3,500.00	\$ 35,000.00	\$ 3,500.00	\$ 4,200.00	\$ 46,200.00	\$ 9,240.00	\$ 8,990.00	\$ 250.00	Construction mgmt	
	Brea	TMC Improvements	\$ -	\$ 335,000.00	\$ 33,500.00	\$ 36,850.00	\$ 405,350.00	\$ 81,070.00	\$ 81,070.00			
	Placentia	TMC Improvements	\$ -	\$ 17,000.00	\$ 1,700.00	\$ 1,870.00	\$ 20,570.00	\$ 4,114.00	\$ 4,114.00			
	Orange	TMC Improvements	\$ -	\$ 85,000.00	\$ 8,500.00	\$ 9,350.00	\$ 102,850.00	\$ 20,570.00	\$ 20,570.00			
	Santa Ana	TMC Improvements	\$ -	\$ 2,000.00	\$ 200.00	\$ 220.00	\$ 2,420.00	\$ 484.00	\$ 484.00			
<b>QUANTITY TOTAL =</b>			<b>SIGNAL IMPROVEMENT TOTAL =</b>					<b>\$ 2,051,480.00</b>	\$ 410,296.00	\$ 401,996.00	\$ 8,300.00	

## SECTION 5: DETAILED LOCAL MATCH COMMITMENT

**PART 1: AGENCY TOTAL MATCH SUMMARY**

Agency	CASH		IN-KIND		TOTAL MATCH	
	PI	OMM	PI	OMM	PI	OMM
Anaheim	\$43,592.00	\$200.00	\$12,440.00	\$3,160.00	\$56,032.00	\$3,360.00
	<b>\$43,792.00</b>		<b>\$15,600.00</b>		<b>\$59,392.00</b>	
Brea	\$153,676.00	\$3,360.00	\$0.00	\$0.00	\$153,676.00	\$3,360.00
	<b>\$157,036.00</b>		<b>\$0.00</b>		<b>\$157,036.00</b>	
Orange	\$68,910.00	\$9,520.00	\$0.00	\$0.00	\$68,910.00	\$9,520.00
	<b>\$78,430.00</b>		<b>\$0.00</b>		<b>\$78,430.00</b>	
Placentia	\$37,224.00	\$6,160.00	\$0.00	\$0.00	\$37,224.00	\$6,160.00
	<b>\$43,384.00</b>		<b>\$0.00</b>		<b>\$43,384.00</b>	
Santa Ana	\$192,354.00	\$9,200.00	\$10,100.00	\$2,000.00	\$202,454.00	\$11,200.00
	<b>\$201,554.00</b>		<b>\$12,100.00</b>		<b>\$213,654.00</b>	
<b>TOTAL MATCH</b>	<b>\$495,756.00</b>	<b>\$28,440.00</b>	<b>\$22,540.00</b>	<b>\$5,160.00</b>	<b>\$518,296.00</b>	<b>\$33,600.00</b>
	<b>\$524,196.00</b>		<b>\$27,700.00</b>		<b>\$551,896.00</b>	

**PART 2: MATCH BREAKDOWN (CASH vs IN-KIND SERVICES)****A. Cash Match**

Agency	Funding Source	Amount of Cash Contribution
Anaheim	M2 Fairshare	\$43,792.00
Brea	AQMD	\$157,036.00
Orange	General Fund	\$78,430.00
Placentia	AQMD	\$68,910.00
Santa Ana	General Fund	\$37,224.00
<b>TOTAL CASH MATCH:</b>		<b>\$279,258.00</b>

**B. In-Kind Services***i. Specific Improvements (List items and Cost):*

Agency	Description	Expenditure
Select a City	N/A	
<b>Total Specific Improvements (i):</b>		<b>\$0.00</b>

*ii. Staffing Commitment:*

Agency	Staff Position	Type of Service to Project	No. of Hours	Fully Burdened Hourly Rate	Total*
Anaheim	Traffic Engineer	Project admin, timing review	20	\$150.00	\$3,000.00
	Signal technician	Timing implementation, 1-C card installation	50	\$120.00	\$6,000.00
	Inspector	Construction inspection and construction mgmt	20	\$130.00	\$2,600.00
	College Intern	Timing implementation, 1-C card installation	50	\$80.00	\$4,000.00
<i>Total for City of Anaheim:</i>					<b>\$15,600.00</b>
Santa Ana	Senior Civil Engineer	Project admin, design & timing review	30	\$140.00	\$4,200.00
	Signal technician	Timing implementation, construction mgmt	50	\$110.00	\$5,500.00
	College Intern	Timing implementation	30	\$80.00	\$2,400.00
<i>Total for City of Santa Ana:</i>					<b>\$12,100.00</b>
<b>Total Staffing Commitment (ii):</b>					<b>\$27,700.00</b>

<b>TOTAL IN-KIND MATCH* (i + ii):</b>	<b>\$27,700.00</b>
---------------------------------------	--------------------

\*Total amount is the required participation by the identified agency. The number of hours and hourly rate will be based on each agency's actual fully burdened billing rates, which must collectively equal the same value of the assigned "Total" dollars. Each agency will be responsible for keeping detailed records of hours worked and description of work. An accounting record of personnel, hours at fully burdened rate shall be included with the in-kind report submittals. Records will be subject to auditing. In-kind match can be converted to Cash Match, but Cash Match cannot be converted to in-kind match.

**SECTION 6: PROJECT SCHEDULE BY TASK**

a. Projected Start and End Dates:

**Project start date:** October 1, 2022

**Project end date:** July 31, 2025

b. Projected Schedule by Task

<b>Task</b>	<b>Starting Date</b>	<b>Ending Date</b>
Task 1: Project Management - PI Phase	October 1, 2022	September 30,2023
Task 2: Data Collection	January 1, 2023	January 1, 2023
Task 3: System Design and Construction	October 1, 2022	March 31, 2023
Task 4: Signal Timing Optimization and Implementation	October 1, 2022	May 31, 2023
Task 5: Project Report	June 1, 2023	June 30, 2023
Task 6: Project Management - O&M Phase	July 1, 2023	June 30, 2025
Task 7: Continuing Support	July 1, 2023	June 30, 2025
Task 8: Final Technical Memorandum	July 1, 2025	July 31, 2025

By checking this box, the Applicant Agency, on behalf of all the participating agencies, agree to implement this project within 12 months. ***(This means the project will be ineligible for delays and timely use funds extensions. This is not applicable to projects requesting OCTA to lead.)***

c. **AGENCY COMMITMENT OF EXTENDED MONITORING AND MAINTENANCE**

All agencies commit to monitor and maintain signal synchronization **BEYOND** the three year grant period for :

- Zero Years       One Year\*       Two Years\*       Three Years\*

*\*Project P funding is not eligible for this expense. Agencies **WILL NOT** be allowed to re-apply for Project P funding until this additional monitoring and maintainence has been fulfilled.*

# **Appendix A**

## **AGENCY RESOLUTIONS**

# **Appendix B**

## **VEHICLE MILES TRAVELED (VMT)**

**APPENDIX B: VEHICLE MILES TRAVELED (VMT)**

	Segment	ADTs	Distance	VMT
<b>Brea</b>	Lambert to Imperial	18,000	0.90	16,200
	Imperial to Golden	19,000	0.50	9,500
<b>Placentia</b>	Golden to Yorba Linda	22,000	1.10	24,200
	Yorba Linda to Alta Vista	25,000	0.80	20,000
	Alta Vista to Orangethorpe	23,000	0.82	18,860
<b>Anaheim</b>	Orangethorpe to Miraloma	22,000	0.50	11,000
	Miraloma to La Palma	27,000	0.50	13,500
	La Palma to Riverdale	26,000	0.70	18,200
<b>Orange</b>	Riverdale to Lincoln	21,000	0.45	9,450
	Lincoln to Taft	18,000	1.40	25,200
	Taft to Katella Avenue	20,000	0.46	9,200
	Katella Avenue to Collins Avenue	15,000	0.46	6,900
	Collins Avenue to Walnut Avenue	11,000	0.50	5,500
	Walnut Avenue to Chapman Avenue (South)	12,000	0.50	6,000
	Chapman Avenue (South) to La Veta Avenue	15,000	0.50	7,500
	La Veta Avenue to SR-22 Fwy	29,000	0.34	9,860
<b>Santa Ana</b>	SR-22 Fwy to Fairhaven Avenue	30,000	0.16	4,800
	Fairhaven Avenue to Santa Clara Avenue	28,000	0.44	12,320
	Santa Clara Avenue to 17th Street	24,000	0.50	12,000
	17th Street to I-5 Fwy	29,000	0.35	10,150
	I-5 Fwy to 4th Street	34,000	0.47	15,980
	4th Street to McFadden Avenue	28,000	1.02	28,560
	McFadden Avenue to Edinger Avenue	27,000	0.47	12,690
	Edinger Avenue to Warner Avenue	24,000	0.75	18,000
	Warner Avenue to Dyer Road	23,000	0.55	12,650
<b>Total Project VMT:</b>			<b>15.14</b>	<b>338,220</b>

Source: 2018 City of Brea, Placentia, 2019 City of Orange, Santa Ana, and 2020 City of Anaheim ADT Counts



# **Appendix C**

## **CALCULATIONS AND ESTIMATED POINTS**

**APPENDIX C: CALCULATIONS AND ESTIMATED POINTS**

Criteria (Max Points)	Estimated Points																								
<p>1. Transportation Significance (30 points)</p> <p>Inclusion of offset signals w/in 2,700'</p> <p># of offset signals on project / total # of offset signals:    <u>0</u>    /    <u>100</u>    =    <u>0.0%</u></p> <p style="text-align: right;">=    0</p> <p style="text-align: right;">Vehicle Miles Traveled (VMT):    <u>338,220</u>    =    20</p>	20																								
<p>2. Economic Effectiveness (Cost Benefit Ratio): (15 points)</p> <p>Calculation for Total Project Cost / VMT =    <u>\$3,035,428</u>    /    <u>338,220</u>    =    <u>8.97</u></p>	8																								
<p>3. Project Characteristics: (10 points)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"><input type="checkbox"/> Timing Only, No Capital</td> <td style="width: 10%; text-align: center;">10</td> <td style="width: 40%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td><input type="checkbox"/> Real-time Traffic Actuated Op &amp; Demo Projects</td> <td style="text-align: center;">4</td> <td><input checked="" type="checkbox"/> New/Upgraded Communications Sys</td> <td style="text-align: center;">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Automated Traffic Signal Perf. Measures</td> <td style="text-align: center;">4</td> <td><input checked="" type="checkbox"/> Intersection/Field System Modernization</td> <td style="text-align: center;">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Intelligent Cameras</td> <td style="text-align: center;">3</td> <td><input type="checkbox"/> Minor Signal Operational Improvements</td> <td style="text-align: center;">2</td> </tr> <tr> <td><input type="checkbox"/> Detection for ATSPM and counts</td> <td style="text-align: center;">3</td> <td><input type="checkbox"/> TMC/TOC and Motorist Information</td> <td style="text-align: center;">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Separate Bike/ADA Ped Detection</td> <td style="text-align: center;">3</td> <td><input type="checkbox"/> New/Upgraded Detection</td> <td style="text-align: center;">1</td> </tr> </table>	<input type="checkbox"/> Timing Only, No Capital	10			<input type="checkbox"/> Real-time Traffic Actuated Op & Demo Projects	4	<input checked="" type="checkbox"/> New/Upgraded Communications Sys	2	<input checked="" type="checkbox"/> Automated Traffic Signal Perf. Measures	4	<input checked="" type="checkbox"/> Intersection/Field System Modernization	2	<input checked="" type="checkbox"/> Intelligent Cameras	3	<input type="checkbox"/> Minor Signal Operational Improvements	2	<input type="checkbox"/> Detection for ATSPM and counts	3	<input type="checkbox"/> TMC/TOC and Motorist Information	2	<input checked="" type="checkbox"/> Separate Bike/ADA Ped Detection	3	<input type="checkbox"/> New/Upgraded Detection	1	10
<input type="checkbox"/> Timing Only, No Capital	10																								
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<input checked="" type="checkbox"/> Separate Bike/ADA Ped Detection	3	<input type="checkbox"/> New/Upgraded Detection	1																						
<p>4. Maintenance of Effort (beyond 3 year Grant Period): (5 points)</p> <p style="text-align: center;"><u>0</u> (Zero) Years</p>	0																								
<p>5. Project Scale: (20 points)</p> <p style="text-align: right;"># of signals along entire length of corridor:    <u>60</u>    =    10</p> <p style="text-align: right;"># of signals being synched / total # of corridor signals:    <u>60</u>    /    <u>60</u>    =    <u>100.0%</u></p> <p style="text-align: right;">=    10</p>	20																								
<p>6. Number of Jurisdictions: (10 points)</p> <p style="text-align: center;"><u>5</u> Participating Jurisdiction(s)</p>	10																								
<p>7. Current Project Status (10 points)</p> <p style="text-align: right;"><u>Yes</u> Retiming 75% of prior RTSSP or Measure M Signal Improvement Program funded project =    5</p> <p style="text-align: right;"><u>Not</u> Implementing within 12 months =    0</p>	5																								
<p>8. Funding Match: (5 points)</p> <p style="text-align: right;"><u>\$551,896.00</u>    /    <u>\$2,759,480.00</u>    =    <u>20.00%</u></p>	0																								
<b>Total Estimated Points:</b>	<b>73</b>																								

# **Appendix D**

## **ADDITIONAL INFORMATION**