

## AGREEMENT WITH ARCADIS U.S. INC. TO PROVIDE TRANSIT SIGNAL PRIORITY PROJECT SERVICES

THIS AGREEMENT is made and entered into on this 3rd day of June, 2025 by and between Arcadis U.S., Inc., a Delaware corporation, (“Consultant”), and the City of Santa Ana, a charter city and municipal corporation organized and existing under the Constitution and laws of the State of California (“City”).

### RECITALS

- A. On January 15, 2025, City issued Request for Proposal (“RFP”) No. 24-122, by which it sought qualified consultants to provide services for the City’s McFadden Avenue Transit Signal Priority Pilot.
- B. Consultant submitted a responsive proposal that was selected by the City. Consultant represents that it is able and willing to provide the services described in the scope of work that was included in RFP 24-122.
- C. In undertaking the performance of this Agreement, Consultant represents that it is knowledgeable in its field and that any services performed by Consultant under this Agreement will be performed in compliance with such standards as may reasonably be expected from a professional consulting firm in the field.

**NOW THEREFORE**, in consideration of the mutual and respective promises, and subject to the terms and conditions hereinafter set forth, the parties agree as follows:

### **1. SCOPE OF SERVICES**

Consultant shall perform during the term of this Agreement, the tasks and obligations including all labor, materials, tools, equipment, and incidental customary work required to fully and adequately complete the services described and set forth in the scope of work that was included in RFP No. 24-122, which is attached hereto as **Exhibit A** and incorporated by reference.

### **2. COMPENSATION**

- a. City agrees to pay, and Consultant agrees to accept as total payment for its services for City, the rates and charges identified in **Exhibit B**, which is attached hereto and incorporated by reference. The total compensation for services provided shall not exceed One Million, One Hundred and Seven Thousand, Five Hundred and Two Dollars (\$1,107,502) during the term of the Agreement, including any extension periods.
- b. Payment by City shall be made within forty-five (45) days following receipt of proper invoice evidencing work performed, subject to City accounting procedures. City and Consultant agree that all payments due and owing under this Agreement shall be made through Automated Clearing House (ACH) transfers. Consultant agrees to execute the City’s standard ACH Vendor Payment Authorization and provide required documentation. Upon verification of the data provided, the City will be authorized to

deposit payments directly into Consultant's account(s) with financial institutions. Payment need not be made for work which fails to meet the standards of performance set forth in the Recitals which may reasonably be expected by City.

### **3. TERM**

This Agreement shall commence on the date first written above for a two (2) year term, unless terminated earlier in accordance with Section 15, below. The term of this Agreement may be extended for up to two (2), one-year periods upon a writing executed by the City Manager and the City Attorney.

### **4. INDEPENDENT CONTRACTOR**

Consultant shall, during the entire term of this Agreement, be construed to be an independent Consultant and not an employee of the City. This Agreement is not intended nor shall it be construed to create an employer-employee relationship, a joint venture relationship, or to allow the City to exercise discretion or control over the professional manner in which Consultant performs the services which are the subject matter of this Agreement; however, the services to be provided by Consultant shall be provided in a manner consistent with all applicable standards and regulations governing such services. Consultant shall pay all salaries and wages, employer's social security taxes, unemployment insurance and similar taxes relating to employees and shall be responsible for all applicable withholding taxes.

### **5. OWNERSHIP OF MATERIALS**

This Agreement creates a non-exclusive and perpetual license for City to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to be prepared by Consultant under this Agreement ("Documents & Data"). Consultant shall require all subcontractors to agree in writing that City is granted a non-exclusive and perpetual license for any Documents & Data the subcontractor prepares under this Agreement. Consultant represents and warrants that Consultant has the legal right to license any and all Documents & Data. Consultant makes no such representation and warranty in regard to Documents & Data which were provided to Consultant by the City. City shall not be limited in any way in its use of the Documents and Data at any time, provided that any such use not within the purposes intended by this Agreement shall be at City's sole risk.

### **6. INSURANCE**

Prior to undertaking performance of work under this Agreement, Consultant shall maintain and shall require any subcontractors to obtain and maintain insurance as described below for the entire Term of this Agreement against claims for injuries to persons or damage to property which may arise from or in connection with services, products and materials supplied to City. Total cost of such insurance shall be borne by Consultant.

## MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. **Commercial General Liability (CGL):** Insurance Services Office Form CG 00 01 covering CGL on an “occurrence” basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than \$1,000,000 per occurrence and \$2,000,000 aggregate. Required policy limits can be met with primary and umbrella/excess insurance policies.
2. **Automobile Liability:** Insurance Services Office Form CA 00 01 covering Code 1 (any auto), with limits no less than \$1,000,000 combined single limits. In the event Consultant does not maintain commercial automobile liability insurance, City will accept evidence of personal automobile insurance.
3. **Workers’ Compensation:** as required by the State of California, with Statutory Limits, and Employer’s Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease. Coverage is not required if Consultant has no employees and signs request to waive such insurance.
4. **Professional Liability:** with limits no less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate.

If the Consultant maintains broader coverage and/or higher limits than the minimum requirements for each line of coverage shown above, City requires and shall be entitled to the broader coverage and/or the higher limits maintained by Consultant. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to City.

## Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

1. City, its City Council, its officers, officials, employees, agents, and volunteers are to be covered as additional insureds, under Consultant’s CGL, Professional Liability, and Automobile Liability policies, with respect to any liability arising out of work or operations performed by or on behalf of the Instructor including materials, parts, equipment, and personnel furnished in connection with such work or operations.
2. Consultant’s Insurance company(ies) agrees to waive all rights of subrogation against City, its City Council, its officers, officials, employees, agents, and volunteers for losses paid under the terms of any policy which arise from work performed by Consultant under this Agreement.
3. For any claims related to this contract, Consultant’s insurance coverage shall be primary and any insurance maintained by City, its City Council, its officers, officials, employees, agents, or volunteers shall not contribute with it.
4. A severability of interest provision must apply for all the additional insureds, ensuring that Consultant’s insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the insurer’s limits of liability.
5. Insurance policies required herein shall provide that coverage shall not be canceled, suspended, voided, reduced in coverage or in limits, non-renewed by the carrier, or

materially changed except after thirty (30) days prior written notice has been given to City. Ten (10) days prior written notice shall be provided to City for policy cancellation or non-renewal due to non-payment of premium.

6. Certificate Holder on each Evidence of Insurance certificate shall be: City of Santa Ana, Attention: Cesar Rodriguez, 20 Civic Center Plaza, M-43, Santa Ana, CA 92701. The name and location of project must be included in the Description of Operations section of each certificate.

### **Self-Insured Retentions**

Self-insured retentions must be declared to and approved by the City. The City may require the Consultant to purchase coverage with a lower retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention.

### **Acceptability of Insurers**

Insurance is to be placed with insurers authorized to conduct business in the State of California with a current A.M. Best rating of no less than A:VII, unless otherwise acceptable to City.

### **Verification of Coverage**

Consultant shall furnish City with original Certificates of Insurance including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause) and a copy of the Declarations and Endorsement Page of the CGL policy listing all policy endorsements before work begins. However, failure to obtain the required documents prior to the work beginning shall not waive Consultant's obligation to provide them.

City reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time.

### **Special Risks or Circumstances**

City reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

## **7. INDEMNIFICATION**

Consultant agrees to defend, and shall indemnify and hold harmless the City, its officers, agents, employees, contractors, special counsel, and representatives from liability: (1) for personal injury, damages, just compensation, restitution, judicial or equitable relief arising out of claims for personal injury, including death, and claims for property damage, which may arise from the negligent operations of the Consultant, its subcontractors, agents, employees, or other persons acting on its behalf which relates to the services described in section 1 of this Agreement; and (2) from any claim that personal injury, damages, just compensation, restitution, judicial or equitable relief is due by reason of the terms of or effects arising from this Agreement. This indemnity and hold harmless agreement applies to all claims for damages, just compensation, restitution, judicial or equitable relief suffered, or alleged to have been suffered, by reason of the events referred to in this Section or by reason of the terms of, or effects, arising from this Agreement. The Consultant further agrees to indemnify, hold harmless, and pay all costs for the defense of the City, including fees and costs for special counsel to be selected by the City, regarding any action by a third party

challenging the validity of this Agreement, or asserting that personal injury, damages, just compensation, restitution, judicial or equitable relief due to personal or property rights arises by reason of the terms of, or effects arising from this Agreement. City may make all reasonable decisions with respect to its representation in any legal proceeding. Notwithstanding the foregoing, to the extent Consultant's services are subject to Civil Code Section 2782.8, the above indemnity shall be limited, to the extent required by Civil Code Section 2782.8, to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant.

## **8. INTELLECTUAL PROPERTY INDEMNIFICATION**

Consultant shall defend and indemnify the City, its officers, agents, representatives, and employees against any and all liability, including costs, for infringement of any United States' letters patent, trademark, or copyright infringement, including costs, contained in the work product or documents provided by Consultant to the City pursuant to this Agreement.

## **9. RECORDS**

Consultant shall keep records and invoices in connection with the work to be performed under this Agreement. Consultant shall maintain complete and accurate records with respect to the costs incurred under this Agreement and any services, expenditures, and disbursements charged to the City for a minimum period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant under this Agreement. All such records and invoices shall be clearly identifiable. Consultant shall allow a representative of the City to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement during regular business hours. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to this Agreement for a period of three (3) years from the date of final payment to Consultant under this Agreement.

## **10. CONFIDENTIALITY**

If Consultant receives from the City information which due to the nature of such information is reasonably understood to be confidential and/or proprietary, Consultant agrees that it shall not use or disclose such information except in the performance of this Agreement, and further agrees to exercise the same degree of care it uses to protect its own information of like importance, but in no event less than reasonable care. "Confidential Information" shall include all nonpublic information. Confidential information includes not only written information, but also information transferred orally, visually, electronically, or by other means. Confidential information disclosed to either party by any subsidiary and/or agent of the other party is covered by this Agreement. The foregoing obligations of non-use and nondisclosure shall not apply to any information that (a) has been disclosed in publicly available sources; (b) is, through no fault of the Consultant disclosed in a publicly available source; (c) is in rightful possession of the Consultant without an obligation of confidentiality; (d) is required to be disclosed by operation of law; or (e) is independently developed by the Consultant without reference to information disclosed by the City.

## **11. CONFLICT OF INTEREST CLAUSE**

Consultant covenants that it presently has no interests and shall not have interests, direct or indirect, which would conflict in any manner with performance of services specified under this Agreement.

## **12. NON-DISCRIMINATION**

Consultant shall not discriminate because of race, color, creed, religion, sex, marital status, sexual orientation, gender identity, gender expression, gender, medical conditions, genetic information, or military and veteran status, age, national origin, ancestry, or disability, as defined and prohibited by applicable law, in the recruitment, selection, teaching, training, utilization, promotion, termination or other employment related activities or any services provided under this Agreement. Consultant affirms that it is an equal opportunity employer and shall comply with all applicable federal, state and local laws and regulations.

## **13. EXCLUSIVITY AND AMENDMENT**

This Agreement represents the complete and exclusive statement between the City and Consultant, and supersedes any and all other agreements, oral or written, between the parties. In the event of a conflict between the terms of this Agreement and any attachments hereto, the terms of this Agreement shall prevail. This Agreement may not be modified except by written instrument signed by the City and by an authorized representative of Consultant. The parties agree that any terms or conditions of any purchase order or other instrument that are inconsistent with, or in addition to, the terms and conditions hereof, shall not bind or obligate Consultant or the City. Each party to this Agreement acknowledges that no representations, inducements, promises or agreements, orally or otherwise, have been made by any party, or anyone acting on behalf of any party, which is not embodied herein.

## **14. ASSIGNMENT**

Inasmuch as this Agreement is intended to secure the specialized services of Consultant, Consultant may not assign, transfer, delegate, or subcontract any interest herein without the prior written consent of the City and any such assignment, transfer, delegation or subcontract without the City's prior written consent shall be considered null and void. Nothing in this Agreement shall be construed to limit the City's ability to have any of the services which are the subject to this Agreement performed by City personnel or by other consultants retained by City.

## **15. TERMINATION**

This Agreement may be terminated by the City upon thirty (30) days written notice of termination. In such event, Consultant shall be entitled to receive and the City shall pay Consultant compensation for all services performed by Consultant prior to receipt of such notice of termination, subject to the following conditions:

- a. As a condition of such payment, the Executive Director may require Consultant to deliver to the City all work product(s) completed as of such date, and in such case such work product shall be the property of the City unless prohibited by law, and



Consultant consents to the City's use thereof for such purposes as the City deems appropriate.

- b. Payment need not be made for work which fails to meet the standard of performance specified in the Recitals of this Agreement.

## **16. WAIVER**

No waiver of breach, failure of any condition, or any right or remedy contained in or granted by the provisions of this Agreement shall be effective unless it is in writing and signed by the party waiving the breach, failure, right or remedy. No waiver of any breach, failure or right, or remedy shall be deemed a waiver of any other breach, failure, right or remedy, whether or not similar, nor shall any waiver constitute a continuing waiver unless the writing so specifies.

## **17. JURISDICTION - VENUE**

This Agreement has been executed and delivered in the State of California and the validity, interpretation, performance, and enforcement of any of the clauses of this Agreement shall be determined and governed by the laws of the State of California. Both parties further agree that Orange County, California, shall be the venue for any action or proceeding that may be brought or arise out of, in connection with or by reason of this Agreement.

## **18. PROFESSIONAL LICENSES**

Consultant shall, throughout the term of this Agreement, maintain all necessary licenses, permits, approvals, waivers, and exemptions necessary for the provision of the services hereunder and required by the laws and regulations of the United States, the State of California, the City of Santa Ana and all other governmental agencies. Consultant shall notify the City immediately and in writing of its inability to obtain or maintain such permits, licenses, approvals, waivers, and exemptions. Said inability shall be cause for termination of this Agreement.

## **19. NOTICE**

Any notice, tender, demand, delivery, or other communication pursuant to this Agreement shall be in writing and shall be deemed to be properly given if delivered in person or mailed by first class or certified mail, postage prepaid, or sent by fax or other telegraphic communication in the manner provided in this Section, to the following persons:

To City:

City Clerk  
City of Santa Ana  
20 Civic Center Plaza (M-30)  
P.O. Box 1988  
Santa Ana, CA 92702-1988  
Fax: (714) 647-6956

With courtesy copies to:

Executive Director, Public Works Agency  
City of Santa Ana  
20 Civic Center Plaza (M-21)  
P.O. Box 1988  
Santa Ana, California 92702  
Fax: (714) 647-5635

To Consultant:

Arcadis U.S., Inc.  
Attn: Ramin Massoumi, Global Director  
18401 Von Karman Avenue, Suite #300  
Irvine, CA 92612

A party may change its address by giving notice in writing to the other party. Thereafter, any communication shall be addressed and transmitted to the new address. If sent by mail, communication shall be effective or deemed to have been given three (3) days after it has been deposited in the United States mail, duly registered or certified, with postage prepaid, and addressed as set forth above. If sent by fax, communication shall be effective or deemed to have been given twenty-four (24) hours after the time set forth on the transmission report issued by the transmitting facsimile machine, addressed as set forth above. For purposes of calculating these time frames, weekends, federal, state, County or City holidays shall be excluded.

## **20. MISCELLANEOUS PROVISIONS**

- a. Each undersigned represents and warrants that its signature herein below has the power, authority and right to bind their respective parties to each of the terms of this Agreement, and shall indemnify City fully, including reasonable costs and attorney's fees, for any injuries or damages to City in the event that such authority or power is not, in fact, held by the signatory or is withdrawn.
- b. All Exhibits referenced herein and attached hereto shall be incorporated as if fully set forth in the body of this Agreement.



IN WITNESS WHEREOF, the parties hereto have executed this Agreement the date and year first above written.

**ATTEST:**

**CITY OF SANTA ANA**

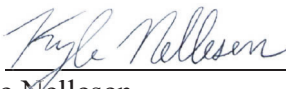
\_\_\_\_\_  
Jennifer L. Hall  
City Clerk


\_\_\_\_\_  
Alvaro Nuñez  
City Manager

**APPROVED AS TO FORM:**

SONIA R. CARVALHO  
City Attorney

**CONSULTANT:**

By:   
\_\_\_\_\_  
Kyle Nellesen  
Assistant City Attorney

  
\_\_\_\_\_  
By: Ramin Massoumi  
Title: Global Director

**RECOMMENDED FOR APPROVAL:**

**Nabil Saba**  Digitally signed by  
Nabil Saba  
Date: 2025.05.05  
09:56:12 -07'00'

\_\_\_\_\_  
Nabil Saba  
Executive Director  
Public Works Agency

## **EXHIBIT A**



## CITY OF SANTA ANA

### EXHIBIT I

### SCOPE OF SERVICES

#### SCOPE OF WORK

#### McFadden Avenue Transit Signal Priority Pilot Project

#### **INTRODUCTION**

The City of Santa Ana is one of the largest and most densely populated cities in Orange County. Santa Ana has a population of over 310,000 and serves as the county seat. With many large industries and firms, Santa Ana is also a family-friendly city, with rich culture on display in the city's museums and many tourist attractions. The City of Santa Ana is centrally located in the heart of Orange County and is bounded by Interstate-5 to the north, Interstate-405 to the south and State Route-55 to the east. The City has over 100 miles of roadway including 15 major arterials that move over 500,000 vehicles per day.

Within the City of Santa Ana, McFadden Avenue is a four-lane arterial with average daily traffic volumes ranging from 12,000 to up to 22,000 vehicles per day. The corridor is primarily four-lane arterial divided by a striped median that serves as a two-way left turn lane, except for a brief residential section between Bristol Street and Standard Avenue where it is mostly reduced to a two-lane undivided roadway. In 2022, McFadden Avenue between Harbor Boulevard and Grand Avenue was reclassified from a secondary (4-lane, undivided) arterial to divided collector (2-lane, divided) to make way for active transportation improvements for improved pedestrian and bicycle safety and mobility. In December 2024, the City of Santa Ana began construction of active transportation improvements along the 4-mile segment of McFadden Avenue between Harbor Boulevard and Grand Avenue to prioritize pedestrian and bicycle safety and promote transit use. The improvements include a Class II buffered bicycle lane, bulb outs at intersections, bus stop improvements, enhanced signage and striping and traffic signal intelligent transportation systems. In order to make space for the active transportation improvements, the removal of one thru lane in each direction was required to accommodate the bicycle lanes and associated amenities along McFadden Avenue within the City. Construction started December 2024 and will continue through 2025.

McFadden Avenue is a multi-modal corridor with many motorists, bicyclists and pedestrians using this busy route to commute to work and school. The Orange County Transportation Authority (OCTA) also operates OC Bus Route 66 along the corridor, which has one of the highest ridership rates in the County transit system. In 2022, with the proposed capacity reductions under design, an evaluation of potential impacts on traffic flow and transit operations was conducted to evaluate the severity of the impacts and identify solutions that could reduce or reverse the impacts. OCTA, in partnership with City of Santa Ana, prepared the Santa Ana Transit Cooperative Study (Attachment A) which provided a list of suggested transit improvements to help reduce the traffic impacts of the capacity reduction and further encourage ridership. From the study, Transit Signal Priority was identified as a key upgrade to help mitigate the impacts. This project seeks to alleviate the impacts by planning, assessing, deploying, and testing Transit Signal Priority on McFadden Ave between Harbor Boulevard and Grand Avenue within City of Santa Ana.



## CITY OF SANTA ANA

### PROJECT DESCRIPTION AND BACKGROUND

The project area includes 19 signalized intersections owned and operated by City of Santa Ana along McFadden Avenue from Harbor Boulevard to Grand Avenue, as listed in Table 1: Project Intersections. City of Santa Ana has made significant investments in the signal infrastructure to enable the communication between the signalized intersections to the Traffic Management Center (TMC). The controllers along the corridor are Econolite 2070 with ASC/3 firmware or Econolite Cobalt with EOS firmware controller in Type 332 or NEMA Type P Cabinets and communicate back the TMC via Fiber Optic or Twisted Pair Communication. The traffic signals are operated utilizing Econolite's Centrac's Advanced Traffic Management System (ATMS). The active transportation project currently under construction will replace all the controllers with Econolite Cobalt ATC Controllers with EOS firmware, upgrade all communication to Fiber Optic communication, and upgrade the current loop detection to Video Detection Systems at all 19 intersections.

**Table 1: Project Intersection**

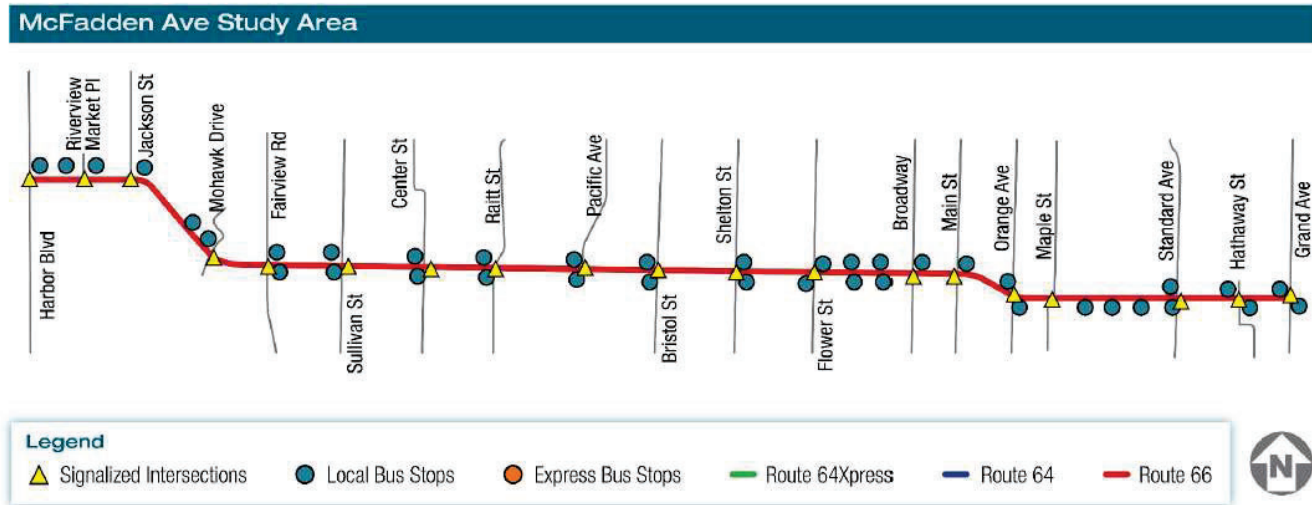
No.	Intersection	No.	Intersection
1	McFadden Avenue and Harbor Boulevard	11	McFadden Avenue and Shelton Street
2	McFadden Avenue and Riverview Marketplace	12	McFadden Avenue and Flower Street
3	McFadden Avenue and Jackson Street	13	McFadden Avenue and Broadway
4	McFadden Avenue and Mohawk Drive	14	McFadden Avenue and Main Street
5	McFadden Avenue and Fairview Street	15	McFadden Avenue and Orange Avenue
6	McFadden Avenue and Sullivan Street	16	McFadden Avenue and Maple Street
7	McFadden Avenue and Center Street	17	McFadden Avenue and Standard Avenue
8	McFadden Avenue and Raitt Street	18	McFadden Avenue and Hathaway Street
9	McFadden Avenue and Pacific Avenue	19	McFadden Avenue and Grand Avenue
10	McFadden Avenue and Bristol Street		

OCTA's Route 66 bus line runs from the City of Huntington Beach through Santa Ana to the City of Irvine primarily along McFadden Avenue. OCTA's Route 66 bus line through McFadden Avenue operates on approximately 10-minute headways during the peak periods and 20 minutes during off-peak periods with approximately 39 bus stops, as shown in Figure 1 below. The OCTA buses along Bus Route 66 host a suite of equipment that allows for comprehensive data collection, remote network communications, and location tracking that exchange information between the bus operator and the OCTA Traffic Operation Center (TOC). Each bus is equipped with a Cradlepoint router (IBR1100 or IBR1700) with cellular connection to the OCTA's Conduent OrbCAD Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system. Bus locations are polled by the OrbCAD system and uploads the General Transit Feed Specification (GTFS) package to the Swiftly data engine roughly every ten (10) seconds. This level of location tracking and schedule status is often sufficient to support priority service systems, like centralized and/or cloud-based transit signal priority (TSP) systems, that ingest this information to make informed priority requests to other traffic systems.



## CITY OF SANTA ANA

**Figure 1: Project Area and Intersections**



The focus of this project is to implement and evaluate the innovative TSP solution, as a successful implementation and study could lead to deployments of similar solutions on other City of Santa Ana arterials. The project is funded by the Regional Early Action Planning Grants of 2021 (REAP 2.0) administered by the California Department of Housing and Community Development (HCD) in collaboration with the Governor's Office and Planning Research (OPR), the Strategic Growth Council (SGC), and the California Air Resources Board (CARB). As the designated Metropolitan Planning Organization (MPO) for Southern California, the Southern California Association of Governments (SCAG) released a Call for Applications for the REAP 2.0 funds. Funding for the project was awarded to OCTA who submitted the grant application on behalf of the City of Santa Ana. OCTA will administer the grant documentations and will reimburse the City of Santa Ana for the engineering and implementation of the project with REAP 2.0 funds. The consultant shall provide an understanding of the funding requirements throughout the delivery of the Project.

### **SCOPE OF WORK**

The City of Santa Ana desires to retain an experienced consultant to implement the McFadden Avenue Transit Signal Priority Pilot (Project). The project length is approximately 4 miles and includes 19 signalized intersections, starting from Harbor Boulevard to Grand Avenue in the City of Santa Ana (Figure 1). The City of Santa Ana owns and operates the traffic signal along this segment of McFadden Avenue.

This Scope of Work describes work elements necessary for the various tasks related to the McFadden Avenue Transit Signal Priority Pilot. The consultant shall work directly for the City of Santa Ana which is serving as the lead agency for study and implementation of transit signal priority (TSP). The major project components of this scope of work include the following elements to be completed in close coordination with OCTA:

#### **Assessment of Existing Conditions**

- Comprehensive data collection and field reviews
- Coordinate and verify data and field reviews
- Develop key performance indicators to baseline existing conditions
- Identification of existing transit bottlenecks, delays, and traffic signal limitations for multimodal operations



## CITY OF SANTA ANA

- Determine benefits of the TSP solution on project corridor

### **Conceptual Planning**

- Develop proposed strategy to implement recommended solutions
- Evaluate, Assess and Recommend a Cloud Based Transit Signal Priority System
- Prepare cost estimate for TSP deployment, including operations and maintenance
- Identify non-TSP improvements to improve bus speeds and reliability for the corridor
- Develop Implementation Plan for project corridor

### **Deployment and Analysis**

- Procure and Implement an innovative cloud based TSP solution
- Evaluate and assess the technology solutions implemented
- Conduct ongoing data analysis and stakeholder engagement
- Compare performance measure to the existing baseline conditions

All electronic data procured and supporting the Project shall be provided on digital media in formats consistent with City of Santa Ana.

### **I. Task 1: Project Management**

This task focuses on the management of the project to ensure that the project meets funding expenditure, milestone, and reporting deadlines.

#### ***Subtask 1.1: Administration and Project Management***

This sub-task includes the requirements for schedules, cost control, progress reports, invoicing, and administration of all consultant work.

**Project Management Plan:** The consultant shall provide a comprehensive plan for project management to communicate the scope of work, constraints, and technical requirements to all project participants. The plan shall include coordination strategies with project stakeholders to ensure timely completion of project. The plan shall also include an organization chart with description of participant responsibilities, a baseline schedule prepared using the Critical Path Method, and work breakdown structure that identifies the duration and completion of key project activities milestones. The budgeted hours and resource allocation for each task and subtask shall also be defined. The consultant shall submit a copy of the Project Management Plan (PMP) for this Project within thirty (30) calendar days of contract execution.

Elements of the PMP shall include:

- Project description and map indicating project area
- Project schedule for project tasks and technical studies including project milestones and delivery and review of intermediate project deliverables
- Project organization with names of key staff/sub-consultants and their responsibilities
- Key staff directory
- Project controls including schedule and budget
- Document management procedures including electronic document filing index
- Applicable standards
- Applicable computer software
- Communications procedures
- Quality management procedures
- Risk Management procedures including a risk register





## CITY OF SANTA ANA

The draft PMP shall be provided to the City of Santa Ana Project Manager for review and input. At the discretion of the City of Santa Ana Project Manager, it may be distributed to project participants at the start of the project. If distributed to project participants, a kick-off meeting shall be held to review the plan requirements within thirty (30) calendar days of contract execution.

Monthly Progress Status Reports and Schedule Updates: The consultant shall prepare and submit an initial Project Master Schedule following contract execution. Upon approval by City of Santa Ana, the schedule will become the Project Baseline Schedule. The following elements must be included by consultant in the Baseline Schedule:

- Work items and deliverables identified in accordance with a Work Breakdown Structure (WBS) reflecting the requirements of this scope of work developed by consultant and approved by City of Santa Ana.
- Work items of third parties that may affect or be affected by consultant's activities and develop proposed solution.
- The Project Master Schedule shall include all data necessary to represent the total project and the critical path shall be clearly identified.
- The order, sequence and interdependence of significant work items shall be reflected in the Project Master Schedule.

The consultant shall prepare and submit monthly progress reports to City of Santa Ana Project Manager including updates on key milestones, Project schedule, and percent complete detail for each task, particularly worked done during the reporting period. The Project progress and schedule updates shall be reported as Earned Value (percent complete) against the Baseline Schedule. The report will also describe anticipated activities to be undertaken in the next reporting period, and any new or changed, challenges or risks that may affect schedule, scope, and budget.

### ***Subtask 1.2: Project Development Team Meetings***

A Project Kick-Off Meeting shall be scheduled with City of Santa Ana immediately following the contract execution. The meeting will include administrative items, such as progress reports and invoicing requirements, and Project critical path. The consultant shall prepare the agenda and notes following the meeting.

The project team members will include City of Santa Ana Project Manager, OCTA and key project stakeholders that will help guide the direction of the study. The consultant shall schedule, coordinate, and attend monthly project development team meetings. The consultant shall prepare meeting materials on project related issues discussed, including agendas, power point presentations, handouts, progress plans, meeting notes and notations for specific or directed follow-up action items.

### ***Subtask 1.3: Agency Project Oversight***

In addition to regular monthly project development team meetings, the consultant shall schedule and attend project-specific coordination meetings, as necessary (estimate minimum of 10 meetings), in this project. Coordination meetings/technical workshops with stakeholders shall be held to discuss issues pertinent to the analysis, configuration, and effects of the project. During these meetings, City of Santa Ana and OCTA, and other key stakeholders may provide directions for the project. The consultant shall prepare meeting materials on technical issues for discussion, including agendas, power point presentations, handouts, progress plans, meeting minutes and notations for specific or directed follow-up action items. The printed format of meeting materials shall be appropriate to the purpose of the meeting



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and could include scaled black and with and/or color roll plots, 11" x 17" and/or 8.5" x 11" handouts and/or presentation boards.

### ***Subtask 1.4: Grant Plans and Outcomes***

This sub-task includes the development of plan and reporting documents required to adhere to the grant funding guidelines (REAP 2.0) for the project.

REAP Goals and Outcomes: The consultant shall work with City of Santa Ana staff to develop a methodology to report on how the project works towards REAP 2.0 goals. This methodology shall be presented to OCTA for approval. Once approved, the consultant shall assist City of Santa Ana in monitoring the project through each Task to ensure it continues to meet the goals and assist City of Santa Ana staff in addressing any reporting questions and concerns.

#### ***Task 1 – Deliverables (One hard copy and an electronic version of each):***

- Resource Loaded Project Master Schedule
- Monthly Progress Reports with Project Earned Value vs. Baseline Schedule updates
- Project Management Plan
- Monthly Progress Reports
- Kick-Off Meeting agenda and notes
- PDT meeting materials, agendas, and notes
- Coordination meeting/technical workshop materials, agendas, and notes
- REAP Grant reports and plans

## **II. Task 2: Existing Analysis and Assessment**

This task includes the data collection effort necessary to develop a thorough understanding of all the Project corridor needs and challenges.

### ***Subtask 2.1: Existing Conditions Survey***

This sub-task includes the data collection and field survey for the Project corridor to capture existing signal and transit operations.

The consultant shall coordinate with City to collect the following data necessary to thoroughly understand existing traffic conditions for the Project corridor and be able to develop transit supportive timing, as applicable.

1. Existing timing charts/sheets that include current coordination plans, traffic as-built drawings, aerial photos, maps, traffic collision data as available, and special intersection signal operations. Consultant shall also collect any as-built or related construction plans impacting signal operations relevant to this Project.
2. Signal timing and signal priority preferences, including, but not limited to, those related to pedestrian and bicycle timing, phase sequence modifications and preferences, and special operations such as conditional service, coordination preferred phase re- service, and ring-barrier logic, as well as the timing optimization software preference.
3. Historically counts, including average daily traffic (ADT) and turning movement counts (vehicle, bicycle, and/or pedestrian), along the project corridor for weekday and weekend periods



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OCTA Existing System: The consultant shall coordinate with OCTA to survey and evaluate all existing transit equipment and operations that would be relevant to a cloud based TSP implementation. This coordination should include cybersecurity discussions with the OCTA Information Services team to ensure the proposed solution is viable within the existing environment. The consultant shall also coordinate with the OCTA Transit Planning and Bus Operations staff to collect bus operations, such as ridership, dwell time, and on-time performance for bus lines 66 along the project corridor.

Field Survey: The consultant shall review the geometric layout, transit bus stop locations, at-grade rail crossings, verify and/or inventory existing traffic signal control and intelligent transportation systems (ITS) equipment, and identify any operational deficiencies for each intersection or road segment along the project corridor. The review shall include an assessment of the existing intersection lane geometry, traffic conditions, and traffic signal or ITS/telemetry control equipment along the corridor and at each intersection. Techniques utilized shall include but not be limited to visual inspection, available as-built plans, agency consultation, and agency provided aerial photos. Consultant will inspect and inventory the interior of each traffic controller assembly and ITS telematics cabinets, identify and report deficiencies to the City operations staff, and make recommendations for equipment upgrades that would make significant impacts to signal and/or transit operations.

Consultant shall investigate and document factors that are expected to affect signal and transit progression including, but not limited to: intersections with high pedestrian or bicyclist volumes; over-saturated intersections; uneven lane distribution; high volumes of trucks and buses; high-volume unsignalized intersections, including interchanges; parking maneuvers; presence and location of bus stops; differing signal timing patterns among local agencies; etc.

Existing Conditions Survey Memorandum: Following the collection of all data and field surveys, the consultant shall prepare a memorandum summarizing the corridor's existing condition. The consultant shall also include an identification of all planned and programmed improvements (bike lane projects, intersection improvements, traffic signal improvements, transit improvements, etc.) on the project corridor. The identification of these projects shall at least include a list, summarizing all improvements.

A photo document of each cabinet visited should be included in the Existing Conditions Survey Memorandum. The Existing Conditions Survey Memorandum shall also include a figure summarizing the existing corridor network's ITS and TSP elements. This figure should provide enough information as a standalone image to use for meetings and discussions with corridor agencies and other Project stakeholders.

### ***Subtask 2.2: Project Benefit Analysis***

This sub-task will build off the Existing Analysis and Assessment and generate existing metrics to measure Project effectiveness. The existing travel and safety conditions will be fully baselined and evaluated using high-resolution vehicle probe, high-resolution origin-destination (O-D), and stakeholder datasets.

Performance Metric Data Collection: The consultant shall pull data from the traffic signal controllers, OCTA Swiftly platform (e.g. On-Time Performance, Speed Maps, Run Times), on-board bus videos, and/or consultant proposed high-resolution probe (vehicle speed and O-D) to measure the project corridor's baseline performance. The consultant shall coordinate with project stakeholders to identify key performance indicators that will baseline the existing travel and safety conditions along the project corridor and surrounding area, which may include, but is not limited to:

- Average Travel Time, Delay, and Speeds
- Bottlenecks in vehicular traffic



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- Delay in bus speeds that can be related to travel time (traffic delay), dwell time (boarding/alighting), signal delay, or turnout delay (waiting to re-enter traffic from a bus turnout)

All data collected shall be accessible by City of Santa Ana and OCTA.

**Project Benefit Memorandum:** The Consultant shall prepare a memorandum summarizing all datasets, methodology, and provide a comprehensive picture of the corridor and surrounding area. A graphical summary of the metrics to use at meetings and stakeholder discussions shall also be prepared. The consultant shall also identify additional metrics that could be available once the new detection and TSP solutions are implemented.

**Task 2 – Deliverables** (*One hard copy and an electronic version of each*):

- Existing Conditions Survey Memorandum
- Project Benefit Memorandum

### III. Task 3: Conceptual Planning

The City of Santa Ana in coordination with OCTA developed a Cooperative Transit Study with recommended transit solutions to augment active transportation improvements under construction on the McFadden Avenue corridor, Attachment A. This task will develop an implementation plan that pulls from the City/OCTA Cooperative Transit Study recommendations, City's current status on the McFadden Bicycle Boulevard construction project, current corridor conditions, and stakeholder input.

Consultant shall develop a conceptual plan for implementation of a cloud-based TSP solution and identify methods that improve speed and reliability of transit operations without major impacts to regular traffic flow.

#### **Subtask 3.1: Transit Signal Priority Concept Development**

The consultant shall present to and receive consensus from City of Santa Ana and OCTA on the approach for enhancing transit signal priority on the corridor. This proposed strategy shall implement cloud based TSP along the stretch of McFadden Avenue that encompasses the OCTA bus lines 66. The approach will include key stakeholder input and shall consider institutional constraints on reasonability. Additionally, the TSP concept will include impact avoidance and minimization strategies as well as benefits and risks among disadvantaged communities and geographical areas along the corridor.

#### **Subtask 3.2: Evaluation and Assessment of Transit Signal Priority Systems**

The consultant shall evaluate and assess a minimum of (3) three cloud based TSP system and provide recommendations to City and OCTA. The evaluation should include a minimum:

- Functionality of TSP system with signal controllers and ATMS in City of Santa Ana.
- Functionality of TSP system with multiple signal controller and/or ATMS vendors, including but not limited to Econolite, Swarco, and Yunex.
- Functionality of TSP system with Swiftly or OCTA's CAD/AVL for bus location data.
- Reporting and Performance Monitoring capabilities.
- TSP System Dashboard ease of use
- System Scalability
- Cost of Licensing and Support
- Communication drops that may impact bus locations on a corridor.
- Firewalls and cybersecurity requirements.



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The final recommended TSP solution along with the necessary equipment (e.g. server in the City's TMC) and/or configuration needs on the corridor shall be summarized shortly after the field surveys to minimize delays due to internal agency coordination, especially with the IT staff. The consultant's recommendation shall be based on the City's existing upgrade plans along McFadden Ave, as it will upgrade the detection and signal traffic controllers. The recommended TSP software to be procured and implemented as part of Task 4 and 5.

### ***Subtask 3.3: Transit Signal Priority Draft Plan Cost Estimates***

The consultant shall prepare detailed cost estimate for implementing the proposed TSP. The cost estimates shall include software licensing fees, software support and maintenance cost, hardware, integration, implementation, and any other additional resources costs.

### ***Subtask 3.4: Risk Register***

The consultant shall develop a risk register that identifies potential risks associated with implementing the proposed TSP enhancements and strategies for mitigating these risks.

### ***Subtask 3.5: Develop an Implementation Plan***

Upon stakeholders' approval of the conceptual plan, the consultant will develop a detailed Implementation Plan Report for enhancing TSP and improving bus speeds and reliability on the McFadden Avenue Corridor.

### ***Subtask 3.6: Maintenance Plan***

Develop a strategy to maintain the project including TSP, detection, and other ITS improvements.

### ***Task 3 – Deliverables (One hard copy and an electronic version of each):***

- Transit Signal Priority Conceptual Plan Memorandum
- Project Cost Estimates Memorandum
- Master Project Risk Register
- Implementation Plan Report
- Maintenance Plan Memorandum

## **IV. Task 4: Procure TSP System and Hardware**

Orange County does not currently have TSP implemented; however, OCTA in coordination with Orange County agencies will soon be piloting a TSP system along Harbor Boulevard. Implementation results from the Harbor Boulevard TSP Pilot are still unknown and may not be available in time to be used in this project. Nonetheless, OCTA and City of Santa Ana have made investments in the existing signal infrastructure and buses that can be leveraged to implement a solution with minimal to no additional construction required in the field. This sub-task will include the procurement of an innovative cloud based TSP solution.

The consultant shall furnish the TSP system per the assessment and recommendations in Task 3 and per the system requirements described in this section. This shall include any additional 3rd party software, operating systems, applications, hardware, and any other utilities necessary for the operation of the TSP system. While the TSP system concept and specific requirements are detailed in Task 3, the following provides a narrative of the minimum TSP system to be provided along with its features and functionality.

### ***Subtask 4.1: TSP System Overview***





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The TSP system shall be cloud-based and hosted online by the system vendor platform. The consultant is responsible for the TSP system on the cloud-hosted platform and is responsible for interfacing with Swiftly or OCTA's CAD/AVL and traffic signal system. Other than the items noted in the general work overview that is the responsibility of by City of Santa Ana or OCTA, all items needed to support the TSP system will be the responsibility of the consultant.

The TSP system shall include functionality to monitor the system and associated equipment, system management and configuration functions, data storage and management, and troubleshooting capabilities from a central location. The system shall provide the functionality to interface with the system from a central location or from the field for maintenance and testing purposes.

The TSP system shall interface with Swiftly or OCTA's CAD/AVL over a secure network connection if the interface is with the central CAD/AVL system. The TSP system shall interface with the traffic signal controllers over a secure network connection at City's TMC. The TSP system shall provide end-to-end network security and security monitoring functionality. The TSP system shall comply with all network security requirements by City of Santa Ana and OCTA.

### ***Subtask 4.2: TSP Cloud Functionality***

The core functionality of the TSP system is expected to reside in the cloud-hosted application platform. This section outlines the key functions that are expected to be part of the cloud-hosted application. At a minimum, TSP system shall be able to:

1. Monitor TSP Transit Vehicles and Traffic Signals – The TSP system is expected to maintain a continuously updated status of all active TSP-enabled transit vehicles and signals. It is envisioned that a map-based user interface showing real-time system activity could serve this function.
2. Priority Request Generation (PRG) – The TSP system is expected to function as the PRG. As part of the PRG function, the system needs to be able to:
3. Priority Request Server (PRS) – The TSP system is expected to function as the PRS.
4. Manage and Archive Data – The TSP system is expected to collect, store, and disseminate system data for analysis and evaluation.
5. Maintain Reporting and Performance Monitoring System – The TSP system is expected to provide system reporting and performance monitoring information, preferably in a dashboard format as part of the user interface. Performance measures would include items such as: transit vehicle travel time, transit travel time variability, overall TSP requests, TSP requests granted/rejected, TSP request status, traffic signal controller status, TSP action taken by the signal controller, and communications status (latency, uptime, response from controller, response from transit vehicle, etc.).

### ***Subtask 4.3: Traffic Signal System***

The TSP system is expected to send transit signal priority request messages to, and retrieve priority request status messages from, the traffic signal controller at the project signals in the City of Santa Ana using NTCIP communications protocols. The controller functionality in response to the priority request messages will be the responsibility of City. The TSP system shall utilize City's Econolite 2070 ASC3 or Econolite Cobalt EOS controllers for this purpose.





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The System Vendor shall clearly state and detail out the proposed method in which the proposed TSP system will send priority request messages to and obtain priority request status messages from the traffic signal controller. The consultant shall be responsible for coordination and all integration work with signal system manufacturer (Econolite), to achieve end-to-end functionality of the TSP system.

### ***Subtask 4.4: Detailed Design Documentation***

The consultant shall submit detailed design documentation for approval by City. The detailed design documents will identify all system components, including any equipment, and provide a narrative description of the function and architecture of the major systems and subsystems proposed by the vendor. The documentation should provide system block diagrams identifying all interfaces between system components, including external systems, that would need to interface with the TSP system. The detailed design documents must include design plans for all hardware installations. The detailed design documents should also include interface control documents and communication specifications, for all internal and external system interfaces, including those between different software and hardware systems within the transit on-board or central CAD/AVL, city communication systems, and traffic signal controllers.

As part of the detail design documentation, the consultant shall provide criteria for Factory Acceptance Testing (FAT) for any hardware needed to be procured for the project.

Hardware and software purchases shall not be conducted prior to the approval of the detailed design documentation. For any and all hardware supplied by the consultant, the consultant shall provide City of Santa Ana with hardware submittals for review and approval. The consultant shall provide copy of the FAT results for approval prior to delivery of the hardware. It shall be the consultant responsibility to provide any ancillary equipment such as cables, mounting rails, etc. with the provided hardware.

### ***Task 4 – Deliverables (One hard copy and an electronic version of each):***

- Procure Transit Signal Priority System and Hardware
- Detailed Design Documentation

## **V. Task 5: Installation, Integration and Deployment**

This task will focus on implementation and configuration and will leverage the Task 2 detailed surveys to implement TSP solutions. The consultant shall provide all labor, equipment, and ancillary items necessary to install, integrate, and deploy a fully operational TSP system.

### ***Subtask 5.1: Implementation Plan***

An Implementation Plan shall be prepared for review and approval by City of Santa Ana Project Manager prior to the start of any installation work. The plan shall describe all aspects of hardware and software installation. This includes facility and vehicle surveys, communications testing, site preparation, pre-wiring requirements, equipment and vehicle staging, production installation and sequencing, quality assurance and control, and scheduling. The Plan will also describe installation and configuration of all software systems, including the back-office applications, interfaces and web applications, and their respective schedules.

The Plan will describe the power and communication requirements for each piece of equipment and at each installation location. The communication requirements will include a description of any networking equipment necessary to connect the system devices to agency network.

The implementation Plan shall also include criteria for pilot test acceptance which will test various



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attributes of the system in real-time setting, including but not limited to, accurate bus arrival time prediction, communication latency and confirmation of two-way communication. The vendor shall detail the capabilities that would be tested for the pilot deployment and prepare a test plan for the pilot deployment. In addition, the Implementation Plan shall include procedure for final testing acceptance, which would include a requirement that the system is operational 99% of the time for 90-day period.

### ***Subtask 5.2: Transit System Integration***

It is expected that consultant will utilize Swiftly or OCTA's existing CAD/AVL system for the purpose of obtaining transit vehicle location, tracking, and status information. It is also understood that various TSP systems may have different approaches for how this is accomplished.

The consultant is ultimately responsible for end-to-end functionality of the complete TSP system, and all work and coordination required with City of Santa Ana devices necessary to fully develop and integrate the TSP system with OCTA's CAD/AVL system will be the responsibility of the consultant.

### ***Subtask 5.3: Central CAD/AVL Integration***

If the proposed solution includes integration with OCTA's existing CAD central management system, the consultant shall be responsible for upgrading the central CAD/AVL polling rate of all fleet vehicles to an optimal system frequency as approved by OCTA. It is expected that the consultant will need to coordinate with OCTA devices to determine what modification, if any, are needed to the existing system to support the new faster polling rate. If any modifications are identified to be required, it will be the consultants responsibility to perform the work to achieve the faster polling rate including furnishing, installing and configuring updated servers, expanding server storage capacity, updating operating systems, etc.

The consultant shall integrate its TSP cloud application platform with OCTA's central CAD/AVL system to obtain transit vehicle location and status information. This includes establishing a secured internet connection to the CAD/AVL central server and coordination with OCTA IT staff to establish such connection.

### ***Subtask 5.4: Traffic Signal Controller Integration***

The City of Santa Ana utilizes Econolite Centrac's ATMS for traffic signal management and operations. All traffic signal controllers operating at the intersections are Econolite 2070's with ASC/3 firmware or Econolite Cobalt with ASC/3 firmware. All traffic signals communicate back to the City's TMC over an ethernet connection. All traffic signals communicate back to the City's central office over a combination of fiber optic and twisted pair copper, with those on copper are in the process of being upgraded to fiber optic communications.

It is expected that the consultant will utilize the City's existing Ethernet-based traffic communications network for the purpose of sending and receiving priority request messages and priority request status messages, respectively, directly to the traffic signal controllers.

The consultant is ultimately responsible for end-to-end functionality of the complete TSP system, and all work and coordination required with Econolite necessary to fully develop and integrate the TSP system with City's traffic signals will be the responsibility of the consultant. All integration work with Econolite and the method of integration shall be identified by the consultant in the response to this RFP.

The consultant shall integrate its TSP cloud application platform with City's traffic signal controllers to send priority request messages and receive priority request status messages. This includes establishing a secured internet connection to each City's TMC/central office and coordination with



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each city's IT staff to establish such connection in conformance to each agency's IT policies. If needed, the consultant may elect to furnish and install a communications server at TMC/central office to facilitate communications between its TSP cloud application platform and the traffic signal controllers.

### ***Subtask 5.5: System Configuration and Deployment***

The consultant shall set up and configure the TSP system including entering all system and configuration parameters. This includes integrating the 19 signalized intersections and one bus route under this project into the TSP cloud application platform.

The consultant shall configure initial settings such as conditional parameter and other operating parameters. Values for conditional parameters shall be approved by City of Santa Ana. The consultant shall develop TSP signal timing parameters for each intersection traffic signal controller. These include controller parameters for defining the transit phase, values for early green and green extension, maximum priority call time, minimum time between consecutive priority requests, etc. The TSP signal timing parameters will be submitted to City for their review and approval. Upon approval, the consultant shall coordinate with City to implement the approved timing parameters into each controller.

The consultant will also be responsible for any timing modifications necessary for the operation of the TSP. Timing modifications shall include, but is not limited to basic timing, coordination timing, and transit parameters available in the City's system. Close coordination with City staff will be necessary to ensure modifications are made per City standards and preference.

### ***Subtask 5.6: Pilot Deployment Testing***

The consultant shall activate and deploy the TSP system at two intersections initially to assess issues related to latency, communications with buses or CAD/AVL, etc. Consultant shall submit test results for every test completed as included in the approved pilot test plan. The consultant shall note any exceptions to a test such as test conditions, corrective actions, or re-testing. The pilot deployment testing phase is not complete until the test report is approved by City of Santa Ana.

### ***Subtask 5.7: Full System Configuration and Deployment***

Following acceptance of Pilot Deployment Testing, the consultant shall then activate and deploy the TSP system at all intersections for field operation and fine-tune all system settings, configuration parameters, and controller timing parameters to satisfy the system requirements.

Transit Signal Priority Implementation Technical Memorandum: The consultant shall prepare a memorandum detailing the TSP solution, including the logic for implementing the recommended solution and timing and how it can be scaled to other corridors and citywide. The memorandum shall also include any challenges regarding the procurement, configuration, and implementation that can be addressed for future implementations. The consultant shall share the draft of this memorandum with all stakeholders to provide their input for additional consideration outside of the prototype area.

### ***Task 5 – Deliverables (One hard copy and an electronic version of each):***

- Implementation Plan Memorandum
- Pilot TSP Deployment
- Full System Deployment
- Summary of System Configurations



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### VI. Task 6: Project Evaluation and Assessment

#### ***Subtask 6.1: Technology Evaluation and Assessment***

This sub-task will continue to monitor, evaluate, assess, and modify the solutions to ensure it meets the expectations and proof of technology of the project.

Proof of Technology: Immediately following the implementation of the project solutions and for a minimum period of three (3) months, the consultant shall evaluate and assess the solutions based on the metrics identified in Sub-Task 2.2. During this period, the consultant shall make the necessary adjustments to equipment configuration, timing, and technology based on field visits, agency comments, and the system reporting.

Technology Evaluation and Assessment Technical Memorandum: The consultant shall prepare a memorandum summarizing the proof of technology evaluation and assessment completed as part of this sub-task. This memorandum shall include the consultant's recommendation for fine tuning the system, including any infrastructure improvements to achieve the performance desired by each stakeholder in their jurisdiction.

#### ***Subtask 6.2: Performance Measure Comparison***

Concurrently with and following Sub-Task 6.1, the consultant shall collect the same performance metrics determined in Sub-Task 2.2. City of Santa Ana reserves the right to validate the performance data's accuracy. Should City determine that the data is not meeting the minimum requirements for data accuracy, City will require the consultant to determine how long and how much of the data is inaccurate and provide a written plan of how the consultant plans to remedy the data inaccuracy.

The consultant shall prepare a Performance Measure Comparison Memorandum to summarize all qualitative and quantitative improvements identified.

#### ***Task 6 – Deliverables (One hard copy and an electronic version of each):***

- Technology Evaluation and Assessment Technical Memorandum
- Performance Measure Comparison Memorandum

### VII. Attachments

- A. Attachment A – Santa Ana Cooperative Transit Study



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Project Schedule and Milestones		
Task	Starting Date	Ending Date
Kickoff Meeting & Notice To Proceed	May 2025	May 2025
Existing Analysis and Assessment	May 2025	July 2025
Conceptual Planning	June 2025	August 2025
Procure and Install TSP System	September 2025	December 2025
Technology Evaluation and Assessment	January 2026	February 2026

## **EXHIBIT B**





**City of Santa Ana**

# **RFP No. 24-122: McFadden Avenue Transit Signal Priority Pilot**

**Cost Proposal | March 19, 2025**





Arcadis U.S., Inc.  
18401 Von Karman Avenue  
Suite 300  
Irvine, CA 92612  
[www.arcadis.com](http://www.arcadis.com)

March 19, 2025

**ATTN: Cesar Rodriguez, PE, TE | Senior Civil Engineer**

City of Santa Ana, Public Works Agency  
20 Civic Center Plaza | Santa Ana, CA 927018

**SUBJECT: COST PROPOSAL FOR MCFADDEN AVENUE TRANSIT SIGNAL PRIORITY PILOT (RFP NO. 24-122)**

Dear Mr. Rodriguez:

Arcadis U.S., Inc., is pleased to submit the enclosed cost proposal to provide traffic and intelligent transportation systems engineering services for the McFadden Avenue Transit Signal Priority Pilot Project.

This proposal is submitted contingent upon the successful negotiation and execution of a mutually agreeable contract between Arcadis and the City of Santa Ana.

Thank you for the opportunity to present our proposal. We look forward to collaborating with the City on this important project. Should you have any questions, please do not hesitate to contact me directly at (562) 221-2118 or via email at [ramin.massoumi@arcadis.com](mailto:ramin.massoumi@arcadis.com), or reach out to Paul Frislie, our designated Project Manager, at (562) 234-5286 or via email at [paul.frislie@arcadis.com](mailto:paul.frislie@arcadis.com).

Sincerely,

A handwritten signature in blue ink that reads 'Ramin Massoumi'.

Ramin Massoumi, PE | Global Director – Intelligent Mobility Services | Arcadis U.S., Inc.  
18401 Von Karman Avenue, Suite 300, Irvine, CA 92612  
Tel. 562.221.2118 | [ramin.massoumi@arcadis.com](mailto:ramin.massoumi@arcadis.com)





## CITY OF SANTA ANA

### EXHIBIT C

#### PROPOSER'S CERTIFICATION, PROPOSAL PRICING

**Certification** - I certify that I have read, understand and agree to the terms and conditions of this Request for Proposals. I have examined the Scope of Services (Exhibit I) and am qualified to provide services being requested as specified herein. I understand and agree that I am responsible for reporting any errors, omissions or discrepancies to the City for clarification prior to the submission of my proposal.

**PROPOSER'S STATEMENT:** I have read, understood and agree to the terms and conditions on all pages of the Request for Proposals. Upon request, I will transfer and deliver goods or services to the City in accordance with said terms and conditions.

Project Tasks	Total Cost
<b>Task 1:</b> Project Management	\$95,465.89
<b>Task 2:</b> Existing Analysis and Assessment	\$49,044.63
<b>Task 3:</b> Conceptual Planning	\$127,312.78
<b>Task 4.1-4.3:</b> Procure TSP System and Hardware	Not to Exceed \$600,000
<b>Task 4.4:</b> Detailed Design Documentation	\$54,209.56
<b>Task 5:</b> Installation, Integration and Deployment	\$121,334.44
<b>Task 6:</b> Project Evaluation and Assessment	\$60,134.43
<b>Total Project Cost:</b>	\$1,107,501.73

Arcadis U.S., Inc.

Tel. 562.221.2118 | Fax: N/A

LEGAL NAME OF COMPANY

PHONE AND FAX NUMBERS

18401 Von Karman Avenue, Suite 300, Irvine, CA 92612

BUSINESS ADDRESS

Ramin Massoumi, PE

Global Director – Intelligent Mobility Services

PRINTED NAME OF AUTHORIZED AGENT

TITLE

*Ramin Massoumi*

March 19, 2025

ramin.massoumi@arcadis.com

SIGNATURE OF AUTHORIZED AGENT      DATE

E-MAIL ADDRESS

164909

CITY OF SANTA ANA BUSINESS LICENSE NUMBER

(PLEASE PROVIDE IF AVAILABLE, BUT NOT REQUIRED UNTIL AND IF AN AWARD IS MADE TO PROPOSER.)