

## **RESOLUTION NO. 2018-109**

### **A RESOLUTION AUTHORIZING THE CITY MANAGER TO AWARD A CONSULTANT SERVICES AGREEMENT TO KIMLEY-HORN AND ASSOCIATES, INC. FOR IMPLEMENTATION OF AN ADVANCED TRAFFIC MANAGEMENT SYSTEM AND AUTHORIZING A BUDGET AMENDMENT FOR THE TRAFFIC SIGNAL SYNCHRONIZATION PROJECT (CIP NO. 2016-07)**

**WHEREAS**, the Traffic Signal Synchronization Project (Project Number 2016-07) includes the installation and implementation of an advanced traffic management system (ATMS), including intersections on both Golf Course Drive and Rohnert Park Expressway; and

**WHEREAS**, City staff posted a request for proposals on April 10, 2018; and

**WHEREAS**, three proposals were received on the deadline for submittal date of May 25, 2018; and

**WHEREAS**, Development Services staff have selected Kimley-Horn and Associates, Inc., as the preferred vendor for installation and implementation of the ATMS; and

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Rohnert Park as follows:

1. The above recitals are true and correct and material to this Resolution.
2. This action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines sections 15301 and 15061(b)(3).
3. In making its findings the City Council relied upon and hereby incorporates by reference all of the request for proposals, addendums, proposal, correspondence, staff reports and all other related materials.
4. The City Manager is hereby authorized to execute the consultant services agreement with Kimley-Horn and Associates, Inc., in substantially similar form to Exhibit A, subject to minor alterations approved by the City Attorney, in the amount of four-hundred and eighty-three thousand four-hundred and seventy dollars (\$483,470) for implementation of the Project in accordance with the proposal submitted by Kimley-Horn and Associates, Inc., and to take such other actions as may be necessary to effectuate an agreement on behalf of the City.
5. The Director of Finance is authorized and directed to appropriate an additional \$363,491.05 from the Casino Mitigation Fund (Fund 184) to fund the Capital Improvement Program Traffic Signal Synchronization Project for a total project budget of one million forty-thousand eight-hundred and twelve dollars and five cents (\$1,040,812.05).
6. This Resolution shall become effective immediately.
7. All portions of this resolution are severable. Should any individual component of this Resolution be adjudged to be invalid and unenforceable by a body of competent jurisdiction, then the remaining resolution portions shall continue in full force and effect,

except as to those resolution portions that have been adjudged invalid. The City Council of the City of Rohnert Park hereby declares that it would have adopted this Resolution and each section, subsection, clause, sentence, phrase and other portion thereof, irrespective of the fact that one or more section, subsection, clause, sentence, phrase or other portion may be held invalid or unconstitutional.

**DULY AND REGULARLY ADOPTED** this 14<sup>th</sup> day of August, 2018.

**CITY OF ROHNERT PARK**

**ATTEST:**

Pam Stafford  
Pam Stafford, Mayor

JoAnne M. Buergler  
JoAnne M. Buergler, City Clerk

Attachment: Exhibit A

AHANOTU: Aye BELFORTE: Aye MACKENZIE: Aye CALLINAN: Absent STAFFORD: Aye  
AYES: ( 4 ) NOES: ( 0 ) ABSENT: ( 1 ) ABSTAIN: ( 0 )



**City of Rohnert Park**  
130 Avram Ave.  
Rohnert Park, CA 94928

## **CONSULTANT SERVICES AGREEMENT**

THIS AGREEMENT is entered into as of the 14th day of August, 2018, by and between the CITY OF ROHNERT PARK (“City”), a California municipal corporation, and Kimley-Horn and Associates, Inc. (“Consultant”), a North Carolina corporation.

### Recitals

WHEREAS, City desires to obtain Advanced Traffic Management/ Adaptive Control System Software and Support services in connection with the traffic signal synchronization project (2016-07); and

WHEREAS, Consultant hereby warrants to the City that Consultant is skilled and able to provide such services described in Section 3 of this Agreement; and

WHEREAS, City desires to retain Consultant pursuant to this Agreement to provide the services described in Section 3 of this Agreement.

### Agreement

NOW, THEREFORE, in consideration of their mutual covenants, the parties hereto agree as follows:

1. Incorporation of Recitals. The recitals set forth above, and all defined terms set forth in such recitals and in the introductory paragraph preceding the recitals, are hereby incorporated into this Agreement as if set forth herein in full.

2. Project Coordination.

A. City. The City Manager or his/her designee, shall represent City for all purposes under this Agreement. The Civil Engineer is hereby designated as the Project Manager. The Project Manager shall supervise the progress and execution of this Agreement.

B. Consultant. The Consultant shall assign Douglas Gettman to have overall responsibility for the progress and execution of this Agreement for Consultant.

3. Scope and Performance of Services

A. Scope of Services. Subject to such policy direction and approvals as the City through its staff may determine from time to time, Consultant shall perform the services set out in the “Scope of Work” attached hereto as Exhibit A and incorporated herein by reference.

B. Time of Performance. The services of Consultant are to commence upon receipt of a written notice to proceed from City, but in no event prior to receiving a fully executed agreement from City and obtaining and delivering the required insurance coverage, and satisfactory evidence thereof, to City. The services of Consultant are to be completed not later than September 18, 2019. Consultant shall perform its services in accordance with the schedule attached hereto as Exhibit A, and incorporated herein by reference. Any changes to these dates in either this Section 3 or Exhibit A must be approved in writing by the Project Manager.

C. Standard of Quality. City relies upon the professional ability of Consultant as a material inducement to entering into this Agreement. All work performed by Consultant under this Agreement shall be in accordance with all applicable legal requirements and shall meet the standard of quality ordinarily to be expected of competent professionals in Consultant's field of expertise.

4. Compensation and Method of Payment.

A. Compensation. The compensation to be paid to Consultant, including both payment for professional services and reimbursable expenses, shall be at the rate and schedules attached hereto as Exhibit B, and incorporated herein by reference. However, in no event shall the amount City pays Consultant exceed four-hundred and eighty-three thousand four-hundred and seventy dollars Dollars (\$483,470). Payment by City under this Agreement shall not be deemed a waiver of unsatisfactory work, even if such defects were known to the City at the time of payment.

B. Timing of Payment.

Consultant shall submit itemized monthly statements for work performed. City shall make payment, in full, within thirty (30) days after approval of the invoice by the Project Manager.

C. Changes in Compensation. Consultant will not undertake any work that will incur costs in excess of the amount set forth in Paragraph 4(A) without prior written amendment to this Agreement.

D. Taxes. Consultant shall pay all taxes, assessments and premiums under the federal Social Security Act, any applicable unemployment insurance contributions, Workers Compensation insurance premiums, sales taxes, use taxes, personal property taxes, or other taxes or assessments now or hereafter in effect and payable by reason of or in connection with the services to be performed by Consultant.

E. No Overtime or Premium Pay. Consultant shall receive no premium or enhanced pay for work normally understood as overtime, i.e., hours that exceed forty (40) hours per work week, or work performed during non-standard business hours, such as in the evenings or on weekends. Consultant shall not receive a premium or enhanced pay for work performed on a recognized holiday. Consultant shall not receive paid time off for days not worked, whether it be in the form of sick leave, administrative leave, or for any other form of absence.

F. Litigation Support. Consultant agrees to testify at City's request if litigation is brought against City in connection with Consultant's work product. Unless the action is brought by Consultant or is based upon Consultant's negligence, City will compensate Consultant for the preparation and the testimony at Consultant's standard hourly rates, if requested by City and not part of the litigation brought by City against Consultant.

5. Amendment to Scope of Work. City shall have the right to amend the Scope of Work within the Agreement by written notification to the Consultant. In such event, the compensation and time of performance shall be subject to renegotiation upon written demand of either party to the Agreement. Consultant shall not commence any work exceeding the Scope of Work without prior written authorization from the City. Failure of the Consultant to secure City's written authorization for extra or changed work shall constitute a waiver of any and all right to adjustment in the contract price or time due, whether by way of compensation, restitution, quantum meruit, etc. for work done without the appropriate City authorization.

6. Term. This Agreement shall commence upon its execution by both parties and shall continue in full force and effect until completed, amended pursuant to Section 21, or otherwise terminated as provided herein.

7. Inspection. Consultant shall furnish City with every reasonable opportunity for City to ascertain that the services of Consultant are being performed in accordance with the requirements and intentions of this Agreement. All work done and all materials furnished, if any, shall be subject to the Project Manager's inspection and approval. The inspection of such work shall not relieve Consultant of any of its obligations to fulfill the Agreement as prescribed.

8. Ownership of Documents. Title to all plans, specifications, maps, estimates, reports, manuscripts, drawings, descriptions and other final work products compiled by the Consultant under the Agreement shall be vested in City, none of which shall be used in any manner whatsoever, by any person, firm, corporation, or agency without the expressed written consent of the City. Basic survey notes and sketches, charts, computations, and other data prepared or obtained under the Agreement shall be made available, upon request, to City without restriction or limitations on their use. Consultant may retain copies of the above-described information but agrees not to disclose or discuss any information gathered, discussed or generated in any way through this Agreement without the written permission of City during the term of this Agreement, unless required by law.

9. Employment of Other Consultants, Specialists or Experts. Consultant will not employ or otherwise incur an obligation to pay other consultants, specialists or experts for services in connection with this Agreement without the prior written approval of the City.

10. Conflict of Interest.

A. Consultant covenants and represents that neither it, nor any officer or principal of its firm, has, or shall acquire any investment, income, business entity, interest in real property, or other interest, directly or indirectly, which would conflict in any manner with the interests of City, hinder Consultant's performance of services under this Agreement, or be affected in any manner or degree by performance of Consultant's services hereunder. Consultant

further covenants that in the performance of the Agreement, no person having any such interest shall be employed by it as an officer, employee, agent, or subcontractor without the express written consent of the City. Consultant agrees to at all times avoid conflicts of interest, or the appearance of any conflicts of interest, with the interests of the City in the performance of the Agreement.

B. Consultant is not a designated employee within the meaning of the Political Reform Act because Consultant:

(1) will conduct research and arrive at conclusions with respect to its rendition of information, advice, recommendation, or counsel independent of the control and direction of the City or of any City official, other than normal contract monitoring; and

(2) possesses no authority with respect to any City decision beyond the rendition of information, advice, recommendation, or counsel. (2 Cal. Code Regs. § 18700(a)(2).)

11. Liability of Members and Employees of City. No member of the City and no other officer, elected official, employee or agent of the City shall be personally liable to Consultant or otherwise in the event of any default or breach of the City, or for any amount which may become due to Consultant or any successor in interest, or for any obligations directly or indirectly incurred under the terms of this Agreement.

12. Indemnity.

A. Indemnification. To the fullest extent allowed by law (including without limitation California Civil Code Sections 2782 and 2782.8), Consultant shall defend, indemnify, and hold harmless the City, its officers, directors, officials, agents, employees, and volunteers (collectively, “**Indemnitees**”) from and against any and all claims, suits, expenses, liability, cause of action, loss, cost, damage, injury (including, without limitation, economic harm, injury to or death of any person, including an employee of Consultant or its subconsultants), of every kind, nature, and description, at law or equity, (including without limitation, incidental and consequential damages, court costs, attorneys’ fees, litigation expenses and fees of expert consultants or expert witnesses incurred in connection therewith and costs of investigation) (collectively “**Liabilities**”), that arise out of, pertain to, or relate to any negligence, recklessness, or willful misconduct of Consultant, any subconsultant, anyone directly or indirectly employed or retained by them, or anyone that they control. In the event one or more defendants is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, Consultant shall meet and confer with other parties regarding unpaid defense costs. Consultant’s obligations to indemnify, defend, hold harmless the Indemnitees shall not apply to the extent that such Liabilities are caused in whole or in part by the sole negligence, active negligence, or willful misconduct of such Indemnitee but shall apply to all other Liabilities, and in no event shall the cost to defend charged to Consultant exceed Consultant’s proportionate percentage of fault as set forth in California Civil Code section 2782.8.

B. Scope of Obligation. Consultant’s duty to indemnify, protect, defend and hold harmless as set forth in this Section 12 shall include the duty to defend (by counsel

reasonably satisfactory to the City) as set forth in California Civil Code § 2778. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable by or for Consultant under worker's compensation, disability or other employee benefit acts or the terms, applicability or limitations of any insurance held or provided by Consultant and shall continue to bind the parties after termination/completion of this agreement. This indemnification shall be regardless of and not in any way limited by the insurance requirements of this contract. This indemnification is for the full period of time allowed by law and shall survive the termination of this agreement. Consultant waives any and all rights to express or implied indemnity against the Indemnified Parties concerning any Liability of the Consultant arising out of or in connection with the Agreement or Consultant's failure to comply with any of the terms of this Agreement.

Consultant's duty to indemnify, protect, defend and hold harmless as set forth in this Section 12 shall not be excused because of the Consultant's inability to evaluate Liability, or because the Consultant evaluates Liability and determines that the Consultant is not or may not be liable. The Consultant must respond within thirty (30) calendar days to any tender by the City, unless the time for responding has been extended by an authorized representative of the City in writing. If the Consultant fails to timely accept such tender, in addition to any other remedies authorized by law, as much of the money due or that may become due to the Consultant under this Agreement as shall reasonably be considered necessary by the City may be retained by the City until disposition has been made of the matter subject to tender, or until the Consultant accepts the tender, whichever occurs first. Consultant agrees to fully reimburse all costs, including but not limited to attorney's fees and costs and fees of litigation incurred by the City in responding to matters prior to Consultant's acceptance of the tender. In no event shall the cost to defend charged to the Consultant exceed the Consultant's proportionate percentage of fault as set forth in California Civil Code 2782.

13. Consultant Not an Agent of City. Consultant, its officers, employees and agents shall not have any power to bind or commit the City to any decision.

14. Independent Contractor. It is expressly agreed that Consultant, in the performance of the work and services agreed to be performed by Consultant, shall act as and be an independent contractor and not an agent or employee of City; and as an independent contractor, Consultant shall obtain no rights to retirement benefits or other benefits which accrue to City's employees, and Consultant hereby expressly waives any claim it may have to any such rights.

15. Compliance with Laws.

A. General. Consultant shall use the standard of care in its profession to comply with all applicable federal, state, and local laws, codes, ordinances, and regulations. Consultant represents and warrants to City that it has and shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement any licenses, permits, insurance and approvals which are legally required for Consultant to practice its profession. Except as otherwise allowed by City in its sole discretion, Consultant and all subconsultants shall have acquired, at their expense, a business license from City in accordance with Chapter 5.04 of the Rohnert Park Municipal Code prior to City's issuance of an authorization to proceed with the

Services. Such license(s) must be kept valid throughout the term of this Agreement. The City is not responsible or liable for Consultant's failure to comply with any or all of the requirements contained in this paragraph.

B. Workers' Compensation. Consultant certifies that it is aware of the provisions of the California Labor Code which require every employee to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Consultant certifies that it will comply with such provisions before commencing performance of the Agreement and at all times in the performance of the Agreement.

C. Prevailing Wage. Consultant and Consultant's subconsultants (if any) shall, to the extent required by the California Labor Code, pay not less than the latest prevailing wage rates to workers and professionals as determined by the Director of Industrial Relations of the State of California pursuant to California Labor Code, Part 7, Chapter 1, Article 2. Copies of the applicable wage determination are on file at the City's office of the City Clerk.

D. Injury and Illness Prevention Program. Consultant certifies that it is aware of and has complied with the provisions of California Labor Code § 6401.7, which requires every employer to adopt a written injury and illness prevention program.

E. City Not Responsible. City is not responsible or liable for Consultant's failure to comply with any and all of its requirements under this section and Agreement.

F. Waiver of Subrogation. Consultant and Consultant's insurance company agree to waive all rights of subrogation against City, its officers, elected officials, employees, agents and volunteers for losses paid under Consultant's workers' compensation insurance policy which arise from the work performed by Consultant for the City.

16. Confidential Information. All data, documents, discussions or other information developed or received by or for Consultant in performance of this Agreement are confidential and not to be disclosed to any person except as authorized by the City, or as required by law.

17. Assignment; Subcontractors; Employees

A. Assignment. Consultant shall not assign, delegate, transfer, or convey its duties, responsibilities, or interests in this Agreement or any right, title, obligation, or interest in or to the same or any part thereof without the City's prior written consent. Any assignment without such approval shall be void and, at the City's option, shall immediately cause this Agreement to terminate.

B. Subcontractors; Employees. Consultant shall be responsible for employing or engaging all persons necessary to perform the services of Consultant hereunder. No subcontractor of Consultant shall be recognized by the City as such; rather, all subcontractors are deemed to be employees of the Consultant, and Consultant agrees to be responsible for their performance. Consultant shall give its personal attention to the fulfillment of the provisions of this Agreement by all of its employees and subcontractors, if any, and shall keep the work under



its control. If any employee or subcontractor of Consultant fails or refuses to carry out the provisions of this Agreement or appears to be incompetent or to act in a disorderly or improper manner, it shall be discharged immediately from the work under this Agreement on demand of the Project Manager.

18. Insurance. Without limiting consultant's indemnification provided herein, Consultant shall comply with the requirements set forth in Exhibit C to this Agreement.

19. Termination of Agreement; Default.

A. This Agreement and all obligations hereunder may be terminated at any time, with or without cause, by the City upon 5-days' written notice to Consultant.

B. If Consultant fails to perform any of its obligations under this Agreement within the time and in the manner herein provided or otherwise violate any of the terms of this Agreement, in addition to all other remedies provided by law, City may terminate this Agreement immediately upon written notice. In such event, Consultant shall be entitled to receive as full payment for all services satisfactorily rendered and expenses incurred hereunder, an amount which bears the same ratio to the total fees specified in the Agreement as the services satisfactorily rendered hereunder by Consultant bear to the total services otherwise required to be performed for such total fee; provided, however, that the City shall deduct from such amount the amount of damages, if any, sustained by City by virtue of the breach of the Agreement by consultant.

C. In the event this Agreement is terminated by City without cause, Consultant shall be entitled to any compensation owing to it hereunder up to the time of such termination, it being understood that any payments are full compensation for services rendered prior to the time of payment.

D. Upon termination of this Agreement with or without cause, Consultant shall turn over to the City Manager immediately any and all copies of studies, sketches, drawings, computations, and other data, whether or not completed, prepared by Consultant or its subcontractors, if any, or given to Consultant or its subcontractors, if any, in connection with this Agreement. Such materials shall become the permanent property of the City. Consultant, however, shall not be liable for the City's use of incomplete materials nor for the City's use of complete documents if used for other than the project contemplated by this Agreement.

20. Suspension. The City shall have the authority to suspend this Agreement and the services contemplated herein, wholly or in part, for such period as it deems necessary due to unfavorable conditions or to the failure on the part of the Consultant to perform any provision of this Agreement. Consultant will be paid for satisfactory Services performed through the date of temporary suspension.

21. Merger; Amendment. This Agreement constitutes the complete and exclusive statement of the agreement between the City and Consultant and shall supersede all prior negotiations, representations, or agreements, either written or oral. This document may be

amended only by written instrument, signed by both the City and Consultant. All provisions of this Agreement are expressly made conditions.

22. Interpretation. This Agreement shall be interpreted as though it was a product of a joint drafting effort and no provisions shall be interpreted against a party on the ground that said party was solely or primarily responsible for drafting the language to be interpreted.

23. Litigation Costs. If either party becomes involved in litigation arising out of this Agreement or the performance thereof, the court in such litigation shall award reasonable costs and expenses, including attorneys' fees, to the prevailing party. In awarding attorneys' fees, the court will not be bound by any court fee schedule, but shall, if it is in the interest of justice to do so, award the full amount of costs, expenses, and attorneys' fees paid or incurred in good faith.

24. Time of the Essence. Time is of the essence of this Agreement.

25. Written Notification. Any notice, demand, request, consent, approval or communication that either party desires or is required to give to the other party shall be in writing and either served personally or sent by prepaid, first class mail. Any such notice, demand, etc. shall be addressed to the other party at the address set forth below. Either party may change its address by notifying the other party of the change of address. Notice shall be deemed communicated within 72 hours from the time of mailing if mailed as provided in this section.

If to City: City Manager  
City of Rohnert Park - City Hall  
130 Avram Avenue  
Rohnert Park, CA 94928

If to Consultant: Brian Sowers  
Kimley-Horn and Associates  
1300 Clay Street  
Oakland, CA 94612

26. Consultant's Books and Records.

A. Consultant shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements charged to the City and all documents and records which demonstrate performance under this Agreement for a minimum period of three (3) years, or for any longer period required by law, from the date of termination or completion of this Agreement.

B. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit, at any time during regular business hours, upon written request by the City Attorney, City Auditor, City Manager, or a designated representative of any of these officers. Copies of such documents shall be provided to the City for inspection when it is practical to do so. Otherwise, unless an alternative is mutually agreed



upon, the records shall be available at Consultant's address indicated for receipt of notices in this Agreement.

C. The City may, by written request by any of the above-named officers, require that custody of the records be given to the City and that the records and documents be maintained in the City Manager's office.

27. Agreement Binding. The terms, covenants, and conditions of this Agreement shall apply to, and shall bind, the heirs, successors, executors, administrators, assigns, and subcontractors of both parties.

28. Equal Employment Opportunity. Consultant is an equal opportunity employer and agrees to comply with all applicable state and federal regulations governing equal employment opportunity. Consultant will not discriminate against any employee or applicant for employment because of race, age, sex, creed, color, sexual orientation, marital status or national origin. Consultant will take affirmative action to ensure that applicants are treated during such employment without regard to race, age, sex, creed, color, sexual orientation, marital status, or national origin. Such action shall include, but shall not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; lay-offs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Consultant further agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

29. City Not Obligated to Third Parties. The City shall not be obligated or liable for payment hereunder to any party other than the Consultant.

30. Waiver. No failure on the part of either party to exercise any right or remedy hereunder shall operate as a waiver of any other right or remedy that party may have hereunder.

31. Severability. If any one or more of the provisions contained herein shall for any reason be held to be invalid, illegal or unenforceable in any respect, then such provision or provisions shall be deemed severable from the remaining provisions hereof, and such invalidity, illegality, or unenforceability shall not affect any other provision hereof, and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had not been contained herein.

32. Exhibits. The following exhibits are attached to this Agreement and incorporated herein by this reference:

- A. Exhibit A: Scope of Work and Schedule of Performance
- B. Exhibit B: Compensation
- C. Exhibit C: Insurance Requirements

33. Execution. This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties

when at least one copy hereof shall have been signed by both parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

34. News Releases/Interviews. All Consultant and subconsultant news releases, media interviews, testimony at hearings and public comment shall be prohibited unless expressly authorized by the City.

35. Applicable Law; Venue. This Agreement shall be construed and interpreted according to California law. In the event that suit shall be brought by either party hereunder, the parties agree that trial of such action shall be held exclusively in a state court in the County of Sonoma, California.

36. Authority. Each individual executing this Agreement on behalf of one of the parties represents that he or she is duly authorized to sign and deliver the Agreement on behalf of such party and that this Agreement is binding on such party in accordance with its terms.

37. STATEMENT OF ECONOMIC INTEREST. If City determines Consultant comes within the definition of Consultant under the Political Reform Act (Government Code §87100), Consultant shall complete and file and shall require any other person doing work under this Agreement to complete and file a "Statement of Economic Interest" with the Clerk of the City of Rohnert Park disclosing Consultant and/or such other person's financial interests.

IN WITNESS WHEREOF, the City and Consultant have executed this Agreement as of the date first above written.

CITY OF ROHNERT PARK

CONSULTANT

By: \_\_\_\_\_

City Manager

Date: \_\_\_\_\_

Per Resolution No. 20\_\_ - \_\_ adopted by the Rohnert Park  
City Council at its meeting of \_\_\_\_\_ .

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

CONSULTANT

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

ATTEST:

By: \_\_\_\_\_

City Clerk

APPROVED AS TO FORM:

By: \_\_\_\_\_

City Attorney



## EXHIBIT A

### Scope of Work and Schedule of Performance



Proposal for

# PROCUREMENT OF

## Advanced Traffic Management System, Services & Support





## Cover Letter

May 25, 2018

Vanessa Garrett, P.E.  
City of Rohnert Park  
Development Services  
130 Avram Avenue  
Rohnert Park, CA 94928

1300 Clay Street  
Suite 325  
Oakland, CA 94612  
TEL 510.625.0712

### Re: Proposal for the Advanced Traffic Management System / Adaptive Control System Project

Dear Ms. Garrett and Members of the Selection Committee:

Kimley-Horn is excited to submit our proposal to deliver an Advanced Traffic Management System (ATMS) with an Adaptive Traffic Control System (ATCS) to the City of Rohnert Park. We understand that the City faces significant traffic circulation challenges due to rapid growth. To mitigate these challenges, the City is looking for this project to provide an ATMS with adaptive traffic control capable of dynamically adjusting traffic signal timing parameters based on real-time traffic conditions. We are proposing our **Kadence Adaptive Traffic Signal System** for the City, which has all the features you will need. Kadence is a fully integrated module of our **Advanced Traffic Management System, KITS**.

Kimley-Horn has been involved in over 30 adaptive traffic control system projects in the United States, and based on our project team's extensive experience deploying KITS and Kadence in San Mateo County (Menlo Park), Alameda County (San Leandro and Hayward), and Santa Clara County (San Jose), and many other cities throughout the U.S., we feel that we are the best fit for the City of Rohnert Park. We have formed a core team of adaptive signal system specialists with exclusive knowledge of KITS and Kadence who will work side-by-side with you on every aspect of this project. We understand not only the technical needs of implementing an adaptive traffic control system, but also the system integration, equipment installation requirements, and fine-tuning activities necessary for a successful ATMS/ATCS/ATSPMs (Automated Traffic Signal Performance Measures) deployment. As we have done with many other agencies, we look forward to bringing our KITS/Kadence expertise and traffic signal and communications design experience to the City for a successful project implementation.

We believe the Kimley-Horn team is the right partner for the City of Rohnert Park for the following reasons:

**Our System Meets All the City's Requirements.** The Kadence system meets 99% of the requirements presented in the RFP and can meet all of the requirements by the end of the project. In addition, ***Kadence is the only adaptive traffic control system on the market that can interface with Caltrans TSCP traffic controllers without any system or software modifications.*** Caltrans uses KITS already for all signals in District 4. This will enable you to integrate and operate the four Caltrans signals on both Golf Course Drive and Rohnert Park Expressway in adaptive mode.

**History of Successful Implementation of Adaptive Systems and ATSPMs.** Our proposed team has the experience and expertise not only in deploying and implementing the KITS/Kadence system, but also the UDOT/Purdue ATSPMs system and interfaces to Connected Vehicles systems such as TTS (Traffic Technology Services – the company linking real-time signal data to Audi in-dash displays). We understand all facets of deployment and we know what it takes to make the project a success. ***If selected, this will be the team's 16th adaptive system deployment project in Northern California, 10th Kadence project in the Bay Area, and 5th deployment of UDOT ATSPMs.***



**Proven Project Manager and Team Committed to the City of Rohnert Park.** Our well-rounded team consists of individuals who are passionate about serving their clients and delivering successful systems, particularly for clients that need a “turn-key” implementation. As principal developer of the Kadence system, I have extensive hands-on experience in the planning, design, and implementation of Adaptive Traffic Control Systems including in Menlo Park, San Jose, Hayward, San Leandro, and many other locations in Arizona, Texas, Maryland, Pennsylvania, and Ontario, Canada. Don’t take our word for it, please contact our client references.

We are truly excited about the opportunity to offer the City of Rohnert Park the KITS/Kadence ATCS along with our team’s ability to deliver a diverse range of exceptional professional services. We look forward to partnering with the City and demonstrating how you can *expect more and experience better with Kimley-Horn*. Should you have any questions or need additional information regarding this proposal, please do not hesitate to contact Monique Fuhrman at (510) 250.2106, (707) 206.5110, or at monique.fuhrman@kimley-horn.com. This proposal is a binding offer for 90 days from the submittal date (May 25, 2018). Please see Section 7 of the proposal for our Contract Agreement Exceptions.

Sincerely,

Sincerely,

**KIMLEY-HORN AND ASSOCIATES, INC.**

A handwritten signature in blue ink that reads 'Brian E. Sowers'.

Brian Sowers, P.E.  
Vice President  
Authority to bind Kimley-Horn

A handwritten signature in blue ink that reads 'Doug Gettman'.

Douglas Gettman, Ph.D.  
Project Manager  
Kadence System Manager





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## 1. Introduction – Project Understanding and Approach

### *Project Understanding*

The City of Rohnert Park is looking to implement a city-wide ATMS with ATCS functionality to help relieve congested corridors that experience large fluctuations in traffic during peak and off-peak times. Rohnert Park is a medium-sized city with over 40 signalized intersections along US-101 in Sonoma County. The City is home to Sonoma State University, whose students live all around Sonoma County and access the campus via US-101 and Rohnert Park Expressway. Rohnert Park Expressway is a key corridor in Rohnert Park, providing the main thoroughfare bisecting the City and ushering traffic onto US-101. Golf Course Drive, similarly, provides freeway access to the northeastern part of the City which is mainly residential, as well as the northwestern part of the City which houses Graton Casino, a major traffic generator. In addition, recent development in the City has brought significantly more traffic to City streets. Because of the new developments and general growth, the City's major arterials intersecting with US-101 experience significant congestion.

The City's existing traffic signal equipment and communications infrastructure is in the process of being upgraded with a mixture of controller types, communications, and detection. The City is looking to the selected consultant to provide a turn-key implementation of ATMS, ATCS, and ATSPMs.

The ATCS will be deployed on Rohnert Park Expressway and Golf Course Drive. Existing detection at each of the City's signalized intersections consists of either loops, video detection, or a combination of both. We will recommend where detection will need to be upgraded or modified at those locations to enhance adaptive performance. The detection upgrade work and any associated changes to communications, such as installation of new cabling, will be done by others. We will be responsible for installing and configuring Ethernet switches in the cabinets on Golf Course and Rohnert Park Expressway that will allow for IP communications over copper. The signals running adaptive control will be connected to the central ATMS as part of this project and implementation. Eventually, all other signals in the City can easily be brought online with the ATMS as the older firmware and signal controllers are replaced with modern equipment. Although this effort is not part of the current project, it could be added to the contract at a later time.

The sixteen locations which will be connected to the ATSPM system will require controller hardware and firmware upgrades to a controller model that supports the Kadence data collection specifications. For these intersections, with the exception of the Commerce/101 ramp intersection, we will supply 2070 controllers with D4 firmware.

We will be responsible for furnishing, installing, integrating, and testing all software and hardware for an operational ATCS/ATMS at all project intersections including two laptops and the server computer that provides the ATMS, ATCS, and ATSPM services. We will also provide staff training, system documentation, and the memorandums noting where communications or detection modifications may be necessary.

Table 1 shows a summary of the City's existing traffic signal equipment and communications network, replicated from Figure 4 of your RFP.



**Table 1 Intersection Summary**

	Major	Minor	Existing Conditions						Proposed Work			
			Cabinet	Controller*	GPS Time Source	SIC	Stop bar detection	Advance detection (approach)	Adaptive	ATSPMs	Ethernet Switch	New 2070 Controller (D4 Firmware)
1	RP Expressway	Labath Ave	332	170E		yes	video	loop (minor)	yes	yes	yes	yes
2	RP Expressway	Redwood Dr	332	170E		yes	video		yes	yes	yes	yes
3	RP Expressway	US 101 S	332	170E		yes	loop		yes	no	yes	no**
4	RP Expressway	US 101 N	332	170E		yes	loop		yes	no	yes	no**
5	RP Expressway	Commerce Blvd	332	170E		yes	gridsmart	loop (major)	yes	yes	yes	yes
6	RP Expressway	State Farm Dr	332	170E		yes	gridsmart	loop (major)	yes	yes	yes	yes
7	RP Expressway	SMART	332	2070		yes	video		no	yes	yes	no
8	RP Expressway	Country Club Dr	332	170E		yes	gridsmart	loop (major)	no	yes	yes	yes
9	RP Expressway	San Simeon Dr	332	170E		yes	gridsmart	loop (major)	no	yes	yes	yes
10	RP Expressway	Snyder Ln	P	170E		yes	gridsmart		no	yes	yes	yes
11	Golf Course Dr	Labath Ave	332	170E		yes	video		yes	yes	yes	yes
12	Golf Course Dr	Dowdell Ave	332	170E		yes	video		yes	yes	yes	yes
13	Golf Course Dr	Redwood Dr	332	170E	yes	yes	video		yes	yes	yes	yes
14	Golf Course Dr	US 101 S	332	170E		no (damaged)	loop		yes	no	yes	no**
15	Golf Course Dr	US 101 N	332	170E		yes	loop		yes	yes	yes	no**
16	Golf Course Dr	Commerce Blvd	332	170E	yes	yes	loop		yes	yes	yes	yes
17	Golf Course Dr	Roberts Dr	332	170E	yes	yes	loop		yes	yes	yes	yes
18	Golf Course Dr	Doubletree	332	170E	yes	yes	loop		yes	yes	yes	yes
19	Golf Course Dr	Fairway Dr	332	170E	yes	yes	video	loop (major)	yes	yes	yes	yes
<b>Totals</b>									<b>15</b>	<b>16</b>	<b>19</b>	<b>14</b>

\*170Es run BiTrans 200SA, 200CA, or 233 software

\*\*Caltrans to provide

*Italics indicated proposed adaptive control for improved congestion management*





## Project Approach

To meet your vision, goals, and objectives for this ATMS/ATCS/ATSPM project, Kimley-Horn proposes the Kadence Adaptive Traffic Signal System with the UDOT ATSPM monitoring software. Kadence is the only system on the market that satisfies all of the City's adaptive traffic signal system goals, objectives, and functional requirements as well as supporting Caltrans TSCP firmware. Note that Caltrans District 4 already uses KITS as the ATMS for all signals in District 4.

The ATCS system will be deployed in conjunction with KITS, which is our ATMS. Kadence is a module within KITS. The KITS ATMS can be used to connect, control, and monitor any traffic signal in the City at no additional cost. The UDOT ATSPM system is currently a stand-alone system that we have deployed in many locations already (Georgia DOT, Wisconsin DOT, TxDOT, etc.). Over the next year, the UDOT functionality will be integrated within KITS. However, Kadence provides identical metrics including arrivals on green, phase degree of saturation, and many others.

Kimley-Horn will deliver the following services and equipment on this project:

- Kadence ATCS licenses for 19 traffic signals (including integration with Caltrans TSCP at 101 ramps)
- KITS license for the entire City, including traffic signals that will be added in the future (up to 100 signals)
- Fourth Dimension D4 local traffic control software for nine (9) intersections
- Nine (9) 2070 controllers for intersections deploying ATSPMs
- Two Dell or HP servers for running Kadence, KITS, and ATSPMs (one for software services and one for database services)
- Two Dell/HP laptop computers with all necessary client software
- SQL server license and applications necessary for KITS, Kadence, and ATSPMs operation
- Installation and configuration of all central and field software and hardware
- Configuration and tuning of Kadence
- Training and documentation
- 3 years of Kadence support service
- Memoranda detailing upgrades and changes to communications and detection necessary for optimal operations, including technical work order for interconnect

The following pages discuss, in detail, our Kadence adaptive system in the following sections:

- Kadence System Overview and Methodology
- Maximize the Throughput on a Coordinated Route
- Cycle Selection
- Provide Smooth Flow Along Coordinated Routes
- Distribute Phase Times in an Equitable Fashion
- Manage the Length of Queues
- At an Isolated Intersection, Optimize Operation with a Minimum of Phase Failure
- A Combination of Two or More of These Strategies
- Kadence System Requirements
- Benefits of D4 Local Firmware

## Kadence System Overview and Methodology

The Kadence system optimizes traffic signal timing to balance performance benefits for safety and efficiency. The system is not intended to replace the need for sound traffic engineering, but rather supplement the traffic engineer's toolbox with another tool that can handle fluctuations in demand and short- and long-term changes in land use and traffic patterns. The system is proven to provide long-term benefits.



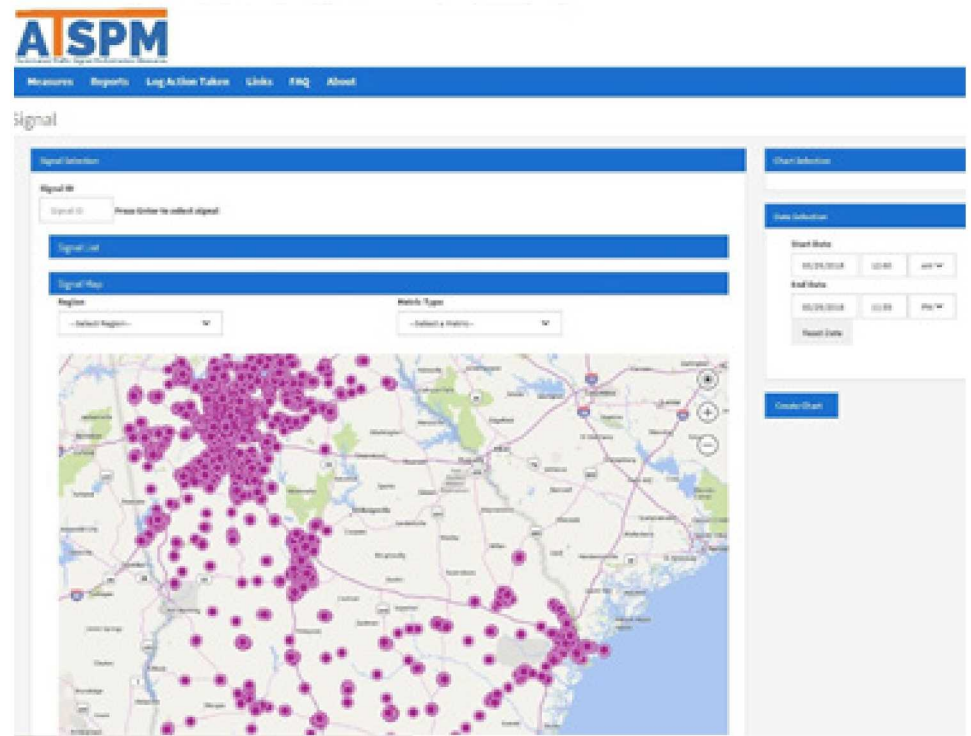


Kadence is comprised of five principle algorithms for tuning signal splits, offsets, cycle time, phase sequence, and TOD schedule. In the Kadence approach, second-by-second phase timing and detector data is polled from the controller. New signal timing parameters are downloaded to field controllers every 3-4 cycles. The field controller then begins operating in an actuated-coordinated with these new settings.



Kadence is dependent on a central system server that is connected on an IP communications network to each field controller. Kadence has no field equipment in each cabinet, the software system resides completely at central.

Stop bar detection is used for cycle, splits, and phase sequence tuning. Advance detection is only needed for offset tuning and for measuring stopped and flowing vehicle queues. Advance detection can be used upstream of the controller connected to the downstream controller, or as exit detection connected to the upstream controller (including a controller that is not intended to be adaptively controlled). Kadence is detection-technology agnostic. In all cases, better performance will be achieved with lane-by-lane detection (or vehicle-by-vehicle detection, in the case of radar and some video tracking detectors).



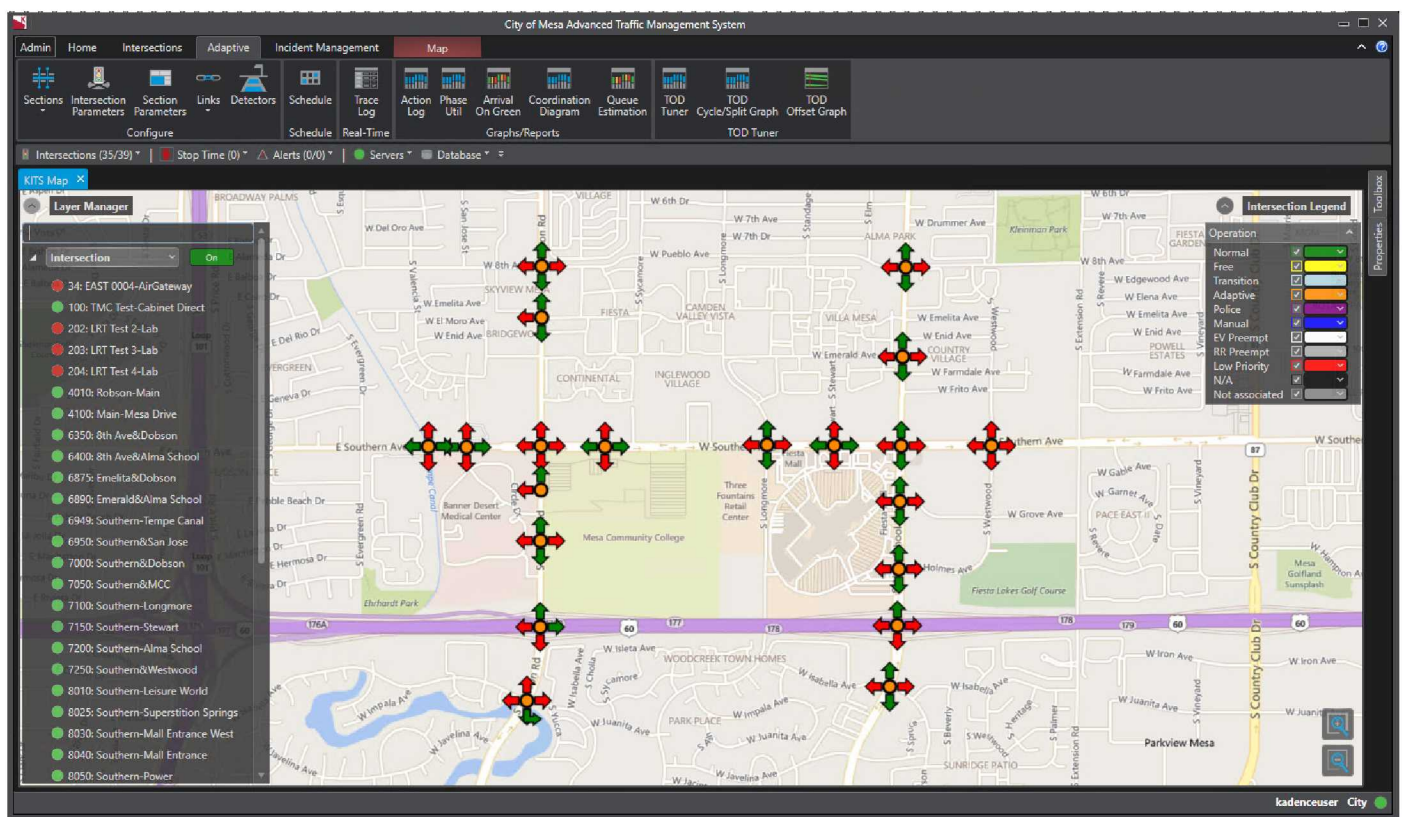
Kadence detects the presence of queues by measuring the average occupancy on a queue detector. When the level of occupancy is consistently high (a user-configurable threshold of occupancy) for several minutes (a user-configurable threshold of time), IF...THEN logic conditions can be configured to put Kadence into a variety of congestion management modes by selecting a new response coordination pattern with associated configuration parameters for Kadence to begin metering, increase cycle time, or change the coordination flow pattern.





All pedestrian functions are handled by the local controller. Kadence can be configured to allow split tuning to violate the ped clearance times, which results in a transition event if a pedestrian push button is activated, or can be configured to only allow splits that are larger than the ped clearance time. Advance walk, delay walk, and all other pedestrian settings are handled by the field controller.

New signal timing parameters are downloaded to field controllers every 3-4 cycles. The field controller then begins operating in an actuated-coordinated with these new settings. Based on past experience with adaptive systems that override the controller's timings every second (Real-Time Hierarchical Optimized Distributed Effective System (RHODES), Optimized Policies for Adaptive Control (OPAC), Split Cycle Offset Optimization Technique (SCOOT), Sydney Coordinated Adaptive Traffic System (SCATS), and InSync, this methodology of downloading new timings is more reliable, safer, and less error prone. Kadence is proven to require minimal capital investment, infrastructure, detectors, configuration, and calibration. The system operation has been validated in over 20 deployments nationwide to produce improvements to travel time and system delay over actuated-coordinated operation with TOD plans.



Long-term benefits not typically captured in a short before-and-after study are also accrued over time as the traffic patterns shift due to construction, incidents, land use changes, and so on.





Kadence Intersection Parameters - 7000: Southern&Dobson

Intersection Name: 7000: Southern&Dobson Plan: Default Plan

**Operation**

☒ Enable Adaptive  
☐ Disable Adaptive  
☐ Comm Fail Disable Section  
☐ Enable Fail Detector Logic

**Adaptive Logic**

☒ Reallocate Splits  
☒ Calculate Offsets  
☐ Phase Sequence Changes  
☐ Allow Cycle Float

**Deviation Configuration**

Max Offset Deviation: 30  
Max Split Deviation: 50

**Split Adjustment Configuration**

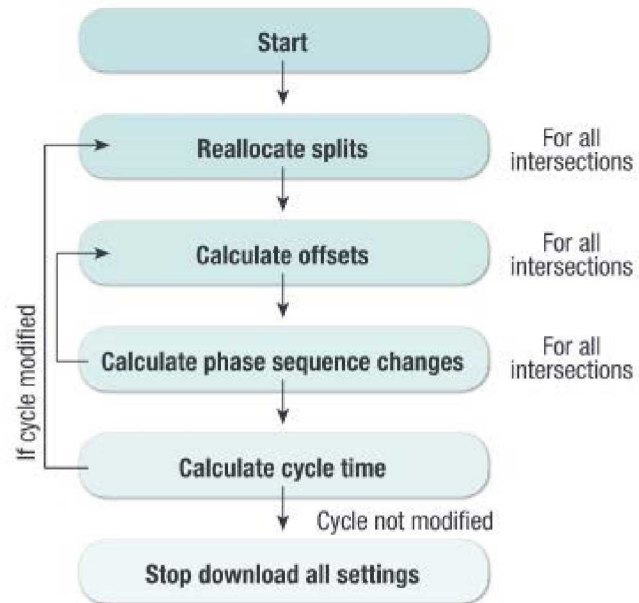
	Phases 1-8		Phases 9-16		Phases 17-24		Phases 25-32	
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Adjust Split	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bias Split	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use for Cycle Adjustment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Min Split	12	0	15	0	12	0	15	0
Max Split	0	0	0	0	0	0	0	0
Allow split < PdClr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phase Omit Allowed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Phase Sequence Configuration**

	Barrier Group 1	Barrier Group 2
Lead, Lead	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lead, Lag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lag, Lead	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lag, Lag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Omit Cycle Threshold: 0

Buttons: Save, Cancel, Clear Plan



Kadence is a fully featured and fully mature ATCS which we continue to improve upon. Kadence has a variety of configurable parameters to tailor the operation to the expectations of any agency. Certain adjustments can be disallowed and some phases can be excluded from optimization by pattern.

Configurable parameters include:

- Exclude any phase from split tuning by pattern
- Exclude or allow any lead-lag sequence by pattern
- Exclude or allow cycle tuning by pattern
- Exclude or allow offset tuning by pattern
- Configure maximum deviation of splits from pattern values
- Configure maximum deviation of offsets from pattern values
- Configure minimum and maximum cycle time
- Set phase minimum and maximum bounds by pattern, by phase
- Exclude or allow cycle selection
- Select any phases for biasing, by pattern
- Configure operation (optimization objectives) by TOD and pattern

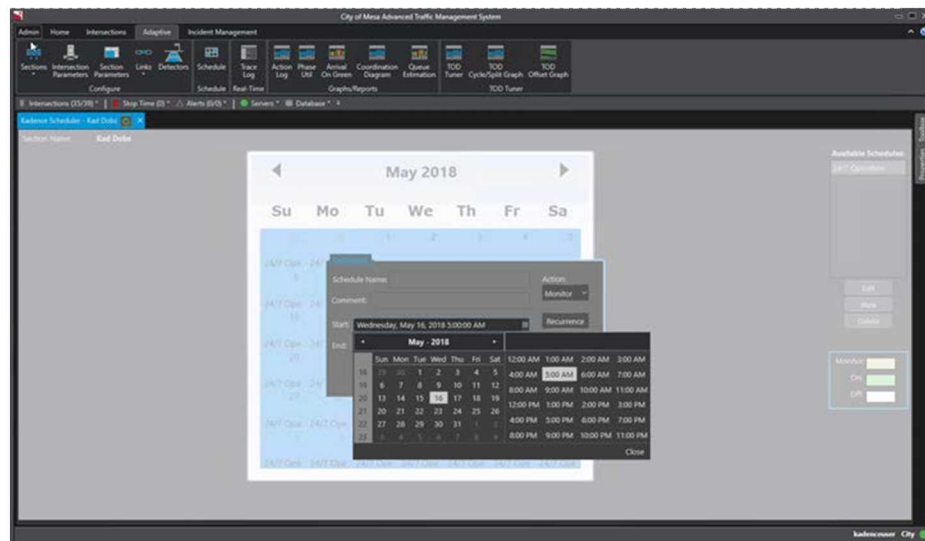
All Kadence algorithms and services operate at a central TMC. There are no field hardware components to install or maintain. If a Kadence algorithm fails, controllers will return to their normal TOD operation. In addition, Kadence can be turned ON or OFF from central and scheduled to run on a TOD, day-of-week schedule. When Kadence is OFF, the controller will return to their regular non-adaptive operation as programmed in the controller (time based coordination [TBC] coordination or free, as configured). Kadence does not send hold or force-off commands to controllers, or suppress phase calls, so there is no risk of a controller getting stuck in a certain phase. All controller features operate normally including pedestrians, transit priority, and preemption. Kadence can run alongside an existing central system on an IP network using NTCIP or AB3418 protocols, depending on what is supported by the field device.





Kadence can meet a variety of agency objectives, including:

- Maximizing throughput on a coordinated route
- Providing smooth flow on a coordinated route
- Providing access equity for all phases at an intersection
- Manage the length of queues
- Optimize operation to minimize phase failures
- Combinations of these objectives



### Maximize the Throughput on a Coordinated Route

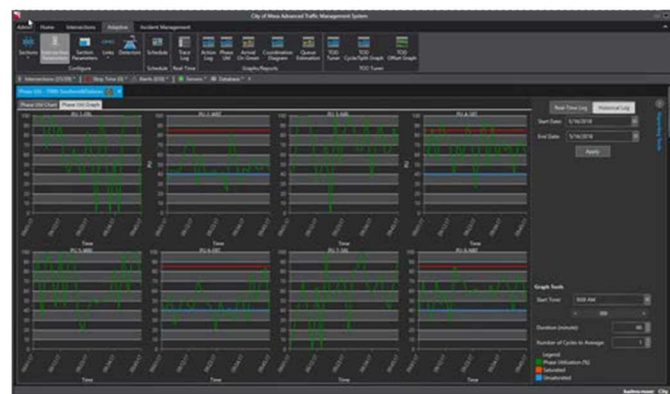
Kadence maximizes throughput on a coordinated route by using a combination of offset tuning, split tuning, cycle tuning, and phase sequence selection. Kadence tunes offsets to provide smooth flow, which increases the throughput on the route by reducing stops. By tuning (increasing) the coordinated phase splits, more time can be provided to that route when the level of traffic on the side streets and other competing phases is reduced. In the split tuning algorithm, coordinated phase utilization measures can be biased so that more time for that movement is protected, which provides more opportunities for progression along the route. If the coordinated phases are over a specified threshold for phase utilization, the cycle time can also be increased to provide additional throughput on the critical route. In addition, Kadence can modify the phase sequence to a lead-lag combination for left turns to increase the amount of time that the critical through route receives if there is very low opposing left-turn volume.

**For example, a change from lead-lead to lag-lead would be predicated if:**

- Phase 5 has a heavier utilization than Phase 1.
- Phases 2 and 5 have heavier total utilization than Phases 1 and 6.
- Offsets are then adjusted after the sequence change is evaluated and a similar comparison is done for the other barrier group (Phases 3, 4, 7, and 8).

### Cycle Selection

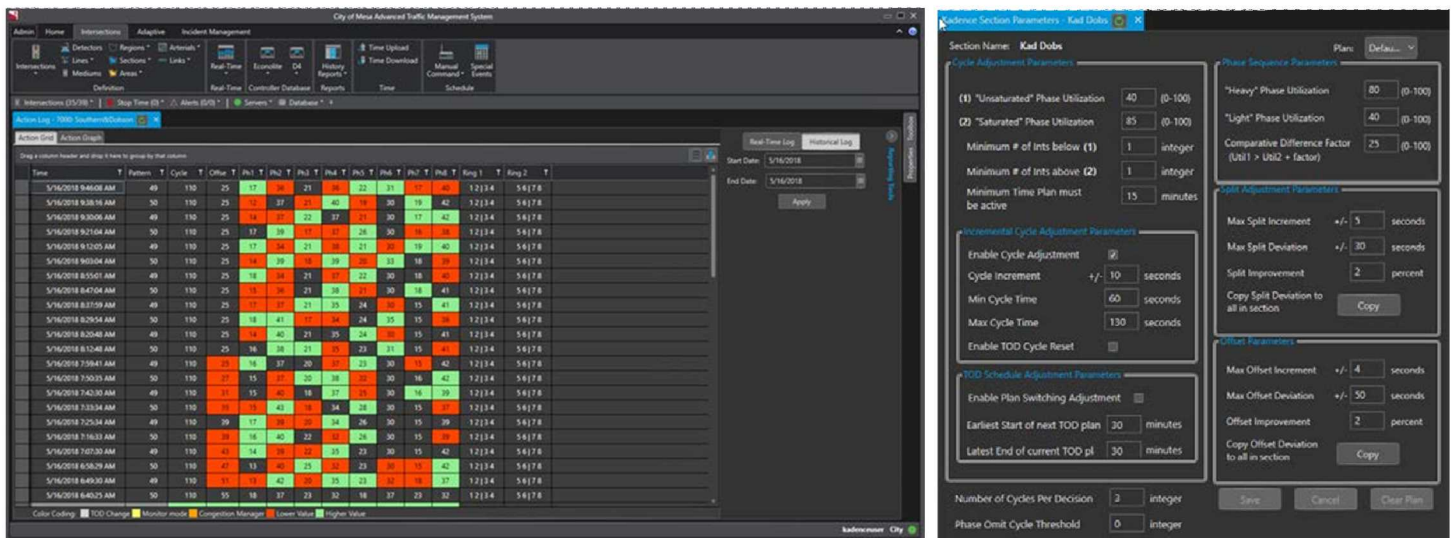
Throughput is also improved on coordinated routes by determining a decision to either implement the cycle time that is next in the TOD schedule earlier or later than was originally planned. This can be used in conjunction with the cycle tuning method (discussed below) or alone. This allows the system to adapt to changes to the beginning or end of peak periods. The same evaluation approach for the incremental cycle tuning algorithm described previously is used but rather than changing the cycle just a few seconds, the system enables the new cycle time immediately and recalculates splits and offsets appropriately.







The algorithm begins considering implementing the next pattern in the TOD schedule early if it is less than a configurable number of minutes before the next pattern change time. For example, this threshold time might be set to 30 minutes prior to the schedule change so if the pattern is scheduled to be adjusted at 10:00am, the algorithm will begin considering implementing the next pattern at 9:30am. If the thresholds for phase utilization are not exceeded to implement a lower or higher cycle, the current cycle is retained. If the phase utilization thresholds are not exceeded after the scheduled time to change to the next cycle, the system can keep the current pattern in operation. After a configurable amount of time, however, the system will transition to the next pattern in the TOD schedule.

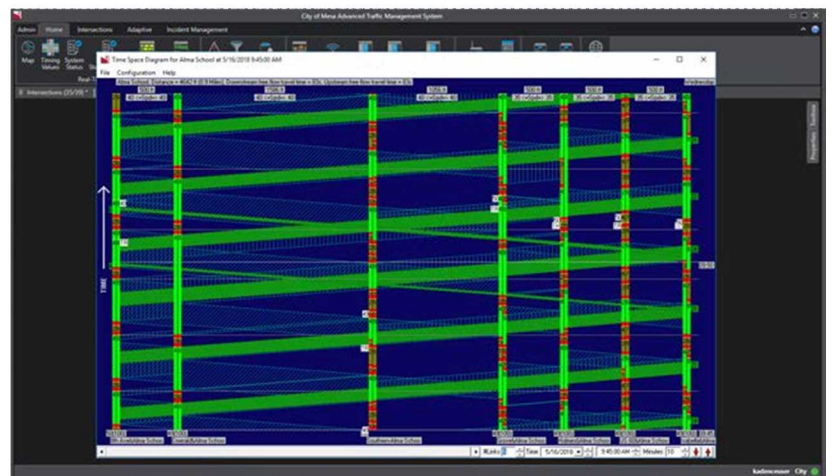


### Provide Smooth Flow Along Coordinated Routes

Tuning offsets improves progression performance along primary routes for phases that are coordinated. Offset tuning algorithms are particularly straightforward. The proven and robust methodology used in ACSLITE is used in Kadence with several key enhancements.

The concept of the data-driven offset adjustment algorithm is to maximize the number of vehicles arriving during the green phase. Periodically, small, incremental adjustments are made to the offset to maximize the total proportion of cyclic flow arriving to a green light. This concept is then expanded to consider and mitigate the effects of such modifications to the offset value for multiple approaches (including the consideration of cross-coordination on all four approaches) and the effects of changes at a given intersection on adjacent intersections.

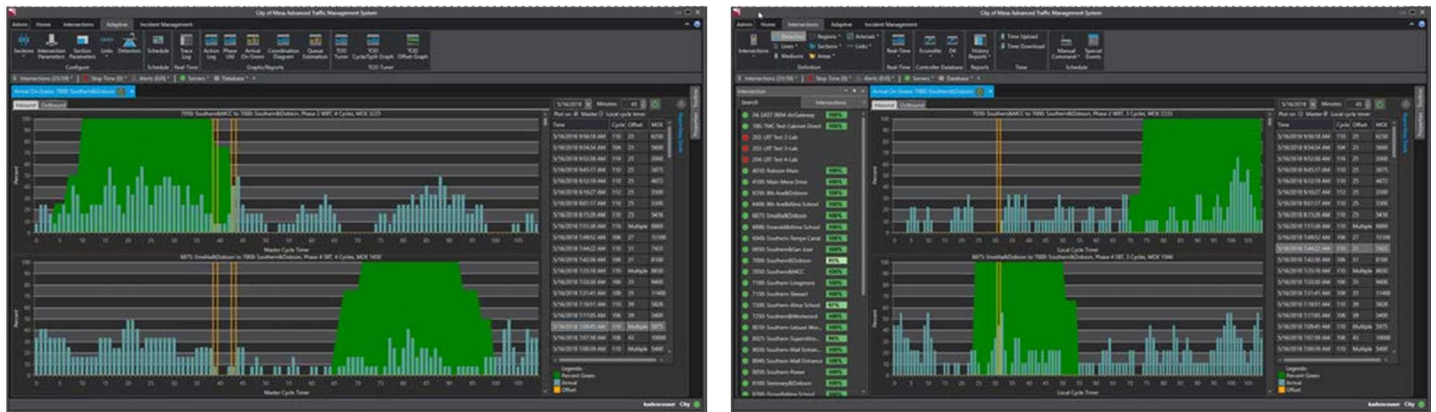
A user-configurable maximum deviation from the original setting (either an increase or decrease to the offset value) is defined for each offset to restrict the algorithm (if desired) from drifting too far away from the original solution. The user can also specify that this value is unbounded, which allows the system to search for any offset. For example, if the initial offset is 20s and the maximum deviation is set to 10s, the





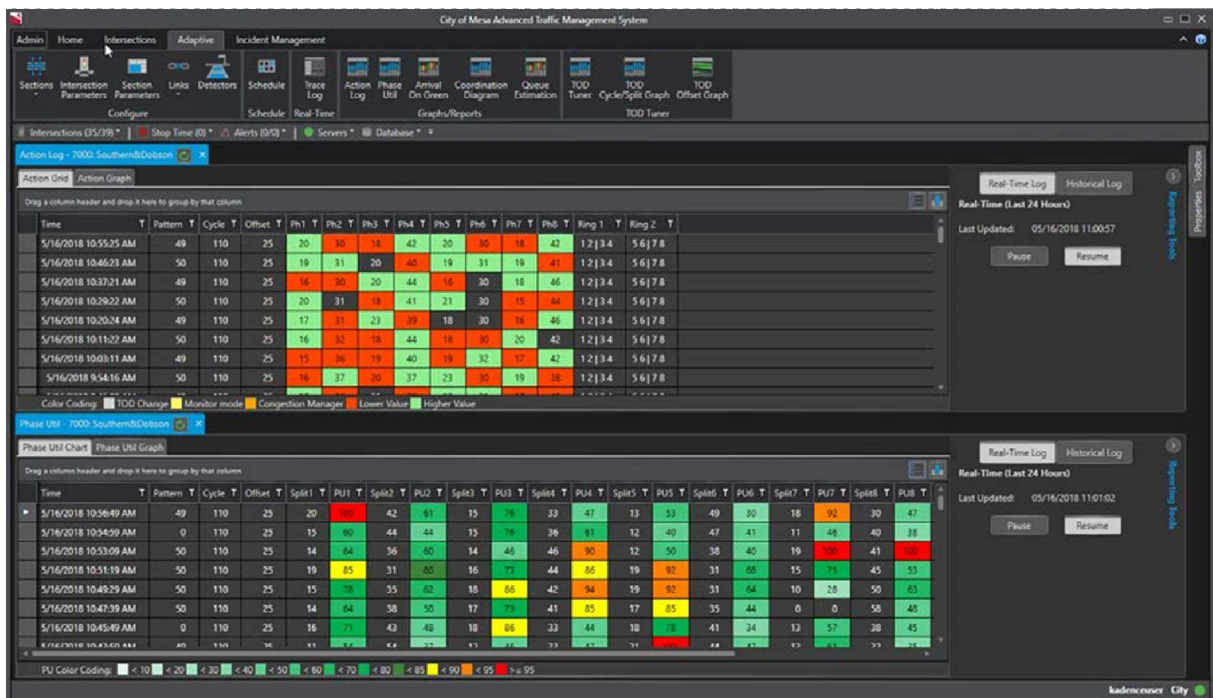


algorithm will be restricted to implement offsets with the range of 10s to 30s. Each controller considers a range of offset settings: no change, adjust up to seconds earlier, or adjust up to seconds later. The adjustment maximum step size is a user-configurable value. If the value is set at 10, for example, Kadence will search offsets in each step in the range of (+10, +9, +8, +7, ..., 0, -1, -2, -3, ..., -10). If the difference in the % arrivals on green between the evaluated offsets is not greater than small amount of improvement, say, 5%, the controller will remain at the current offset. This reduces transition events that do not result in significant improvement to performance.



### Distribute Phase Times in an Equitable Fashion

Splits are tuned by collecting volume and occupancy data from detectors at the stop bar of the intersection similar to the methods used by SCATS and SCOOT. The algorithm equalizes the degree of saturation on all the phases at the intersection. This algorithm also allows coordinated phases (or any phase, but this biasing is typically applied to coordinated phases) to have biased splits, so that progression is protected when the saturation level of the coordinated phase is lower than that of side-streets. Without such biasing, split adjustment methods that equalize the degree of saturation on all phases tend to focus more on providing adequate level of service (LOS) on side streets while degrading progression along a critical route.



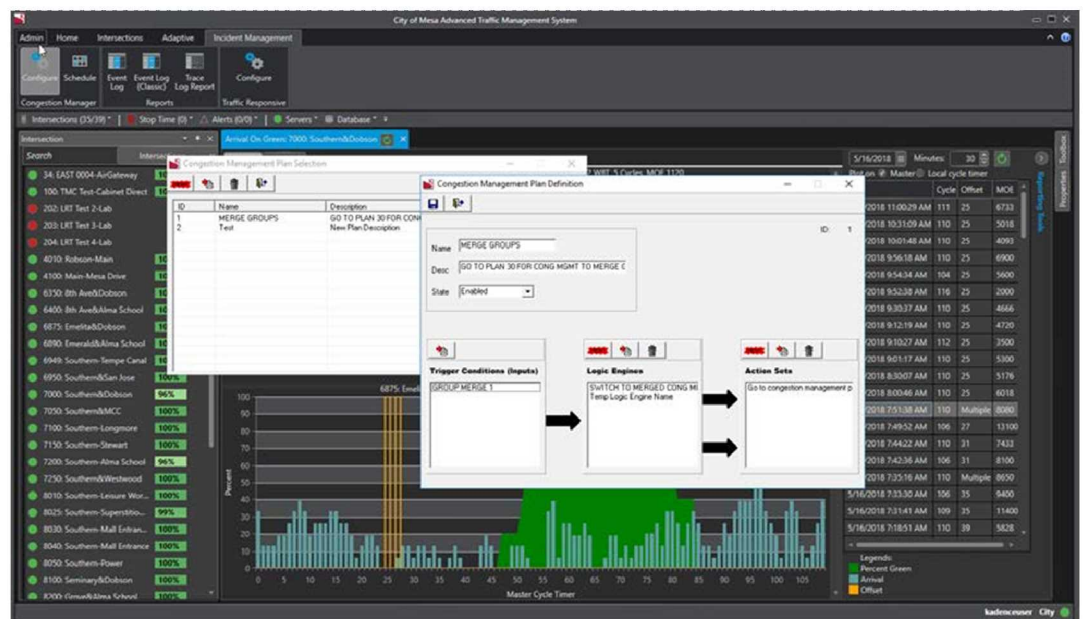




Any phase can also be determined to be left out from the split tuning process. This is commonly applied to phases on minor side-streets that very occasionally experience busy traffic flows that do not last more than a few minutes. In the absence of regular arrivals, the splits will be adjusted to the minimum possible value. Since the absence of traffic on the side-street will naturally result in additional time to the main street when the phase is skipped, the side-street phase may be set by the traffic engineer to a reasonable value that provides adequate LOS during the burst and kept fixed. Kadence will adjust the other parameters, as appropriate. A good example for this would be the exit from a church. The split adjustment algorithm takes minimum and maximum constraints into account, and allows the user to either adhere to pedestrian crossing times or not. If the pedestrian crossing times are allowed to be larger than the split, then when a pedestrian pushes the button requesting service, the intersection will likely go into transition. In areas with low pedestrian volume, this is typically acceptable operation. If pedestrian volumes are quite high, it is more typical that the crossing constraints would be considered as minimum phase durations.

### Manage the Length of Queues

Current algorithms in Kadence do not explicitly measure queue lengths but queue detectors can be used to change Kadence operating parameters by putting the system into congestion management patterns when queue detector data exceeds a user-configured threshold. Queue lengths are balanced or managed by modifying splits, offsets, cycle time, and phase sequence. Future work (2018) will include integration of the methodology we developed in NCHRP 03-90 that tunes splits on a route based on measurement of the degree of oversaturation. This process uses the TOSI (temporal oversaturation level) and SOSI (spatial oversaturation level) measures to determine the amount of green time to add and subtract, respectively, from a phase. Simply speaking, there are two ways to deal with oversaturation: one is to increase the downstream output rate and the other is to constrain the upstream input rate. These two basic actions result in three mitigation strategies for an oversaturated phase.



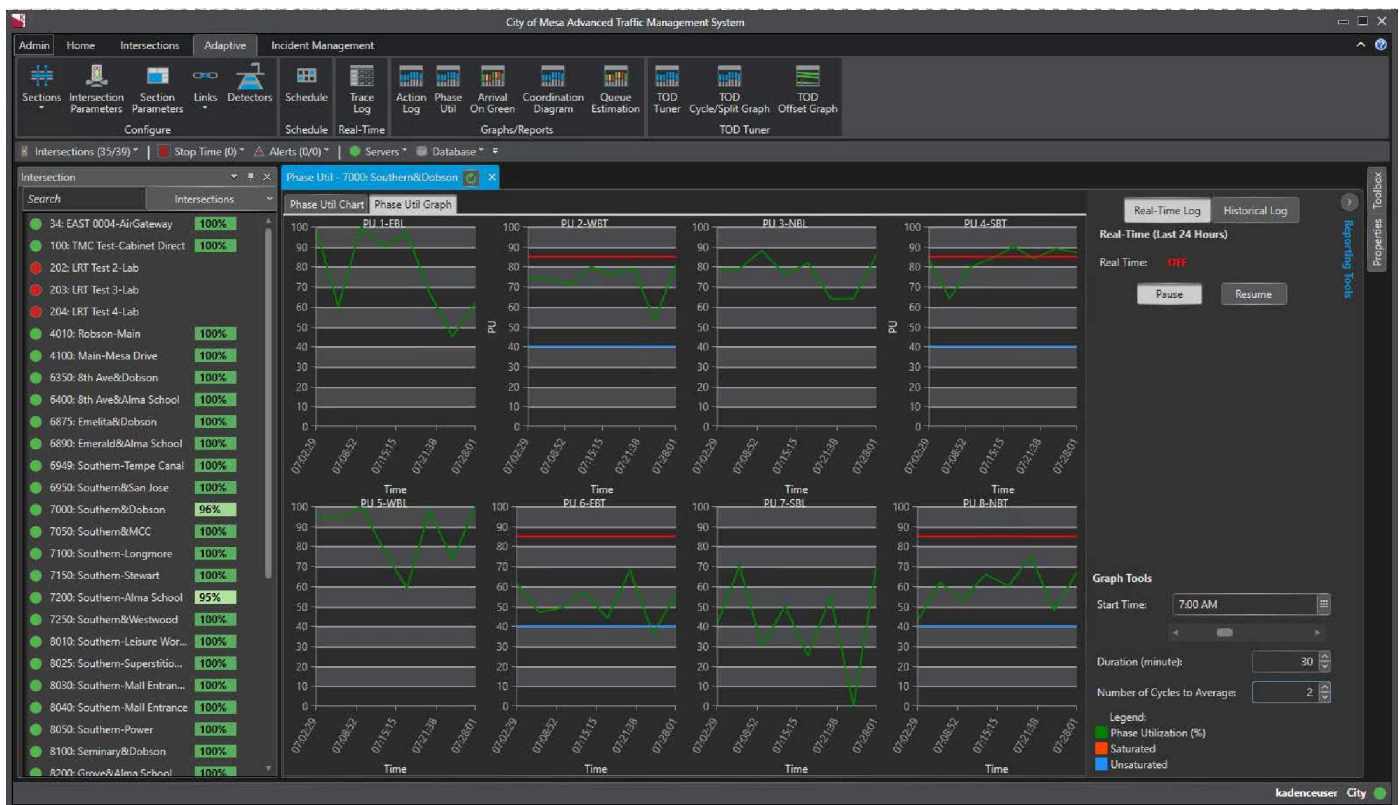




### *At an Isolated Intersection, Optimize Operation with a Minimum of Phase Failure*

Cycle time is adjusted on a section- or arterial-wide basis to provide adequate capacity to operate all of the signals under capacity and reduce the occurrence of phase failure. Kadence uses a heuristic rule to adjust the cycle time up or down a given step size. In a straight-forward fashion, if the cycle time is increased by four seconds, then every phase on the controller gets a proportion of the additional time. For example, if there are four phases per ring, one additional second is provided for each phase split. The split adjustment algorithm will refine the splits at a later step if this allocation results in uneven phase utilization. The step size is user-defined. Minimum and Maximum cycle limitations are imposed including limitations by minimum green, pedestrian clearance times, end user-defined minimum and maximum cycles. As a reliability measure, there must be at least three cycles of vehicle-occupancy data for critical phase utilization monitoring detectors in the system to execute the cycle tuning algorithm.

This methodology will tend towards longer cycles during peak periods as traffic demand builds, which is generally accepted as an appropriate strategy. Recent research (National Cooperative Highway Research Program [NCHRP] 03-90) we conducted is indicating that when the conditions are extremely oversaturated, shorter cycles will provide more efficient throughput. These improvements or algorithms have not yet been integrated into the system but are planned for future work. This will improve the capability of Kadence to provide sound decisions during incident response conditions, such as heavy diversion of flows from a freeway to a parallel arterial or frontage road system.



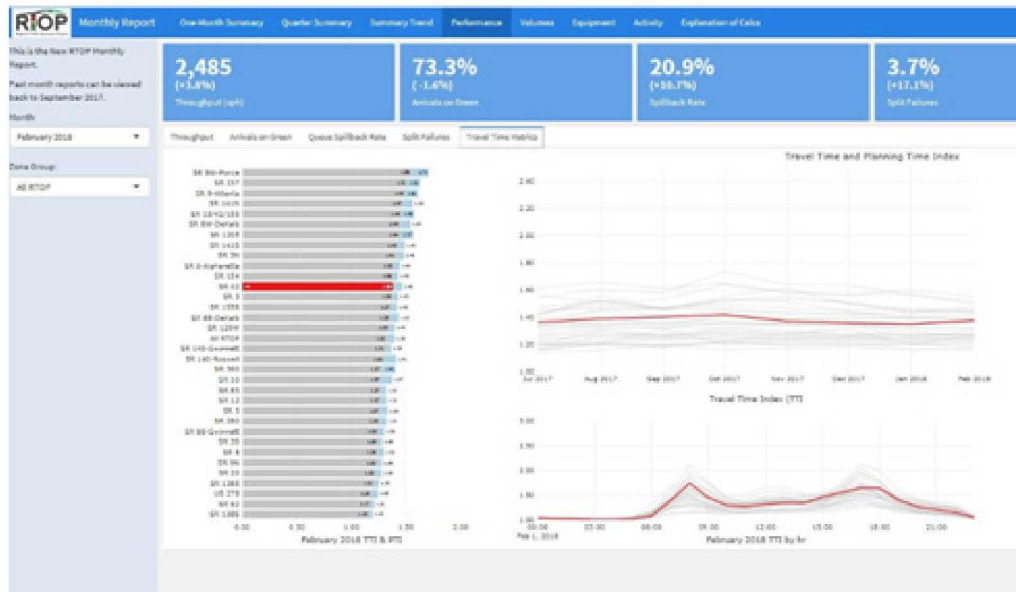
The cycle tuning algorithm used in Kadence extends from a “critical intersection” algorithm. The phases that are designated to be checked in the cycle tuning algorithm are determined by the user. When the average phase utilization on these critical phases is above the user-defined threshold (say, 80% phase utilization) to increase the cycle, a given (the user-defined step size) number of





## Proposal for **PROCUREMENT OF Advanced Traffic Management System, Services & Support**

seconds are added to the cycle time. Similarly, the system cycle time is decreased by a fixed number of seconds when the average of the phase utilization on the critical phases is less than a lower threshold (say, 50% phase utilization).



### *A Combination of Two or More of These Strategies*

Kadence balances and optimizes combinations of operational objectives by running multiple algorithms together. Each algorithm can be enabled or disabled by pattern, so cycle tuning or other algorithms can be deliberately disabled by the traffic engineer by time of day. Five principle algorithms are included in Kadence for tuning splits, offsets, cycle time, and phase sequence. Based on the configurability of the system by TOD pattern, each of these objectives can be addressed at different times. The original ACSLITE system was designed for coordinated arterial corridors to provide smooth flow and address access equity. The additional features and algorithms added to Kadence in the last three years make the system applicable to a much wider range of situations including grids and interchanges. Additional features planned in the roadmap will extend Kadence's applicability to oversaturated conditions and diversionary routes and groups.

### Phase sequence tuning method

(logic applies for barrier group 34 | 78)

PU = "phase utilization"

PU15 means average PU1 + average PU5 for minimum of last three cycles

"dominates" means  $PU15 > PU_{26} + \text{threshold value}$

Current sequence \ potential next sequence	Lead-lead (12 56)	Lead-lag (12 65)	Lag-lead (21 56)	Lag-lag (21 65)
<b>Lead-lead (12 56)</b>	N/A	PU5 < light PU (16) dominates PU (25)	PU1 < light PU(25) dominates PU(16)	PU1 < light PU5 < light PU(26) dominates PU(15)
<b>Lead-lag (12 65)</b>	PU5 > heavy PU(15) dominates PU(26)	N/A	PU1 < light PU5 > heavy PU(25) dominates PU(16)	PU1 < light PU(26) dominates PU(15)
<b>Lag-lead (21 56)</b>	PU1 > heavy PU(15) dominates PU(26)	PU1 > heavy PU5 < light PU(16) dominates PU(25)	N/A	PU5 < light PU(26) dominates PU(15)
<b>Lag-lag (21 65)</b>	PU1 > heavy PU5 > heavy PU(15) dominates PU(26)	PU1 > heavy PU(16) dominates PU(25)	PU5 > heavy PU(25) dominates PU(16)	N/A





## Kadence System Requirements

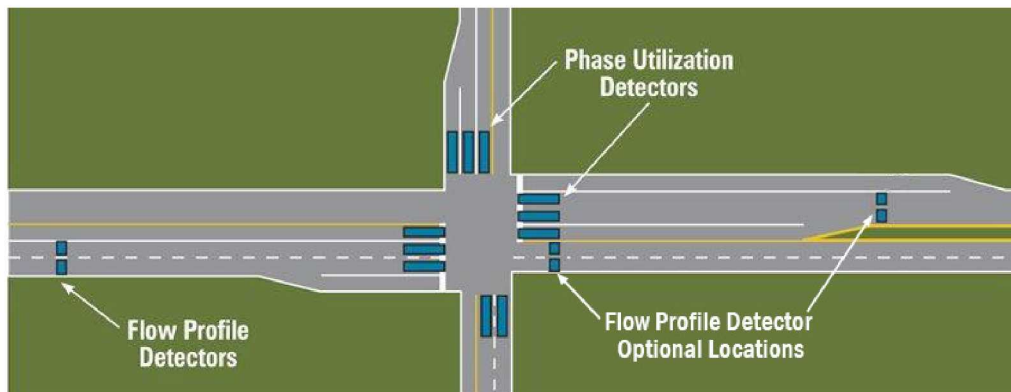
### Field Configuration Requirements

There is no additional hardware added to the cabinet. All Kadence algorithms and services operate at a central TMC. There are no field hardware components to install or maintain. If a Kadence algorithm fails, controllers will return to their normal TOD operation. Kadence does not send hold or force-off commands to controllers, or suppress phase calls, so there is no risk of a controller getting stuck in a certain phase. All controller features operate normally including pedestrians, transit priority, and preemption. Good detection is the key ingredient to effective traffic control (adaptive or otherwise). Kadence uses detectors at the stop bar for tuning splits, cycle, and sequence. Kadence uses detection at mid-block, dilemma-zone, or exit zones to tune offsets and estimate queue lengths for adaptive operation during oversaturated conditions. Phases that do not have detection cannot be tuned, but other phases at the intersection can still be tuned with appropriate configuration. It does not matter what kind of detector is used (loops, radar, video, etc.). Stop bar detectors can be any length, there is no specific length requirement. If new stop bar loops or zones are being added, shorter zones are better. Upstream zones should be as short as possible, standard 6x6 loops or zones work well. There is no specific placement distance of advance loops or zones. Further away from the intersection will produce better performance (except if using video that is monitoring both stop bar and advance zones where there is a balance between detection accuracy and fidelity). It is not necessary that every intersection has a full suite of lane by lane detection for every phase. Intersections with very minor side-street volumes can typically be configured for offset tuning only if stop-bar detection for the coordinated phases is not present.

Lane by lane detection will improve performance significantly, but the system will operate with multiple lanes tied together into one detection channel, if necessary. Separating detection by lane is typically an inexpensive investment that will yield significant performance improvements. It is better to separate all of the channels (or none of the channels) at an intersection rather than doing some but not others, but Kadence will use the maximum utilization of all detectors configured for the phase for tuning. If video cameras are used, like with traditional actuated operation, mounting should be done to minimize occlusion of one or more lanes by vehicles. Advance and stop bar zones can be done with one camera if mounted properly (e.g., high enough). If detector channels are limited, right turn lanes with right-turn on red (RTOR) allowed can typically be removed from configuration if the movement has low risk of becoming popular at certain times of day in the future.

- Field configuration data needed for understanding what will be needed for setup and operation of Kadence:
- Location and length of all detectors and operational status of loops, cameras, or cards/racks
- Detectors set for presence and not pulse operation
- Detector number assignments for each lane and which phase each detector calls (for interchanges, identify which phases are controlled by the same detectors)
- Phase to movement assignments (e.g., 2 = WBT)
- Default sequence and all allowable sequences
- Identification of which phases are on minimum or maximum recall and desirability or necessity to remain on this mode
- Identification of which detectors are currently tied together and whether or not they can be separated in the cabinet, pull box
- Available space for additional detection cards or racks for additional inputs
- IP communications parameters
- Distance between intersections (stop-bar to stop-bar)
- Offset reference mode





### *Schematic Diagram – Kadence*

Kadence is a centralized adaptive system. Each intersection is connected to the Kadence server via IP communications using NTCIP. Kadence polls each controller once per second for status and downloads new cycle, split, offset, and sequence information approximately every three cycles. Kadence can receive commands from KITS to turn intersections ON/OFF and set operational modes.

### *Understanding of the System Requirements*

Our system is open-architecture and supports all field devices using NTCIP and AB3418 Caltrans standards-based communications. We believe that Kadence meets your adaptive needs and will be a solution that the City will find to be simple to understand and operate. Kadence can be configured to be as flexible as your requirements suggest, but also can be made to operate quite simply. Since we use common traffic engineering terminology, it is easy to understand what is going on. Also since Kadence simply downloads new parameters to the field controllers, you can always feel safe that the intersection controllers continue to cycle and operate as expected during preemption and during pedestrian crossings.

Kadence is also a fully featured ATMS with alarms, alerts, and user security and completely operates as a module of KITS. Along with the installation of Kadence, the City of Rohnert Park will receive the most recent version of the full KITS suite including the new GUI interface, performance reports, internet maps, and a host of enhancements. KITS, Kadence, and ATSPMs continue to be enhanced by Kimley-Horn each year. The ATMS Feature Summary Table replicated from your RFP is shown below.

ATMS Feature Summary			
Section	Requirements	Meet Req (Y/N/Partial)	Explanation
A3.1	Traffic Management	N.A.	
A3.1.1	Minimum Required System Performance	Yes	
A3.1.2	Communications Standards and Interfaces	Partial	We do not use STMP. This has never been an issue. Use of dynamic objects (or not) is transparent to the user. The upgrade of the SIC to Ethernet over Copper will mitigate this. We do not currently support LiveTrafficData or ConnectedSignals, Inc. We do support TTS. Later this year we will support a generic API for SAEJ2735 messages that any of these companies, and any other startups that come along later, can connect to.



ATMS Feature Summary			
Section	Requirements	Meet Req (Y/N/Partial)	Explanation
A3.1.3	Displays and System Functionality	Yes	
A3.1.4	System Wide Map Displays	Yes	
A3.1.5	Device Lists	Yes	
A3.1.6	Groups	Yes	
A3.1.7	Signal Control Source	Yes	
A3.1.8	Time Space Diagram	Partial	This capability is under development. As part of this project, we will set up any number of routes that you need so you'll never have to set up a route on your own.
A3.1.9	Traffic Controller Timing Editor	Yes	
A3.1.10	Real time Status Display for Individual Intersections	Yes	We are not sure what "configured SPM status" means. Phase/ped calls are not supported for all controller types/protocols.
A3.1.11	Event Notifications	Yes	
A3.1.12	Failure Notification	Yes	
A3.1.13	Central Scheduler	Yes	Split MOE is a controller-specific data element.
A3.1.14	Security	Yes	Windows authentication is used to identify users by role (permissions), so once you have logged into Windows, Kadence knows what you are and are not allowed to do.
A3.1.15	Preemption and Priority	Yes	
A3.2	Modes of Operation	N.A.	
A3.2.1	Time of Day Schedule	Yes	
A3.2.2	Pedestrians	Yes	The selection of phases to reduce or extend during pedestrian transition recovery is the responsibility of the controller.
A3.2.2	Non-Adaptive Situations	Yes	Peer to peer sync is available in D4. Other controller types (TSCP) may not support this.
A3.2.4	System Responsiveness	Yes	
A3.2.5	Complex Coordination and Controller Features	Yes	
A3.2.6	Monitoring and Control	Yes	Local access at a signal cabinet on the IP network will allow access to any location, not just the local controller.
A3.2.7	Traffic Responsive Operations	Yes	
A3.2.8	Traffic Adaptive Operations	Yes	
A3.2.8.1	Network Characteristics	Yes	





ATMS Feature Summary			
Section	Requirements	Meet Req (Y/N/Partial)	Explanation
A3.2.8.2	Cycle Length Optimization	Yes	Cycle time min/max setting is configured by pattern if you want to change it by time of day. The cycle will naturally track changes in traffic volumes without the user needing to configure cycles by certain volume levels.
A3.2.8.3	Phase Split Optimization	Yes	
A3.2.8.4	Offset Optimization	Yes	
A3.2.8.5	Benefit Requirements for Adaptive	Yes	
A3.3	Access and Security	N.A.	
A3.3.1	User Access	Yes	
A3.4	Event Logs and Reports	N.A.	
A3.4.1	System Event Logs	Yes	
A3.4.2	Performance Reporting	Yes	
A3.4.2.1	Volume Occupancy Speed Reports	Yes	
A3.4.2.2	Split Measures of Effectiveness	Yes	For certain controller types, pedestrian extension is not a supported phase termination reason.
A3.4.2.3	Turning Count Movement Report	Yes	We are currently working on a direct connection to Gridsmart API to retrieve this.
A3.4.2.4	Peak Hour Volume Report	Partial	We do not have a PHV chart, but this could be added as part of the project.
A3.5	System Integration and Training	N.A.	
A3.6	System Demonstration	N.A.	
A3.6.1	Demonstration	Yes	We can demonstrate Kadence in Belmont, Menlo Park, or San Jose or via remote VPN to any other system at your office or at KH offices in Oakland.
A3.6.2	Evaluation	Yes	The video snapshots from a previous day are not currently configured in any systems in the Bay Area. We may have to demonstrate this in another system, such as Austin, TX, which can be done remotely.





## 2. Deliverables – Scope of Work

The following scope of work illustrates the tasks and effort required to execute this project.

### **Task 1: Project Management**

This task includes project management related tasks and meetings to consist of preparing project schedule, preparation of invoices/progress reports, budget oversight, adherence to project scheduling, and general project coordination. Kimley-Horn Project Manager, Doug Gettman, will lead this task and will be supported by Monique Fuhrman as Deputy Project Manager.

Within one week of Notice to Proceed (NTP), Kimley-Horn will submit a project schedule detailing the project tasks, major deliverables, and key milestones. The project schedule will be maintained throughout the project and updated as necessary to reflect actual progress. Kimley-Horn will provide the City with periodic updates of the schedule as changes are made.

An initial kick-off meeting will be arranged with City staff to review to discuss some of the elements associated with project and to review project schedule, deliverables, and develop consensus on the overall project approach. Dr. Gettman and Monique and any additional key staff will attend the project kick-off meeting. With your involvement, we will review the proposed project approach and deliverables, and will set timetables for installation, configuration, and tuning.

In addition to the kick-off meeting, Kimley-Horn will arrange and attend progress meetings, as needed, approximately every 2 weeks to discuss the project progress, schedule, and any other pertinent items. D. Gettman, Monique and other staff pertinent to the discussion will attend the progress meetings, or attend via phone/webinar. Based on the proposed project schedule, an estimated 6 progress meetings are included in the scope of work and fee.

Monthly project status reports will be prepared and submitted to the City along with project invoices. These reports will document work completed within the last month, work projected for the next period, issues to be resolved, and information required.

#### **Task 1 Deliverables:**

- Attendance at kick-off meeting
- Attendance at up to 6 project meetings
- Meeting minutes
- Project schedule, maintained and updated throughout the project
- Monthly project status reports

### **Task 2: Preliminary Engineering**

Background information gathering will involve collecting and reviewing relevant existing conditions information including, but not limited to, traffic signal as-builts, aerial photographs, utility and right-of-way mapping, previous studies, and other information pertinent to the design and implementation of this project.

We will conduct field reconnaissance along the project corridors on Golf Course Road and Rohnert Park Expressway to observe traffic conditions, pedestrian activity, existing lane configurations, traffic signal phasing, posted speed limits, etc. In addition, we will document existing detection, traffic signal controllers, controller cabinet types, and existing interconnect and communications infrastructure.

#### **Task 2 Deliverables:**

- Existing System Inventory Report





### **Task 3: Communications and Detection System Evaluation**

Kimley-Horn will review the existing detection configuration at each project intersection, through field investigation and review of as-built information provided and any follow-up field confirmation, and provide the City a list of required modifications to the existing detection or the need for additional detection for Kadence operation.

In addition, Kadence requires IP communications from each signal to the central server. Any communication links that are currently serial will need to be upgraded to IP over copper or replaced with alternative communications (fiber, wireless, etc.). We will provide serial to ethernet (IP over copper) switches for the 19 locations. Additional costs for detection upgrades or other necessary changes are assumed to be borne by the City. If communications upgrades are needed, we will provide the city with a scope of work suitable for release to the City's signal maintenance contractor.

#### **Task 3 Deliverables:**

- Memorandum on required modifications to existing communications and traffic signal detection
- Scope of work for signal maintenance contractor (if necessary)

### **Task 4: Furnish Kadence Software and Hardware**

This task includes furnishing Kadence Software, server software, third-party systems, server computers, server workstations, and traffic signal controllers and firmware. The following will be provided with this task:

- Kadence ATCS licenses for 19 traffic signals (as noted on Figure 4 of the RFP), including Caltrans US-101 signals.
- KITS license for all traffic signals in the City
- Fourth Dimension D4 local traffic control software for nine (9) traffic signals
- Nine (9) 2070/ATC controllers for intersections deploying ATSPMs
- Two (2) Dell or HP servers for running Kadence and KITS (one application server and one database server)
- One (1) Dell/HP workstation computer with keyboard/mouse
- Nineteen (19) IP-over-copper field hardened ethernet switches
- SQL server license and applications necessary for KITS, Kadence, and ATSPM operation
- Installation and configuration of all central and field software and hardware
- Configuration and tuning of Kadence
- Configuration and setup of ATSPM system
- Training and documentation
- 3-years of Kadence/ATSPM support service

Prior to delivery of the hardware and equipment, Kimley-Horn will provide the City's Project Manager hardware submittals for review and approval. This task includes any necessary ancillary equipment (such as cables, mounting rails, etc.) required for hardware and system installation. A server rack is not included.

In addition, the furnished hardware, this task includes the configuration of the traffic signal controllers and conversion of the existing traffic signal timings to the new D4 software. D4 is a popular and powerful field controller software used by many agencies in the Bay area.



#### **Task 4 Deliverables:**

- Submittals for hardware
- Kadence, KITS, ATSPM services and GUI software
- One (1) copy of SQL server software and other support software (mapdotnet, PDF reader, etc.)
- Three (3) copies of Microsoft Office
- Two (2) Dell or HP 19-inch server computers suitable for rack mounting
- Two (1) Dell/HP laptop computer with keyboard/mouse
- Nine (9) 2070/ATC controllers
- Nine (9) copies of D4 firmware

### **Task 5: Integration and Deployment**

#### **Install Kadence, KITS, and ATSPM Services**

After the detection and communication installation is complete, the Kimley-Horn team will install the Kadence software at the City's TMC, or designated centralized location. Kadence is a suite of software services and a client GUI for configuration, real-time monitoring, and reporting. The Kadence system works on Windows server, desktop, and laptop computers with structured query language (SQL) server database. Kadence also requires installation of Microsoft Office (Excel and Access) and Adobe PDF for some reports. We will work with the Information Technology (IT) department to configure the Kadence server and install the GUI on client computers with your IT network policies. This task can be accomplished in approximately two weeks.

#### **Deploy 2070 ATC Controllers and D4 Firmware**

In parallel with the detection field work (done by others), the Kimley-Horn team will replace the existing Five Model 170 controllers with Model 2070 ATC controllers with D4 firmware. Kimley-Horn's local staff will manage the deployment of the controllers and configuration of the firmware in partnership with City staff. Agency staff will be responsible for coordination of any maintenance of traffic activities and costs required by local city policies, such as traffic officers.

#### **Configure and Tune System**

After the services are installed and the controllers are deployed, the Kimley-Horn team will configure the Kadence parameters for the signals in the city. In Kadence, setup is very simple:

1. Upload configuration data from each field controller using NTCIP/AB3418E
  - TOD schedule
  - Detector to phase assignments
  - Coordination patterns (cycle, splits, offset, sequence, etc.)
  - Phase timings (min. green, yellow, red, walk, etc.)
2. Determine which detectors are used for which type of algorithms and where they are located (stop bar, advance) on which links
3. Determine which algorithms to use on each location and setup their configuration parameters
4. Put the system in "monitoring" mode to verify configuration is correct
5. Enable system in adaptive mode
6. Tune as desired based on field operation feedback





#### Task 5 Deliverables:

- Installation of D4 and 2070/ATC controller into nine (9) field cabinets
- Configuration of all workstation GUI software for Kadence/KITS/ATSPMs on up to 19 locations
- Configuration of all Kadence/KITS/ATSPMs services
- Configuration of users, sections, alarms, and security
- Confirmation of online operation of 19 signals with KITS and Kadence and 16 signals on ATSPMs
- Update of KITS/Kadence for enhancement features
- Configuration and tuning of Kadence field parameters (before and after enhancement features)
- Memorandum on configuration setup of Kadence

#### Task 6: Training and Documentation

After the system is configured per the agency requirements, training will be provided. This training will be provided for a variety of user skill sets and levels, per the requirements. Managers and officials will be provided an overview of operational principles and key metrics. Technicians and hands-on users will be provided more in-depth explanation and discussions of algorithm principles and configuration parameters. A training plan will be provided to the City 30 days prior to the scheduled training and will include lesson plans for each course detailing the literature, standard operating procedures, manuals, and test materials that will be used. Training will encompass 40 hours of training by qualified persons and 20 hours of follow-up training at a later time. Key Kimley-Horn staff will spend considerable time on-site with agency staff and will provide on-going training throughout the project.

*As mentioned in the RFP, the system may not be accessed by City staff regularly. We will provide a simple "QUICK START" guide to common actions. In addition, as part of the maintenance and support agreement, we will monitor the system periodically on your behalf and make changes, adjust parameters, etc. with your permission.*

#### Task 6 Deliverables:

- Training plan
- Training materials
- 40 hours of training
- 20 hours of follow-up training
- Kadence, KITS, and ATSPM user manuals
- Quick start guide

#### Task 7: System Maintenance and Support

After the system is operating, Kimley-Horn will provide support via on-site visits, webinar, phone, remote login, and email. Remote login capability via secure remote desktop or virtual private network (VPN) is critical for providing rapid response support from our software and traffic engineering support team in Oakland, Pleasanton, and Phoenix, AZ. During the maintenance period of the project, Kimley-Horn will provide any necessary updates to services and support City staff with operational questions when they arise. Maintenance and support services are supplied for a project on a yearly, renewable basis. Three years of maintenance services is included in our proposal. This will include approximately 200 hours of technical support per year.

#### Task 7 Deliverables:

- 3-year maintenance and support
- Monthly configuration updates and status reports





### 3. Consultant/Vendor Team

#### Staff Qualifications

Kimley-Horn has the breadth of expertise and depth of staff to manage and deliver projects similar to the City of Rohnert Park Adaptive Traffic Control System project. Founded as a traffic and transportation engineering firm over 50 years ago, Kimley-Horn has grown and diversified under employee ownership to its present size of more than 3,000 employees in over 80 offices nationwide.

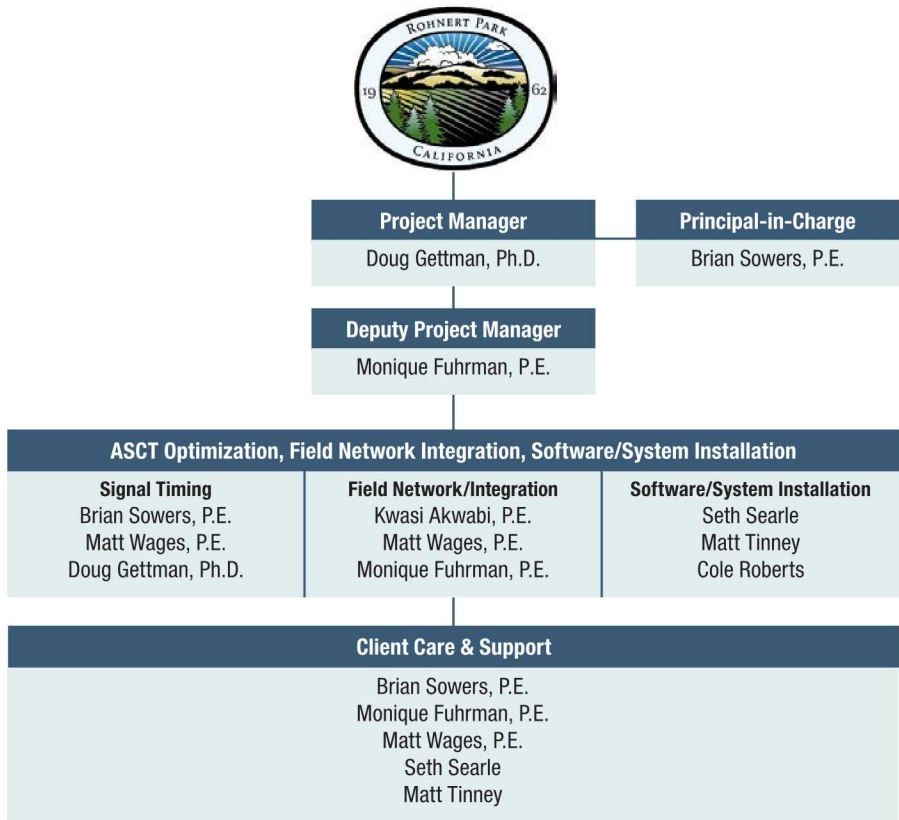
Kimley-Horn currently has over 20 software engineers and computer scientists working exclusively on software applications including KITS, Kadence, ATSPMs, Traction, 511 web systems, inventory tracking systems, mobile applications, travel time data collection systems, and web-based tools.

Our Kadence user group meets annually. Our last conference was in Ann Arbor, MI and Windsor, ON (April 2018). Many of the most recent attendees are shown here (Los Angeles, Windsor, Washtenaw, Philadelphia, Austin, Surprise, Las Vegas, Reno, Glendale, Dallas, Hamilton, San Antonio). Dr. Gettman is taking the picture, and thus not shown. Don't take our word for our commitment to quality and happy clients, call any of them!!!



#### Organizational Chart

Our project team is shown in the organizational chart below. Our team members will be committed to the project through its duration and to its successful completion. Resumes highlighting relevant experience for our team are included on the following pages.







## DOUG GETTMAN, PH.D.

Project Manager; Signal Timing

Dr. Gettman has 25 years of experience in adaptive traffic control, ITS management software (central and field controller), and transportation system modeling and simulation. He has developed, deployed, integrated, and supported ATMS and adaptive control systems for cities, counties, and state DOTs across North America including California, Arizona, Florida, Texas, Michigan, Ontario, Ohio, and Nevada. Dr. Gettman has been the principal investigator on five significant FHWA programs including ACSLITE, Surrogate Measures of Safety Software, and NCHRP 03-90 operation of traffic signal systems in oversaturated conditions. Dr. Gettman is author or co-author of over 25 peer-reviewed research papers and FHWA reports.

### Professional Credentials

- Doctor of Philosophy, Systems and Industrial Engineering (Transportation Engineering Minor), University of Arizona
- Master of Science, Systems Engineering, University of Arizona
- Bachelor of Science, Systems Engineering, University of Arizona
- Vice-Chair, ITE TSM&O Council
- Member, Transportation Research Board (TRB), Automated Transit Committee
- Member, V2I Deployment Coalition (ITE)

### Relevant Experience

- **San Mateo County KITS® Smart Corridor ATMS, San Mateo County, CA** – Project Manager
- **AC Transit Line 97 Hesperian Boulevard Kadence Adaptive Traffic Control System Deployment (34 signals), Hayward, San Leandro, Alameda County, and Caltrans** – Project Engineer
- **San Jose Adaptive Traffic Control System, San Jose, CA** – Project Engineer
- **City of Mesa Kadence Adaptive Traffic Control System, Mesa, AZ** – Project Manager
- **City of Austin KITS ATMS and Kadence, Austin, TX** – Project Manager (Kadence)
- **FHWA Adaptive Control to Balance Safety and Efficiency: Phase II** – Kadence, Nationwide – Co-Principal Investigator
- **FHWA Measures of Effectiveness and Performance Evaluation Procedures to Validate Traffic Signal Operational Objectives, Nationwide** – Principal Investigator
- **FHWA Adaptive Control to Balance Safety and Efficiency: Phase I, Nationwide** — Co-Principal Investigator
- **City of Surprise KITS ATMS, Surprise, AZ** – Project Engineer
- **City of Glendale KITS ATMS, Glendale, AZ** – Project Engineer
- **Maricopa County KITS ATMS, Maricopa County, AZ** – Project Engineer
- **Arizona E-IntelliDrive Dynamic Routing and Situational Awareness Concept of Operations, Statewide, AZ** – Project Manager
- **NCHRP 03-90: Operation of Traffic Control Systems in Oversaturated Conditions, Nationwide** – Principal Investigator
- **City of Windsor KITS ATMS Oversaturated Intersection Management Software Deployment, Windsor, ON** – Project Manager
- **FHWA Adaptive Control System** – Lite, Nationwide – Principal Investigator
- **Miami-Dade County KITS ATMS, Miami-Dade County, FL** – Project Manager





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## BRIAN SOWERS, P.E.

Principal-in-Charge; Signal Timing Lead; Client Care & Support

Brian has more than 20 years of experience providing a broad range of traffic and civil engineering services to public agencies. His experience includes signal timing and coordination (more than 3,500 signals), signal design (more than 250 signals), signal interconnect design, signal system design and evaluation, signing and striping design, street lighting design, minor civil improvement layout and design, pedestrian/bicycle studies, ramp metering studies, traffic operations and safety studies, and analysis and design for Intelligent Transportation Systems (ITS). Brian's Bay Area signal timing experience in the past 20 years is unmatched. Brian serves as project manager for Kimley-Horn under MTC's Program for Arterial System Synchronization (PASS) and was project manager under the former MTC Regional Signal Timing Program (RSTP) for each cycle that the program existed. Brian is currently serving as project manager for the deployment of Kimley-Horn's Kadence adaptive system along the Hesperian Boulevard corridor with Hayward, San Leandro, Alameda County, and Caltrans as part of the AC Transit Line 97 Project and in Menlo Park along the Bayfront Expressway, Marsh Road, and Willow Road corridors along with the City and Caltrans. In addition, he is leading the signal and Kadence adaptive system calibration in the City of San Jose for the Tully Road and Saratoga Avenue corridors. He has experience with numerous traffic operations computer programs, including Synchro, VISSIM, Transyt-7F, HCS, CORSIM®, and PASSER. His project management experience includes signal operations projects for over 40 agencies in the Bay Area.

### Professional Credentials

- Bachelor of Science, Civil Engineering, California State Polytechnic University, San Luis Obispo
- Professional Engineer in California, #C60296
- Former Instructor for U.C. Berkeley's Institute of Transportation Studies "Advanced Traffic Signal Operations" Course
- Institute of Transportation Engineers, Member
- Former Chair of MTC Arterial Operations Committee

### Relevant Experience

- **AC Transit Line 97 Hesperian Boulevard Kadence Adaptive Traffic Control System Deployment (34 signals), Hayward, San Leandro, Alameda County, and Caltrans – Project Manager**
- **Bayfront Expressway, Marsh Road, Willow Road Kadence Adaptive Traffic Control System Deployment (22 signals), Menlo Park and Caltrans – Project Manager**
- **City of San Jose Kadence Adaptive Traffic Control System Deployment (35 signals), San Jose, CA – Task Leader for Signal Timing and Kadence System Calibration**
- **Sand Hill Road Kadence Adaptive Traffic Control System Deployment, Menlo Park, CA – QC/QA Reviewer**
- **San Mateo County KITS ATMS/City of Menlo Park Kadence Adaptive System, San Mateo County, CA – Project Engineer for Kadence adaptive deployment**
- **MTC Program for Arterial System Synchronization (PASS) 2010-2017/18 cycles, Bay Area, CA — Project Manager**
- **AC Transit District, Line 51 Corridor Delay Reduction and Sustainability Project, Alameda/Berkeley/Oakland, CA – Project Engineer/Signal Timing Task Lead**
- **C/CAG, San Mateo County Smart Corridors Project, Incident Response and Arterial Traffic Signal Coordination (250 signals), San Mateo, CA – Project Manager**
- **Alameda CTC I-80 Integrated Corridor Mobility (ICM) Traffic Signal Timing Updates (166 signals), Alameda/Contra Costa Counties, CA – Project Manager**





## MONIQUE FUHRMAN, P.E.

Deputy Project Manager; Field Network Integration; Client Care & Support

Monique's experience includes transportation engineering, traffic engineering, ITS design and integration, and electrical design for both public and private sector engineering projects. She has been responsible for providing design and integration support for ITS and traffic signal designs; providing needs assessments and performance assessments for infrastructure; performing traffic impact analysis, circulation studies, warrant analysis, and traffic control design; preparing communication design and providing integration support including wireless communication and fiber-optic design; preparing signing and striping plans; and developing street lighting design and assessments; as well as planning and implementation of traffic signal systems. She has experience in all phases of design from conceptual planning and preliminary design packages through final construction documents and construction and field integration.

### Professional Credentials

- Bachelor of Science, Civil Engineering, California Polytechnic State University, San Luis Obispo
- Professional Civil Engineer, California, C82740
- Institute of Transportation Engineers (ITE), Chair

### Relevant Experience

- **Traffic Management Center and Signal System Needs Assessment, Downey, CA** – Project Manager
- **Citywide Traffic Signal Equipment and Infrastructure Assessment Study, Rancho Mirage, CA** – Project Manager
- **Visalia Traffic Management Center Project, Visalia, CA** – Project Engineer
- **Fiber Optic Installation and Replacement Projects, Visalia, CA** – Project Engineer
- **AC Transit East Bay BRT System Implementation, Alameda County, CA** – Project Engineer
- **Davis Road and Wagner Heights Road Traffic Signal Installation, Stockton, CA** – Analyst
- **Regional Transportation System Enhancements Project (RTSEP), San Rafael, CA** – Project Engineer
- **Tamalpais Avenue Grade Crossing Queue Cutters, San Rafael, CA** – Project Engineer
- **I-680 Express Lanes Fiber Optic Backhaul Communications System Design, San Francisco Bay Area, CA** – Analyst
- **E Street Omnitrans BRT System Implementation, San Bernardino, CA** – Project Engineer
- **District 12 HD CCTV System Implementation and Integration, Orange County, CA** – Project Engineer
- **Gerald Desmond Bridge Design-Build (I-710 ITS, Communications and Electrical Systems Design), Caltrans District 7, Port of Long Beach, CA** – Task Manager
- **Santa Clarita ITS Phase III and IV, Santa Clarita, CA** – Project Engineer
- **Riverside Fiber-Optic Improvements, Burbank, CA** – Project Engineer/Task Manager
- **Imperial Highway Traffic Signal Fiber-Optic Communication System and Upgrades Project, Downey, CA** – Analyst





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#### Professional Credentials

- Bachelor of Science, Civil Engineering, University of California, Davis
- Professional Engineer in California, #73863

#### KWASI AKWABI, P.E.

Field Network Integration Lead

Kwasi is a transportation and communications systems engineer specializing in the planning and design of ITS, traffic management systems, TMCs and Operations Control Centers, and implementation of traffic signal systems and adaptive traffic control systems. His experience includes design and deployment of several adaptive traffic signal systems throughout northern and southern California, including the KITS adaptive signal system application, Kadence, as well as software development on Kimley-Horn's KITS traffic signal system.

#### Relevant Experience

- **Sand Hill Road Traffic Signal Interconnect Adaptive Coordination Project Design Service (Kadence Deployment), Menlo Park, CA** – Project Manager
- **C/CAG, San Mateo County Smart Corridors Project, Incident Response and Arterial Traffic Signal Coordination (250 signals), San Mateo, CA** – Project Engineer
- **Wilson Way Traffic Adaptive System, Stockton, CA** – Lead Design Engineer
- **Grant Road Adaptive Traffic Signal System, Mountain View, CA** – Lead Design Engineer
- **March Lane Adaptive Traffic Control System, Stockton, CA** – Lead Design Engineer
- **Owner's Agent for Procurement of Adaptive Traffic Control System for the Ocean Street Traffic Adaptive System, Santa Cruz, CA** – Project Engineer
- **Los Angeles County KITS, Los Angeles County, CA** – Project Engineer
- **Alameda CTC I-80 Integrated Corridor Mobility (ICM) Traffic Signal Timing Updates (166 signals), Alameda/Contra Costa Counties, CA** – Project Engineer
- **AC Transit District, Line 51 Corridor Delay Reduction and Sustainability Project, Alameda/Berkeley/Oakland, CA** – Project Engineer
- **AC Transit East Bay BRT, Oakland, CA** – Project Engineer
- **Homestead Road Traffic Signal Interconnect, Santa Clara, CA** – Analyst
- **De La Cruz Boulevard, El Camino Real, and Scott Boulevard Traffic Signal Interconnect and Coordination Project, Santa Clara, CA** – Analyst
- **San Mateo Smart Corridor/Alternate Route Plan, San Mateo, CA** – Analyst
- **MTC Program for Arterial System Synchronization (PASS) 2010, 2011/12, 2012/13, 2013/14 and 2014/15, Bay Area, CA** – Project Engineer
- **Fair Oaks Avenue and Wolfe Road Interconnect System, Sunnyvale, CA** – Project Engineer
- **Fresno Area Express (FAX), Fresno BRT Design, Fresno, CA** – Analyst





#### Professional Credentials

- Bachelor of Science, Electrical Engineering, University of Arizona

## SETH SEARLE

Software/System Installation Lead; Client Care & Support

Seth is an electrical engineering analyst with experience in software verification, validation, and integration and testing. His experience includes manual and automated software test procedure generation, creation of software installation packages, software version control, creating help file documentation, and generating and exercising acceptance test procedures. Seth has programming and software experience on multiple projects, including Mesa Kadence. He applies his role on all software projects for the ITS technology team including: Los Angeles County KITS, City of Austin ATMS, Miami-Dade County KITS, Philadelphia KITS, Maricopa County KITS, City of Glendale KITS, and Park+. His specific project experience includes testing a wide array of software packages; building software installation files; merging, testing, and verifying new software builds; and compiling integrated help files. Seth has built flexible installation packages for large-scale distributed software applications as well as small-scale, single-user applications. He has also implemented and maintained an integrated help system that is built into the ATMS.

#### Relevant Experience

- **Moreno Valley Transportation Management Center Software (KITS), Moreno Valley, CA** – Systems Analyst
- **San Mateo County KITS® Smart Corridor ATMS, San Mateo County, CA** – Systems Analyst
- **Sand Hill Road Kadence Adaptive Traffic Control System Deployment, Menlo Park, CA** – Systems Analyst
- **San Dimas KITS, San Dimas, CA** – Systems Analyst
- **City of Mesa, Kadence Adaptive System, Mesa, AZ** – Systems Analyst
- **Arizona DOT, City of Surprise Signal System Software (KITS), Surprise, AZ** – Systems Analyst
- **Austin Advanced Traffic Management System (KITS), Austin, TX** – Systems Analyst
- **Implementation, Testing, and Guidance on the Validation of Operational Objectives for Adaptive Signal Control Systems Technology, Various Locations, US** – Systems Analyst
- **Bell Road Adaptive Signal Control Technology (ASCT) Deployment, AZ** – Systems Analyst
- **Grant Road/Oracle Road Indirect Left Turn Intersection and Signal Design, Tucson, AZ** – Systems Analyst
- **MCDOT Advanced Traffic Management System (ATMS), Phoenix, AZ** – Systems Analyst
- **The Railyards (Sacramento Railyards), Sacramento, CA** – Systems Analyst





## PROCUREMENT OF Advanced Traffic Management System, Services & Support



### MATT WAGES, P.E.

Signal Timing; Field Network Integration; Client Care & Support

Matt is a transportation engineer with more than nine years of experience in traffic signal design, signal timing, and roadway design projects. His signal timing experience includes data collection, development of Synchro models, and analyses of potential cycle lengths. Matt has experience providing signal controller conversion and signal integration services for D4 controllers, including projects in San Mateo County and the cities of Stockton and Sacramento.

Matt has worked on several design projects in which he was involved in data collection, creation of CADD plans, and signal and interconnect designs. Matt is proficient in the latest versions of AutoCAD, MicroStation, Synchro, and Highway Capacity Software.

#### Professional Credentials

- Bachelor of Science, Civil Engineering, California Polytechnic State University, San Luis Obispo
- Professional Engineer in California #82548

#### Relevant Experience

- **San Mateo County KITS/City of Menlo Park Kadence, San Mateo County, CA – Project Engineer**
- **AC Transit Line 97 Hesperian Boulevard Kadence Adaptive Traffic Control System Deployment (34 signals), Hayward, San Leandro, Alameda County, and Caltrans – Project Engineer**
- **C/CAG, San Mateo County Smart Corridors Project, Incident Response and Arterial Traffic Signal Coordination, San Mateo, CA – Analyst**
- **San Mateo Smart Corridor/Alternate Route Plan, San Mateo, CA – Analyst**
- **March Lane Adaptive Traffic Control System, Stockton, CA – Project Engineer**
- **Wilson Way Traffic Adaptive System, Stockton, CA – Analyst**
- **Grant Road Adaptive Traffic Signal System, Mountain View, CA – Analyst**
- **AC Transit District, Line 51 Corridor Delay Reduction and Sustainability Project, Alameda/Berkeley/Oakland, CA – Project Engineer**
- **Alameda CTC I-80 Integrated Corridor Mobility (ICM) Traffic Signal Timing Updates (166 signals), Alameda/Contra Costa Counties, CA – Analyst**
- **San Jose VRF Signal Timing Study (137 signals), San Jose CA – Project Engineer**
- **Capitol Expressway ITS Infrastructure and Sidewalk Project, Santa Clara County, CA – Project Engineer**
- **Homestead Road Traffic Signal Interconnect, Santa Clara, CA – Analyst**
- **De La Cruz Boulevard, El Camino Real, and Scott Boulevard Traffic Signal Interconnect and Coordination Project, Santa Clara, CA – Analyst**
- **MTC Program for Arterial System Synchronization (PASS) 2010, 2011/12, 2012/13, 2013/14 and 2014/15, Bay Area, CA – Project Engineer**
- **Fair Oaks Avenue and Wolfe Road Interconnect System, Sunnyvale, CA – Project Engineer**
- **Design of Traffic Signals along Manuel Campos Parkway, Fairfield, CA – Analyst**
- **Cupertino Fiber Optic Design, Cupertino, CA – Analyst**





# Proposed to PROCUREMENT OF Advanced Traffic Management System, Services & Support



## MATT TINNEY

Software/System Installation; Client Care & Support

Matthew is a Systems Analyst with experience in testing, developing, deploying, and maintaining intelligent transportation systems. His experience includes development and testing in C#, C++, XAML, JavaScript, XML, CSS, HTML, ASP.NET, and SQL Server environments. He has experience in desktop/web application testing and development, automated testing, database development, and database management. Some of the software he has used includes Microsoft Visual Studio, Microsoft SQL Server, SmartBear TestComplete, Wireshark, and Microsoft Office. His relevant project experience includes San Mateo KITS, Hamilton KITS, WCRC KITS, and NDOT KITS.

### Professional Credentials

- Bachelor of Engineering, Computer Systems Engineering, Arizona State University

### Relevant Experience

- **Moreno Valley Transportation Management Center Software (KITS), Moreno Valley, CA** – Systems Analyst
- **San Mateo County KITS® Smart Corridor ATMS, San Mateo County, CA** – Systems Analyst
- **Town of Queen Creek Signal System, Queen Creek, AZ** — Systems Analyst
- **City of Mesa, Kadence Adaptive System, Mesa, AZ** – Systems Analyst
- **Austin Advanced Traffic Management System (KITS), Austin, TX** – Systems Analyst
- **Bell Road Adaptive Signal Control Technology (ASCT) Deployment, AZ** – Systems Analyst
- **NDOT I-15 ATM System Implementation, Carson City, NV** — Systems Analyst
- **Moreno Valley Transportation Management Center Software (KITS), Moreno Valley, CA** — Systems Analyst



# Proposed to PROCUREMENT OF Advanced Traffic Management System, Services & Support



## Professional Credentials

- Bachelor of Science  
Computer Systems  
Engineering, Arizona State  
University

## COLE ROBERTS

Software/System Installation

For over 8 years Cole has played key roles in business operations, client support, systems integration, software testing and development positions. Cole maintains a drive to continuously improve, while being able to adapt to rapidly changing priorities. His client focused approach and team mentality have become notable strengths. With a background in C++/C#, SQL and GIS, Cole has built an extensive knowledge of signal systems while deploying and supporting ATMS projects for agencies including City of Austin, City of San Antonio and City of Hamilton. His experience with the configuration and use of adaptive signal systems has grown tremendously while in support of projects for Montgomery County, City of Surprise and City of Mesa. Additionally, Cole has taken a lead role in development and support of a web application built for the collection and analysis of Americans with Disabilities Act compliance.

## Relevant Experience

- **Moreno Valley Transportation Management Center Software (KITS), Moreno Valley, CA** – Systems Analyst
- **San Mateo County KITS® Smart Corridor ATMS, San Mateo County, CA** – Systems Analyst
- **City of Mesa, Kadence Adaptive System, Mesa, AZ** – Systems Analyst
- **Austin Advanced Traffic Management System (ATMS) (KITS), Austin, TX** – Systems Analyst
- **City of Glendale KITS, Glendale, AZ** – Systems Analyst
- **Connected Traveler Application for Cost-effective Bicycle Detection at Traffic Signals, Austin, TX** – Systems Analyst
- **FHWA EFLHD, U.S. Fish and Wildlife Service Wichita Mountains Wildlife Refuge Phase 2 ITS Implementation Federal Highway Administration, Office of Federal Lands Highway** – Analyst
- **NDOT I-15 ATM System Implementation, Carson City, NV** – Systems Analyst





## 4. Subcontractor

Kimley-Horn will not require subcontractors for this project.



# 5. Project Schedule

Task	Months						Years		
	1	2	3	4	5	6	1	2	3
Project Management									
Preliminary Engineering									
Comm & Detection Eval									
Furnish & Install Software/Hardware									
Integration & Field Deployment									
Training & Documentation									
System Maintenance & Support									

Consultant shall not have liability for or be deemed in breach because of delays caused by any factor outside of its reasonable control, including but not limited to natural disasters, adverse weather, or acts of the Client, third parties, or governmental agencies.





## 6. Proposal Costs (separate envelope)

Kimley-Horn's fee proposal is included in a separate, sealed envelope.



## 7. Related Experience and References

Kimley-Horn has worked on the development, evaluation, design, installation, deployment, and implementation of over 50 ATCS systems across the nation in almost all 50 states. The Kadence system was developed by Kimley-Horn in 2008. Kadence has been successfully deployed in Menlo Park, San Jose, Mesa, Surprise, Austin, Philadelphia, Hayward and San Leandro will be installed in 2018, along with Hamilton and Windsor, ON, and four more corridors in Menlo Park.

The following contacts in our references table represent the Kimley-Horn team's relevant experience with projects of similar scale and complexity to Rohnert Park within the last 5 years in California. We are proud of our working relationship with our clients and much of our success over the last 50 years is directly related to our efforts to perform high-quality, timely services for all our clients.

REFERENCES			System Installed / No ATSP
Brian Dong, City of Belmont, member C/CAG	(650) 637-2978	bdong@belmont.gov	Adaptive
David Man, Caltrans District 4	(510) 314-5335	david.man@dot.ca.gov	Adaptive
Rene Baile, City of Menlo Park, member C/CAG	(650) 330-6775	rbaile@menlopark.org	Adaptive
John Hoang, formerly of C/CAG	(650) 363-4105	jhoang@dot.state.az.us	Adaptive
Ho Nguyen, City of San Jose	(408) 975-3279	ho.nguyen@sanjoseca.gov	Adaptive
Wil Buller, Alameda-Contra Costa Transit District (AC Transit)	(510) 891-5414	wbuller@actransit.com	Adaptive

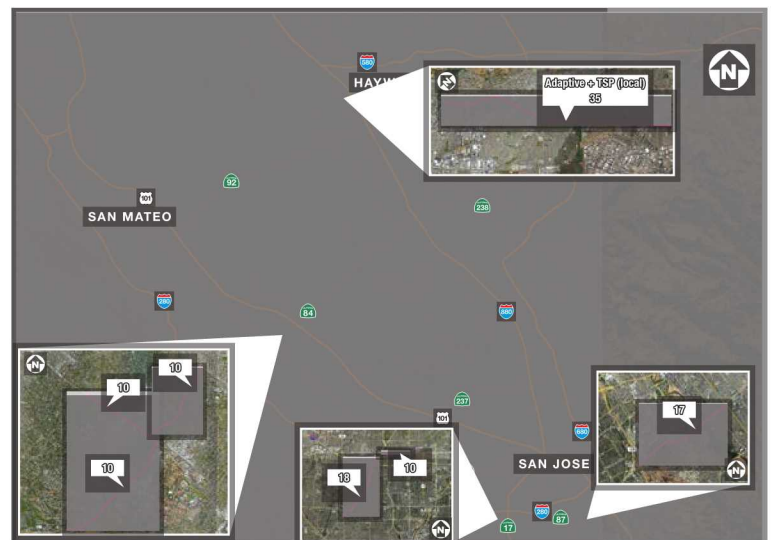
Relevant project descriptions are included below.

### **San Jose Kadence, City of San Jose, CA**

Kimley-Horn is deploying and integrating 35 traffic signals with the Kadence in San Jose along Tully and Saratoga roads. The Kadence incident detection and management module is used to identify traffic diversion onto local arterials and automatically engage incident response timing plans on the arterial streets. System fail-over and redundancy provisions are provided. Additional corridors are planned for 2019.

### **C/CAG Smart Corridor ATMS, San Mateo County, CA**

Kimley-Horn is deploying and integrating over 225 traffic signals with the KITS ATMS in San Mateo County. This smart corridor traffic management system includes deployments of KITS in 10 of the 20 cities in San Mateo County in 2012-2013 including San Mateo, Belmont, Redwood City, Menlo Park, as well as Caltrans District 4. The KITS system includes the Kadence ATCS deployment in Menlo Park; future support for over 1,000 signals in San Mateo County; and over 1,500 signals managed by Caltrans District 4 throughout the Bay Area. The KITS incident detection and management module is used to identify traffic diversion from U.S. 101 onto local arterials and automatically engage incident response timing plans on the arterial streets. System fail-over and redundancy provisions are provided for multi-jurisdictional command and control.







### ***Sand Hill Road Adaptive Traffic Signal System (Kadence), Menlo Park, CA***

The City of Menlo Park deployed KITS/Kadence on four signals on four signals along El Camino Real, a Caltrans corridor. This project came about through a desire to provide more reliable travel time performance along Sand Hill Road, one of the City's most vital transportation corridors. As a result, the City decided to expand the KITS/Kadence system to nine traffic signals along Sand Hill Road. The scope of the project entailed upgrade existing field communications and deploying a new fiber optic network along 1.5 miles. In addition, the project upgraded existing Model 170 traffic signal controllers to Model 2070 controllers and implemented new central to field communications equipment.

### ***AC Transit Line 97 Transit Performance Initiative (TPI) Adaptive Traffic Control System (ATCS), Hayward, Alameda County, & San Leandro, CA***

Kimley-Horn is working with AC Transit, along with Caltrans, Alameda County, the City of Hayward, and the City of San Leandro to deploy Kimley-Horn's Kadence adaptive system at thirty-four (34) intersections along the Hesperian Boulevard corridor as part of the Line 97 project. The project is funded by the Metropolitan Transportation Commission (MTC) through the Transit Performance Initiative (TPI) and Next Generation Arterial Operations (Nexgen) programs. The AC Transit Line 97 route is 13 miles long and runs between the Bayfair BART station and the Union City BART station along Hesperian Boulevard, Union City Boulevard, Alvarado-Niles Road, and Decoto Road. The overall Line 97 project includes deploying transit signal priority (TSP) and other infrastructure and signal timing improvements at the 61 traffic signals along the entire route. The adaptive system will be deployed along a portion of the Line 97 route, to include the 34 traffic signals on Hesperian Boulevard between Thornally Drive in San Leandro and Pepsi Drive in Hayward. The corridor is primarily as six (6) divided roadway and provides direct access to SR-238, I-880, and SR-92. In addition to carrying significant commuter and local traffic, the corridor parallels I-880 for a large portion of the route, thus resulting in frequent traffic diverting to the corridor and significant volume fluctuations when incidents occur along I-880. Deployment of the Kadence adaptive system allows the signal timing to respond to the volume fluctuations along the corridor and improve overall signal operations. In addition, the adaptive system shall provide transit priority along the corridor to enhance bus operations for the Line 97 route. Kimley-Horn is responsible for furnishing, installing, integrating, and testing all software and hardware for an operational adaptive system for the project intersections. For this project, the Kadence system will operate with 2070 controllers and D4 local firmware. Also, the project will provide training and project documentation for the system.

### ***City of Mesa Kadence Adaptive System, Mesa, AZ***

Kimley-Horn was selected by the City of Mesa to deploy Kadence on a 19-intersection system around Fiesta Mall in West Mesa. The KITS adaptive module allows tuning of intersection splits, cycle, sequence, and Time-of-Day (TOD) schedule. Features for Measures of Effectiveness (MOEs) displays and analysis were added to Kadence, as well as a queue monitoring algorithm that allows Kadence to quickly switch to different operating strategies during congestion events, configuration of parameters by pattern, and various enhancements to the calculation of cycle lengths.

### ***City of Surprise Kadence Adaptive System, Surprise, AZ***

Kimley-Horn was selected by the City of surprise to deploy Kadence on a 20-traffic signal system on Bell road. Bell road is the major access to Surprise from other parts of the Valley. The KITS adaptive module allows tuning of intersection splits, cycle, sequence, and Time-of-Day (TOD) schedule. Features for Measures of Effectiveness (MOEs) displays and analysis were added to Kadence, as well as a queue monitoring algorithm that allows Kadence to quickly switch to different operating strategies during congestion events, configuration of parameters by pattern, and various enhancements to the calculation of cycle lengths.





## City of Austin, Advanced Traffic Management System (KITS) and Kadence, Austin, TX

In 2011, the City of Austin selected Kimley-Horn to provide its new ATMS. The project will support more than 1,100 intersections and interchanges throughout the City running NextPhase on 2,070 controllers over a variety of fiber, copper, and wireless interconnect. The KITS deployment includes integration of the Kadence adaptive control system for 70 intersections along I-35, center-to-center transit priority for the CapMetro BRT system, a public information web page for status and performance monitoring, closed circuit television (CCTV) integration, performance monitoring tools, and on-site integration and project management support. In 2013, Kimley-Horn configured Kadence for the City on Congress Street on four test intersections. In 2015, the City started configuring Kadence along South Lamar Street. Kimley-Horn is supporting the City in setup, configuration, installation, and tuning of Kadence operations on Lamar Street.



## Contract Agreement

Kimley-Horn has reviewed the sample Master Agreement for Consultant Services included with the RFP and would like to discuss the following modifications, as the indemnification language is not wholly compliant with the requirements of California Civil Code 2782.8. These changes reflect the intent of the California Civil Code.

ADD 2.2. Replace With the following text:

### "12. Indemnity.

- A.** Indemnification. To the fullest extent permitted by law, Consultant shall, at its own expense, indemnify, protect, defend (by counsel reasonably satisfactory to the City) and hold harmless City and any and all of its officers, officials, employees, agents and volunteers ("Indemnified Parties") from and against any and all liability (including liability for claims, demands, damages, obligations, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged ~~or threatened~~, including attorneys fees and costs, court costs, ~~interest~~, defense costs and expert witness fees) of any nature ("Liability"), whether actual, alleged ~~or threatened~~, which ~~to the extent~~ arise out of, pertain to, or relate to the ~~negligent~~ performance or failure to comply with this Agreement, ~~regardless of any fault or alleged fault of the Indemnified Parties.~~

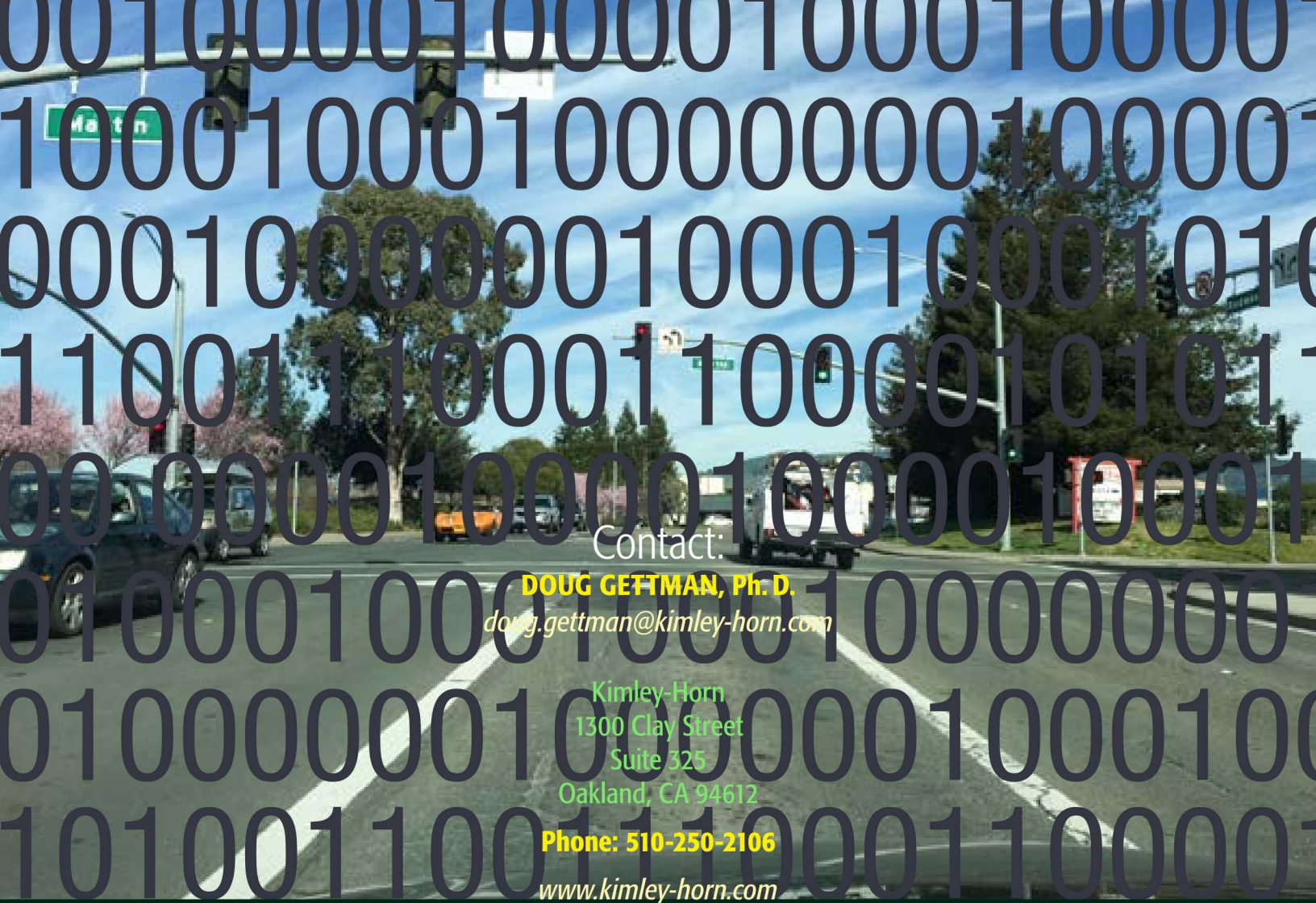
For design professionals (as that term is defined by statute) acting within the scope of their professional capacity, to the fullest extent permitted by law, Consultant shall, at its own expense, indemnify, protect, defend (by counsel reasonably satisfactory to the City) and hold harmless any Indemnified Parties from and against any and all Liability, whether actual, alleged ~~or threatened~~, which ~~to the extent~~ arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, or as may be provided by statute in Civil Code § 2782.8, as may be amended from time to time The only exception to Consultant's responsibility to indemnify, protect, defend, and hold harmless the Indemnified Parties from Liability is due to the active negligence or willful misconduct of City or its elective or appointive boards, officers, agents and employees.





- A. Scope of Obligation. Consultant's duty to indemnify, protect, defend and hold harmless as set forth in this Section [44 12](#) shall include the duty to defend (by counsel reasonably satisfactory to the City) as set forth in California Civil Code § 2778. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable by or for Consultant under worker's compensation, disability or other employee benefit acts or the terms, applicability or limitations of any insurance held or provided by Consultant and shall continue to bind the parties after termination/completion of this agreement. This indemnification shall be regardless of and not in any way limited by the insurance requirements of this contract. This indemnification is for the full period of time allowed by law and shall survive the termination of this agreement. Consultant waives any and all rights to express or implied indemnity against the Indemnified Parties concerning any Liability of the Consultant arising out of or in connection with the Agreement or Consultant's failure to comply with any of the terms of this Agreement.

Consultant's duty to indemnify, protect, defend and hold harmless as set forth in this Section [44 12](#) shall not be excused because of the Consultant's inability to evaluate Liability, or because the Consultant evaluates Liability and determines that the Consultant is not or may not be liable. The Consultant must respond within thirty (30) calendar days to any tender by the City, unless the time for responding has been extended by an authorized representative of the City in writing. If the Consultant fails to timely accept such tender, in addition to any other remedies authorized by law, as much of the money due or that may become due to the Consultant under this Agreement as shall reasonably be considered necessary by the City may be retained by the City until disposition has been made of the matter subject to tender, or until the Consultant accepts the tender, whichever occurs first. Consultant agrees to fully reimburse all costs, including but not limited to attorney's fees and costs and fees of litigation incurred by the City in responding to matters prior to Consultant's acceptance of the tender." In no event shall the cost to defend charged to the Consultant exceed the Consultant's proportionate percentage of fault as set forth in California Civil Code 2782.8.



Contact:

**DOUG GETTMAN, Ph.D.**

*[doug.gettman@kimley-horn.com](mailto:doug.gettman@kimley-horn.com)*

Kimley-Horn  
1300 Clay Street  
Suite 325  
Oakland, CA 94612

**Phone: 510-250-2106**

*[www.kimley-horn.com](http://www.kimley-horn.com)*

# Kimley»Horn

Expect More. Experience Better.



EXHIBIT B

Compensation

# Exhibit B

Proposal for

## PROCUREMENT OF Advanced Traffic Management System, Services & Support

### Cost Proposal

Task No.	Task Name	PM	PIC	Sr. Engr	Sys	DPM	Field	Support	Total Hours	Labor Cost
	<b>Team Members</b>	Gettman	Sowers	Akwabi	Searle	Fuhrman	Wages	Bratcher		
1	<b>Project Management</b>	8	8	0	40	40	0	15	111	\$ 20,795.00
		8	8		40	40		15	111	
2	<b>Preliminary Engineering</b>	5	0	0	10	10	15	0	40	\$ 8,025.00
		5			10	10	15		40	\$ 8,025.00
3	<b>Comm and Detection Eval</b>	5	0	5	0	15	5	5	35	\$ 6,825.00
		5		5		15	5	5	35	\$ 6,825.00
4	<b>Furnish and Install SW/HW</b>	5	2	0	40	15	40	5	107	\$ 20,780.00
		5	2		40	15	40	5	107	\$ 20,780.00
5	<b>Integration and Deployment</b>	8	40	10	80	40	24	5	207	\$ 42,645.00
		8	40	10	80	40	24	5	207	\$ 42,645.00
6	<b>Training and Documentation</b>	15	0	0	40	40	15	5	115	\$ 22,250.00
	Document Preparation				15	15	10	5	45	\$ 8,225.00
	Training and Documentation	15			25	25	5		70	\$ 14,025.00
7	<b>System Maintenance and Support</b>									\$ 90,000.00
	Lump Sum Fee (3 years)									\$ 90,000.00
	<b>QA/QC</b>		10						10	\$ 2,650.00
<b>Total Hours</b>		46	60	15	210	160	99	35	625	
<b>Total Labor</b>										\$ 213,970.00
<b>KITS/Kadence/ATSPM License Fees</b>										\$ 127,000.00
<b>Central and Field Equipment (Servers, Laptops, 2070 Controllers, Firmware)</b>										\$ 127,000.00
<b>Other Direct Costs</b>										\$ 15,500.00
<b>TOTAL</b>										\$ 483,470.00



## EXHIBIT C

### INSURANCE REQUIREMENTS for Consultant Services Agreement

*Prior to the beginning of and throughout the duration of the Work, Consultant will maintain insurance in conformance with the requirements set forth below. Consultant will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth here, Consultant agrees to amend, supplement or endorse the existing coverage to do so. Consultant acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds available to City in excess of the limits and coverage required in this agreement and which is applicable to a given loss, will be available to City.*

*Consultant shall provide the following types and amounts of insurance:*

General Liability Insurance using Insurance Services Office "Commercial General Liability" policy form CG 00 01 or the exact equivalent. Defense costs must be paid in addition to limits. There shall be no cross liability exclusion for claims or suits by one insured against another. Limits are subject to review but in no event less than \$2,000,000 (Two Million Dollars) per occurrence.

Business Auto Coverage on ISO Business Auto Coverage form CA 0001 including symbol 1 (Any Auto) or the exact equivalent. Limits are subject to review, but in no event to be less than \$2,000,000 (Two Million Dollars) per accident. If Consultant owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Consultant or Consultant's employees will use personal autos in any way on this project, Consultant shall provide evidence of personal auto liability coverage for each such person.

Workers Compensation on a state-approved policy form providing statutory benefits as required by law with employer's liability limits no less than \$1,000,000 (One Million Dollars) per accident or disease.

Excess or Umbrella Liability Insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Any such coverage provided under an umbrella liability policy shall include a drop down provision providing primary coverage above a maximum \$25,000 self-insured retention for liability not covered by primary but covered by the umbrella. Coverage shall be provided on a "pay on behalf" basis, with defense costs payable in addition to policy limits. Policy shall contain a provision obligating insurer at the time insured's liability is determined, not requiring actual payment by the insured first. There shall be no cross liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to City for injury to employees of Consultant, subconsultants or others involved in the Work. The scope of coverage provided is subject to approval of City following receipt of proof of insurance as required herein. Limits are subject to review but in no event less than \$2,000,000 (Two Million Dollars) per occurrence.

Professional Liability or Errors and Omissions Insurance as appropriate shall be written on a policy form coverage specifically designed to protect against acts, errors or omissions of the consultant and "Covered Professional Services" as designated in the policy must specifically include work performed under this agreement. The policy limit shall be no less than \$2,000,000 (Two Million Dollars) per claim and in the aggregate. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend. The policy retroactive date shall be on or before the effective date of this agreement.

*Insurance procured pursuant to these requirements shall be written by insurers that are admitted carriers in the state of California and with an A.M. Best's rating of A- or better and a minimum financial size VII.*

General conditions pertaining to provision of insurance coverage by Consultant. Consultant and City agree to the following with respect to insurance provided by Consultant.

1. Consultant agrees to have its insurer endorse the third party general liability coverage required herein to include as additional insureds the City, its officers, elected officials, employees, agents, and volunteers using standard ISO endorsement No. CG 20 10 or an approved equivalent. If completed operations coverage is excluded, the policy must be endorsed to include such coverage. Consultant also agrees to require all contractors, and subcontractors to do likewise.
2. No liability insurance coverage provided to comply with this Agreement shall prohibit Consultant, or Consultant's employees, or agents, from waiving the right of subrogation prior to a loss. Consultant agrees to waive subrogation rights against City regardless of the applicability of any insurance proceeds, and to require all contractors and subcontractors to do likewise.
3. The worker's compensation policy is to be endorsed with a waiver of subrogation. The insurance company, in its endorsement, agrees to waive all rights of subrogation against the City, its officers, elected officials, employees, agents, and volunteers for losses paid under the terms of this policy which arise from the work performed by the named insured for the City.
4. All insurance coverage and limits provided by Contractor and available or applicable to this agreement are intended to apply to the full extent of the policies. Nothing contained in this Agreement or any other agreement relating to the City or its operations limits the application of such insurance coverage.
5. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to City and approved of in writing.
6. No liability policy shall contain any provision or definition that would serve to eliminate so-called "third party action over" claims, including any exclusion for bodily injury to an employee of the insured or of any contractor or subcontractor.
7. All coverage types and limits required are subject to approval, modification and additional requirements by the City, as the need arises. Consultant shall not make any reductions in scope of coverage (e.g. elimination of contractual liability or reduction of discovery period) that may affect City's protection without City's prior written consent.
8. Proof of compliance with these insurance requirements, consisting of certificates of insurance evidencing all of the coverages required and an additional insured endorsement to Consultant's general liability policy, shall be delivered to City at or prior to the execution of this Agreement. In the event such proof of any insurance is not delivered as required, or in the event such insurance is canceled at any time and no replacement coverage is provided, City has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests under this or any other agreement and to pay the premium. Any premium so paid by City shall be charged to and promptly paid by Consultant or deducted from sums due Consultant, at City option.



9. Certificate(s) are to reflect that the insurer will provide 30 days notice to City of any cancellation of coverage. Consultant agrees to require its insurer to modify such certificates to delete any exculpatory wording stating that failure of the insurer to mail written notice of cancellation imposes no obligation, or that any party will "endeavor" (as opposed to being required) to comply with the requirements of the certificate.
10. It is acknowledged by the parties of this agreement that all insurance coverage required to be provided by Consultant or any subcontractor, is intended to apply first and on a primary, non-contributing basis in relation to any other insurance or self insurance available to City.
11. Consultant agrees to ensure that subcontractors, and any other party involved with the project who is brought onto or involved in the project by Consultant, provide the same minimum insurance coverage required of Consultant. Consultant agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Consultant agrees that upon request, all agreements with subcontractors and others engaged in the project will be submitted to City for review.
12. Consultant agrees not to self-insure or to use any self-insured retentions or deductibles on any portion of the insurance required herein and further agrees that it will not allow any contractor, subcontractor, Architect, Engineer or other entity or person in any way involved in the performance of work on the project contemplated by this agreement to self-insure its obligations to City. If Consultant's existing coverage includes a deductible or self-insured retention, the deductible or self-insured retention must be declared to the City. At that time the City shall review options with the Consultant, which may include reduction or elimination of the deductible or self-insured retention, substitution of other coverage, or other solutions.
13. The City reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Consultant ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Consultant, the City will negotiate additional compensation proportional to the increased benefit to City.
14. For purposes of applying insurance coverage only, this Agreement will be deemed to have been executed immediately upon any party hereto taking any steps that can be deemed to be in furtherance of or towards performance of this Agreement.
15. Consultant acknowledges and agrees that any actual or alleged failure on the part of City to inform Consultant of non-compliance with any insurance requirement in no way imposes any additional obligations on City nor does it waive any rights hereunder in this or any other regard.
16. Consultant will renew the required coverage annually as long as City, or its employees or agents face an exposure from operations of any type pursuant to this agreement. This obligation applies whether or not the agreement is canceled or terminated for any reason. Termination of this obligation is not effective until City executes a written statement to that effect.
17. Consultant shall provide proof that policies of insurance required herein expiring during the term of this Agreement have been renewed or replaced with other policies providing at least the same coverage. Proof that such coverage has been ordered shall be submitted prior to expiration. A

coverage binder or letter from Consultant's insurance agent to this effect is acceptable. A certificate of insurance and/or additional insured endorsement as required in these specifications applicable to the renewing or new coverage must be provided to City within five days of the expiration of the coverages.

18. The provisions of any workers' compensation or similar act will not limit the obligations of Consultant under this agreement. Consultant expressly agrees not to use any statutory immunity defenses under such laws with respect to City, its officers, elected officials, employees, agents, and volunteers.
19. Requirements of specific coverage features or limits contained in this section are not intended as limitations on coverage, limits or other requirements nor as a waiver of any coverage normally provided by any given policy. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue, and is not intended by any party or insured to be limiting or all-inclusive.
20. These insurance requirements are intended to be separate and distinct from any other provision in this agreement and are intended by the parties here to be interpreted as such.
21. The requirements in this Section supersede all other sections and provisions of this Agreement to the extent that any other section or provision conflicts with or impairs the provisions of this Section.
22. Consultant agrees to be responsible for ensuring that no contract used by any party involved in any way with the project reserves the right to charge City or Consultant for the cost of additional insurance coverage required by this agreement. Any such provisions are to be deleted with reference to City. It is not the intent of City to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against City for payment of premiums or other amounts with respect thereto.
23. Consultant agrees to provide immediate notice to City of any claim or loss against Consultant arising out of the work performed under this agreement. City assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve City.



## CERTIFICATE OF CONSULTANT

I HEREBY CERTIFY that I am the \_\_\_\_\_, and a duly authorized representative of the firm of \_\_\_\_\_, whose address is \_\_\_\_\_, and that neither I nor the above firm I here represent has:

- a) Employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above consultant) to solicit to secure this Agreement.
- b) Agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the Agreement; or
- c) Paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above consultant) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the Agreement;

Except as here expressly stated (if any);

I acknowledge that this certificate is subject to applicable State and Federal laws, both criminal and civil.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature