

**AMENDMENT NO. 1 TO THE AGREEMENT
BETWEEN
CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO
COUNTY
AND
SUSTAINABLE SILICON VALLEY
FOR
OPTIMIZING URBAN TRAFFIC (OUT) IN MENLO PARK PILOT PROJECT**

WHEREAS, the City/County Association of Governments for San Mateo County (hereinafter referred to as “C/CAG”) and Sustainable Silicon Valley (hereinafter referred to as “Contractor”) are parties to an Agreement originally dated September 13, 2018, for the Optimizing Urban Traffic (OUT) in Menlo Park Pilot Project (the “Agreement”); and

WHEREAS, the Agreement term included a completion date of June 30, 2020; and

WHEREAS, in November of 2019, the Contractor has chosen to substitute the specified Subcontractor “Urban Integrated” (UI) with another well-qualified Subcontractor, “Connected Signals, Inc.” with consent from the C/CAG Executive Director; and

WHEREAS, the Contractor experienced a number of challenges during the implementation phase, including fiber breaks at key project intersections, difficulty in getting permission from Caltrans to access the traffic data and connect to their servers, and the COVID-19 pandemic;

WHEREAS, C/CAG and Contractor have determined that additional time is needed to complete the OUT in Menlo Park Pilot Project and desire to extend the term of the Agreement until June 30, 2021; and

IT IS HEREBY AGREED by C/CAG and Contractor as follows:

1. The term of the Agreement, as provided in Section 1 “Service to be provided by Contactor” and Section 5 “Contract Term,” shall be extended through June 30, 2021.
2. Under Section 15, Notices, the C/CAG contact person shall be updated from John Hoang to Kaki Cheung.
3. All references in this Agreement to “Urban Integrated” or “UI” shall be replaced by “Connected Signals” or “CS”.
4. Due to changes in work activities listed in Exhibit A, *Scope of Work*, specifically Work package 2: Dashboard showing specific network indicators,

and Work package 3: Specific services and apps, the original Exhibit A shall be replaced with an updated version of Exhibit A, and the original Exhibit B shall be replaced with an updated Exhibit B, *Milestones and Payment Schedules*, both attached to this Amendment No. 1 and incorporated to the Agreement.

5. A new Exhibit C, *Optimizing Urban Traffic (OUT) Driver Advice Trials*, describing the user trial and evaluation process, is attached hereto and incorporated to the Agreement.
6. A new Exhibit D, *Special Conditions Relating to Personally Identifiable Information*, is attached hereto and incorporated to the Agreement to protect user privacy.
7. This amendment shall take effect on July 1, 2020.

Except as expressly amended herein, all other provisions of the Agreement shall remain in full force and effect.

City/County Association of Governments

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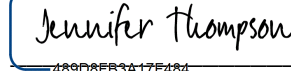
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Sandy Wong
C/CAG Executive Director

Date: 7/8/2020

Sustainable Silicon Valley

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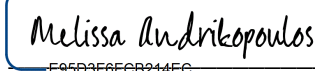
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Jennifer Thompson
Executive Director

Date: 7/8/2020

Approved as to form:

DocuSigned by:



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Melissa Andrikopoulos
Legal Counsel for C/CAG

EXHIBIT A

SCOPE OF WORK

“Optimizing Urban Traffic” in Menlo Park Pilot Project

Background

The C/CAG sponsored San Mateo County Smart Corridor (Smart Corridor) project is a joint effort by C/CAG and the California Department of Transportation (Caltrans) to address traffic congestion on local streets and major state routes in San Mateo County. The operation, management, and maintenance of the street, highway and freeway network are within the jurisdictional responsibilities of several cities as well as the County, Caltrans, and transportation agencies.

The Smart Corridor implements Intelligent Transportation System (ITS) equipment such as an interconnected traffic signal system, closed circuit television (CCTV) cameras, trailblazer/arterial dynamic message signs, and vehicle detection system deployed on predefined designated local streets and state routes provide local cities and Caltrans day-to-day traffic management capabilities in addressing recurrent traffic congestion as well as provide Caltrans capabilities for managing the system during non-recurring traffic congestion caused by diverted traffic due to major incidents on the freeway.

The Smart Corridor deployed the new traffic signal control system known as KITS (Kimley-Horn Integrated Transportation System). Deployment of the KITS includes hardware and software as well as uploading of the Smart Corridor incident response plans into the signal controllers. KITS is a proprietary signal system developed by Kimley-Horn.

Kimley-Horn is additionally developing and deploying a gateway interface to provide second-by-second traffic signal data along the San Mateo Smart Corridor from the KITS system to an application such as the proposed Traffic Light Assistant (TLA) and other such applications.

Building on the Smart Corridor and KITS system, expanding on the Arterial Management and Traveler Information aspects is strongly preferred. Note that use of the KITS system to connect to Caltrans' traffic management system requires additional software which will be developed and funded through this contract. All such software developed for the project will be the property of C/CAG and become the base for future development such as Elements 2 and 3.

Project Overview

This SOW pertains only to Element 1: Smartphone-based Traffic Light Assistant (TLA) App. **The other two elements build on Element 1 and are included for context only.**

It is hoped that many of these same stakeholders will come together again to implement these additional capabilities.

Element 1 utilizes the Smart Corridor infrastructure and adds more elements to optimize traffic flow in Menlo Park, applied to the part of the Menlo street network along Marsh Road (East of U.S. 101), Bayfront Expressway (between Marsh Road and University Avenue) and Willow Road (east of U.S. 101 to Bayfront Expressway). The project includes a minimum of 14 but not more than 35 intersections (35 traffic lights) subject to potential stakeholder priorities.

OUT Investment Model

The complete project involves three Elements as described below, but Element 1, chiefly the Enlighten app and associated AI-based predictive backend system, is the focus of this contract. Elements 2 and 3 will each build on and add value to the base capability that Element 1 establishes and are described below for additional context.

Implementation and operation of OUT will involve the collaboration and partnerships between Caltrans, City of Menlo Park, C/CAG, SSV, Connected Signals, and Kimley-Horn. In addition, staff also reached out to Facebook and is currently working to bring them onto the project.

The total project cost is estimated to be \$417,900 with \$236,700 from C/CAG, and in-kind match of \$176,200 from SSV. Some staff resources from Caltrans and City of Menlo Park are also anticipated throughout the project.

The in-kind investment from SSV is based principally on the work performed since September, 2018, to develop the idea of OUT into a deployable project within the City of Menlo Park along heavily congested corridors, specifically along the roadways with Smart Corridor equipment. Many hours were spent developing and then refining the concepts into project form, as well as managing the initial technology prototyping and data protocols to allow integration with the traffic information provider servers and networks. An approximate accounting of time invested is as follows, beginning in September of 2018:

SSV Person	Role	In-kind Work Performed (Summary)	Person Hours Contributed/time period	Internal SSV Rate \$	Total \$
Jose Iglesias	Lead Project Advisor	Develop OUT idea into executable project; develop concept of driver trials; develop privacy and data security models; work with technology providers to	804 / 20 weeks	\$100/hr	\$80,400

		develop OUT technology framework			
Bruce Naegel	Project Manager	Manage initial project definition, work plan, and manage initial KH data gateway work; manage relationships with technology partners	680 / 17 weeks	\$30/hr	\$20,400
Jennifer Thompson	Executive Director	Oversee OUT project and manage relationships with key stakeholders including C/CAG, City of Menlo Park	690 / 17 weeks	\$36/hr	\$24,840
Andrew Clark	Project Director	Identify relevant technology partners; develop SOW, work plans, schedules and contracts	506 / 13 weeks	\$100/hr	\$50,600
Total SSV In-Kind to date					\$176,240

Element 1: Smartphone-based Traffic Light Assistant (TLA) App

Currently, the Smart Corridor infrastructure currently does not have the ability to provide individual guidance to drivers, bike riders or pedestrians. However, with new and emerging communication (V2I) and computer technologies (AI/machine learning), a new layer of traffic management can provide individual drivers, bicyclists and pedestrians with real-time traffic information via smartphone apps. Recent research and commercial projects are building on navigation systems that have been common for quite some time, and now utilize real-time traffic information to further support the efficient movement of people through street networks.

The most important technology utilizing real-time traffic information is termed “traffic light assistance (TLA).” This gives individual drivers a prediction of the timing of a green light for each traffic light that they approach. Either available as a smartphone app or later integrated in the vehicles’ dashboards, these TLA apps allow drivers to move more efficiently, with increased ease and peace of mind, while saving fuel and reducing emissions. This is achieved by recommending an individually calculated speed based on the driver's distance to the signal and the signal’s predicted phases, termed “GLOSA” or Green Light Optimized Speed Advisory.

C/CAG, Caltrans, and the City of Menlo Park seek to be at the forefront of this technology and serve as a national leader by partnering with Connected Signals to develop a “Recommended Speed Assistance” app for the test area. The app will be based

on Connected Signal's pre-existing suite of technology that includes Enlighten, their TLA smartphone app.

The benefits provided by the TLA App service are:

- "Traffic Calming" which aims to encourage safer, more responsible driving and potentially reduce traffic flow while providing a less-stressful driving experience
- Moderating vehicle speed resulting in smoother traffic, less noise, less idling time at intersections
- Increased safety for pedestrians, bicyclists, and drivers
- Decreased carbon emissions and air pollution
- "Connected Car" which provides signal data to automotive OEMs and their ADAS systems

The TLA App will be offered as a Proof of Concept for a pre-defined test community. The Proof of Concept will provide evidence on the quality of the provided data from the Caltrans ITS system and if this allows for the intended service. The pilot phase shall be six months, results of the pilot will be used to determine if a productive version of the TLA App should be made available to the public. During the pilot phase, SSV will verify and negotiate the service level agreement that the Caltrans ITS system has to provide. Exhibit C, OUT Driver Advice Trials, contains more detail on how the driver trials will operate and what kinds of data SSV expects to obtain.

Element 2: Transit Signal Priority (Follow on to OUT)

Building on the base predictive system set up by Element 1, Element 2 introduces a new "smart" signal priority system for Menlo Park's (and the region's) mass transit system, and/or Facebook's corporate bus fleet. This program will integrate with Menlo Park's existing systems and incorporate Connected Signals' patent pending vehicle-to-infrastructure (V2I) technology to improve mobility. The technology reduces traffic signal delays, and uses artificial intelligence to anticipate transit systems' arrivals at signalized intersections and then request priority, thereby providing more efficiency and a smoother transit experience.

Connected Signals will provide Menlo Park with a proprietary, cloud-based solution, Transit Signal Priority (**TSP**). TSP works on hardware already outfitted in the buses, and it operates along the city's fixed bus routes to reduce trip time by improving a bus's ability to get in the "green wave," either by extending a green light or by having a signal return to green more quickly.

TSP can be provided using a combination of a background application running on cellular-connected mobile devices, applications running on servers in the cloud, and capabilities provided by the systems already running on existing controllers deployed in the city.

An onboard tablet, which is provided with a unique cryptographic certificate for authentication, determines vehicle position, heading, and speed and, in cooperation with the cloud-based server, determines which signal is being approached. The server uses models built using machine learning applied to data collected from previous trips to estimate when the bus will arrive at the signal based on a variety of factors. The server also has access to information on the current and predicted state of the signal in question. If a TSP request is in order, the server informs the appropriate controller and the existing signal network that a bus is expected at the calculated time.

The proposed system can utilize software already deployed in the controllers with the ability to implement an early or extended green, or manage specific change requests directly, to reduce the average signal delay for buses traveling through signalized intersections. The software also returns the controller's response to the request, which can be used for system monitoring, or relayed to the bus to tell the operator about the expected state of the upcoming signal, as desired.

The TSP System will be offered as a PoC for a pre-defined test community. The PoC will provide evidence on the quality of the provided data from the ITS and if this allows for the intended service. The pilot phase should be up to six months to determine if a productive version of the TSP App should be made available to the public. During the pilot phase, SSV will verify and negotiate the service level agreement that the ITS has to provide. It is expected that this implementation can be readily expanded to a variety of other applications, including EMS preemption, bicycle detection and/or prioritization, and the creation of virtual High Occupancy Vehicle (HOV) lanes which give HOVs preference at signalized intersections.

Element 3: Automatic Pedestrian Calls (Follow on to OUT)

Element 3 provides another new capability - **PedSig** - which allows pedestrians with smartphones to automatically generate walk requests.

A pedestrian running the PedSig app can enter a destination and begin to walk along the provided route. When they approach a pedestrian signal along the route, a request is sent to the cloud-based server indicating the crossing(s) that are desired. If the signal will be in the "Don't Walk" state when they arrive, the server forwards a pedestrian call request to the appropriate controller, which treats it the same as a crosswalk button push. If the pedestrian has to cross in both directions, the system is capable of determining which order of crossings would be most efficient given predicted signal behavior and responding accordingly.

Alternatively, the app can simply observe the pedestrian's progress and make an appropriate ped call in the direction of travel as they approach an intersection. The system uses information about the pedestrian's speed, location, and track, as well as predicted signal behavior, to determine which—if any—call to make. If the pedestrian crosses the street or moves away from the crosswalk, the request can be canceled if not already serviced.

The PedSig App will be offered as a PoC for a pre-defined test community. The Proof of Concept will provide evidence on the quality of the provided data from the ITS and if this allows for the intended service. The pilot phase should be up to six months to determine if a productive version of the PedSig App should be made available to the public. During the pilot phase, SSV will verify and negotiate the service level agreement that the Caltrans ITS system has to provide.

PROJECT/DELIVERABLES SUMMARY

Project Element	Deliverables	Dates	Comments
Element 1	Smartphone-based Traffic Light Assistant (TLA) App and Solution	6/27/20-6/30/21	The chief element of the OUT project in Menlo Park, funded by C/CAG and In-Kind Investment
Element 2 Out of Scope	Transit Signal Priority (TSP) Pilot	9/1/20-12/1/20	Proposed pilot with Facebook TBD, subject to budget
Element 3 Out of Scope	Automatic Pedestrian Calls (PedSig) Pilot	12/1/20-3/31/21	Proposed pilot with Facebook TBD, subject to budget

EXHIBIT B

MILESTONES AND PAYMENT SCHEDULE

Element 1: Smartphone based Traffic Light Assistant (TLA) App and Backend System

Assumptions

- KITS Data Gateway is able to consume real-time traffic light and sensor data, can talk to traffic lights and is accessible through the Caltrans firewall. This assumes fiber connectivity (or acceptable substitute) along Willow and Bayshore
- Connected Signals will provide, as a service, all necessary software and service infrastructure to perform the following activities.
- Traffic lights along Bayfront Expressway from University Avenue to Marsh Road and Willow Rd to U.S. 101 (up to 35 Traffic Lights) including two new signals at Facebook campus
- SSV to host monthly status meetings among all of the principal project partners
- Six month operation then decision about continuation and extension to other parts of San Mateo County

Milestones and Payment Schedule

Phase / Milestone	Responsible	Completion Due Date & Invoice Amount
KITS Data Gateway Develop and deploy data gateway/connector to KITS, verify correct processing of Caltrans traffic data.	KH	6/27/20 – 7/31/20 \$25,000
Platform: Stand up CS server instance for OUT. Test connectivity to KITS data gateway and verify correct data for test area Prepare street network and configuration for a minimum of 14 traffic lights (controller and geo-spatial data) Begin AI training on live traffic data.	CS	6/27/20 – 8/1/20 \$20,000

<p>Complete configuration and AI Training:</p> <p>Verify signal prediction algorithms and proper integration with ENLIGHTEN. Perform checkout with study intersections in Menlo Park to ensure that all signals properly feed into the CS cloud.</p>	CS	8/1/20 - 8/31/20 \$13,000
<p>Enlighten TLA app / service:</p> <p>Adapt the ENLIGHTEN app to PROJECT needs and safety requirements, testing and approval with trial users, preparing the roll-out to an extended user group. Demonstrate correct operation including prediction and signaling. Verify correct operation on current smartphones, both iOS and Android.</p>	CS	8/31/20 - 9/30/20 \$15,000
<p>Trial preparation, recruiting and process</p> <p>Enroll \geq 200 drivers in four groups to participate, hire trials manager, do mailings, events, signing-up process, other driver related PR, SSV will manage the trial preparation. SSV will also provide Level 0 support for drivers throughout the trail period.</p>	SSV	10/1/20 –4/1/21 \$54,700
<p>Operate CS Cloud and Enlighten for trial (6 months) and support:</p> <p>Deploy platform, solution and app/service, TLA technical customer support, bug fixes, data collection, Level 1 support for trial drivers</p> <p>CS will provide deployment and technical support as needed.</p>	CS	10/1/20- 4/1/21 \$7,000
<p>Evaluation:</p> <p>Verify effectiveness and positive impact based on automatically collected data, floating-car data, and by interviewing drivers. SSV will perform statistical analysis on collected data, both qualitative and quantitative.</p>	SSV	4/1/21 - 5/1/21 \$20,000
<p>Reporting:</p> <p>Write comprehensive report. Disseminate findings. CS will provide technical authoring of parts of the report.</p>	SSV CS	5/1/21 - 5/31/21 \$12,000 \$ 5,000

<p>Other:</p> <ul style="list-style-type: none"> • Project management, customer relationship, networking, disseminate project findings, etc. • Additional staffing: <ul style="list-style-type: none"> ○ Project Director-- The complexity of the project requires a knowledgeable and experienced Project Director ○ Project Manager ○ Campaign manager/ media director to run driver trials ○ Community liaison (see below) • <u>Community/ Community Liaison</u> A community liaison will interface with the Menlo Park community and create A Statement from the Community to understand how the OUT project can support Menlo Park. This will involve conducting interviews with community members to understand their concerns about traffic and safety in Menlo Park. The community liaison will collect quotes and stories from the community about why a project like OUT is needed to combat speeding and other unsafe driving behaviors. The goal of a Statement from the Community is to connect the dots between the OUT project and the Menlo Park community. • Ensure adequate incentives and prizes for trial participants and media/ advertising • SSV to host monthly status meetings for all project participants. SSV to manage the project. 	SSV	6/27/20- 6/30/21 \$65,000
<p>Total SSV</p> <p>Total CS</p> <p>Total KH</p> <p>Total OUT Element 1</p> <p>In-Kind SSV Investment to Date (see above section “OUT Investment Model”)</p> <p>In-Kind SSV Investment in Project</p> <p>Total Project (per C/CAG agreement)</p>		<p>\$151,700</p> <p>\$ 60,000</p> <p>\$ 25,000</p> <p>\$236,700</p> <p>\$176,240</p> <p>\$ 5,000</p> <p>\$417,940</p>

Exhibit C

OPTIMIZING URBAN TRAFFIC (OUT) DRIVER ADVICE TRIALS

Introduction

The availability of real-time, predictive, signal information enables a number of fuel-saving and emissions reduction technologies, helping cities meet air quality and carbon-reduction goals, and saving drivers fuel. In addition, these technologies can reduce the demand for energy while stimulating demand for alternatives such as EV and AV. With predictive signal and traffic information, vehicles can be routed to minimize travel time, deceleration to red lights, and idling at lights.

SSV partner Connected Signals (CS) has developed and demonstrated such a system that exploits existing connections between traffic signals and municipal traffic management systems (TMSs), and existing connections between TMSs and the Internet, to access signal data. Cellular technology is used to communicate with vehicles. This approach avoids the need to deploy special-purpose hardware at each intersection and in each vehicle. Connected Signals' routing algorithms are designed to avoid redirecting vehicles through residential districts in their efforts to optimize flow and reduce driver frustration.

As the main backbone for OUT, the project utilizes the San Mateo SMART Corridor capabilities, leveraging state-of-the-art technology including upgraded traffic signal controllers with remote management capability, integrated by fiber-optic cables that link 10 cities along this corridor, and overlaps many of the OUT study streets.

And to ensure an innovative yet safe and reliable project, SSV has brought on the most experienced provider of predictive signal analytics, Connected Signals. As patent holder for this and several related domains, CS brings not only proven technology but a breadth of experience in delivering real-world solutions. A number of pilot deployments have been completed by CS in cities in the US, New Zealand, and Australia. Given that a large fraction of urban traffic signals is connected to TMSs, and that vehicles increasingly have built-in cellular connectivity, this approach offers the prospect of being able to connect many signals to many vehicles almost immediately at very low cost.

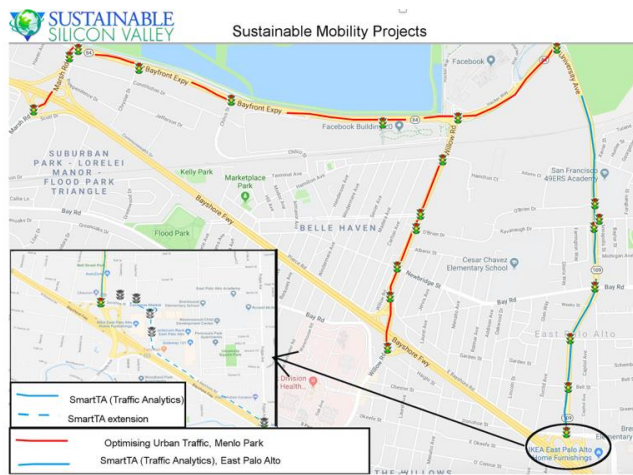
Drivers will utilize CS' EnLighten[®] smartphone app to access traffic signal information, as well as directly through integrated systems that have been developed with a number of major vehicle OEMs, including BMW.

Our Study

Supported by C/CAG and City of Menlo Park, SSV and CS will conduct a proof-of-concept study in Menlo Park designed to help better understand the efficacy and usefulness of such technology in a real-world scenario. Key to the study is a patented iOS/Android smartphone app developed and marketed by CS.

Two hundred Menlo Park area drivers in cohorts of 50 will get to experience new technology that can help them be safer, more fuel efficient, and less stressed, while spending less time at red lights, and experience it well before the rest of the city's drivers. By participating in a city-sanctioned study, drivers will get early access to an iPhone/Android app that shows what lights are doing and helps them safely get to more green lights, while at the same time help transportation planners better understand potential safety and environmental benefits.

Here's a look at the OUT study area (in **RED**), flanked by the previous SmartTA project centered around East Palo Alto (in **GREEN**)



The OUT study is being led by Sustainable Silicon Valley and Connected Signals, in cooperation with C/CAG and the City of Menlo Park.

Participating drivers must regularly drive in Menlo Park and use one or more of the study-area streets, have a recent iPhone or Android phone, and a vehicle manufactured in the last 15 years. Drivers who complete the study are eligible for a stipend of \$50, and for a share in \$4000 in prizes, including a \$1000 cash prize. Incremental prizes are planned to increase driver engagement over the study period.

CS' EnLighten smartphone app supports signal count-downs and "green-light-assist" information that tells drivers whether they would make an upcoming signal at their current speed. A sample screenshot is shown in Figure 1. The display indicates that the light is currently green and will remain so for 28 seconds. The green arrow shows that, at the current speed, the car will arrive at the intersection during the green phase. The application is available in selected cities, including San Jose, CA, where a recent field study was conducted.



The study will involve recruiting roughly 200 drivers across 4 overlapping cohorts and will run for six months. We will recruit from Menlo Park and neighboring communities, leveraging major tech employers such as Facebook, SRI, Google, and Microsoft, public-sector locations including VA Hospital, and community-oriented organizations such as YMCA, churches, and schools.

For the study, drivers will follow their normal driving routine, running a special version of Connected Signals' free EnLighten iPhone or Android App or of the BMW Apps integrated version of EnLighten. After a short startup period to observe drivers' current patterns, the app will provide a variety of traffic light information, including recommended speeds to catch green lights.

With the drivers' consent, data on vehicle position and speed, acceleration, braking, and (where possible) fuel consumption will be collected. This data will be transmitted to servers in the cloud, where it will be merged with contemporaneous signal-state information for later, offline, analysis.

Drivers who spend significant portions of their driving time both in and out of the covered areas will be recruited. This allows their behavior to be compared longitudinally, making it possible to detect habituation effects and eliminate biases that might occur in simple sequential "without data/with data" trials. Data collection will be run for approximately six months, to ensure that a meaningful amount of data was collected for each driver, and that each driver experience a variety of driving conditions.

When in covered areas, drivers will be provided with sophisticated, AI-based predictive signal information telling them, when possible, whether they will make or miss the next signal at their current speed, a recommended speed to make the next signal, and countdowns for red signal durations when they are stopped. For safety reasons, speed recommendations are limited by the current speed limit, and red-light countdowns stopped at 5 seconds before the signal changes to force drivers to rely on the physical traffic signal. At that time, a chime will sound to alert drivers to return their focus to driving in case they become distracted while waiting for the signal to change.

Data Privacy

Each participant will be provided with a smartphone app that will collect vehicle performance information during the study. *Data will be maintained in strict confidentiality during the study, and all collected data will be anonymized at the end of the study.*

During the study, we will collect both contact information (such as name, email, phone number) and data about driving behavior (such as routes, speed profiles, and traffic signal information). This is so that we can study how behavior changes over time even if participants change phones or cars. *Participants' personal data will not be released to third parties, nor used for any purposes other than conducting the study, unless such release is required by law.*

All personal information collected during the study will be kept strictly confidential. Once data arrives at our servers, it will be associated with unique driver codes that are *not directly traceable back to participants*. Only data that has been privacy protected will be used for analysis or publication. Once the study is complete, sensor devices returned, and prizes awarded, all personally identifiable information will be destroyed.

Data Collection – Baseline

To help understand efficacy and usefulness of the EnLighten technology and method, SSV will utilize a questionnaire to help establish a pre-trial baseline for each participant. Following are examples of questions we'll ask participants to answer prior to installing and using EnLighten in their vehicles. In the actual questionnaire we will use multiple choice and longer answer style questions:

- Please estimate (miles/time) for your typical commute
- How many trips (one-way/roundtrip) you make in a day?
- Do you typically drive alone or with (how many) others?
- If mostly commuting, describe your typically starting point and destination
- Do you often use ride-sharing or other carpooling?
- Have you ever used any technology such as EnLighten?
- How easy do you think EnLighten will be to use on a daily basis?
- During your commute or when doing errands, are there places where you get frustrated due to congestion or seemingly endless red lights?

SSV will also establish a pre-trial traffic baseline using floating-car data from INRIX. This data, along with the subjective data from the questionnaire, will aid in analyzing in a preliminary way the impact of the EnLighten-based technology on driver habits.

Data Collection – Post Trial

As each participant completes their trial, we'll ask them to complete a comprehensive follow-up questionnaire which will be compared with their pre-trial responses. When combined with the other participants responses and analyzed using machine learning algorithms such as sentiment analysis, a subjective picture will emerge which will help characterize driver behavior along the study routes and traffic intersections. SSV will also utilize floating-car data from INRIX to compare post-study traffic patterns with the baseline collected prior to the study. We will look for possible correlations with driver feedback, taking into account seasonal patterns and road conditions.

Once the study is complete, participants will receive a stamped, self-addressed envelope so they can return the questionnaire. Prizes will be awarded by random drawing among all participants who complete the study and return their questionnaires within 30 days of the end of the study. Prizes include \$1000 cash, five \$200 certificates for car care, and twenty \$100 gift certificates for either Amazon.com or Uber.

Examples of questions include these. In the actual survey questionnaire, we will use multiple choice and longer answer style questions, composed to maximize value from the subsequent analysis:

- In general, how easy was the EnLighten app to use on a daily basis?
- Did you find using EnLighten distracting or otherwise difficult to operate while driving?
- Under what conditions did EnLighten prove most/least useful?
- Would you use EnLighten again?
- Is your commute or errand better with EnLighten? If so, define what's "better."
- Would you recommend EnLighten to family or friends?
- Do you believe EnLighten or similar technology might help reduce traffic congestion?
- Do you arrive at your destination more refreshed or less stressed?
- What improvements would you recommend for EnLighten and/or this study?

Analysis and Report

SSV and CS will conduct a comprehensive data science-based analysis of all qualitative and quantitative data collected during the study period. We plan to use state-of-the-art machine learning techniques and tools such as Survey Monkey Sentiment Analysis to get underneath the qualitative data, and INRIX powerful toolset to understand and visualize traffic flows in the study area. We have additional expertise in the MATLAB toolset which will be utilized to search for correlations in the datasets. The analysis will be structured to address the primary study issues, namely "Do drivers consider the Enlighten/predictive technology safe to use and useful in reducing stress involved in daily commuting, running errands, and other driving activities in the study area." And "Are there indications that the Enlighten/predictive technology will prove effective in helping manage congestion in the study area."

Once the analysis is complete and reviewed, SSV and CS will write the report and deliver to our stakeholders, principally C/CAG and City of Menlo Park. Additional distribution including presentations at industry and academic conferences will be considered.

Statement From the Community Liason

For the Optimizing Urban Traffic (OUT) project, a community liaison will interface with the Menlo Park community and create A Statement from the Community to understand how the OUT project can support the Menlo Park. This will involve conducting interviews with community members to understand their concerns about traffic and safety in Menlo Park. The community liaison will collect quotes and stories from the community about why a project like OUT is needed to combat speeding and other unsafe driving behaviors. The goal of a Statement from the Community is to connect the dots between the OUT project and the Menlo Park community.

EXHIBIT D

SPECIAL CONDITIONS RELATING TO PERSONALLY IDENTIFIABLE INFORMATION

Contractor will have access to personally identifiable information (“PII”) in connection with the performance of the Agreement. PII is any information that is collected or maintained by C/CAG or Contractor that identifies or describes a person or can be directly linked to a specific individual. Examples of PII include name, address, phone or fax number, signature, date of birth, or travel pattern data. The following special conditions related to the confidentiality and use of PII apply to this Agreement:

1. Right to Audit:

Contractor shall permit C/CAG and its authorized representatives to audit and inspect: (i) Contractor’s facilities where PII is stored or maintained; (ii) any computerized systems used to share, disseminate or otherwise exchange PII, including third party hosting or service provider systems; and (iii) Contractor’s security practices and procedures, data protection, business continuity and recovery facilities, resources, plans and procedures. The audit and inspection rights hereunder shall be for the purpose of verifying Contractor’s compliance with this Agreement, and all applicable laws.

2. Protecting PII:

All PII made available to or independently obtained by Contractor in connection with this Agreement shall be protected by Contractor from unauthorized use and disclosure through the observance of effective procedural requirements including, but is not limited to, the secure transport, transmission and storage of PII used or acquired in the performance of this Agreement.

Contractor agrees to properly secure at all times any computer systems (hardware and software applications), third party hosting or cloud services, or electronic media that it will use in the performance of this Agreement, and shall ensure that any third party hosting or service providers with access to PII adhere to the terms of this Attachment D. This includes ensuring all security patches, upgrades, and anti-virus updates are applied as appropriate to secure PII that may be used, transmitted, or stored on such systems in the performance of this Agreement.

Contractor is prohibited from storing PII on portable media including, but not limited to, laptops, thumbdrives, disks and so forth.

Notwithstanding anything to the contrary in Section 12. Access to Records, of this Agreement, Contractor agrees to retain PII for no longer than necessary for Contractor to carry out its contractual responsibilities under the Agreement. At the conclusion of this retention period, Contractor agrees to use purge methods described in National Institute of Standards and Technology (NIST) Special Publication 800-88, as may be revised or

superseded (“NIST Publication”) to remove PII from any files. Discarded PII will be unavailable and unrecoverable following the purge on any storage media including, but not limited to, magnetic disk, optical disk, memory chips, cloud storage, or other computing system (“Storage Media”). Contractor agrees to destroy hard-copy documents containing PII by means of a cross-cut shredding machine. Contractor also agrees to use purge or destroy methods, as described in NIST Publication, to sanitize any Storage Media prior to disposal (including selling, discarding, donating, transferring, and abandoning). At the conclusion of the performance period of this Agreement, Contractor shall submit a certification to the C/CAG Project Manager as follows: “All PII whether in electronic or hard-copy format, has been destroyed in accordance with the requirements contained in Section 2. Protecting PII of Exhibit D, *Special Conditions Relating to Personally Identifiable Information*.” These requirements shall survive termination or expiration of this Agreement.

3. Compliance with Statutes and Regulations:

Contractor agrees to comply with the information handling and confidentiality requirements outlined in the California Information Practices Act (Civil Code sections 1798 *et seq.*). In addition, Contractor warrants and certifies that in the performance of this Agreement, it will comply with all applicable statutes, rules, regulations and orders of the United States, the State of California and C/CAG relating to the handling and confidentiality of PII, including the terms and conditions contained in this Exhibit D, *Special Conditions Relating to Personally Identifiable Information*, and agrees to indemnify, hold harmless, and defend C/CAG against any loss, cost, damage or liability by reason of Contractor’s violation of this provision.

4. Subcontractors:

C/CAG’s approval in writing is required prior to any disclosure by Contractor of PII to a subcontractor prior to any work being done by a subcontractor that entails receipt of PII. Once approved, Contractor agrees to require such subcontractor to sign an agreement in substantially identical terms as this attachment, binding the subcontractor to comply with its provisions.

5. Contractor Guarantees:

Contractor shall not, except as authorized or required by its duties by law, reveal or divulge to any person or entity any PII that becomes known to it during the term of this Agreement.

Contractor shall keep all PII entrusted to it completely secret and shall not use or attempt to use any such information in any manner that may injure or cause loss, either directly or indirectly, to C/CAG.

Contractor shall not use or process PII for any purpose other than performance of the scope of work set forth in this Agreement.

Contractor shall ensure that all PII that is stored, processed, or transmitted is encrypted, using at least then-current best industry practices (or encryption methods mandated by law, whichever provides higher levels of protection).

Contractor shall comply, and shall cause its employees, representatives, agents, subcontractors and subcontractors to comply, with such directions as C/CAG may make to ensure the safeguarding or confidentiality of PII.

If requested by C/CAG, Contractor shall sign an information security and confidentiality agreement provided by C/CAG and attest that its employees, representatives, agents, subcontractors and subcontractors involved in the performance of this Agreement shall be bound by terms of a confidentiality agreement with Contractor substantially the same in its terms.

6. Notice of Security Breach

Contractor shall immediately notify C/CAG when it discovers that there may have been a breach in security which has or may have resulted in unauthorized access to PII. For purposes of this section, immediately is defined as within two hours of discovery. The C/CAG contact for such notification is as follows:

Project Manager
Kaki Cheung
Kcheung1@smcgov.org
(650) 363-4105