

**To:** Gail Payne  
Senior Transportation Coordinator  
City of Alameda

**From:** David Huynh, PE  
Associate Vice President

**Date:** November 11, 2020

**RE:** Smart City Master Plan – Proposed Scope, Schedule, and Fee

Iteris is pleased to submit this proposed scope of work, schedule, and fee in response to the City’s request to provide professional services for the development of a smart city master plan. This project will result in the development of a comprehensive plan that will ultimately guide the phased deployment of a state-of-the-practice smart city initiatives that will be supported by the planned communications infrastructure network. Development of a successful Master Plan will also be essential in helping the City secure additional future funding for deployment of the identified smart city and transportation projects.

## SCOPE OF WORK

The City of Alameda is looking ahead and thinking strategically about how technology can be utilized to enhance service delivery, improve municipal operations, address sustainability and climate change, and improve mobility in an effort to improve its resident’s quality of life. To achieve this, the City plans to develop a master plan that will provide the City with a roadmap to implement various smart city initiatives. The following tasks are geared to help the City define this effort into developing a comprehensive plan document.

### Task 1: Project Management

Iteris’ project management approach has been developed through many years of experience, and has proven effective in measuring progress, anticipating problems, reacting quickly to changes in the requirements and maintaining schedule integrity. Our approach is designed with checks and balances that have resulted in an impressive track-record of successful projects. Active and open communication between Iteris and the City of Alameda is vital. Communication is essential to the successful outcome of any project. Our primary objective is to keep the City abreast of the developments that impact the project.

Our ability to implement high-quality deliverables is a result of the adherence to a quality assurance program that ensures accuracy, product usability and an overall commitment to product excellence and user satisfaction. Our project manager ensures staff commitment to these objectives by identifying goals at the outset of the project and monitoring the product implementation and delivery process. Iteris strives to improve the processes and tools used to provide high-quality products and services.

### Project Kick-off Meeting

Shortly after receipt of Notice to Proceed, a project kickoff meeting will take place, which will be attended

by representatives from Iteris and the City. The purpose of this meeting is to ensure that participants understand and support the goals of the project and the plan to achieve them.

#### *Monthly Progress Reports*

Iteris will submit a monthly written progress report to the City. Typical items covered in this report will include a summary of the activities conducted during the month, planned activities for the next month, any concerns or issues encountered and proposed solutions, up-to-date project schedules, and status of deliverables, open items, and any extra work and/or closed items.

#### *Project Status Meetings*

Iteris proposes to have less formal, regular (i.e., bi-weekly) check-in meetings to discuss the project progress with the City. The forum (in-person, phone calls, web meetings) for this meeting will be at the discretion of the City's Project Manager and may vary depending on the project's needs or items anticipated to be discussed at the time. Iteris will utilize these meeting to provide updates on current activities, upcoming activities, technical items, report on milestones, obtain feedback from the City, and discuss any concerns or issues. The City may also call Mr. Huynh to schedule a meeting at any time if a discussion item cannot wait until the next regular status meeting.

#### *Project Schedule*

A preliminary project schedule, as shown in below, has been developed with an assumed project timeline of 12 months. While project duration is flexible, and could be compressed or expanded, a 12-month duration is reasonably typical for the scope of this project. Built into the schedule is a 3-week review period for City staff to review each project deliverable. Iteris will work with City staff to refine the project schedule as needed during the kick-off meeting to meet the City's needs.

The schedule is provided in both a Gantt-style chart and a table format. As the Gantt schedule has been shrunk to fit this proposal document, the table format schedule provides some date details which may not be as clear on the Gantt schedule.

<b>Task</b>	<b>Duration</b>
<b>Task 1: Project Management</b>	12 months (1/2021 to 1/2022)
<i>Project Kick-off</i>	January 14, 2021 (estimated)
<i>Bi-weekly Project Status Meetings</i>	Every other week (1/2021 to 1/2022)
<b>Task 2: Existing Conditions Assessment</b>	11 weeks (1/2021 to 3/2021)
<b>Task 3: Needs Assessment and Recommendations</b>	4/2021 to 9/2021
<i>Task 3.1: Develop Goals and Objectives</i>	3 weeks (4/2021)
<i>Task 3.2: Analysis of Existing Conditions</i>	4 weeks (4/2021 to 5/2021)
<i>Task 3.3: Needs Identification</i>	4 weeks (5/2021)
<i>Task 3.4: Recommended Solutions</i>	6 weeks (6/2021 to 7/2021)
<b>Task 4: Prepare Master Plan</b>	14 weeks (10/2021 to 1/2021)



### Task 3: Needs Assessment and Recommendations

Iteris will take a focused approach with experienced staff that understand the principles of communications, traffic signal systems, ITS and Systems Engineering, and can design, construct and integrate the Plan's strategies. Iteris has extensive experience developing Communication Plans to maximize the use of the City's existing infrastructure, minimizing implementation costs, including a migration plan from the legacy system to the new system, and meeting the City's goals.

#### *Task 3.1: Develop Goals and Objectives*

Iteris is proposing this task to ensure the City maximizes the opportunities for success in the development of the Plan. Beginning in the mid to late 2000s, there has been a shift to shared networks between Transportation and IT departments as the convergence of technologies have required the coordination of groups and departments that have historically worked independently of each other. Recently, with the emerging concept of Smart Cities, and the Federally-funded Smart Cities Challenge, along with the inevitable deployment of connected and autonomous vehicles, a more comprehensive communications network will be essential if for no other reason than the communication network serves as a mission critical element of the City's infrastructure and is the foundation of most Smart City initiatives.

With this understanding, where the transportation system along with other City infrastructure (IT, smart parking, smart street lights, and public safety services) is starting to converge and all share the same communications network, this task will develop the Plan's goal for the communications network. This task will include meetings with other City departments involved to collaborate on needs and requirements of the communication network, as well as plans to deploy and maintain the network. This would include:

1. Meet with City staff to discuss the project goals and objectives. Specifically, determine how the communications network should be developed to serve transportation needs, and broadened to support other City infrastructure and services.
2. Meet with key staff from other City departments (Public Safety, Maintenance, etc.) to discuss the needs of other City departments.
3. Discuss what City staff envisions for the full build out of the communications network. Identify whether it the city's goal to deploy fiber everywhere, a mix of fiber and copper interconnect, wireless, or a hybrid solution. Also, what does the City envision for the overall budget and timeline to fully deploy the system.
4. Based on these discussions, finalize the goals and objectives for the communications network and the Plan.

#### *Task 3.2: Analysis of Existing Conditions*

Based on the findings of Task 2, Iteris will analyze all information collected to identify operational and equipment deficiencies to be compared to project goals. The analysis will focus on several items, including:

- Increasing the reach of the communications infrastructure

- Providing the required bandwidth of the communications network
- Analyzing connections to city facilities
- Eliminating gaps in the communications network
- Installing new communications infrastructure and equipment
- Upgrading transportation management infrastructure
- Providing devices and/or platforms for public information dissemination

### *Task 3.3: Needs Identification*

The needs identification will utilize the findings from previous tasks to conduct an assessment of the City's needs. The findings of Task 2 will detail the existing communications system while the findings of Task 3.2 will identify the deficiencies of the existing systems and communication network. Iteris will then compare the Plan goals and objectives with the existing conditions to determine the City's needs. It is envisioned that the needs identification will include, but not be limited to, the following improvement strategies and solutions:

#### **1. Communications System**

- Communication media (fiber optic, copper interconnect, wireless)
- Communications protocol
- Network topology
- Communication hubs
- Network integration
- Communications end equipment

#### **2. Traffic Signal System**

- Central signal system
- Traffic signal controller and software

#### **3. Transportation System and Infrastructure Management**

- Traffic Management Center
- Video management system
- CCTV cameras
- Information dissemination (i.e., changeable message sign, mobile application)
- Incident response
- Smart parking system
- Connected/autonomous vehicle (CAV)
- Smart street lights

#### **4. Emergency Vehicle Preemption, Transit Priority, and Bicycle Priority**

- Emergency vehicle preemption (fire response)
- Transit corridors for transit signal priority
- Bicycle corridors for bicycle signal priority

## 5. Performance Measurement

- Travel time system
- Signal performance measurement

### *Task 3.4: Recommended Solutions*

Iteris will complete a set of opportunities and recommended solutions based on the comprehensive analysis of system deficiencies, system goals and objectives, and City's needs. The opportunities and solutions will define requirements for future systems and deployments, and create solutions and performance measures. The strategies identified will also address industry best practices and assess impacts of maintenance needs on the City's existing staff. A significant focus of this effort will involve a deployment plan for the City's communication network. The plan is envisioned to offer reliable, high-bandwidth communications to support all of the City's traffic field devices, as well as other City facilities based on the City's needs and objectives. This cooperative effort is also an opportunity for the City to deploy and maintain a single communications network compared to separate networks for each City department. The use of a single network for multiple departments may offer dramatic savings and provide integration of all infrastructure that is representative of a smart city solution. The opportunities and solutions will provide feedback and preliminary strategies to goals and objectives identified through project stakeholder feedback (as noted in subtask 3.1).

*Deliverables:* Technical memorandums summarizing the City's goals and objectives, analysis of existing needs, and recommended solutions.

### *Task 4: Prepare Master Plan*

The objective of the Master Plan is to identify and document a phased approach to develop solutions and strategies for smart city applications and initiatives, develop a plan for improved citywide communications to serve city facilities and transportation assets, and to develop solutions and strategies for overall improved transportation system management.

Iteris will prepare a draft master plan document based on the details of the proceeding deliverables prepared in Task 2 and Task 3. The plan will detail the phased deployment of the recommended infrastructure solutions to improve the capabilities and management of the city's infrastructure and assets. The draft plan will incorporate the City's comments and feedback, as well as key details from previous tasks. This document will also present, discuss, and evaluate design and implementation alternatives that achieve the City's various goals and objectives. This will include detailing the phases of deployment of the communications network and to create a prioritized ranking and critical path for the solutions identified.

Included in the plan will be a section detailing the phases of deployment for solutions enhancing the communications network and transportation infrastructure. A key element of this effort will be to create a prioritized ranking, estimated cost, and critical path for the solutions identified in the plan. Each strategy and solution will be classified as short-term (1-2 years), mid-term (3-5 years), or long-term (6 years and beyond). The plan will be structured to allow the City to capture "early wins" – by identifying high-impact,

low cost projects that can be quickly deployed. In addition, the plan will include a non-constrained implementation plan for the next 10-15 years following the high priority projects. Another key element of the plan is the development of an investment strategy to fund and implement solutions. Identifying possible funding opportunities and positioning the City to successfully pursue additional project funding are key outcomes of the plan. Potential funding opportunities must not only address the capital cost of projects, but also the operations and maintenance costs associated with deployments.

All project requirements, relationships between projects, and critical paths to full deployment will be discussed. The plan will also present prioritized solutions, phases of deployment, associated planning-level capital and operations and maintenance (O&M) costs, and funding opportunities. A key element of the plan will include a prioritized ranking of recommended projects based upon stakeholder needs, project cost and schedule, and availability of existing infrastructure. The Plan is envisioned to include the following elements:

- Identification of deficiencies within existing system
- Development of system goals and objectives
- Preparation of system needs and definition requirements
- Recommendation for the deployment of a new communications system
- Recommendation for smart city applications/initiatives
- Prioritized listing of projects
- Planning-level cost estimates associated with each solution (capital, operations, and maintenance costs)
- Schedule for the deployment of the projects
- Summary matrix of projects by priority and implementation schedule
- Identify funding opportunities and strategies to pursue funding
- Identify staffing needs, roles, and resources to operate and maintain the planned improvements
- Identify roles and responsibilities of various stakeholders for the planned improvements

The resulting final Master Plan will serve as a living document to guide the City to plan, fund, deploy and operate future projects aimed at improving the City's smart city capabilities.

*Deliverables:* Smart City Master Plan (Draft and Final)

### **Optional Task**

As part of this task, Iteris will be available to support the City as deemed necessary which will be additionally scoped and budgeted on an as-need basis. Given that this is an optional task, Iteris will develop a scope of work related to the specific request by the City. An optional task may include assisting the City with the preparation of grant applications that may be able to fund the improvements identified in the plan. Iteris will only perform work on this optional task when approved and authorized by the City.

## PROPOSED FEE

Iteris proposes to provide the above outlined scope and associated services for a Not-to-Exceed fee of \$120,000 as summarized by task below. As requested by the City, this fee includes an optional task with a budget of \$10,000 as well as a contingency budget of \$10,000. Reimbursable expenses are included in the fee.

Task 1 – Project Management	\$4,752
Task 2 – Existing System Assessment	\$18,496
Task 3 – Needs Assessment and Recommendations	\$44,352
Task 4 – Prepare Master Plan	\$32,400
<b>SUB-TOTAL (Tasks 1 to 4)</b>	<b>\$100,000</b>
<b>Optional Task</b>	<b>\$10,000</b>
<b>Contingency</b>	<b>\$10,000</b>
<b>TOTAL</b>	<b>\$120,000</b>

The terms of this proposal are subject to the terms of the master service agreement between Iteris and the City of Alameda.