

August 5, 2019



Ms. Carolyn Hogg
City of Alameda
950 W Mall Square, Room 200
Alameda, California 94501

Re: City of Alameda GIS Addressing

Dear Ms. Hogg:

Avineon, Inc. (Avineon) is pleased to submit this proposal to the City of Alameda, outlining work scopes and cost estimates for the analysis, enhancement, and refinement of 911 GIS addressing data. The goals of this work are to:

- Update and enhance the reliability and fortify the use of the existing 911 GIS data for streets and address points data in the City of Alameda CAD system and other organizational applications.
- Increase the locational accuracy of the address points data mapping by relocating address points onto physical addressable structures.
- Ensure that legacy addressing and problematic addressing scenarios are properly modeled in the GIS data for reliable 911 event location.
- Provide authoritative address data sources which can be utilized for NG911, City addressing, and other organizational applications.

The goal of this effort is to develop an accurate and standardized point address dataset for use at the Alameda Police and City Information Technology Departments. The point addresses will be compliant for use with any modern Computer-Aided Dispatch (CAD) or Record Management System (RMS).

In the enclosed attachments, Avineon has outlined our understanding of the required scope of work and cost proposal for this initial phase of work.

Avineon was founded in 1992 and has over 27 years of experience providing innovative and high quality geospatial, information technology, engineering support, and enterprise resilience solutions to our customers in both the public and private sectors. Avineon is appraised at Capability Maturity Model Integration (CMMI) Maturity Level 3 for development and services and is ISO 9001:2015 registered for quality management.

With the recent acquisition of InfoGeographics, Inc., Avineon expanded our core geospatial capabilities. As a leading provider of high-quality GIS technical consulting and development services for the past 18 years, IGI has been supporting clients with a wealth of knowledge and experience in all aspects required for successful geospatial information technology implementation and enhancement projects.

Ms. Carolyn Hogg
August 5, 2019
Page 2



Thank you for the opportunity to submit this proposal to the City of Alameda. Avineon looks forward to supporting your organization. If you have any questions or require further information, please contact Mr. Mike Chenevey (mchenevey@avineon.com; 530-514-4599) or me at your earliest convenience.

If you are in agreement with the terms of this proposal, please use the attached scope of work and cost proposal to prepare the City document necessary to authorize Avineon to proceed. Avineon is ready to begin this engagement upon notice to proceed, with the goal of having the project completed over a four-month period.

Sincerely,

Joel Campbell
Vice President – Commercial Systems
Avineon, Inc.
jcampbell@avineon.com

ATTACHMENT A – SCOPE OF WORK

Background

Avineon, Inc. (Avineon) understands that the City of Alameda (City or Alameda) desires to update its existing address datasets with the most current data from authoritative sources (City, County, et al.), and make all data conform to standard formatting for use in any CAD or RMS. The City desires to supplement its internal Information Technology (IT) and GIS technical resources in order to accomplish these goals.

Avineon has worked for years with dozens of public safety clients large and small, guiding their addressing management efforts to successful outcomes and implementation. Avineon proposes to apply this proven process to assist the City in meeting its goals.

This proposal will ensure the City is prepared to use, manage, and apply a National Emergency Number Association (NENA)-compliant and United States Postal Service Publication 28 (USPS) addressing standard compliant dataset for either its existing CentralSquare system or any new CAD or RMS system the City may select in the future.

Upon notice to proceed, Avineon and the City will schedule a remote kickoff meeting using a web sharing platform (Skype, Teams, etc.). The purpose of this meeting will be to solidify the project team, communication methods, and status meetings schedule; discuss the overall goals, expectations, sources, and outcomes for the project; arrange for any transmittal of source data; and initiate the steps for Avineon to gain secure and remote access to the city's computing environment, as needed.

The following is a basic outline of project activities.

- Review addressing procedures in place at the City and recommend and potentially implement address quality control processes to ensure data integrity.
- Gather necessary authoritative 911 spatial and address-oriented data sources.
- Analyze, compare, and report issues with address standardization against nationally published and recognized NENA and USPS addressing standards.
- Apply necessary NENA and USPS addressing standards in which to standardize the spatial and applicable tabular 911 source data.
- Geolocate address point features on addressed structures in the GIS using data references and image interpretation.
- Provide necessary recommendations for address-based GIS data verification (streets and/or address points) where applicable.

These efforts will result in GIS streets and address point features map layers which, when integrated into the CAD system, will enable reliability and efficiencies for NG911 event geolocation. As this GIS data may be utilized for other City or organizational applications, there are also many other benefits to City operations at large.

Task 1: City of Alameda Addressing

Through sampling and review of the current GIS streets, address points, and other supporting Alameda 911 data (parcels, premise/points of interest alias table, etc.), it was found that enhancement to the physical GIS streets and address points features as well as the framework (schema) of the GIS data and supporting alias tables could be spatially enhanced and enriched to provide important efficiencies in 911 event geolocation as well as prepare the data for NG911 by applying national standards for NENA and USPS standards which current CAD systems require.

Task 1a: Addressing Procedures Review and Recommendations

Avineon staff will meet with Alameda Information Technology and Police Departments to review the project initiatives and carefully review the current addressing process with City staff. This will be a face-to-face meeting to discuss how addresses are initiated, assigned, recorded, and developed in the GIS (and potentially other databases such as asset and work order management, permitting, etc.) and ultimately migrated to 911. Avineon staff will take detailed notes and potentially acquire copies of supporting sample materials and data in which to analyze and produce recommendations. Our recommendations will most efficiently leverage authoritative address data to support the organization as a whole, but specifically the addressing needs for 911. These recommendations will be relayed to Alameda Information Technology and Police Departments for their review and comment.

Task 1b: Authoritative Addressing Data Gathering

While onsite at the City, Avineon staff will coordinate with Alameda Information Technology and Police Departments to gather authoritative GIS address-based data to support the remainder of the project, specifically 911-based streets and address points data. Other data will also be gathered at this time if found applicable, such as the most current digital orthophotography and other pertinent GIS data used for 911 Agency Response Areas, Emergency Service Number areas, Neighborhoods Areas, Fire Response Areas, EMS Areas, parcels, building footprints, etc. as well as premise/points of interest alias, master street address guides, or similar tabular data. This data will be utilized to support recommendations in the previous task as well as the subsequent tasks below.

Task 1c: GIS Streets and Address Points Standardization

The combination of accurate and data rich street centerlines and spatially accurate address point locations data are considered the “gold standard” to assist in NG911 event location mapping. When used together with composite geocoding in a 911 CAD environment, such a system produces reliability, efficiencies, and more accurate geolocations of incoming 911 events.

Accurate address point locations increase the level of spatial accuracy of incoming geocoded 911 events by pin-pointing the event location at the address source (in this case, addressed structured) instead of a location as interpolated along street segments utilizing block-style address ranges.

Avineon will review and analyze the address-based streets and address points data sources which were gathered at the City in the previous task and report any inadequacies compared to the nationally published NENA NG911 and USPS Publication 28 standards. A summary of results will be compiled and delivered to the City of Alameda Information Technology and Police Departments for their review and comment.

Taking into account input from the City of Alameda Information Technology and Police Departments, Avineon will migrate applicable 911 streets and address points data into a database schema which complies with the NENA (NG911) and USPS (Publication 28) standards. Existing feature attribution will be maintained and transferred to appropriate standardized fields and, where not matching the standards, retained as legacy fields in the feature data.

Task 1d: GIS Address Points Mapping

After the GIS data migration process is complete, Avineon will geographically move/place the address point features to the interpreted physical addressed structures on the map. If available, Avineon staff will utilize any available GIS building footprints and parcel data (ideally containing place information for address) and the most recent and accurate digital orthophotography (as supplied by the City) and apply image interpretation to the place address point features on top of targeted structures as visible on the provided imagery. If City supplied digital orthophotography is not available, Avineon staff will utilize the best publicly available digital orthophotography to aide in this task.

Current Address Points Data Locations (Green Points)



Address Points Data Locations After Relocation Processes (Green Points)



These processes will result in an overall GIS dataset of street and address point locations which may require additional efforts to verify (field verification or other) such things as missing addresses, erroneous address values, questionable or unknown physical addressed locations of mapped GIS street and address point features, and additional mapping of one-to-many type address locations where multiple addresses may exist in a single parcel or structure(s) such as apartments, condominiums, commercial buildings, etc. Throughout the development process, any potential instances and recommendations where verification may be necessary will be recorded by Avineon staff and relayed to Alameda Information Technology and Police Departments and in the GIS address points data (and streets data if found applicable). The City can access these GIS records to target, and in part, perform further investigation to verify and reconcile these instances in the GIS address points data (and streets data if applicable).

These project tasks will result in an overall GIS dataset of streets, address point locations, and any other address-oriented tabular source data (such as premise/point of interest alias tables) which will be delivered to Alameda IT and Police Departments in the form of an Esri File geodatabase. As dictated by the City, this File geodatabase may serve as the location of the “master” 911 GIS streets and address points data which will be maintained by Alameda IT and Police Department staff moving forward and leveraged by other City departments in the organization.

Task 2: GIS Address Mapping Support

Prior to implementing this enhanced GIS data into a live CAD environment, it is strongly recommended that the data first be integrated into the CAD staging environment and undergo extensive geo-verification testing to ensure CAD software and format compatibility, geocoding, and NG911 information accuracy.

Pursuant to the efforts of this project, there is a need to maintain and update this valuable NG911 GIS data. Avineon can provide ad-hoc services to provide training and support for the Alameda Police and City Information Technology Departments to promote GIS address data maintenance tasks as needed.

Project Exclusions

The scope of this project and associated tasks does not include any geocoder or locator services development, web application development, ArcGIS Online or Enterprise Portal administration or application development, or mobile application administration and application development. However, Avineon is ready and willing to include any tasks associated with the above systems of engagement, and will make recommendations for them to be included in subsequent projects.

Project Timeframe

Avineon estimates a Task 1 timeframe of approximately four months from notice to proceed, depending on City staff availability and other factors. Every effort will be made to accelerate this schedule whenever possible to address critical needs or scheduling demands.

Task	Description	Start Date	End Date
	Kick-off meeting (Remote)	Aug 12, 2019	Aug 12, 2019
1	911 GIS Data Review and Reconciliation	Aug 13, 2019	Dec. 5, 2019
2	GIS Address Mapping Support	Dec 6, 2019	June 30, 2020

ATTACHMENT B – COST PROPOSAL

The following table presents Avineon's firm-fixed pricing for the proposed project. All expenses are included in the figures for these tasks. Any changes to this proposal and the scope of work (including any unforeseen contingencies) will be made in writing and signed by both parties.

Task/Title	Price
Task 1: City of Alameda Addressing	\$59,900
Task 2: GIS Address Mapping Support (Post project)	\$10,000
Total	\$69,900

Assumptions

1. Please note that costs assume one two day trip to the City of Alameda. Any additional authorized travel and other direct costs will be billed at cost plus G&A.
2. In order to leverage Avineon's experience and provide a lower cost to the City of Alameda, our price assumes that we will re-use some existing Avineon materials in developing our tools, reports, and documentation for this project. Ownership of these "tools of the trade" will not be transferred to the City under *Clause 15* of the Service Provider Agreement but Avineon will grant to the City of Alameda a perpetual, irrevocable license to use such materials. New materials prepared for the City of Alameda under this Agreement will transfer to the City as specified in *Clause 15* of the Service Provider Agreement