

AGREEMENT BETWEEN THE COUNTY OF SAN MATEO AND Bruce Harris & Associates, INC.

This Agreement is entered into this 1st day of July 2017, by and between the County of San Mateo, a political subdivision of the state of California, hereinafter called "County," and Bruce Harris and Associates Inc., hereinafter called "Contractor."

* * *

Whereas, pursuant to Section 31000 of the California Government Code, County may contract with independent contractors for the furnishing of such services to or for County or any Department thereof; and

Whereas, it is necessary and desirable that Contractor be retained for the purpose of the construction of the Geographic Information System (GIS) records for approximately 230,000+ Assessor Parcels within the County of San Mateo. Additionally, Tax Rate Area (TRA) and Precinct layers will be built within the GIS system.

Now, therefore, it is agreed by the parties to this Agreement as follows:

1. Exhibits and Attachments

The following exhibits and attachments are attached to this Agreement and incorporated into this Agreement by this reference:

Exhibit A—Services
Exhibit B—Payments and Rates
Attachment IP – Intellectual Property

2. Services to be performed by Contractor

In consideration of the payments set forth in this Agreement and in Exhibit B, Contractor shall perform services for County in accordance with the terms, conditions, and specifications set forth in this Agreement and in Exhibit A.

3. Payments

In consideration of the services provided by Contractor in accordance with all terms, conditions, and specifications set forth in this Agreement and in Exhibit A, County shall make payment to Contractor based on the rates and in the manner specified in Exhibit B. County reserves the right to withhold payment if County determines that the quantity or quality of the work performed is unacceptable. In no event shall County's total fiscal obligation under this Agreement exceed two million eighty two thousand two hundred thirty dollars (\$2,082,230). In the event that the County makes any advance payments, Contractor agrees to refund any amounts in excess of the amount owed by the County at the time of contract termination or expiration. Contractor is not entitled to payment for work not performed as required by this agreement.

4. Term

Subject to compliance with all terms and conditions, the term of this Agreement shall be from July 1 , 2017, through December 31, 2019.

5. Termination

This Agreement may be terminated by Contractor or by the Assessor-County Clerk-Recorder & Elections (ACRE) Assistant Assessor- or his/her designee at any time without a requirement of good cause upon thirty (30) days' advance written notice to the other party. Subject to availability of funding, Contractor shall be entitled to receive payment for work/services provided prior to termination of the Agreement. Such payment shall be that prorated portion of the full payment determined by comparing the work/services actually completed to the work/services required by the Agreement.

County may terminate this Agreement or a portion of the services referenced in the Attachments and Exhibits based upon the unavailability of Federal, State, or County funds by providing written notice to Contractor as soon as is reasonably possible after County learns of said unavailability of outside funding.

County may terminate this Agreement for cause. In order to terminate for cause, County must first give Contractor notice of the alleged breach. Contractor shall have five business days after receipt of such notice to respond and a total of ten calendar days after receipt of such notice to cure the alleged breach. If Contractor fails to cure the breach within this period, County may immediately terminate this Agreement without further action. The option available in this paragraph is separate from the ability to terminate without cause with appropriate notice described above. In the event that County provides notice of an alleged breach pursuant to this section, County may, in extreme circumstances, immediately suspend performance of services and payment under this Agreement pending the resolution of the process described in this paragraph. County has sole discretion to determine what constitutes an extreme circumstance for purposes of this paragraph, and County shall use reasonable judgment in making that determination.

6. Contract Materials

At the end of this Agreement, or in the event of termination, all finished or unfinished documents, data, studies, maps, photographs, reports, and other written materials (collectively referred to as "contract materials") prepared by Contractor under this Agreement shall become the property of County and shall be promptly delivered to County. Upon termination, Contractor may make and retain a copy of such contract materials if permitted by law.

7. Relationship of Parties

Contractor agrees and understands that the work/services performed under this Agreement are performed as an independent contractor and not as an employee of County and that neither Contractor nor its employees acquire any of the rights, privileges, powers, or advantages of County employees.

8. Hold Harmless

a. General Hold Harmless

Contractor shall indemnify and save harmless County and its officers, agents, employees, and servants from all claims, suits, or actions of every name, kind, and description resulting from this Agreement, the performance of any work or services required of Contractor under this Agreement, or payments made pursuant to this Agreement brought for, or on account of, any of the following:

(A) injuries to or death of any person, including Contractor or its employees/officers/agents;

(B) damage to any property of any kind whatsoever and to whomsoever belonging;

(C) any sanctions, penalties, or claims of damages resulting from Contractor's failure to comply, if applicable, with the requirements set forth in the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and all Federal regulations promulgated thereunder, as amended; or

(D) any other loss or cost, including but not limited to that caused by the concurrent active or passive negligence of County and/or its officers, agents, employees, or servants. However, Contractor's duty to indemnify and save harmless under this Section shall not apply to injuries or damage for which County has been found in a court of competent jurisdiction to be solely liable by reason of its own negligence or willful misconduct.

The duty of Contractor to indemnify and save harmless as set forth by this Section shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

b. Intellectual Property Indemnification

Contractor hereby certifies that it owns, controls, and/or licenses and retains all right, title, and/or interest in and to any intellectual property it uses in relation to this Agreement, including the design, look, feel, features, source code, content, and/or other technology relating to any part of the services it provides under this Agreement and including all related patents, inventions, trademarks, and copyrights, all applications therefor, and all trade names, service marks, know how, and trade secrets (collectively referred to as "IP Rights") except as otherwise noted by this Agreement.

Contractor warrants that the services it provides under this Agreement do not infringe, violate, trespass, or constitute the unauthorized use or misappropriation of any IP Rights of any third party. Contractor shall defend, indemnify, and hold harmless County from and against all liabilities, costs, damages, losses, and expenses (including reasonable attorney fees) arising out of or related to any claim by a third party that the services provided under this Agreement infringe or violate any third-party's IP Rights provided any such right is enforceable in the United States. Contractor's duty to defend, indemnify, and hold harmless under this Section applies only provided that: (a) County notifies Contractor promptly in writing of any notice of any such third-party claim; (b) County cooperates with Contractor, at Contractor's expense, in all reasonable respects in connection with the investigation and defense of any such third-party claim; (c) Contractor retains sole control of the defense of any action on any such claim and all negotiations for its settlement or compromise (provided Contractor shall not have the right to settle any criminal action, suit, or proceeding without County's prior written consent, not to be unreasonably withheld, and provided further that any settlement permitted under this Section shall not impose any financial or other obligation on County, impair any right of County, or contain any stipulation, admission, or acknowledgement of wrongdoing on the part of County without County's prior written consent, not to be unreasonably withheld); and (d) should services under this Agreement become, or in Contractor's opinion be likely to become, the subject of such a claim, or in the event such a third party claim or threatened claim causes County's reasonable use of the services under this Agreement to be seriously endangered or disrupted, Contractor shall, at Contractor's option and expense, either: (i) procure for County the right to continue using the services without infringement or (ii) replace or modify the services so that they become non-infringing but remain functionally equivalent.

Notwithstanding anything in this Section to the contrary, Contractor will have no obligation or liability to County under this Section to the extent any otherwise covered claim is based upon: (a) any aspects of the services under this Agreement which have been modified by or for County (other than modification performed by, or at the direction of, Contractor) in such a way as to cause the alleged infringement at issue; and/or (b) any aspects of the services under this Agreement which have been used by County in a manner prohibited by this Agreement.

The duty of Contractor to indemnify and save harmless as set forth by this Section shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

9. Assignability and Subcontracting

Contractor shall not assign this Agreement or any portion of it to a third party or subcontract with a third party to provide services required by Contractor under this Agreement without the prior written consent of County. Any such assignment or subcontract without County's prior written consent shall give County the right to automatically and immediately terminate this Agreement without penalty or advance notice.

10. Insurance

a. General Requirements

Contractor shall not commence work or be required to commence work under this Agreement unless and until all insurance required under this Section has been obtained and such insurance has been approved by County's Risk Management, and Contractor shall use diligence to obtain such insurance and to obtain such approval. Contractor shall furnish County with certificates of insurance evidencing the required coverage, and there shall be a specific contractual liability endorsement extending Contractor's coverage to include the contractual liability assumed by Contractor pursuant to this Agreement. These certificates shall specify or be endorsed to provide that thirty (30) days' notice must be given, in writing, to County of any pending change in the limits of liability or of any cancellation or modification of the policy.

b. Workers' Compensation and Employer's Liability Insurance

Contractor shall have in effect during the entire term of this Agreement workers' compensation and employer's liability insurance providing full statutory coverage. In signing this Agreement, Contractor certifies, as required by Section 1861 of the California Labor Code, that (a) it is aware of the provisions of Section 3700 of the California Labor Code, which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of the Labor Code, and (b) it will comply with such provisions before commencing the performance of work under this Agreement.

c. Liability Insurance

Contractor shall take out and maintain during the term of this Agreement such bodily injury liability and property damage liability insurance as shall protect Contractor and all of its employees/officers/agents while performing work covered by this Agreement from any and all claims for damages for bodily injury, including accidental death, as well as any and all claims for property damage which may arise from Contractor's operations under this Agreement, whether such operations be by Contractor, any subcontractor, anyone directly or indirectly employed by either of them, or an agent of either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall not be less than the amounts specified below:

(a) Comprehensive General Liability... \$1,000,000

County and its officers, agents, employees, and servants shall be named as additional insured on any such policies of insurance, which shall also contain a provision that (a) the insurance afforded thereby to County and its officers, agents, employees, and servants shall be primary insurance to the full limits of liability of the policy and (b) if the County or its officers, agents, employees, and servants have other insurance against the loss covered by such a policy, such other insurance shall be excess insurance only.

In the event of the breach of any provision of this Section, or in the event any notice is received which indicates any required insurance coverage will be diminished or canceled, County, at its option, may, notwithstanding any other provision of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work and payment pursuant to this Agreement.

11. Compliance With Laws

All services to be performed by Contractor pursuant to this Agreement shall be performed in accordance with all applicable Federal, State, County, and municipal laws, ordinances, and regulations, including but not limited to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Federal Regulations promulgated thereunder, as amended (if applicable), the Business Associate requirements set forth in Attachment H (if attached), the Americans with Disabilities Act of 1990, as amended, and Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of disability in programs and activities receiving any Federal or County financial assistance. Such services shall also be performed in accordance with all applicable ordinances and regulations, including but not limited to appropriate licensure, certification regulations, provisions pertaining to confidentiality of records, and applicable quality assurance regulations. In the event of a conflict between the terms of this Agreement and any applicable State, Federal, County, or municipal law or regulation, the requirements of the applicable law or regulation will take precedence over the requirements set forth in this Agreement.

Contractor will timely and accurately complete, sign, and submit all necessary documentation of compliance.

12. Non-Discrimination and Other Requirements

a. General Non-discrimination

No person shall be denied any services provided pursuant to this Agreement (except as limited by the scope of services) on the grounds of race, color, national origin, ancestry, age, disability (physical or mental), sex, sexual orientation, gender identity, marital or domestic partner status, religion, political beliefs or affiliation, familial or parental status (including pregnancy), medical condition (cancer-related), military service, or genetic information.

b. Equal Employment Opportunity

Contractor shall ensure equal employment opportunity based on objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement. Contractor's equal employment policies shall be made available to County upon request.

c. Section 504 of the Rehabilitation Act of 1973

Contractor shall comply with Section 504 of the Rehabilitation Act of 1973, as amended, which provides that no otherwise qualified individual with a disability shall, solely by reason of a disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in the performance of any services this Agreement. This Section applies only to contractors who are providing services to members of the public under this Agreement.

d. Compliance with County's Equal Benefits Ordinance

Contractor shall comply with all laws relating to the provision of benefits to its employees and their spouses or domestic partners, including, but not limited to, such laws prohibiting discrimination in the provision of such benefits on the basis that the spouse or domestic partner of the Contractor's employee is of the same or opposite sex as the employee.

e. Discrimination Against Individuals with Disabilities

The nondiscrimination requirements of 41 C.F.R. 60-741.5(a) are incorporated into this Agreement as if fully set forth here, and Contractor and any subcontractor shall abide by the requirements of 41 C.F.R. 60-741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

f. History of Discrimination

Contractor certifies that no finding of discrimination has been issued in the past 365 days against Contractor by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other investigative entity. If any finding(s) of discrimination have been issued against Contractor within the past 365 days by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or other investigative entity, Contractor shall provide County with a written explanation of the outcome(s) or remedy for the discrimination prior to execution of this Agreement. Failure to comply with this Section shall constitute a material breach of this Agreement and subjects the Agreement to immediate termination at the sole option of the County.

g. Reporting: Violation of Non-discrimination Provisions

Contractor shall report to the County Manager the filing in any court or with any administrative agency of any complaint or allegation of discrimination on any of the bases prohibited by this Section of the Agreement or the Section titled "Compliance with Laws". Such duty shall include reporting of the filing of any and all charges with the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other entity charged with the investigation or adjudication of allegations covered by this subsection within 30 days of such filing, provided that within such 30 days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include a general description of the circumstances involved and a general description of the kind of discrimination alleged (for example, gender-, sexual orientation-, religion-, or race-based discrimination).

Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to the following:

- i. termination of this Agreement;
- ii. disqualification of the Contractor from being considered for or being awarded a County contract for a period of up to 3 years;
- iii. liquidated damages of \$2,500 per violation; and/or
- iv. imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this Section, the County Manager shall have the authority to offset all or any portion of the amount described in this Section against amounts due to Contractor under this Agreement or any other agreement between Contractor and County.

h. Compliance with Living Wage Ordinance

As required by Chapter 2.88 of the San Mateo County Ordinance Code, Contractor certifies all contractor(s) and subcontractor(s) obligated under this contract shall fully comply with the provisions of the County of San Mateo Living Wage Ordinance, including, but not limited to, paying all Covered Employees the current Living Wage and providing notice to all Covered Employees and Subcontractors as required under the Ordinance.

13. Compliance with County Employee Jury Service Ordinance

Contractor shall comply with Chapter 2.85 of the County's Ordinance Code, which states that Contractor shall have and adhere to a written policy providing that its employees, to the extent they are full-time employees and live in San Mateo County, shall receive from the Contractor, on an annual basis, no fewer than five days of regular pay for jury service in San Mateo County, with jury pay being provided only for each day of actual jury service. The policy may provide that such employees deposit any fees received for such jury service with Contractor or that the Contractor may deduct from an employee's regular pay the fees received for jury service in San Mateo County. By signing this Agreement, Contractor certifies that it has and adheres to a policy consistent with Chapter 2.85. For purposes of this Section, if Contractor has no employees in San Mateo County, it is sufficient for Contractor to provide the following written statement to County: "For purposes of San Mateo County's jury service ordinance, Contractor certifies that it has no full-time employees who live in San Mateo County. To the extent that it hires any such employees during the term of its Agreement with San Mateo County, Contractor shall adopt a policy that complies with Chapter 2.85 of the County's Ordinance Code." The requirements of Chapter 2.85 do not apply if this Agreement's total value listed in the Section titled "Payments", is less than one-hundred thousand dollars (\$100,000), but Contractor acknowledges that Chapter 2.85's requirements will apply if this Agreement is amended such that its total value meets or exceeds that threshold amount.

14. Retention of Records; Right to Monitor and Audit

(a) Contractor shall maintain all required records relating to services provided under this Agreement for three (3) years after County makes final payment and all other pending matters are closed, and Contractor shall be subject to the examination and/or audit by County, a Federal grantor agency, and the State of California.

(b) Contractor shall comply with all program and fiscal reporting requirements set forth by applicable Federal, State, and local agencies and as required by County.

(c) Contractor agrees upon reasonable notice to provide to County, to any Federal or State department having monitoring or review authority, to County's authorized representative, and/or to any of their respective audit agencies access to and the right to examine all records and documents necessary to determine compliance with relevant Federal, State, and local statutes, rules, and regulations, to determine compliance with this Agreement, and to evaluate the quality, appropriateness, and timeliness of services performed.

15. Merger Clause: Amendments

This Agreement, including the Exhibits and Attachments attached to this Agreement and incorporated by reference, constitutes the sole Agreement of the parties to this Agreement and correctly states the rights, duties, and obligations of each party as of this document's date. In the event that any term, condition, provision, requirement, or specification set forth in the body of this Agreement conflicts with or is inconsistent with any term, condition, provision, requirement, or specification in any Exhibit and/or Attachment to this Agreement, the provisions of the body of the Agreement shall prevail. Any prior agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications or amendments shall be in writing and signed by the parties.

16. Controlling Law; Venue

The validity of this Agreement and of its terms, the rights and duties of the parties under this Agreement, the interpretation of this Agreement, the performance of this Agreement, and any other dispute of any nature arising out of this Agreement shall be governed by the laws of the State of California without regard to its choice of law or conflict of law rules. Any dispute arising out of this Agreement shall be venued either in the San Mateo County Superior Court or in the United States District Court for the Northern District of California.

17. Notices

Any notice, request, demand, or other communication required or permitted under this Agreement shall be deemed to be properly given when both: (1) transmitted via facsimile to the telephone number listed below or transmitted via email to the email address listed below; and (2) sent to the physical address listed below by either being deposited in the United States mail, postage prepaid, or deposited for overnight delivery, charges prepaid, with an established overnight courier that provides a tracking number showing confirmation of receipt.

In the case of County, to:

Name/Title: Jim Irizzary, Assistant Assessor County of San Mateo
Address: 555 County Center Third Floor, Redwood City CA 94063
Telephone: 650-363-1808
Facsimile: 650-363-1903
Email: jirizzary@smcare.org

In the case of Contractor, to:

Name/Title: Colin Russell, Director of GIS Services and Operations
Address: 21 N. River St., Batavia, IL 60510
Telephone: 630-761-0951

Facsimile: N/A
Email: colin@bruceharris.com

18. Electronic Signature

Both County and Contractor wish to permit this Agreement and future documents relating to this Agreement to be digitally signed in accordance with California law and County's Electronic Signature Administrative Memo. Any party to this Agreement may revoke such agreement to permit electronic signatures at any time in relation to all future documents by providing notice pursuant to this Agreement.

* * *

In witness of and in agreement with this Agreement's terms, the parties, by their duly authorized representatives, affix their respective signatures:

For Contractor: Bruce Harris & Associates Inc.



Contractor Signature

6/6/17

Date

BRUCE HARRIS

Contractor Name (please print)

COUNTY OF SAN MATEO

By:

President, Board of Supervisors, San Mateo County

Date:

ATTEST:

By:

Clerk of Said Board

Exhibit A

In consideration of the payments set forth in Exhibit B, Contractor (Bruce Harris & Associates, Inc.) shall provide the following services that will meet the Requirements mentioned in Template A (Appendix 1):

Scope of Work

Phase 1 – Implementation Planning

Bruce Harris & Associates, Inc. (BHA) staff will develop a project implementation plan with the ACRE staff through a series of onsite meetings and conference calls.

Task 1 - Project Management Planning

As part of the project initiation a project kick-off meeting will be held. The project kick-off meeting's purpose is to introduce all of the project team participants, review project purpose and objectives, review project scope, review milestones, review deliverables, review project plan, review task assignments and roles, review communication plan and reporting, and review change management procedures. The meeting will take place at the ACRE offices. The meeting agenda will include:

- Project Team Introductions
- Discuss BHA Project Roles
- Discuss San Mateo County Project Roles
- Project Technical Overview
- Review Project Milestones and Project Plan
- Project and Status Reporting
- Review Project Schedule
- Discuss Project Risks
- Review Project Assumptions
- Discuss Change Management Plan

BHA's Project Manager will communicate to the ACRE staff throughout the project and will be responsible for the overall project communication. A communication plan will be established.

Task 2 - Develop a Detailed Project Schedule

Upon completion of the project kick-off meeting, BHA will develop a detailed project schedule based on agreed upon deliverables for geographic areas. Project milestones will be developed and a Gantt chart reflecting those milestones will be created. This chart will be updated continually throughout the project.

BHA will use the cloud based project management Clarizen to manage the project. Clarizen provides the ability to create online Gantt charts showing the Work Breakdown Structure of the project as well as project

status at a per task level. This information will then be shared with the project stakeholders as an online chart.

Phase 4 will be broken into incremental repeating sets of tasks based on the geographic areas of the County. BHA and ACRE will mutually agree upon deliverable areas.

Task 3 - Pilot Project Implementation Planning

As part of this task the BHA and ACRE staff will plan the pilot project. This pilot project will include a representational area chosen by ACRE to be fully converted and tested. The project approach will validate and refine the following:

1. Review Process and Acceptance Criteria
2. GIS Data Model Creation
3. Parcel Fabric Construction Methodology for example:
 - The use of aerial photography and control points as a key input source for spatial adjustments
 - The ability of BHA subcontractor NIIT to COGO off the source documents
 - The adequacy of source documents
4. Production of the Assessor's Maps
5. Adjustment of the TRA Layer
6. Adjustment of the Precinct Layer

The pilot area will represent the following:

- Rural Parcels
- Urban Parcels
- Multi-PIN Parcels such as Condominiums, Townhouses and Mobile Homes
- Subdivisions
- Coincident layers

The pilot area will contain at least 2300 parcels. BHA and the ACRE staff will mutually agree upon a pilot area.

Task 4 - Establish Data Construction Release Planning

The objective of this task will be to ensure that the ACRE staff is adequately prepared for BHA's deliverables to the County. This will need to include the review of hardware, software, and staff knowledge required for the system to go live. BHA staff will work collaboratively with the ACRE GIS staff to plan this release of the newly constructed data internally. Included in this plan will be the following:

- GIS Hardware Prerequisites
- GIS Software Prerequisites
- Prerequisite Training Requirements for Training Conducted during Phase 5

Timelines will be established and BHA will provide assistance to ACRE staff on an as-needed basis.

Task 5 - Define Source Data Tracking and Methods for Mapping Source Documents at Different Accuracies (Parcel Fabric)

Parcel mapping will be completed as follows:

- Layout of all subdivision plats being placed within their correct spatial location using known monument/ground control points and defined aerial location.
- In older areas when data has less information, a grid network using road ROW's and natural boundaries will be laid out with each block being built to minimize and proportion any error within them.
- All surveys and legal descriptions will be used to create the parcels using the newest recorded documents unless it is found that older data is more reliable.
- When conflicts within the data arise, deed research will be the first method of resolution. If this does not resolve the conflicts within the data, aerial interpretation will be used. If the conflict cannot be resolved, then a discrepancy report will be created and delivered with each deliverable area.
- The date of each survey will be utilized to assign a specific accuracy level to Parcel, Lot, and Subdivision polygons and their associated Lines in the Parcel Fabric. There are 7 different accuracy categories that the Parcel Fabric applies to features in order to accurately control how spatial adjustments are performed. Level 1 being the highest accuracy, level 6 is the lowest, and anything defined as level 7 is excluded from least-squares spatial adjustments.
- Accuracy categories will be assigned based on the date of the survey it references and reflect the quality of the measurements defined. A Legal Start Date field will also be maintained to track the legal transaction date from source documents, which directly relates to the date of the survey. In the event a subdivision or survey is determined to be inaccurate, a lower accuracy level will be assigned. The date of the subdivision or survey will be recorded when each COGO is created then maintained throughout the mapping process until it is finally converted in the Parcel Fabric.

Task 6 - Define Methods of Handling and Tracking Parcel Boundary Adjustments

During this task, BHA will review and agree upon with the ACRE staff an approach to resolving and tracking parcel boundary adjustments.

Boundary Adjustments will occur as follows:

- Parcel boundaries will need adjustment based on conflicting data sources especially when newer more accurate information becomes available.
- The need for these adjustments is due to inconsistent legal descriptions from various surveyors or the improvement in surveying techniques over time.

If it is determined that parcel boundaries require adjustment, BHA technicians will make all adjustments while maintaining the recorded information. BHA staff will also work closely with ACRE staff to identify problem areas and determine best fit solutions based on the ACRE staff's local knowledge and BHA staff expertise in handling parcel adjustment.

The methodology for determining the most accurate data source includes:

- Latest subdivision plats will take precedence over older subdivisions plats and/or metes and bounds descriptions.
- Subdivided parcels will take precedence over parcels described with metes and bounds descriptions.
- Surveyed parcels will take precedence over parcels only described in legal descriptions.
- Aerial occupation (if any) will take precedence over unknown legal boundaries.
- Research will be requested for areas of conflict for County resolution.

- Discrepancies will be created whenever a boundary is unknown or conflicts with other information such as deeds, surveys, or aerial occupation.

The methods described above are used as a general guideline. However, BHA staff will apply their professional judgement as-needed in determining the final solution.

Tracking Boundary Adjustments

BHA will use the built-in editor tracking capabilities of ArcGIS and the Parcel Fabric. All parcels will have Editor Tracking enabled. This allows features to store the name of the user who created it, the date and time it was created, the name of the user who edited it, and the date and time it was last edited. The Plans table and the Historic Parcels layer also help to track and visualize how boundaries have been adjusted. If ACRE staff wishes to track the reason a parcel was retired, fields can be added to the Parcel Fabric data model to store this information. Additional fields may be added per discussion with the ACRE staff.

Task 7 - Create and Review Quality Control Procedures

BHA and the ACRE staff will review BHA's standard quality control procedures. The procedures shall include:

- Quality control checks are made for each delivery using automated tools that will ensure that all topology is clean and free of any dangles or overshoots.
- Senior mapping technicians check these areas to verify that each parcel, as detailed in the files, matches the source documentation used to construct the finished parcel map.
- All maps are checked with the digital orthophotography under the line work as an additional check to verify that any mapping to photo-identifiable occupation is aligned. If any additional information is needed on the finished map, it is marked and corrected or added to a discrepancy layer for review by the County.

Modifications may be made to BHA's standard Quality Control procedures as necessary and as agreed upon with ACRE and these changes will be documented and added into the project procedures.

ArcGIS Data Reviewer tools will also be used to perform a number of spatial and attribute integrity checks. Data Reviewer provides the ability to expand upon the spatial validation checks provided by geodatabase topology.

BHA and ACRE staff will agree upon a set of validation procedures using Data Reviewer. Esri's Data Reviewer for Tax Parcel Editing solution provides 40 out of the box checks that may be used based on the final data model. BHA staff will configure additional checks to further ensure the accuracy of the final deliverables. See Appendix 2 - Reviewer Batch Jobs (.rbg) for additional details. BHA staff will perform these checks prior to delivery. Deliveries will include the resulting reports in Microsoft Excel (XLS) format. The Reviewer Batch Jobs will also be provided to ACRE so they can be executed periodically to validate that the data remains clean during maintenance.

Task 8 - Document Parcel Fabric Impact on Coincident Layers

The ArcGIS Parcel Editing Solution (Parcel Fabric) has the ability to associate layers to the Parcel Fabric features. This requires these layers to be in the same geodatabase with the same editing privileges. During this task:

- BHA and ACRE staff will identify coincident layers that will be impacted by this project
- BHA and ACRE staff will agree upon which layers should be associated to the Parcel Fabric
- BHA will design the geodatabase model to support associations when required

Task 9 - Establish Review Process and Acceptance Criteria

BHA and the ACRE staff will determine the acceptance criteria of the deliverables. It is anticipated that each deliverable area will include a 30 to 60 day or mutually agreed upon review period. Each delivery will be accepted as completed when the ACRE staff determines that it meets the agreed upon quality standards. The ACRE staff must provide a list of any deficiencies found to BHA for resolution. The criteria will include the following:

- Spatial Accuracy
- Inclusion of All Features
- Topological Integrity
- Parcel Fabric Integrity
- Geodatabase Model Conformity
- Attribution including proper use of subtypes and domains
- Adherence to Mapping Standards including Section 215 of the Assessor's Handbook
- Discrepancy Review
- Accuracy of parcel legal attributes such as bearing and distance
- Completeness and accuracy of the COGO unadjusted attribute data
- Completeness of Assessor's maps
- Template A Requirements (Appendix 1) are satisfied

Task 10 - Establish Training Agenda

This task's goal will be to develop the staff training plan for the successful maintenance of the system throughout the project. The following will be included:

- Identify staff to be trained
- Evaluate existing knowledge
- Develop plan to address knowledge deficiencies if present
- Identify maintenance tasks
- Plan schedule of events
- Create training agendas
- Review hardware and software requirements

Training plan will ensure that ACRE staff are fully trained on day-to-day updates by the first incremental delivery in Phase 4.

Task 11 - Develop Parallel Data Maintenance Plan

BHA's approach to preventing a parcel maintenance backlog is to make multiple incremental deliveries throughout the project as established in Task 2. Approximately 2 to 4 weeks prior to delivery, all updates are added to the delivery so that the delivered area is as up to date as possible. It will then become the County's responsibility to make future updates to that delivered area. These future updates will be used

during the training phase. ACRE staff will provide BHA staff with documentation throughout the project for undelivered areas. The documentation includes a Map Change form with associated source documents.

Task 12 - Create Transition Plan Documentation and Discussion

Based on all of the information collected throughout this Phase 1, BHA will develop with the ACRE staff a final transition plan document. The plan will outline BHA's and the County's responsibilities in order to successfully transition to using and maintaining the new system. The final plan will identify the following:

- Identification of Impacted Systems
- Identification of Impacted Staff
- Hardware and Software Considerations
- Transition Procedures
- Knowledge Transfer
- Identification of Test Scripts and Reports
- Implementation Schedule
- Identification of Risks Factor and Mitigation Plan
- Alignment and coordination with County's Enterprise GIS System Architecture and Implementation plan

Task 13 - Map Publishing and Viewing Documentation and Discussion

During this task, final determinations will be made for map viewing and publishing. BHA staff will share knowledge and provide recommendations based on feedback provided by ACRE so that the ACRE staff can make a decision in the best interest of the County. Based on this decision, documentation will be created on the agreed upon approach. The applications will include:

- Creation of Assessor Maps and Map Books
- Sharing Data with Public
- Sharing Data Internally
- Any Other Applications Suggested by BHA and Agreed to by ACRE Staff

Task 14 – Hardware/Software (HW/SW) Environment Planning

BHA, ACRE and ISD GIS staff will plan the IT and GIS environment that will be required throughout the project.

Project Software Requirements (Server):

- ArcGIS Enterprise 10.5 (GIS Server Standard or Advanced)
- Microsoft SQL Server 2012 or 2014

Project Software Requirements (Desktop):

- ArcGIS for Desktop 10.5 Standard or Advanced
- ArcGIS Data Reviewer Extension (optional)
- MapAscend (optional)

Project Software Cloud:

- ArcGIS Online for Organizations

BHA's standard recommendation of hardware and software are three virtual servers:

Server 1: Web Server with ArcGIS Enterprise Web Adaptor

- 4 CPU cores
- 4 GB RAM
- 100 GB drive space

Server 2: GIS Server with ArcGIS Enterprise Software

- 4 CPU cores
- 16 GB RAM (minimum to start, with option to add more at a later time depending on usage)
- 100 GB system drive
- Additional drive space depends on quantity and types of data. Estimate 500 GB unless more precise information is available.

Server 3: Database Server with Microsoft SQL Server 2012 (or newer)

- 4 CPU cores
- 16 GB RAM (or more)
- 100 GB system drive
- Additional drive space depends on quantity and types of data. Estimate 400 GB unless more precise information is available.

BHA recommends that Server 3 be ready for data loading and testing during Phase 3. Servers 1 and 2 must be in place before Phase 7 can be completed.

BHA will meet with ISD GIS staff to plan how the ACRE HW/SW requirements will fit into the County's GIS infrastructure.

BHA Responsibilities:

- Conduct Project Kick-off and Project Planning Meetings
- Create Project Management Plan
- Create Implementation Plan

San Mateo County Responsibilities:

- Participate in Kickoff and Project Planning Meetings and Provide Feedback
- Review and Approve Project Management Plan
- Review and Approve Implementation Management Plan
- Review and Approve All Documentation and Procedures

Assumptions:

- Meetings will occur at San Mateo County Offices or via Web Meeting

Deliverables:

- Project Management Plan
- Implementation Plan
- Detailed Project Schedule
- Source Data Tracking and Mapping Plan
- Boundary Tracking Methodology Documentation
- Quality Control and Acceptance Procedures Documentation
- Training Agenda/Schedule and Plan
- Parallel Maintenance Plan
- Transition Plan
- Map publishing and viewing plan
- ACRE GIS Environment(s) Specifications and Plan

Phase 2 – Requirements Finalization**Task 1 - Functional and Technical Requirements**

BHA will conduct an onsite workshop to develop and finalize the functional and technical requirements of the project. During the workshop, the following will be discussed and/or identified:

1. ArcGIS Local Government Information Model (LGIM) Overview
2. Review of Existing Editing Workflows
3. Establish Technical and Functional Requirements
4. Gap Analysis of ArcGIS LGIM against San Mateo County Functional Requirements
5. Gap Fit Analysis for LGIM against California Section 215 requirements
6. Discrepancy Reporting

The result of the workshop will be to define the data information required to create the data model as described in Task 2. Prior to the meeting, BHA will provide ACRE with a recommended data model structure diagram.

The schedule of events will include:

Day 1:

- ArcGIS Parcel Editing Solution (Parcel Fabric) and LGIM Overview
 - What are Parcels in the Parcel Fabric?
 - Parcel Fabric Architecture Overview
 - Parcel Types defined in the Fabric
 - Parcel Editing Workflows
 - Merge Parcels
 - Parcel Split: Metes and Bounds
 - Parcel Split: Area Description
 - Parcel Split: Parent Parcel
 - New Subdivision
 - New Subdivision from CAD
 - Boundary Line Adjustment
 - Tax Map Book Template

- Parcel Viewer as described in Phase 5
- Condominium, Townhouses and Mobile Homes

Day 2:

- Review of San Mateo County current editing workflows
- Gap Fit Analysis of COTS LGIM versus San Mateo County GIS Requirements
- Review California Section 215 Requirements
- Election Division Requirements
- Review Non-ACRE Departmental GIS Requirements
- Meet with ISD GIS Lead

Two or more BHA GIS consultants will be onsite at the San Mateo County Offices for two consecutive days.

Task 2 - GIS Data Model Creation

The Functional and Technical Requirements workshop will result in BHA's staff collecting the information from the ACRE staff needed to successfully design the data model.

Esri's ArcGIS LGIM will be the geodatabase model used for this project. BHA staff will configure and expand the model to meet the needs of San Mateo County. The final model will be the result of collaboration with the Assessor Mapping and Elections staff, and the San Mateo County Information Systems Department.

This project will focus on the following datasets:

- Cadastral Reference (contains PLSS features such as Townships and Sections)
- Parcel Editing (contains the Parcel Fabric used for editing parcels)
- Parcel Publishing (contains Parcel feature classes used for map publishing as well as Simultaneous Conveyance also known as Subdivisions)
- Election Administration (contains Precinct Layers for both Current and Historic Precincts)
- Cadastral Add-On Dataset will be created and configured during this task
- Administrative Area to store corporate/municipal boundaries
- TaxRateAreas to include Tax Rate Area Polygons

BHA will complete the following:

- Expand and Configure the LGIM and Map Documents (*.mxd) to meet ACRE requirements (Appendix 1) and the requirements of the printed SMC Assessor Maps
- Provide Expertise on the use of dynamic labeling versus annotation
- Configure the Data Model to use BHA MapAscend Productivity Enhancement Tools. Using MapAscend is completely optional and does not lock the geodatabase in any manner that prevents using Esri's standard editing tools. BHA will provide MapAscend licenses to ACRE free of charge throughout the project.
- Design and Configure Discrepancy Feature Class

Election Administration

The ElectionAdministration dataset of the LGIM will be configured to best suit the needs of the Elections Division. The final database design and solution will be designed to meet the following needs:

- Planning and Assessment
- Data Analysis
- Routing

- Managing Current and Historic Precincts
- Tracking Partial Precincts (Precinct Portions)
- Integration and Spatial Alignment with Parcel Features
- Integration with the County's Election Management System

Task 3 - Map Document (.mxd) Development

The map document development process will include creating map documents to be used for both editing and map production. The map document works together with the geodatabase model to create the map cartography. The map development process will include:

- Review of any existing map documents
- Review of LGIM map documents
- Creation of new San Mateo County map documents for parcel editing
 - Data source mapping
 - Modification of label expressions per geodatabase model design when applicable
 - Per user configuration
- Development of standard editing template for San Mateo County

Task 4 - Map Document (.mxd) Development for Printing

The goal of this task will be to design Map Documents to produce map books and pages in accordance with California Section 215 requirements and to match the SMC Assessor's maps specifications, look and feel, etc. The Data Driven Pages functionality of ArcGIS for Desktop will be used.

Data Driven Pages provides the following functionality that will be required:

- Iterate through a series of map pages using a single ArcMap layout using an Index Layer
- Dynamically update page name
- Dynamically update page number
- Dynamically update printing date
- Dynamically update Tax Rate Area
- Dynamically create subdivision index per page
- Adjacent Pages
- Last Edited By

The ArcMap document will allow users to be able to create PDFs or print all, a series, or individual map pages.

BHA staff will take advantage of the ArcPY (Python) scripting language to extend the functionality of data driven pages to add custom elements to the map such as subdivision keys, mobile home key table, etc.

BHA Responsibilities:

- Conduct Two Day Onsite Functional and Technical Requirements Workshop
- Create Functional and Technical Requirements
- Configure LGIM
- Construct LGIM structure diagram and detailed tables
- Create Map Documents (.mxd) for Editing and Printing

San Mateo County Responsibilities:

- Participate in Functional and Technical Requirements Workshop

- Review and approve LGIM structure diagram and detailed tables

Assumptions:

- Meetings will occur at San Mateo County Offices or via Web Meetings

Inclusions:

- Only the following datasets of the LGIM will be configured:
 - CadastralReference,
 - ParcelEditing,
 - ParcelPublishing, and
 - Election Administration.
- TRA Dataset will be added to the LGIM.

Deliverables:

- Task 1 Workshop related documentation and resulting Detailed Functional and Technical Requirements Document
- LGIM Design in XML and File Geodatabase Format
- LGIM structure diagram and detailed tables
- Map Documents for Editing and Printing
- ArcPY scripts

Phase 3 – Pilot Project

The goal of the pilot project will be to test the designed system ensuring that all functional and technical requirements are met. The pilot area will be constructed in the LGIM geodatabase model utilizing coordinate geometry, deeds and surveys, and any other pertinent information to properly construct all feature classes required for the pilot area. This will include but is not limited to rural parcels, urban parcels, townhouses/condos/mobile homes, subdivisions, areas with coincident layers, TRA boundaries, and election boundaries.

User Acceptance Testing (UAT) criteria will be finalized during this Phase. The Parcel Fabric construction will occur using the same methods and resources as the balance of the project as described in Phase 4. The Pilot Project will be a joint effort between ACRE, NIIT and BHA. It will validate the methodology proposed by BHA with respect to BHA roles, NIIT roles and the County roles. Upon completion, ACRE staff will then be required to perform UAT and sign off on the LGIM pilot delivery prior to proceeding with Phase 4 of the project.

The successful completion and acceptance by ACRE of the pilot project deliverables within 4 to 6 months from project kick-off is a prerequisite to continuing on any further component of the project. Furthermore, ACRE will not be responsible for any cost incurred by BHA and/or NIIT on non-pilot related work prior to the acceptance of the pilot.

Task 1 - Finalize UAT Acceptance Criteria

Prior to Task 2 – Pilot Parcel Fabric Construction, BHA and ACRE staff will make adjustments to the UAT acceptance criteria developed during Phase 1 (Implementation Planning) to reflect any additional test scenarios/criteria identified during finalizing the technical and functional requirements (Phase 2). The final Acceptance Criteria is to address the following:

- Spatially Accurate (As Described in Template A - Appendix 1)
- Inclusion of All Features
- Topological Integrity
- Parcel Fabric Integrity
- Geodatabase Model Conformity
- Attribution including proper use of subtypes and domains
- Adherence to Mapping Standards including Section 215 of the Assessor's Handbook
- Discrepancy Review
- Accuracy of parcel legal attributes such as bearing and distance
- Completeness and accuracy of the COGO unadjusted attribute data
- Completeness of Assessor's maps
- Data Loading into ArcGIS Enterprise
- Map Documents (.mxd) Configuration
- Parcel Fabric Editing
- Production of Assessor Maps
- Test Scripts Validate and Provide Correct Results
- Template A Requirements (Appendix 1) are satisfied

Task 2 – Pilot Parcel Fabric Construction

During this pilot phase of the project, the methodology used in the Parcel Fabric construction phase will be identical to those performed during Phase 4. NIIT staff will COGO the input data from the source documents, and BHA staff will complete the construction of the pilot area agreed upon in Phase 1.

As part of the pilot project, the TRA and Elections layers for the pilot area will be included.

Task 3 – Creation of Assessor's Maps

The complete set of Assessor's maps for the Pilot area, including condo maps and mobile home maps, will be produced and delivered to ACRE.

Task 4 – Demo Parcel Editing Tools and Map Production

Using the newly constructed pilot data, BHA will conduct a number of parcel editing scenarios, using the proposed parcel editing tools, to demonstrate the workflow and ensure that the tools function as expected with the pilot dataset. The demo will also include the production of the Assessor's maps.

Task 5 - Perform UAT

Prior to ACRE conducting the UAT, BHA will conduct a thorough review of the pilot deliverable with ACRE to ensure that the deliverable fully meets the requirements.

San Mateo County will go through one or more UAT (UAT) cycle(s) for system review once the pilot data has been installed. As the ACRE staff tests the system they will enter their feedback into the UAT form as a deficiency or completed as expected. Criteria for acceptance will be as described in Task 1 of this Phase.

The UAT process for the Pilot Data will be conducted as follow:

- County to review and provide feedback within 2 to 3 weeks.
- BHA to investigate reported issues and correct them within 1 week.

- County reviews corrections and signs off within 1 week if all reported issues are resolved.
- This UAT cycle will repeat until all issues have been resolved.

UAT will be performed in an ArcGIS Enterprise (ArcSDE) database for the pilot project in the ACRE GIS/IT environment. Data will be delivered via FTP, VPN or mutually agreed upon method. BHA staff will load the data into the ArcGIS Enterprise (ArcSDE) database.

BHA Responsibilities:

- Finalize Acceptance Criteria with ACRE
- Provide Final UAT Acceptance Forms
- Create Parcel Fabric and LGIM Data
- Create Assessor's Maps for Pilot Area
- Demo parcel editing and map production
- Review pilot area deliverable and findings with ACRE staff to ensure project goals were met
- Make necessary adjustments/refinements in previously defined processes, data model, etc.

ACRE Responsibilities:

- Provide any information not available electronically that may be required to successfully complete the pilot area
- Conduct UAT (UAT)
- Review pilot area findings with BHA staff to ensure project goals were met
- Provide Completed Map Change Forms with Source Documents for pilot area

Assumptions:

- Meetings will occur at San Mateo County Offices or via Web Meetings

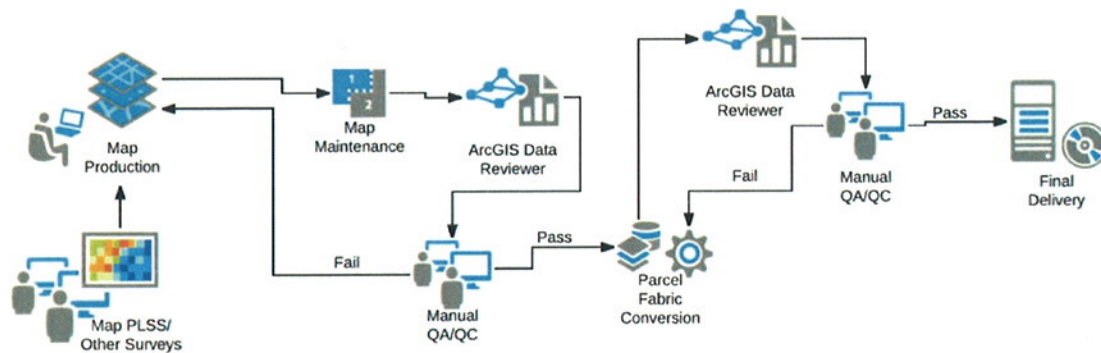
Deliverables:

- UAT Acceptance Forms
- Completed Expanded LGIM in XML and File Geodatabase referenced to the NAD_1983_StatePlane_California_III_FIPS_0403_Feet Coordinate System
- COGO raw unadjusted data of Pilot area with attributes such as APN, bearing and distance
- Assessor's Maps
- Adjusted TRA and Precinct Layers
- Pilot Construction Report
- ArcGIS Data Reviewer Reports
- Parcel Adjustment (including Parcel Fabric and Spatial) Reports in mutually agreed upon format
- Quality Control/Quality Assurance Reports

Phase 4 – Parcel Fabric Construction

The following tasks outline the creation of the Parcel Fabric. All mapping will occur outside of the Parcel Fabric with conversion into the Parcel Fabric occurring immediately afterwards. BHA has determined that this is a best-practices approach as mass production can occur more efficiently outside of the Fabric without impacting the quality of the final deliverable. ArcGIS Data Reviewer will be used throughout the construction process to ensure data quality.

For this phase, the following process diagrammed below will be followed:



BHA's Parcel Fabric Construction Process

This phase of the project will be performed iteratively per deliverable area as decided upon in Phase 1. Each area will be edgematched against previously delivered areas and areas currently in production prior to delivery.

Task 1 - Data Collection

BHA staff will work with the ACRE staff to collect and review all source materials required for this project. This will include the County's digital orthophotography as well as the survey control network.

In addition to reviewing the digital orthophotos, other resource materials will need to be collected during this phase. These resources include the following: subdivision plats, recorded deeds, original government surveys, survey plats, any existing maps and aerials, surveys, and other pertinent information. The main data sources that will be collected will include:

- Mylar Assessor Maps
- Subdivision Plats
- Existing County Parcel Layer
- Tax Rate Area Layer
- Precinct Layer
- AutoCAD maps for condominiums

This information is collected to accurately locate and inventory all parcel boundaries.

Also, the current AS400 property assessment database will be gathered electronically. The information shall include the tax payer's name, address, present parcel number(s), acreage, and the legal description for each parcel.

The above data will be sorted by APN and individual section, quarter-section, etc. Using the digital orthophotography/ground control network as a base, the initial digitization of physical features is performed during the first phase of the mapping project leading to full mapping in Task 3.

Task 2 - Township, Section, and other Survey Feature Creation

This task will begin the process of data construction in the NAD_1983_StatePlane_California_III_FIPS_0403_Feet Coordinate System. All geodatabase datasets will be assigned this

coordinate system and all features will be mapped using the County's existing ground network and orthoimagery which is also in this coordinate system.

Using Esri's ArcMap software and source documentation such as original section surveys, survey control points, San Mateo County's ground control network and any other vesting instruments in conjunction with the digital orthophotography, BHA will construct township, section, and other survey polygon features. The County's survey control network will take precedence over other data sources whenever possible to construct these features.

BHA's most experienced staff will perform this task. These staff members have extensive experience working in a wide variety of different survey systems.

Any discrepancies found during the mapping process will be reported to ACRE. It is not uncommon to find issues with surveyors using different control points in the same area which result in conflicts in the surveyed document as well as the final mapping. These issues will be reported to ACRE staff as discrepancies and BHA staff will use best fit methods to resolve these conflicts. Proper attribution will also be added to include township numbers, section numbers, and other survey names/numbers.

This layer will serve as the foundation for the remaining mapping steps performed during this phase of the project.

Task 3 - Mapping

BHA's subcontractor, NIIT, will COGO subdivision plats and parcels when possible as one of the first project steps. All work provided by NIIT will be extensively quality controlled by BHA staff. In order to maintain BHA's high quality standards, BHA will retain control over the entire project and will be responsible for the remainder of the project tasks. BHA's quality control procedures to check NIIT COGO work, will be:

- Spot check 5 to 10% and proofread the incoming COGO data to ensure accuracy in the bearing and distance attributes (as well as additional attributes for curve segments)
- Evaluate extents of the raw data deliverables to make sure all parcels/lots were COGO inputs and were performed accurately
- Verify accuracy category (survey date is within range)
- Verify plans table attributes that ultimately transfer over to Fabric data (name, surveyor, survey date, etc.)
- Verify data is true COGO and no spatial adjustments took place
- Verify and confirm discrepancies detected regarding closure error

BHA will define a geodatabase schema for this task. Each COGO will be done in separate geodatabases and will not be georeferenced by NIIT. Georeferencing will be the responsibility of BHA staff. The features/attributes that will be captured during this process include:

- Subdivision polygons and lines including subdivision names
- Lot polygons and lines including block and lot numbers
- Parcel polygons and lines including bearing and distance for each parcel line
- Easement polygons and lines (when located on existing Assessor maps)
- COGO Attributes for data provided by ACRE
- Area of parcels in square feet or other mutually agreed unit for data provided by ACRE
- Areas will be calculated using the following:
 - Data entry, based on survey, plat or deed information.
 - Calculated using the Area of an accurately mapped COGO parcel.
 - Estimated calculation as a result of closure error or inability to COGO.

Georeferencing COGOs

BHA staff will load the COGOs into ArcMap. Once added to ArcMap, the ArcGIS Spatial Adjustment toolbar will be used to Spatially Adjust the COGO into the control network created in the previous steps. BHA staff will not use the rubbersheet method provided in this toolbar. This will be the first step in creating the Parcel Significant Features as described in the next step.

Parcel Significant Features

The following features will be created:

1. Roads including rights-of-way
2. Hydrography
3. Subdivisions
4. Parcels
5. Lots
6. Easements when found on the Assessor's Maps

The features will be created using a combination of precision point entry and coordinate geometry (COGO) or by digitizing features from the digital orthophotography if COGO information is missing. Even when using the legal descriptions and/or subdivision plats, not all parcels can be captured using COGO techniques. In this case BHA will inform ACRE for directions of the next step. The parcels may require additional research or are mapped to the orthophotography when photo identifiable boundary features are present. The compilation accuracy is then limited to these photo identifiable features that may include hydrography, right-of-way information, or even fences when there is sufficient evidence that these features coincide with a parcel boundary. Under no circumstances will any existing San Mateo County maps be warped or rubber sheeted to the digital orthophotography.

Graphic Element Placement and Adjustment Guidelines

Using the best-fit approach, BHA will adjust boundary information currently shown on the existing source maps and assessment database descriptions when the following situations occur:

- Parcel/lot lines
 - cross,
 - lie within, or
 - are not consistent

with orthophoto network or planimetric data (if available).

- Parcel/lot lines cross building outlines, pavement edges, fence lines or hedge rows, curbs or any other feature indicative of property boundaries visible on the orthophoto.
- Rights-of-way for roadways are not consistent with orthophotos.
- Edges of source documents do not match.

It is understood that in the event there are gaps or overlaps in fitting parcels with adjacent parcels, perimeters of subdivisions will have priority of placement when these adjustments are necessary.

The hierarchy for control points to be used to aid in the placement of map features will be as follows:

- First Choice
 - Government Survey Corners
- Second Choice
 - Subdivision Lot Corners
 - Subdivision Block Corners
 - Street Centerline Intersections
 - Right-of-way Angle Points

- Right-of-way Centerline Station Points

The methodology for determining the most accurate data source includes:

- Latest subdivision plats will take precedence over older subdivisions plats and/or metes and bounds descriptions.
- Subdivided parcels will take precedence over parcels described with metes and bounds descriptions.
- Surveyed parcels will take precedence over parcels only described in legal descriptions.
- Orthophoto occupation (if any) will take precedence over unknown legal boundaries.
- Research will be requested for areas of conflict for County resolution.
- Discrepancies will be created whenever a boundary is unknown or conflicts with other information such as deeds, surveys, or aerial occupation.

Compilation Guidelines

BHA will adhere to all additional compilation guidelines including:

- Edge matching
- Common boundaries
- Segmentation
- Connectivity
- Point criteria
- Unimpeded GIS functionality
- Line quality

The line features will be attributed. All line features will be cleaned to ensure no overshoots, undershoots, offsets, or pseudo nodes are present. Lines that connect polygons will intersect those polygons precisely. All common boundaries shall have the exact same digital representation of that feature in all common layers. No duplication of points will occur within a data string.

To ensure high quality cartographic appearance, transitions from straight line to curvilinear line segments will be mathematically tangent, smooth, and without angular inflection at the point of tangency. No zero length line features shall be included. Two terminus points shall define all straight lines only.

The digital representation of linear elements will reflect the visual network structure of the data type. All data elements representing differing features will be distinguished in the database by layering or other effective method. An element will not be broken or segmented unless that segmentation reflects a visual or attribute code characteristic, or unless the break is forced by database limitations.

All of these above listed requirements are essential when creating parcel polygons and implementing topology rules. Esri's topology rules for loading features into the Parcel Fabric will be used. The Parcel Editing Solution requires that this topology be validated and cleaned prior to loading. Thus the data must be topologically clean in order to load data into the Parcel Editing Feature Dataset (Parcel Fabric). The same will be true for all feature types to be loaded into the Parcel Fabric.

Non-Parcel Significant Features:

BHA will create other non-parcel significant features and will add these features in the geodatabase. This step will pertain to other map features (cadastral symbology) such as land hooks, corner and cross ticks showing ownership into a right-of-way or hydrography, etc.

Cadastral Annotation, Labels and Symbology:

All annotation found on the existing Assessor's maps, subdivision plats, etc. will be captured.

Cadastral Symbols will include:

- Hooks
- Tips
- Arrows

Annotation will include:

- Right-of-way Dimensions and Road Names including modified Road Names as well as vacated/abandoned right-of-way labels
- Assessor Parcel Numbers
- Acres (Gross and Net)
- Parcel Dimensions
- Public and Semi-Public Lands
- Original Lot Numbers
- Block Number
- Lot Numbers and Dimensions
- Railroad Dimensions and Text
- Section, Township and Range Numbers
- Subdivision Names, Tract Numbers and Map Reference
- Water Bodies
- Bearings and distance as shown on the Assessor maps
- Unit Numbers (Condominiums)
- Any other cadastral annotation as found on the current Assessor maps

Annotation shall be placed:

- To obscure the minimum amount of other map features
- Along (and splined to follow) linear features
- To occur at least once on each map sheet for which the map feature appears
- To be oriented to support being viewed on Assessor's Map Pages
- To be correct in regard to grammar and spelling
- Once for numerous identical features that occur in close proximity to each other
- To align with the look and feel of existing Assessor's maps

Condominiums

Condominiums will be mapped as follows:

- Parcel polygon representing the common area as depicted on the plat.
- All buildings/units will also have a building/unit polygon representing each unit.
- Stacked polygons will be required to represent multiple floors (when applicable).
- The condo units will also be related to the building and common areas through relationship classes in the geodatabase.

BHA will work closely with ACRE staff at the planning phase to determine best procedures. BHA will review all types of situations that data may occur to determine best practices for moving forward. This will include how to handle boat slips and car ports if they have a parcel number assigned or are linked to the parcel number of an existing unit.

The County's AutoCAD maps will be used during the mapping process whenever practical.

Mobile Homes

Mobile homes will be represented in the geodatabase in a very similar fashion as previously described for condominiums. BHA will use existing plats, the Assessor's maps and the aerial imagery to determine mobile home location. If data is incomplete, BHA staff will work with the County to determine best procedures.

Parcel Map Maintenance

BHA will make multiple incremental deliveries throughout the project as established in Task 2. In order to prevent a backlog the following will occur:

- When a recorded document reflects changes to a parcel, right-of-way, easement, etc. in an area that BHA staff is currently working on, the County will complete a Map Change form and provide this information to BHA staff for processing prior to delivery.
- Approximately 2 to 4 weeks prior to delivery, all updates are added to the delivery so that the delivered area is as up to date as possible. It will then become the County's responsibility to make future updates to that delivered area.
- In order to ensure that the ACRE staff understands the entirety of the workflow process for maintenance, future updates will be used during BHA staff training of those responsible for the day to day maintenance and will be used during the training phase. ACRE staff will be fully trained by the acceptance of the first incremental delivery for day-to-day map updates.

Cross Checking Parcels

The assessment database information is examined to check that each parcel record has been mapped. Since the assessment roll can be obtained in a digital format, additional attributes from the AS400 will be linked by APN in ArcMap. If the legal descriptions in the assessment database are incomplete, inadequate, or in error, the appropriate deed or deeds and other vesting instruments will be researched. Land that is unaccounted for will be reported to the County in a parcel discrepancy list. The County will have the option to add the unaccounted for land to the assessment roll and database at this time.

Precinct Layer Mapping

Upon conclusion of the parcel mapping, BHA staff will spatially adjust the County's precinct layer provided by the ACRE staff. The precincts will be mapped to align to existing parcel features whenever possible. These features will include parcel boundaries, lot boundaries, subdivision boundaries, street centerlines, right-of-way boundaries, etc. All attributes and data structure will follow the final geodatabase model as established during Phase 2 Task 2 and all features will be attributed according to this design.

Once the precinct layer has been completed the Elections Division staff will be trained on the new GIS system so they will be able to modify or add attributes as needed and leverage off the shelf Esri applications such as the Esri Polling Places app.

TRA Layer Creation

The tax rate area layer contains data from the districts and cities that collect taxes within San Mateo County. The layer is approved by the California State Board of Equalization which is maintained by the ACRE staff. The Tax Rate Areas will be mapped by aligning existing Tax Rate Areas to the new parcel data whenever possible. These features will include parcel boundaries, lot boundaries, subdivision boundaries, street centerlines, right-of-way boundaries, etc.

Discrepancy Reporting

BHA will report any discrepancies and/or anomalies found during the mapping. BHA will develop a polygon feature class designed specifically for this issue. This allows the GIS Technician to draw a polygon showing the features in question providing a spatial location. The report also will contain a type field with a domain value. BHA staff will work with ACRE staff to develop this domain. Additionally, a comment field will be added and populated. The final design will be established during Phase 2.

Task 4 - Mapping Quality Control

BHA's most seasoned employees perform two sets of checking before a product is delivered for review. Quality control checks are made for each deliverable area. BHA will run a series of automated processes using the ArcGIS Data Reviewer (See Appendix 2).

These final checks will be established during Phase 1. The ArcGIS Data Reviewer processes will be run on the data periodically throughout the map production process as well as at the end of the map production. When map production is completed, BHA's most experienced staff will conduct a manual quality control and quality assurance process. The process includes, but is not limited to, the following quality control checks:

- PLSS and Other Survey Grid alignment with Survey Control Network
- Edge Matching with Other Deliverable Areas
- Aerial Photography Validation (Occupation)
 - Centerlines
 - Rights-of-way
 - Hydrography
 - Parcels
 - Lots
 - Subdivision
 - Easements
- Parcel/Lots
 - Database Checks
 - Lines
 - Dimensions
 - Annotation and Labeling
 - Measurements/Proportioning
 - Acres
- Corporate Boundary
- Discrepancies
- Text (Annotation) and Symbol Placement

Any deficiencies found will be reported back to the technician for fixing. Once the fixes are complete, they will be quality controlled again before moving to the next task.

Task 5 - ArcGIS Parcel Editing Solution (Parcel Fabric) Conversion

All parcel mapping and feature construction will take place outside of the Parcel Fabric. This allows for thorough checking procedures and topology validation to occur. Features will then be loaded into the delivery database including the Parcel Fabric.

Validate Topology and Fix Errors

The next step in the process after data loading is for BHA to validate each topology and fix any errors that exist. This must be done for all feature types. Esri's Topology Validate and Error Inspection Tools will be used to validate and fix errors. All lines used for polygon construction are reviewed for accuracy, inspected for erroneous vertices, and must be 2-point lines unless they represent a natural boundary. This process must be repeated for each parcel type until all data is fully cleaned and validated.

Load Parcel Fabric

Esri's Load Topology to a Parcel Fabric ArcGIS Geoprocessing tool will be used to load each staging geodatabase into the deliverable geodatabase.

Any issues reported by this tool will need to be resolved prior to a successful load into the Parcel Fabric. Based on BHA's experience, this may need to be done multiple times per deliverable based on the number of records to be processed. Upon completion, the data will be appended to the other areas.

Once the data from the staging geodatabases is loaded into the Parcel Fabric, several final steps will occur prior to quality control.

1. Load Plans Table and associate them to applicable parcels
2. Cross Checks
3. LGIM Finalization
4. Data Loading of Features Outside of the Parcel Fabric
5. Adding feature associations to the Fabric
6. Populating TaxParcelCondo Table for Multi-APN relationships

Task 6 - ArcGIS Parcel Editing Solution (Parcel Fabric) Conversion Quality Control

BHA will perform a final quality control on the Parcel Fabric to ensure suitable end-user editing performance over time. Each delivery will include reports outlining data completeness and quality assurance. The most important items to review are:

- Line and Point Inconsistencies
 - Review of linestring creation for natural boundaries
 - Verification of relevant Fabric_Points for accurate COGO attributes
- Data Accuracy and Feature Alignment
 - Review of coincident features and connections to Fabric_Points
 - Review of stacked Parcels and TaxParcel Condo Table utilization for Parent to Child Parcel relationships
 - Review of correct Fabric feature attributes for editing workflows, edit tracking, and Plans Table associations
- Performance Quality and Review
 - Review of any large or complex features that can cause slow performance
 - Full Fabric Scan QA/QC inspection for inconsistent records (points not connected to lines,

lines with the same to and from points, lines that do not belong to a parcel, line points with invalid point references, parcels without any lines, invalid adjustment vectors, invalid feature class associations)

- Full Fabric Error Check for validating topological integrity (Parcel Errors, Line Errors, Point Errors, Line Point Errors, Control Point Errors)

BHA will guarantee that all deliverables are properly verified for accuracy, completeness, and free from the deficiencies described. BHA will also run the series of automated processes using the ArcGIS Data Reviewer per Appendix 2 - Reviewer Batch Jobs (.rbg).

Task 7 - Finalize Data Driven Pages Map Documents and Produce Assessor's Maps

Using the geodatabase designed during Phase 2 along with the data constructed during Phase 4, the design of the ArcMap documents will be finalized for the purposes of creating the map books and pages based on the technical and functional standards. Data driven pages in ArcGIS for Desktop will be used. Any gaps identified in the functionality required will be overcome using ArcPy scripts that BHA staff will create. ArcPy provides the ability to automate the map production in ArcGIS.

The final Digital Assessors Maps will have the same look and feel as the existing SMC Assessor Maps and will include:

- Page number
- North Arrow
- Adjoining Map References
- Disclaimer
- County Seal
- Creation Date
- Last Update Date
- Any other requested information

Separate map documents will be created for condos and mobile homes. The final map documents will include multiple map scales as well as an index map.

Assessor Map Quality Control Procedures shall be as follows:

- Verify Page Numbers, Creation Date and Last Updated Date
- Comparison of Existing Assessor Map Pages to Delivered Assessors Map Pages, for example:
 - Bearing and distance labeling
 - Block/Lot/Parcel numbering
 - Street labeling
 - Adjoining Map References
 - Items specific to SMC look and feel
- Verify Inclusion of all Features and Map Components

Task 8 - UAT

San Mateo County will go through one or more UAT cycle(s) for system review for each incremental delivery of approximately 4,500 to 5,000 parcels. The incremental deliveries will be bundled together into groupings of approximately 14,500 parcels for acceptance and payments. As the ACRE staff tests the system they will enter their feedback into the UAT form as a deficiency or completed as expected. Criteria for acceptance is described in Phase 1, Task 9.

UAT process will be conducted as follow:

- County to review and provide feedback within 30 days
- BHA to investigate reported issues and correct them within 1 week
- County reviews corrections and signs off within 1 week if all reported issues are resolved.
- This UAT cycle will repeat until all issues have been resolved.

Data will be delivered via FTP, VPN or mutually agreed upon method. UAT will be performed in a file geodatabase in the ACRE GIS/IT environment.

As the ACRE staff tests the system/data they will enter their feedback into the UAT form as a deficiency or completed as expected.

BHA staff will load the data into the ArcGIS Enterprise (ArcSDE) database once accepted.

BHA Responsibilities:

- Create Parcel Fabric and LGIM Database
- Install necessary software tools on ACRE testing and production environment in concert with SMC ISD
- Configure ArcMap Documents for map printing
- Provide ArcPy Scripts
- Produce SMC Assessor Maps

San Mateo County Responsibilities:

- Conduct UAT
- Provide all source data required
- Provide Completed Map Change Forms with Source Documents for undelivered areas
- Provide Testing/Production Environment

Exclusions:

- Easements will be mapped only when located on the existing San Mateo County Assessor's maps

Assumptions:

- Multiple Incremental Deliveries will be made per Project Plan
- COGO Closure Errors will be defined by greater than .3281 feet or other mutually agreed upon value after completion of the pilot project

Deliverables:

- Completed Expanded LGIM in XML and File Geodatabase referenced to the NAD_1983_StatePlane_California_III_FIPS_0403_Feet Coordinate System and installed in SMC GIS environment
- Construction Report
- ArcGIS Data Reviewer Reports
- Spatial Adjustment Reports
- Quality Control/Quality Assurance Reports
- Raw Data in separate geodatabases per subdivision, survey or other recorded document
- Final Data Driven Pages Map Documents (*.mxd)

- ArcPy Scripts Used to Create map books
- Complete Set of Map Books in PDF and TIFF Format (Delivered Incrementally)

Phase 5 – Training

Training will be spread out throughout the duration of the project where appropriate and as agreed upon during Phase 1.

Prerequisite Training and Staff Knowledge

In order to maximize training time with BHA, the following prerequisite Esri training has been identified by functional role:

Manager (Non-GIS Professional):

This management level user is responsible for managing the GIS program and staff. However, this person is not a GIS professional but needs to understand the core GIS concepts.

Recommended Esri Course:

- Introduction to ArcGIS

GIS Supervisor:

This management level user is responsible for overseeing the GIS staff as well as day to day parcel maintenance. This user should have a thorough understanding of GIS in order to effectively carry out technical and business requirements for the GIS staff to implement. The user should have an understanding sufficient enough to perform quality control tasks.

Recommended Esri Courses:

- ArcGIS 1 - Introduction to ArcGIS
- ArcGIS 2 – Essential Workflows
- Editing and Maintaining Parcels Using ArcGIS

GIS Editor:

The GIS Editors are tasked with maintenance of the system when implemented. A thorough understanding of ArcGIS, Parcel Fabric, and mapping standards as well as land records in general is required.

Recommended Esri Courses:

- ArcGIS 1 - Introduction to ArcGIS
- ArcGIS 2 – Essential Workflows
- Editing and Maintaining Parcels Using ArcGIS

BHA Training

BHA will conduct training sessions at the San Mateo County office for the data maintenance and oversight staff. It is in the best interest of the participants of the training session that the training group is limited to

four to six individuals. BHA will work with ACRE staff to ensure that adequate hardware, software and tools for the training sessions are in place and tested within two weeks of the planned training date. 160 hours of training are included as part of this proposal.

The 160 hours of training will be split into several workshops throughout the project. Example workshops include:

Parcel Fabric Basic Editing:

- Parcel Workflows
 - Merge Parcels
 - Parcel Split: Metes and Bounds
 - Parcel Split: Area Description
 - Parcel Split: Parent Parcel
 - New Subdivision
 - New Subdivision from CAD
 - Boundary Line Adjustments
- Spatial Boundary Line Adjustments (without workflows)
- Parcel Splits and Combinations (without workflows)
- Maintain Parcel Points
- Parcel Explorer
- Parcel Details
- Maintaining Control Points
- Updating Parcel Corner Locations
- Creating New Subdivisions (without workflows)
- Maintaining parcel & non-parcel fabric related feature classes
- Creating, maintaining and printing Assessor's Maps
- Printing different versions of Assessor's Maps based on historic date

Parcel Fabric Intermediate Editing:

- Importing AutoCAD maps into the Parcel Fabric
- Creating Connections
- Mean Points
- Updating Parcel Corner Locations
- Maintaining Non-Parcel Fabric Features
- Maintaining Easements
- Maintaining Related Layers in Parcel Fabric
- Plans Table and the Job Book

Parcel Fabric Advanced Editing:

- Mass updates to Parcel Attributes and Features
- Running Least Squares Adjustments
- Advanced Parcel Fabric Querying
- Maintaining Condominiums, Townhouses and Mobile Homes
- Coincident Layer Adjustments

Advanced GIS (Non-Parcel):

- TRA Layer Maintenance
- Precinct Layer Maintenance
- Geocoding
- Importing Data

- Layer comparisons

Parcel Map Publishing:

- Data Driven Pages
- Parcel Viewer for Public
- Parcel Viewer for Internal Staff
- Esri Polling Places App Maintenance

BHA staff and ACRE staff will collaboratively work with recorded documents either during the workshops described above or during individual training sessions for delivered areas.

BHA will also provide documentation for the ongoing and repetitive tasks. These include development of Standard Operating Procedures (SOPs) for:

- Adding new subdivisions
- Adding condominiums, townhouses, and mobile homes
- Parcel splits and combines
- Synchronizing parcel edits with coincident layers
- Other repetitive or recurring tasks

BHA Responsibilities:

- Conduct Training Workshops
- Provide Ongoing Training and Technical Support throughout the Project

San Mateo County Responsibilities:

- Provide all hardware and software for training environment
- Acquire Prerequisite Knowledge/Training

Deliverables:

- Documentation for all training topics
- Standard Operating Procedures (SOPs) Documentation

Phase 6 – Transition

During this project phase, BHA will develop a transition plan for ACRE to migrate from their existing Oracle based system to Esri's LGIM in a Microsoft SQL Server based geodatabase. The transition plan will document the steps required to successfully make this switch. The transition plan shall include the following components:

- Parallel Maintenance Procedures for all Impacted Layers
- Change Management Plan
- High-Level Future GIS Analysis and Plan
- Testing of Processes and Scripts
- Data Synchronization Processes and Plan

It is anticipated that several of these tasks will be addressed during Phase 1 of the project then again near the beginning of the project implementation. BHA will continue to provide support for the County's transition efforts through the end of the project.

BHA Responsibilities:

- Transition Plan
- Test all Processes and Scripts

San Mateo County Responsibilities:

- Provide daily update script from AS400 system

Deliverables:

- Transition Plan
- High-Level Future GIS Plan
- Data Synchronization Processes and Plan

Phase 7 – Map Publishing and Viewing

During this phase and after the completion of the Parcel Fabric construction, BHA staff will configure and deploy ArcGIS Online applications for viewing of the newly constructed data. ArcGIS Online will be used as the primary method to distribute the data via the Internet.

Task 1 - Parcel Viewer for External Data Sharing

BHA will use Esri's Web App Builder to enable ACRE to share the County's data. BHA will use previously developed Web App Builder widgets for searching and reporting parcel information, buffering parcels and viewing historical imagery. These widgets developed by BHA can be used in combination with Esri's widgets and other business partner widgets. These widgets can also be used in multiple applications.

BHA staff will complete the following steps:

- Install and Configure Web App Builder Developer Edition
- Create Export Transform Load (ETL) Process to Import AS400 Assessment Data
- Publication Map Services Setup
- Search and Report Map Service Setup
- ArcGIS Online Web Map Creation and Configuration
- Web App Builder App Creation and Widget Configuration

Task 2 - Parcel Viewer for Internal Viewing and Querying

Using the same methodology as described in Task 2, BHA staff will configure another Web App Builder App for internal viewing and querying. The following will need to be set up specifically for this application if they differ from the app created in Task 2:

- Publication Map Services Setup
- Search and Report Map Service Setup
- ArcGIS Online Web Map Creation and Configuration
- Web App Builder App Creation and Widget Configuration

All Esri widgets will be available to be configured against the County's data.

Task 3 - Esri Polling Places Locator App

BHA staff will deploy Esri's Polling Place Locator App using the County's newly created precinct layer. The Election Polling Places is a configuration of Web App Builder using the District Lookup Widget. The data is required to be stored as part of the LGIM schema. This schema will be configured as part of Phase 2. BHA will complete the following steps:

- Publishing ArcGIS Maps Services
- Web Map Creation and Configuration
- ArcGIS Online Routing Configuration
- Web App Builder Configuration

Task 4 - UAT

San Mateo County will go through one or more UAT (UAT) cycle(s) for system review for the applications configured during Tasks 1, 2 and 3 of this Phase. As the ACRE staff tests the system they will enter their feedback into the UAT form as a bug/fix or completed as expected.

UAT process will be conducted as follow:

- County to review and provide feedback within 2 to 3 weeks.
- BHA to investigate reported issues and correct them within 1 week.
- County reviews corrections and signs off within 1 week if all reported issues are resolved.
- This UAT cycle will repeat until all issues have been resolved.

Each application will be configured in the ACRE GIS/IT environment for testing and acceptance before the applications are made public.

BHA Responsibilities:

- Provide and Configure BHA Web App Builder Search and Reporting Widgets
- Configure Polling Places Application
- Provide Final UAT Acceptance Forms

San Mateo County Responsibilities:

- Provide daily update script from AS400 system
- Provide all hardware and software for production environment
- Conduct UAT

Deliverables:

- BHA Web App Builder Search and Reporting Widgets
- Internal/External Parcel viewer Applications
- Polling Places Application

Phase 8 – Warranty

BHA will warranty all deliverables for 90 days after final acceptance by the ACRE staff. BHA will also provide technical support for a period of 180 days after the final project deliverables.

Scope of Work Assumptions

Organizational

- BHA work will be completed offsite from the BHA Batavia, IL office; no travel will be required with the exception of project Phases 1, 2, 3, 5 and 6. BHA will access SMC ACRE's system resources via VPN which SMC ACRE will provide to BHA. VPN access will only be provided to BHA. The VPN should not be used for off-shore access.
- The SMC ACRE will assign GIS and IT support staff who will work directly with BHA for the purposes of assisting BHA with access to system resources as-needed.

Technical

- The SMC ACRE will provide BHA with all of the source documents and source GIS data to complete this project by the date requested by BHA.
- SMC ACRE will adopt the ArcGIS for LGIM.
- ArcGIS 10.5 or higher will be the technology platform. The SMC ACRE is responsible for maintaining the SMC ACRE environment.
- BHA is responsible for maintaining their internal software and SMC ACRE will not be required to provide any software to BHA.

Confidentiality of Data

BHA will comply with the following measures to control the use of SMC Assessor data:

- BHA will transfer documents electronically to their subcontractor (NIIT) via a secure FTP site.
- NIIT shall not have access to San Mateo County's systems or facilities.
- BHA & NIIT shall take all necessary steps to control data and information related to this project. Additionally, they shall not reproduce in whole or part any data with the exception of what is required for this project.
- BHA or NIIT may not advertise through media release or website that they are working for San Mateo County without prior consent from the county.

Software Limitations

- BHA is not responsible for any limitations or bugs that may exist within Esri's ArcGIS software. BHA and ACRE will work together to report bugs or limitations to Esri Technical Support for resolution in future software release or patches. During Phase 3 (Pilot Project), BHA and ACRE will determine if there are limitations in the Esri LGIM model or tools that will not allow ACRE to achieve the requirements outlined in this contract. ACRE may elect to terminate the project or accept reasonable workarounds which will support the project objectives and requirements.

General

Communication

- All status reports will be delivered to the SMC ACRE Project Sponsor/Lead according to the agreed upon schedule.
- All requests from BHA to any SMC ACRE staff member or contractor will be copied to the Project Sponsor/Lead.
- All written or electronic communications to and from any BHA staff member must be copied to the BHA Project Manager.

Integrations and Release/Version Levels

- The SMC ACRE will be responsible for providing BHA with a list of computer hardware and software associated with the project including, model and release level and patches for evaluation.
- The SMC ACRE must inform BHA of any planned upgrades prior to the start of the project.
- BHA will review the information and inform the SMC ACRE of any potential issues.
- BHA may request upgrades to hardware or software to meet the solution requirements.

Customizations to Standard Programs or Custom Software

- Any customizations by the SMC ACRE to any standard program or any custom program must be identified prior to the start of the project.
- BHA does not guarantee that integrations to any custom, self-developed or customized software will be successful and will not be part of BHA's deliverables.

Adequate On-site Training Infrastructure

- Adequate space, equipment, software and Internet requirements must be in place to conduct on-site training.
- BHA will provide the SMC ACRE with necessary requirements for on-site training.

Task Signoff

The SMC ACRE will sign off on each major task and milestone when completed. BHA will supply SMC ACRE with a signoff sheet which will describe the project task, deliverables, the task start and completion date and details of the task completed. The SMC ACRE Project Sponsor and Project Manager will execute the sign off, which thereafter the BHA Project Manager will do the same.

Change Management

If an Esri software platform change occurs both parties must agree on the cost implications and whether or not to adopt the new software. Additionally, if ACRE makes a requirements change that has a significant cost impact both parties will determine whether the change will be incorporated into the project and if an additional cost/schedule change will be required.

APPENDIX 1 - TEMPLATE A

Req #	Sub Category	Description	Prioritization	Proposer Comments
DT: Data Requirements				
DT-01	Source Documents	Construct Parcel Fabric and TRA data from the source documents listed in the RFP Section II.	Must Have	The data will be constructed using these data sources.
DT-02	Parcel Fabric Geodatabase Schema	The Parcel Fabric Geodatabase Schema will be in ArcGIS LGIM Geodatabase format.	Must Have	The data model will be the Esri LGIM Expanded to meet the County's Business and Technical Requirements.
DT-03	Parcel Data Construction Process	Parcel features are to be created using coordinate geometry (COGO) bearings and distances shown in the recorded maps and documents (PDF files) and Assessor's maps (PDF files). The use of line strings should be limited to the delineation of natural boundaries.	Must Have	BHA will not deviate from this approach.
DT-04	Parcel Data Construction Process	If you have to deviate from COGO, provide a detailed explanation of how you would provide accurate parcel data. Scanning and rubber sheeting will not be accepted.	Must Have	BHA will not deviate from this approach.
DT-05	Parcel Data Construction Process	All specifications for property data construction must be designed to provide an overlay to the digital orthophotography as per accuracy requirements below.	Must Have	BHA will not deviate from this approach.
DT-06	Parcel Data Construction Process	Parcel data construction from the source documents needs to be directly and strictly done in the parcel fabric.	Must Have	BHA's approach to the mapping is described in Phase 4.
DT-07	Parcel Data Construction Process	Parcel data construction needs to start with oldest subdivisions first and moving to more recent ones, in order to capture subdivision history.	Must Have	This approach will be used.
DT-08	Property Records Database	Constructed Parcel data has to include information from the Assessor System (AS 400) including ownership, transfer data, property descriptions and situs, improvements, etc. Moving forward, data updates are to be done via a utility which is run nightly (similar to current setup). County (ISD) will develop the utility.	Must Have	ETL processes will be developed to transfer information. Final design will be agreed upon during Phase 2 of the project.
DT-09	Coordinate System	Constructed data has to be delivered in the following Coordinate System: NAD_1983_StatePlane_California_III_FIPS_0403_Feet	Must Have	The data will be delivered in this coordinate system.

DT-10	Adjustment Guidelines	Adjustment of graphic boundaries should be made when the following situation(s) occur: - Parcel/Lot lines cross or do not align with orthoimagery. - Street center lines do not align with orthoimagery. - Edges of source documents do not match. - Perimeters of subdivisions for subdivided areas have priority of placement when parcel adjustments are necessary. - Misalignment with source control points -Other situations identified in Pilot phase	Must Have	These adjustments will be identified.
DT-11	Adjustment Tracking	Track all instances and metrics of boundary adjustments made during the construction process.	Must Have	These adjustments will be identified.
DT-12	Constructed Features	The delivered data should include at a minimum the following features - County Boundary - Geographic Range & Township Boundaries - Section Boundaries & numbers - Subdivision Boundaries & names -Control Points (survey monuments and benchmarks, and section corners, etc.) - Annotation - Cadastral_Line - Cartography (linear annotations) - Construction (empty feature class as a scratch layer) - Easement_Line - PageCenter - PageIndex - Parcel Dimensions (configured for auto-creation of dimensions) - Parcel Fabric (includes parcel, lot, and subdivision features) -Mobile home parcels -TRA Layer -Precinct Layer -Property information from the Assessor System (AS 400)	Must Have	These requirements will be fulfilled by the delivered solution.
DT-13	Annotations	Must capture all annotations on existing Mylar maps including parcel numbers, subdivision name, distances, notes and easement text, etc.	Must Have	All annotations will be captured.
DT-14	Hyperlinks	Parcel layer needs to include hyperlinks to the following:- Surveys, recorded parcel maps, subdivision maps (files are on the ISD GIS server)- Deeds (located on Recorder System)- Other County Documents	Could Have	BHA and San Mateo County will agree upon the hyperlinks to be created by BHA during the Functional and Technical Requirements Phase of the project.

DT-15	Attributes	In addition to LGIM attributes, the following attributes need to be included in the constructed data: -Legal parcel size, distance, and bearing -Fabric parcel size, distance, and bearing -Parcel accuracy level	Must Have	This information will be captured.
DT-16	Precinct Layer(s)	Define Schema for Precinct layer to serve Elections Division requirements such as track change dates, change reasons, creation date, inactivation date, and consolidations.	Must Have	Final design will be agreed upon during Phase 2 of the project.
DT-17	Precinct Layer(s)	Spatially adjust existing precinct layers to the constructed parcel fabric into the new geodatabase	Must Have	This layer will be spatially adjusted.
AC: Accuracy/Compliance				
AC-01	Accuracy	The digital orthoimagery provided as part of the source documents, have a spatial accuracy corresponding to 1" = 100'. The constructed parcel fabric will appropriately overlay with the orthoimagery. The accuracy of the parcel lines will be defined relative to visibility on the orthoimages. The County will select well-defined indicators in consultation with the Proposer during the pilot.	Must Have	BHA agrees with this approach.
AC-02	Accuracy	Legal bearing and distance information in the fabric have to be a 100% match to the source documents.	Must Have	The delivered solution will have this ability.
AC-03	Accuracy	The data constructed shall match with the source control points.	Must Have	The data will match control points unless errors are located. If errors are found, discrepancies will be recorded.
AC-04	Accuracy	The data constructed from the Plat Maps shall not deviate from well-defined indicators by more than 2.5' at 1" = 100' and 10' at 1" = 400'.	Must Have	Data will not deviate from these tolerances. If errors are found that will not allow these tolerances to be achieved, discrepancies will be recorded.
AC-05	Precision	All coordinate data shall be created and stored using double precision coordinates.	Must Have	All data will be stored as double precision coordinates.
AC-06	Tracking of Accuracy/Adjustments	There should be a means of tracking the accuracy and adjustments made to any parcel.	Must Have	The accuracy tracking methods will be agreed upon during Phase 1.
AC-07	Assessor's map Standards	Produced Assessor's maps must meet official requirements and specifications contained in California Assessor's handbook - Section 215	Must Have	The final map will meet these standards.
REP: Reporting				

REP-01	Parcel Fabric Plan Closure Error Report	Proposer will provide report of Parcel Fabric plan closure errors outside of agreed upon tolerance, which is to be determined by the County and the vendor	Must Have	This error report will be delivered.
REP-02	Error Reporting	Proposer will log all reported errors and resolutions that occurred during GIS data construction	Must Have	These error logs will be delivered.
Data Maintenance Tools and Workflow				
DM-01	Tools	ACRE strongly prefers to use ESRI COTS products for its parcel management and maintenance process	Must Have	The approach will be a near Esri COTS implementation. However, expansion of the COTS solution is required to meet California Assessor Handbook Section 215 standards. BHA additionally recommends that MapAscend Productivity Enhancements be used to streamline maintenance.
DM-02	Ability to Maintain Constructed Data	<p>The vendor should provide ACRE GIS staff with tools that enable them to maintain the constructed data. Example maintenance tasks include:</p> <ul style="list-style-type: none"> - Merging parcels - Adjusting parcel boundary lines - Splitting parcels - Updating parcel corner locations - Creating new parcel subdivisions - Creating condominium data - Running Least Squares Adjustments - Maintaining control points - Maintaining precinct layer - Maintaining Tax Rate Area layer - Maintaining parcel & non-parcel fabric related feature classes - Maintaining Easements - Mass updates to parcel attributes and features - Produce the digital Assessor's Maps 	Must Have	The delivered solution will provide tools for all of these tasks.
DM-03	AutoCAD Import	Enable ACRE to import AutoCAD raw data into the GIS Parcel Fabric	Must Have	AutoCAD drawings can be imported into the Parcel Fabric.
DM-04	Update and Create Official Assessor's Maps	Provide GIS staff with tools to update and create official Assessor's maps for assessment purposes from the constructed data which have the same look, feel, and functionality of the existing paper maps.	Must Have	These tools will be provided.
DM-05	Parcel History	Ability to view parcel history within parcel fabric; to be able to see what the fabric looked like at a point in time (from delivery date forward)	Must Have	The delivered solution will have this ability.
DM-06	Job Tracking	Ability to view job book with all editing activity	Must Have	The delivered solution will have this ability.

DM-07	Publishing	Ability to create new map books and map book pages and index them	Must Have	The delivered solution will have this ability.
Assessor Maps Requirements				
AM-01	Accuracy	Delivered digital Assessor's map pages to accurately match the original Mylar maps including look and feel.	Must Have	The map pages will be designed to retain the appearance.
AM-02	Size	Produced Assessor maps must be 11"x17" in size	Must Have	The maps will be produced at 11" x 17" size.
AM-03	Bearings & Distances	Record bearings and distances of parcels contained on recorded documents and maps must be shown on the Assessor parcel maps created from the parcel fabric.	Must Have	The delivered solution will have this ability.
AM-04	Annotation and Symbology	Produced Assessor maps annotation and symbology should be identical to the existing Assessor Maps	Must Have	The delivered solution will have this ability.
AM-05	Assessor's map Standards	Produced Assessor maps must meet official requirements and specifications contained in California Assessor's handbook - Section 215		The delivered solution will meet this standard.
AM-06	Scales	Assessor's map pages should work at different scales.	Should Have	The delivered solution will have this ability.
AM-07	Tracking of Assessor Map versions	Vendor will provide ability to view/reproduce historical Assessor maps (moving forward) while tracking date(s) changes were made	Must Have	The delivered solution will have this ability.
AM-08	Assessor's map Books	Vendor will create and deliver the county's complete set of indexed Assessor's map books and book pages	Must Have	These maps will be created.
ENV: Host Server and Desktop Environment				
ENV-01	Host Application Server	Constructed data must be compatible with the latest version of ESRI ArcGIS for Server - Current County version is 10.2	Must Have	The delivered solution will be compatible. BHA recommends upgrading to ArcGIS 10.5.
ENV-02	Host Database Server	Constructed data must be compatible with ESRI LGIM & Microsoft SQL Server.	Must Have	The delivered solution will be compatible.
ENV-03	Desktop Environment	Constructed data must be compatible with the latest version of ESRI ArcGIS for Desktop. Current version is ArcGIS for Desktop 10.2.2.	Must Have	The delivered solution will be compatible. BHA recommends upgrading to ArcGIS 10.5.
DT: Documentation and Training				

DT-01	Parcel Fabric Editing	Vendor will provide GIS staff with appropriate documentation and training to maintain the parcel data. Example maintenance tasks include: - Parcel splits and merges - Adjusting parcel boundary lines - Updating parcel corner locations - Creating new parcel subdivisions - Creating condominium data - Running Least Squares Adjustments - Maintaining Easements - Maintaining control points - Maintaining precinct layer - Maintaining Tax Rate Area layer - Maintaining non-parcel fabric related feature classes - Mass update of parcel attributes and features	Must Have	Documentation will be provided.
DT-02	Assessor Maps	Vendor will provide GIS staff with appropriate documentation and training to maintain and create official Assessor's maps	Must Have	Documentation and training will be provided.
DT-03	Import from AutoCAD	Vendor will provide GIS staff appropriate documentation and training to enable them to import AutoCAD data into the parcel fabric	Must Have	Documentation and training will be provided.
DT-04	Related Feature Class Maintenance	Vendor will provide GIS staff with appropriate documentation and training to perform related feature class adjustments based on parcel editing and Least Squares Adjustments in the parcel fabric	Must Have	Documentation and training will be provided.
DT-05	Parcel Fabric Querying	Vendor will provide GIS staff with appropriate documentation and training to query and report on the status of the parcel fabric at a date in time	Must Have	Documentation and training will be provided.
DT-06	Parcel Fabric SOPs	GIS staff must receive appropriate documentation and training on how to conduct systematic editing to include new subdivisions, townhouses/condos, and other repetitive tasks	Must Have	Documentation and training will be provided.
PS: Professional Services Requirements				

PS-01	GIS Data Model Definition	This has to be done in collaboration with ACRE. During this activity, the vendor is expected to provide their expertise and base their recommendations on industry best practices as well as their understanding of the specific SMC and State requirements. The Data Model should be constructed in a way that is extensible and flexible to support the other departments' layers that are built off the parcel fabric. This effort is to ensure that the constructed parcel fabric does not have to be retrofitted to accommodate other departments' needs.	Must Have	BHA's staff expertise will be made available to the ACRE staff.
PS-02	Pilot construction phase	A pilot which includes a construction of a geographic area including a wide variety of land record types and situations will be conducted. The purpose of the pilot construction is to validate the construction process and output data, and make any necessary adjustments before performing the remaining, full- scale county wide construction. Pilot area will be defined by County and will represent approximately 1% of the total number of parcels within the County.	Must Have	A pilot project will be completed.
PS-03	Deed Research	In special cases during construction process, in order to meet the accuracy and tolerance requirements, ACRE will provide the vendor with specific deeds to complement the source data.	Must Have	BHA will request these documents on an as-needed basis.
PS-04	Construction Releases	Define distinct releases to cover the full-scale construction so GIS staff can perform quality assurance and quality control of the constructed data in manageable, logical parcel sets.	Must Have	The solution will be designed in this manner.
PS-05	Parcel Edit Backlog	Vendor will manage any backlog of parcel edits which accumulate during the parcel construction process. It is estimated that there are about 800 new parcels created annually.	Must Have	The backlog will be managed.
PS-06	Transition plan & Implementation	The Vendor will develop and implement a transition plan that would enable ACRE to move from the old Oracle GIS Parcel, TRA and Precinct geodatabase to the new ESRI LGIM SQL platform.	Must Have	A transition plan will be completed.

APPENDIX 2 - REVIEWER BATCH JOBS (.RBG)

1 - Control Point Validation

Group Name	Check Name
Control Attribute Checks	Control Domain Check
	Control Type should be populated
	Control Name should be populated
Control Geometry Checks	Control Invalid Geometry Checks
	Control Duplicate Geometry Checks
	Control Points within 1 ft of Fabric Points are not associated

2- Encumbrance Validation

Group Name	Check Name
Encumbrance Checks	Encumbrance Invalid Geometry Check
	Encumbrance Domain Check
	Encumbrance SystemStartDate should be populated
	Encumbrance Name should be populated
	Encumbrance Unclosed parcel
	Encumbrance Type should be populated

	Encumbrance Lot or Unit Type (SimConDivType) should be NULL
	Encumbrance Sub or Condo Type (ConveyanceType) should be NULL
	Encumbrance Block Number (BlockDesignator) should be NULL
	Encumbrance does not have any Lines associated
	Encumbrance not associated to a Plan

3 - Line Point Validation

Group Name	Check Name
LinePoint Checks	LinePoint FromPointID should not match LinePointID
	LinePoint ToPointID should not match LinePointID
	LinePoint FromPointID should not match ToPointID
	LinePoint FromPointID does not have any Lines associated
	LinePoint ToPointID does not have any Lines associated

4 - Lines Validation

Group Name	Check Name
Lines Attribute Checks	Lines Domain Check
	Lines Parcel Type (Type) should be populated
	Lines Category should be populated
	Lines Bearing should be populated
	Lines Distance should be populated
	Lines Distance/ArcLength should not be ≤ 0
	Lines SystemStartDate should be populated
	Lines LegalStartDate does not match related parcel
	Lines Type does not match related parcel

	Lines with same From/To PointIDs
	Lines not associated to a parcel
	Lines COGO Distance varies +/- 5ft with Shape_Length
	Lines COGO ArcLength varies +/- 5ft with Shape_Length
Lines Geometry Checks	Lines Invalid Geometry Checks
	Lines Multipart Line Check
	Lines Closes on Self Check

5 - Lot and Unit Validation

Group Name	Check Name
Lots and Units General Checks	LotUnit Invalid Geometry Check
	LotUnit Domain Check
	LotUnit SystemStartDate should be populated
	LotUnit Name should be populated
	LotUnit Unclosed parcel
	Control Points within 1ft of Fabric Points are not associated
	LotUnit Lot or Unit Type (SimConDivType) should be populated

	LotUnit Sub or Condo Type (ConveyanceType) should be NULL
	LotUnit EncumbranceType should be NULL
	LotUnit does not have any Lines associated
	LotUnit not associated with a Plan
	LotUnit LegalStartdate does not match Plan LegalDate
Lots and Units Spatial Checks	LotUnit should not cross Subdivision boundary
	LotUnit Overlapping
	LotUnit Sliver Gap

6 - Plans Table Validation

Group Name	Check Name
Plans Checks	Plans Domain Check
	Plans Name should be populated
	Plans Name should be unique
	Plans LegalDate should be populated
	Orphan Plan

7 - PLSS and Other Survey Validation

Group Name	Check Name
Control Attribute Checks	Control Domain Check
	Control Type should be populated
	Control Name should be populated
Control Geometry Checks	Control Invalid Geometry Checks
	Control Duplicate Geometry Checks
	Control Points within 1ft of Fabric Points are not associated

8- Points Validation

Group Name	Check Name
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Point Checks	Multiple Curve Center Points in Close Proximity
	Points X/Y should be greater than 0
	Points not associated to a Line

9 - Subs and Condo Validation

Group Name	Check Name
Subs and Condos Attribute Checks	SubCondo Domain Check
	SubCondo SystemStartDate should be populated
	SubCondo LegalStartDate should be populated
	SubCondo Unclosed parcel
	SubCondo ConveyanceType (Sub or Condo Type) not populated correctly
	SubCondo SimConDivType (Lot or Unit Type) should be NULL
	SubCondo BlockDesignator (BlockNumber) should be NULL
	SubCondo EncumbranceType should be NULL
	SubCondo Name should be populated
	SubCondo does not have any Lines associated
	SubCondo LegalStartDate does not match Plan LegalDate
Subs and Condos Geometry Checks	SubCondo Invalid Geometry Check

10 - TaxParcel Validation

Group Name	Check Name
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Tax Parcel Attribute Checks	TaxParcel Domain Check
	TaxParcel SystemStartDate should be populated
	TaxParcel Unclosed parcel
	TaxParcel Lot or Unit Type (SimConDivType) should be NULL

	TaxParcel Sub or Condo Type (ConveyanceType) should be NULL
	TaxParcel EncumbranceType should be NULL
	TaxParcel does not have any Lines associated
	TaxParcel not associated to a Plan
	TaxParcel Name should be populated
	TaxParcel LegalStartDate should be populated
	TaxParcel LegalStartDate does not match Plans LegalDate
Tax Parcel Geometry Checks	TaxParcel Invalid Geometry Check
Tax Parcel Spatial Checks	TaxParcel should not cross Subdivision boundary
	TaxParcel Overlapping
	TaxParcel Sliver Gap

Exhibit B

In consideration of the services provided by Contractor described in Exhibit A and subject to the terms of the Agreement, County shall pay Contractor based on the following fee schedule and terms:

1. It is agreed that the Contractor shall be paid by San Mateo County the sum of \$2,082,230. The Contractor shall invoice the County as follows:

Payment 1: \$156,167, upon execution of the contract.

Payment 2: \$154,112, upon review and acceptance by ACRE of:

- Phase 1: Implementation Planning
- Phase 2: Requirements Finalization
- Phase 3: Pilot Project

Payment 3-18: \$97,733, upon the delivery by BHA of approximately 14,500 parcels and associated Assessor Maps, and ACRE completing of User Acceptance Test (UAT) and sign-off. Total of 16 payments at each \$97,733.

Payment 19: \$104,111.50, upon completion and acceptance by ACRE of:

- Phase 5: Training
- Phase 6: Transition
- Phase 7: Map Publishing and Viewing

Payment 20: \$104,111.50, upon completion of:

- Phase 8: Warranty

2. It is agreed that if the total number of parcels mapped exceeds 230,000 parcels, the Contractor will invoice the County \$8.23 (Eight and 23/100 Dollars) per each additional parcel mapped over 230,000.

BHA will invoice the County for Payment 1 on the date the contract is signed and for subsequent payments upon ACRE acceptance and sign-off of associated deliverables. County has 30 days to make payment upon receipt of invoice.

Attachment IP

Intellectual Property Rights

1. The County of San Mateo ("County"), shall and does own all titles, rights and interests in all Work Products created by Contractor and its subcontractors (collectively "Vendors") for the County under this Agreement. Contractor may not sell, transfer, or permit the use of any Work Products without the express written consent of the County.
2. "Work Products" are defined as all materials, tangible or not, created in whatever medium pursuant to this Agreement, including without limitation publications, promotional or educational materials, reports, manuals, specifications, drawings and sketches, computer programs, software and databases, schematics, marks, logos, graphic designs, notes, matters and combinations thereof, and all forms of intellectual property.
3. Contractor shall not dispute or contest, directly or indirectly, the County's exclusive right and title to the Work Products nor the validity of the intellectual property embodied therein. Contractor hereby assigns, and if later required by the County, shall assign to the County all titles, rights and interests in all Work Products. Contractor shall cooperate and cause subcontractors to cooperate in perfecting County's titles, rights or interests in any Work Product, including prompt execution of documents as presented by the County.
4. To the extent any of the Work Products may be protected by U.S. Copyright laws, Parties agree that the County commissions Vendors to create the copyrightable Work Products, which are intended to be work-made-for-hire for the sole benefit of the County and the copyright of which is vested in the County.
5. In the event that the title, rights, and/or interests in any Work Products are deemed not to be "work-made-for-hire" or not owned by the County, Contractor hereby assigns and shall require all persons performing work pursuant to this Agreement, including its subcontractors, to assign to the County all titles, rights, interests, and/or copyrights in such Work Product. Should such assignment and/or transfer become necessary or if at any time the County requests cooperation of Contractor to perfect the County's titles, rights or interests in any Work Product, Contractor agrees to promptly execute and to obtain execution of any documents (including assignments) required to perfect the titles, rights, and interests of the County in the Work Products with no additional charges to the County beyond that identified in this Agreement or subsequent change orders. The County, however, shall pay all filing fees required for the assignment, transfer, recording, and/or application.
6. Contractor agrees that before commencement of any subcontract work it will incorporate this **ATTACHMENT IP** to contractually bind or otherwise oblige its subcontractors and personnel

performing work under this Agreement such that the County's titles, rights, and interests in Work Products are preserved and protected as intended herein.