

Mitigating Legacy Risks in Future Cities:

A Geospatial approach to Environmental and Contaminated Land Coordination

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ENGE0

California

FOREVER



Application of GIS to assist in the planning, investigation and development of the Next Great American City

Study Area

90 km²

25 Teams

170,000 Homes

40 Year timespan

530,000 Jobs

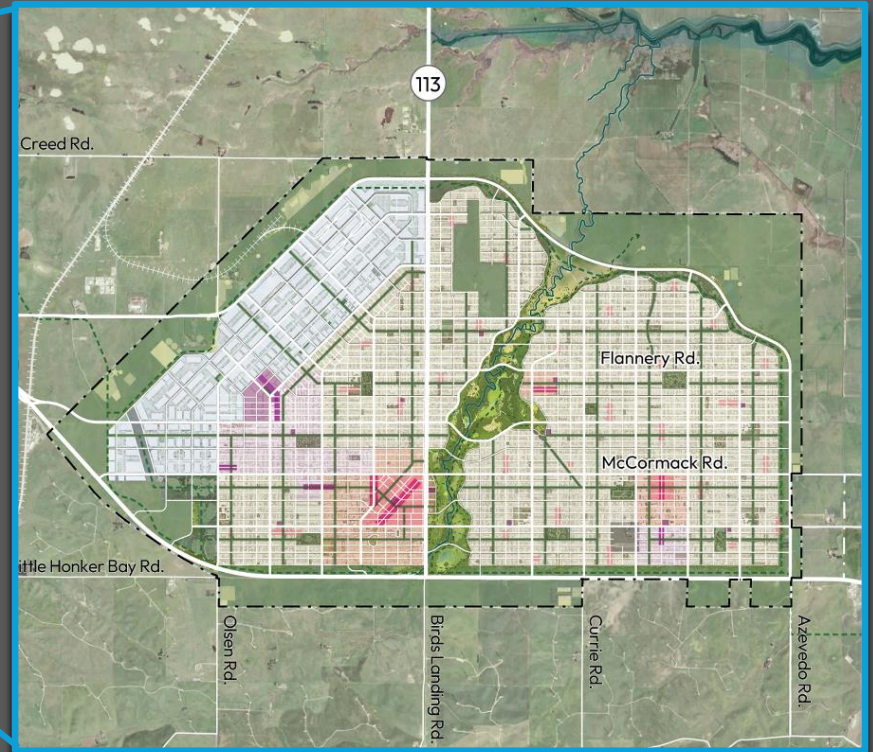
**US \$16 BN Tax
Revenues**

1970



NGA, USGS | County of Sacramento, California State Parks, Earth Scan/Orion, Garmin, SafeGraph, GeoTechnology, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Specific Plan



Why GIS?

- Information Silos vs GIS Data Integration
- One Stop Shop – meetings, planning, cross cluster coordination
- Dynamically Modifying Plans
- Precision, Speed, Cost

How GIS?

- Central GIS Portal with controlled access and metadata
- Clusters coordinate with ENGEEO to add layers
- Automated Field Data Collection and Coordination
- Digital Storytelling for Technical Reports

Outcome

- Better meetings
- Better data
- Faster design iterations
- Better design
- Better reporting

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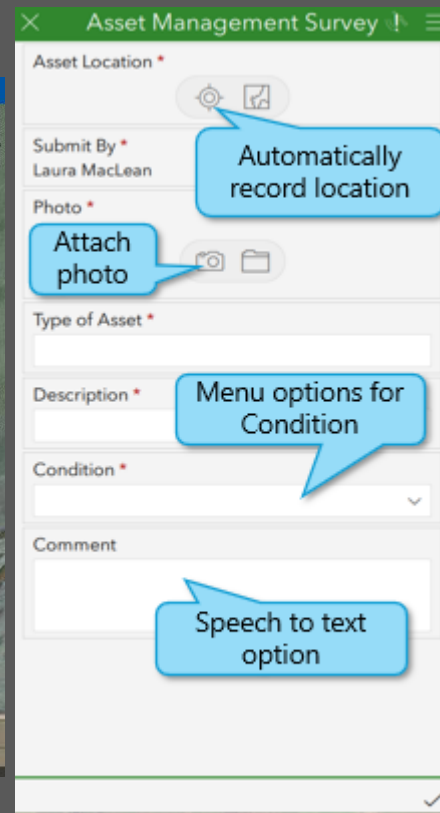
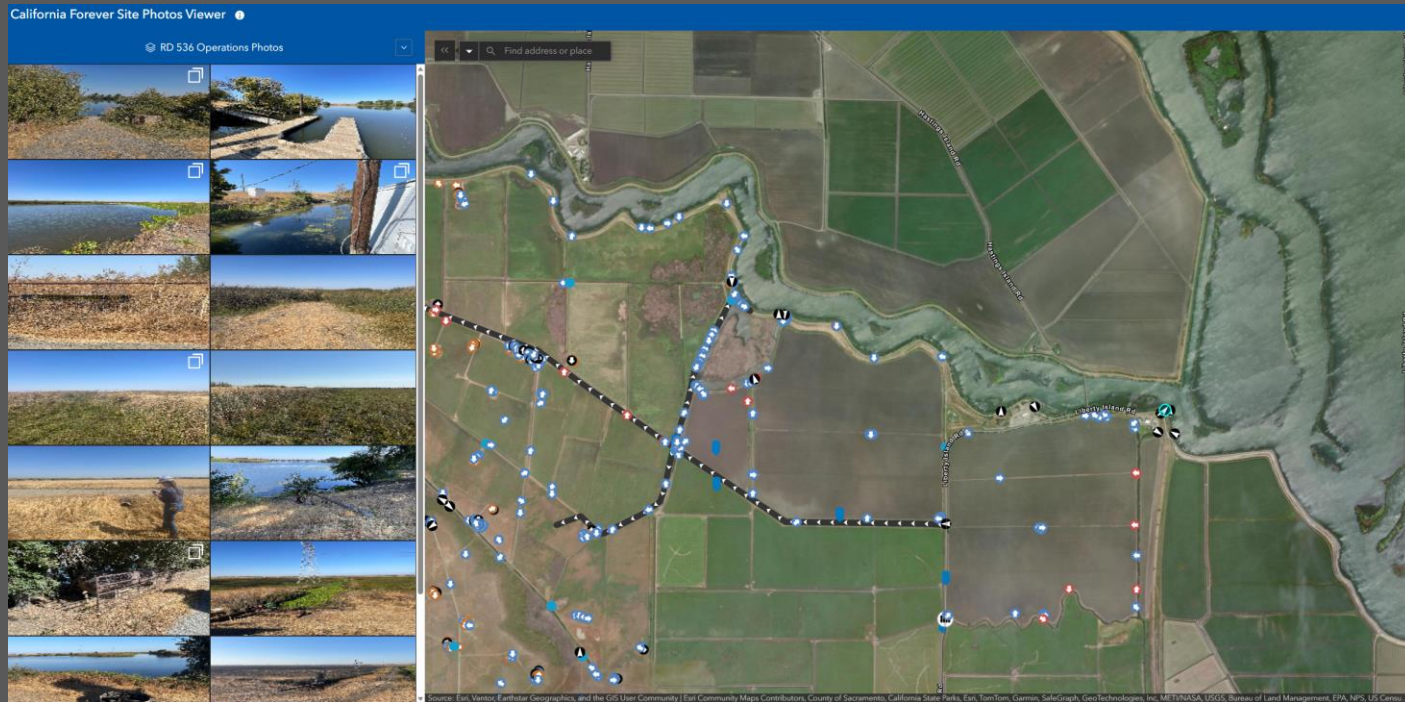
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Automated Field – Office Coordination



Using **Survey123** and ArcGIS Platforms to streamline the field data collection workflow and achieve real-time sync between site data and office database.

GIS Portal

Searchable Table of Contents that organize data by different engineering and design disciplines or project phases

Turn on/off GIS layers at ease with options to adjust style, generate buffers, and query metadata

The screenshot displays the ENGEEO GIS Portal interface. At the top, there are navigation tabs: Main, Owned Parcels Table, Site Access, and Historical Aerials/Topos. The left sidebar contains a searchable Table of Contents with categories like Aviation, Climate, Cultural/Archaeological, Infrastructure/Utilities, and Physical/Environmental. The main map area shows a geologic map with a 'GeoReference' tool overlay. The 'GeoReference' tool includes an 'Input' section with 'Upload' and 'Show Existing' buttons, an 'Image Name' field (set to 'Not Uploaded'), an 'Image Opacity' slider, and 'Adjust Image Zoom' and 'Shift Image' controls. Below this are 'Control Points Pairs' with four corner markers (Corner 1 to Corner 4) and 'Overlay' and 'Redo' buttons. A 'Bookmarks' panel is also visible, listing 'Public Bookmarks' such as 'Existing Infrastructure', 'Existing Regional Transit Network', 'Owned Parcels Clean View', 'Biosolids SPA', 'Climate Hazards', 'O&G Map', 'Phase I ESA', and 'Hazmat Composite'. It also shows 'Local Bookmarks' and a 'Create New Bookmark' section. At the bottom, a 'Flood Hazard Zones (FEMA, 2019)' data table is displayed with filters and a table of results.

Flood Zone	Zone Sub-type
X	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
X	AREA OF MINIMAL FLOOD HAZARD
X	AREA OF MINIMAL FLOOD HAZARD
AE	1% Annual Chance Flood Hazard
AE	FLOODWAY

Additional custom trackers, dashboards, aerial/topo viewers, and storymaps available

Detailed attribute table for information behind GIS layers

Interactive Reporting

Project Extents

ENGEQ conducted a phase I environmental site assessment (ESA) for the subject property located in Solano County, California (P Base (TAFB, Figure 1). Due to the large size of the property, the tabular appendix is provided in a separate document.

- The Property consists of three distinct areas:
- The Specific Plan Area (SPA) is located in Solano County, California. The SPA is approximately 17,454 acres (APNs) listed in Appendix A. This area includes:
 - Two Solar Opportunity Areas (SOAs) designated as Zone A and Zone B. These areas are proposed for solar development.
 - Zone A is located north of the intersection of Highway 113 and Plan bounded by Highway 12. Zone A of the land used for grazing with isolated ranches.
 - Zone B is located south and east of the intersection of Highway 113 and Plan bounded by Highway 12. Zone B of the land used for grazing with isolated ranches.

Refer to Figures 3A through 3D for the location of the SPA.

The SPA generally consists of undeveloped lots, ranches, and commercial/industrial land used for grazing with isolated ranches. The SPA is bounded by Highway 12 to the north, Highway 113 to the east, and Highway 113 to the south.

Review of historical records indicates that the SPA has been used for agricultural purposes since at least 1937. Due to the large size of the property, the tabular appendix is provided in a separate document.

- General Parcel Information (App)
 - APNs, site identification number, address, acreage, etc.
- Preliminary Title Report (PTR) in Solano County
 - APNs, parcel identification number, PTR date, vested owner, findings, etc.
- Historical Topographic Maps and Aerial Photographs
 - APNs, year, description, and aerial photograph.

This assessment included a review of historical sources, standard historical sources, and other sources. A reconnaissance of the site was conducted to check for the storage, use, or presence of hazardous materials and to conduct current and past site use.

The site reconnaissance and records review identified potential soil gas, or groundwater impairments associated with the site.



East Solano PLAN

ESP Digital ESA

- Overview Summary Dashboard Site Recon Dashboard PTR Dashboard Aerial & Topo Dashboard Aerial & Topo Viewer Resource Library

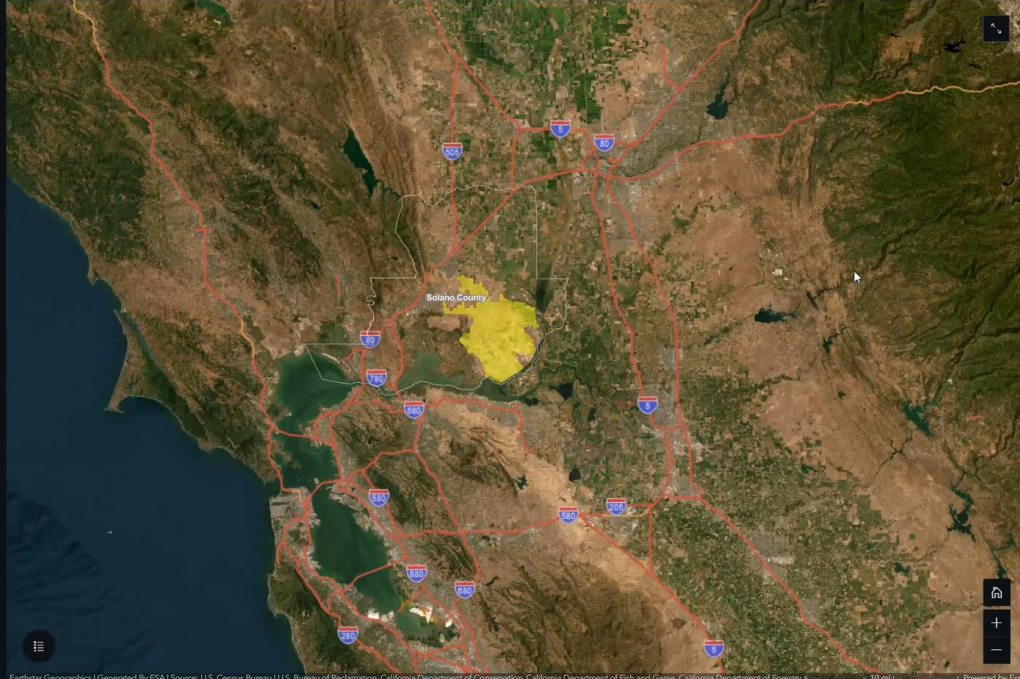
- Welcome Executive Summary 1. Introduction 2. Previous Environmental Repo... 3. Records Review 4. Site Reconnaissance 5. Interviews 6. Findings and Opinions 7. Conclusions & Recommendation... 8. Limitations Selected Rel

Project Extents

ENGEQ conducted a phase I environmental site assessment for the subject property located between Rio Vista and the Travis Air Force Base (TAFB). The black outline encapsulates the East Solano Plan (ESP), within which the proposed city will be developed. The project proposes a variety of off-site infrastructure improvements (Off-Site Improvements).

Taken together, the ESP and the Off-Site Improvements are known as the Project Site. Off-site Improvements associated with the ESP include:

- Proposed widening and/or realignments of



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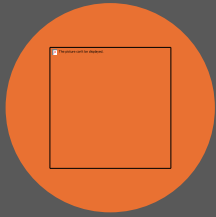
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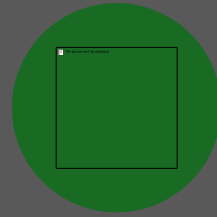
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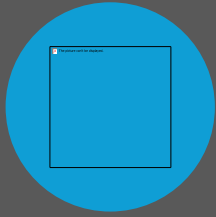




Facilitates multi-disciplinary collaboration on complex projects.



Streamlines field data collection and reporting processes.



Provides operational data management platforms.



Democratizes access to data and insights.



Enhances the conveyance of technical insights by storytelling.





Stephen Fallon | San Ramon, CA

Stephen is a Senior Engineer at ENGEO, specialising in due diligence, contaminated land remediation, and landfill closure for over 17 years. He also has experience working in Hawaii, New Zealand, and California working with private, public, and federal clients and agencies.

He has a Bachelors of Science in Civil Engineering from the University of Hawaii at Manoa.

California

FOREVER



Wenhao Wu | San Ramon, CA

Wenhao is a GIS Developer at ENGEO with 9 years of experience in urban planning, design, and GIS development, he has been applying the latest geospatial technologies in land use planning, environmental justice, as well as urban design work across California and Asia.

He has a Master in City Planning from the University of Pennsylvania and a Master of Science in Computer Science from Georgia Tech.

