

City of Benicia – Solar Site Inventory Analysis – Open Space Parcels

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Introduction: Renewable Properties, LLC engaged Faulk and Foster (F&F) to prepare an independent 3rd party analysis of potentially suitable sites for development of utility-scale solar photovoltaic (pv) projects within “OS-Open Space” zoned parcels in the City of Benicia. This analysis evaluates the viability of property zoned “OS” for solar development based on an industry standard screening methodology. The data inputs, screening methodology, and results of the analysis render a geo-spatial interpretation of potentially viable sites for solar pv development (Figure 7). Development constraints that informed this study include size of the site¹, location within a FEMA floodplain or floodway, existence of wetlands or sensitive biological resources, slope/site topography, and access or proximity to electrical infrastructure².

Methodology: Geographic Information Systems (GIS) and spatial data sourced from the Federal Emergency Management Agency (FEMA), United States Fish & Wildlife Service (USFWS), United States Geological Survey’s National Elevation Dataset, and parcel and zoning data from Solano County were used to prepare the analysis. ESRI’s ArcGIS software was used to conduct the overlay analysis to determine potentially viable parcels by calculating the area remaining once development constraints removed the parcels.

Figure 1 depicts all 159 Open Space parcels in the City of Benicia that were subjected to the screening assessment described herein. Figure 2 depicts the elimination of non-contiguous parcel ownership smaller than 5 acres and shows the remaining 80 parcels. Figure 3 depicts the elimination of parcels contained within FEMA floodplains and shows the remaining 47 parcels. Figure 4 map depicts the elimination of parcels constrained by FWS National Wetlands Inventory (NWI) registered wetlands and shows 45 parcels remained. Figure 5 depicts the parcels constrained by terrain greater than 20% in slope and shows that 18 parcels remained. Figure 6 depicts parcels that were eliminated because they lacked access to electric infrastructure (distribution lines within 100’). Figure 6 depicts the final eight parcels that would be suitable for solar development. Figure 7 demonstrates the areas within these remaining parcels that have five contiguous acres and do not conflict with the development constraints described herein.

Conclusion: Using the industry standard screening methodology, there are eight OS-zoned parcels that meet the development constraint criteria. Out of the eight parcels, the City of Benicia owns four parcels, the State of California owns two parcels, and Benicia North Gateway II LLC owns two parcels.

(1) Benicia North Gateway II LLC		APN: 0080030050		88.54 acres
(2) Benicia North Gateway II LLC		APN: 0080030040		50.57 acres
(3) City of Benicia		APN: 0083220080		599.15 acres
(4) City of Benicia		APN: 0083210210		72.34 acres
(5) City of Benicia		APN: 0083210120		57.08 acres
(6) City of Benicia		APN: 0083210160		31.38 acres
(7) California State		APN: 0079010360		225.53 acres
(8) California State		APN: 0079010110		99.61 acres

¹ Parcels less than 5 contiguous acres are not considered viable sites.

² Base data layers include FEMA floodplain designation, USFWS National Wetland Inventory, slope greater than 20%, Open Space Zoning designation, and parcel information.

The City of Benicia Open Space District consists of 159 parcels totalling 2,170.12 acres. F&F's analysis concluded that of the 159 parcels and 2,170.12 acres zoned OS, only eight parcels totalling 1,224.20 acres had "solar viable" areas within them. Within these eight remaining parcels, Figure 7 demonstrates "stranded areas" within the remaining parcels that were further screened out due to development constraints. While parts of those eight parcels might have implied suitability, the screened-out areas did not meet the minimum criteria.

When "stranded areas" were removed from the total parcel acreage, only 206.98 acres, or 9.5% of the OS district is viable for solar development. Furthermore, when state and municipally owned parcels are removed from the acreage total, only is 60.85 acres, or 2.8% of Benicia's OS district is viable for solar development.

FIGURE 1

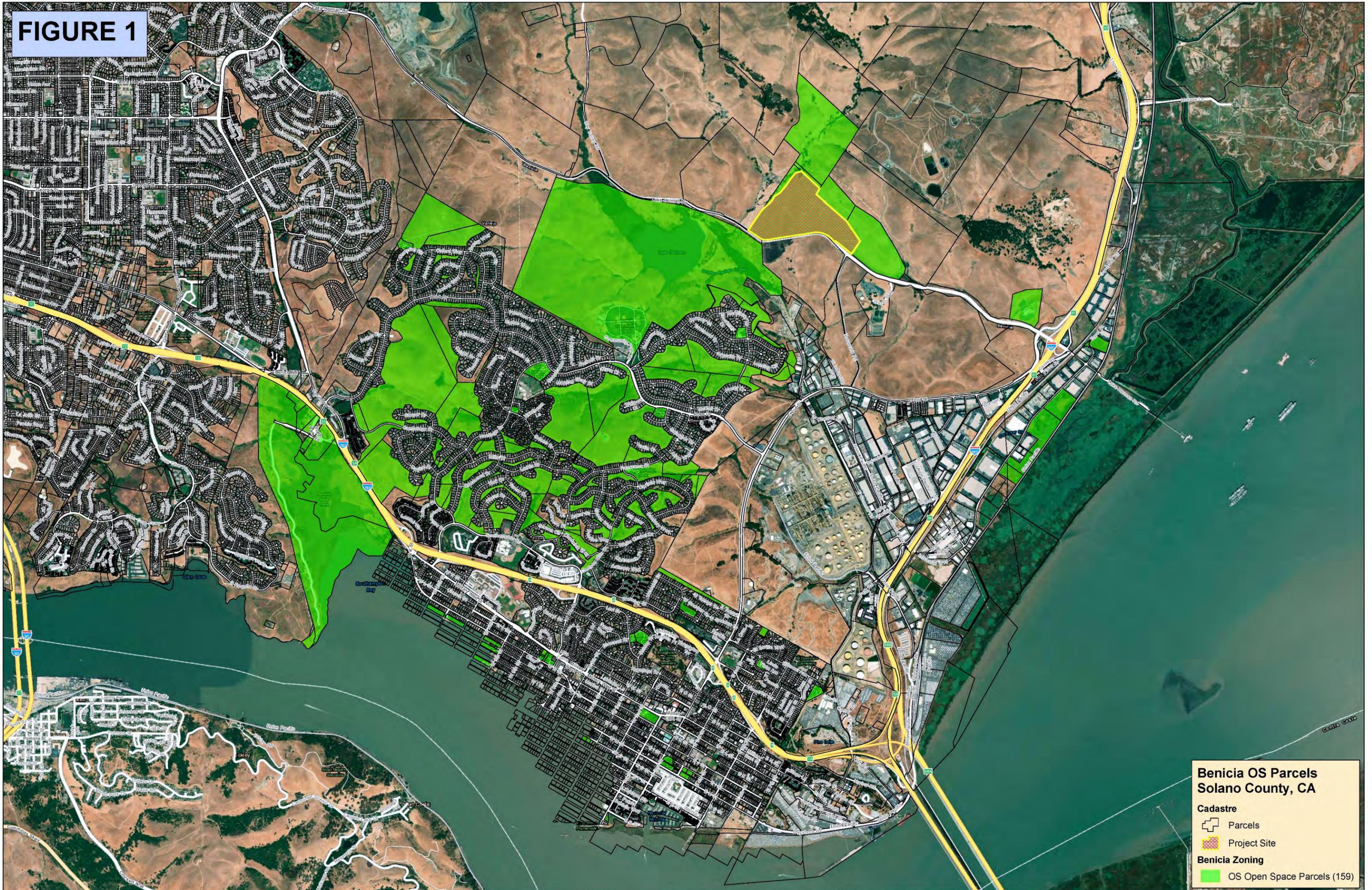


FIGURE 2

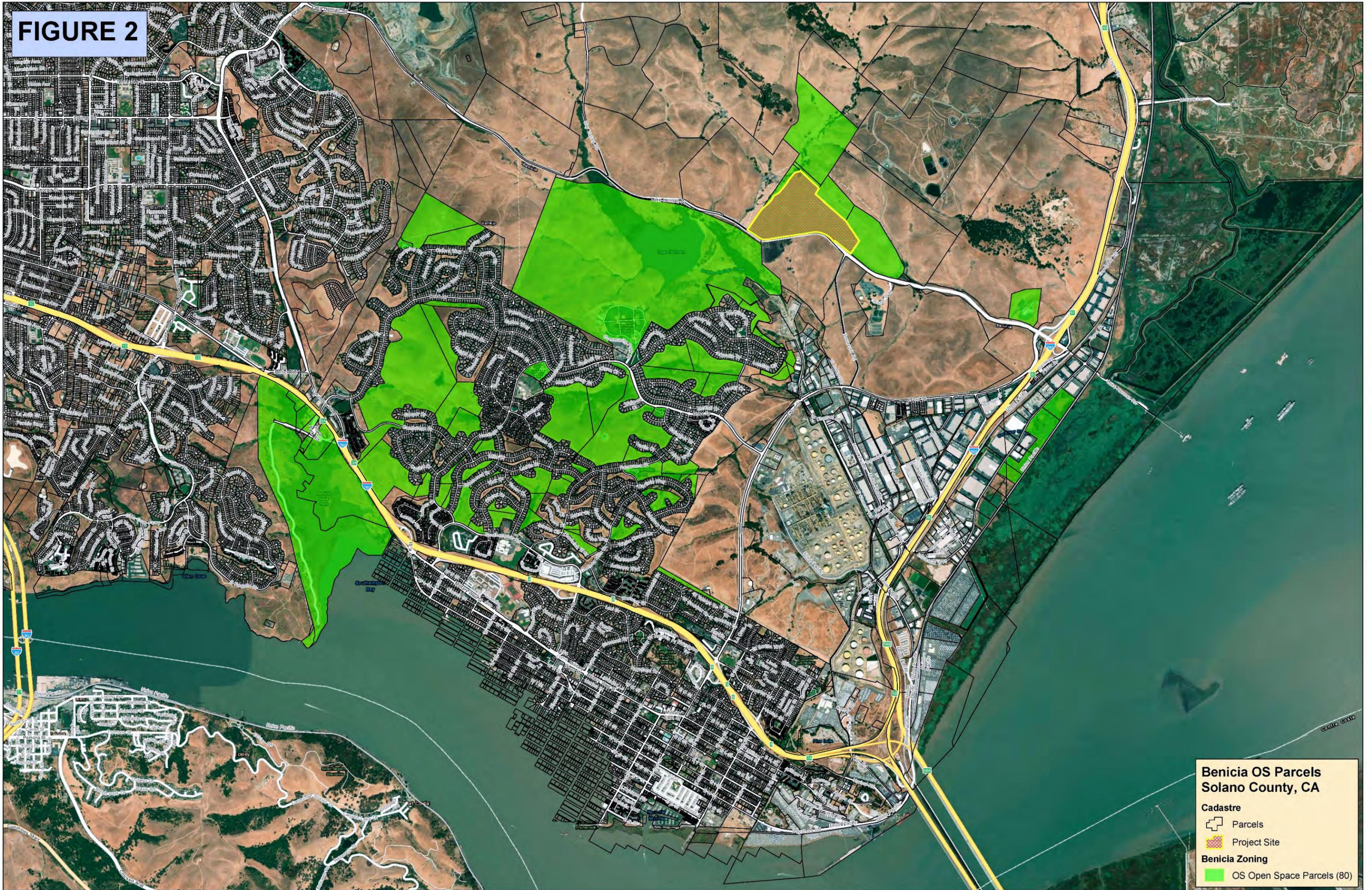
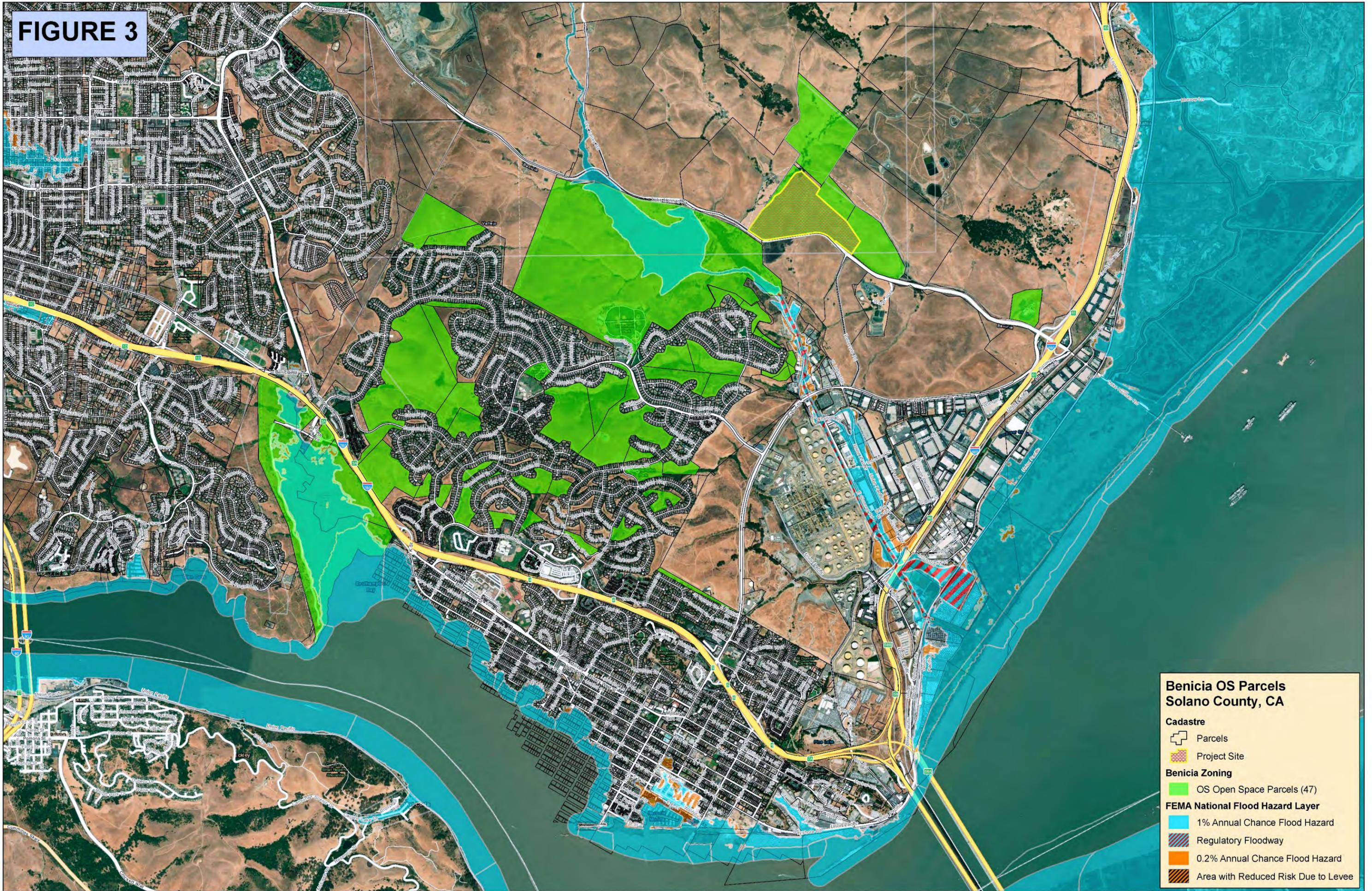


FIGURE 3



**Benicia OS Parcels
Solano County, CA**

Cadastral

- Parcels
- Project Site

Benicia Zoning

- OS Open Space Parcels (47)

FEMA National Flood Hazard Layer

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

FIGURE 4

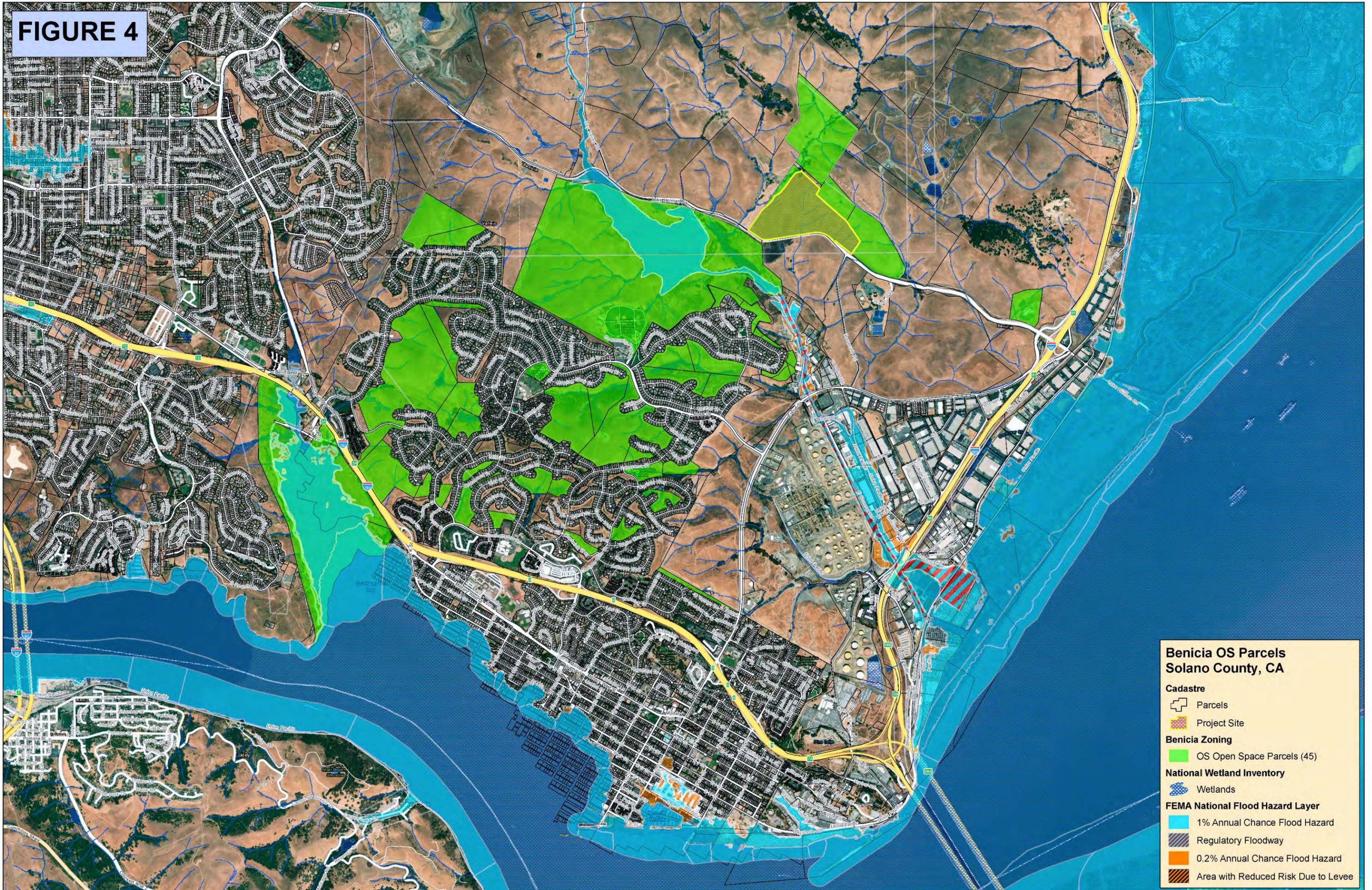


FIGURE 5



**Benicia OS Parcels
Solano County, CA**

Cadastral

- Parcels
- Project Site

Benicia Zoning

- OS Open Space Parcels (18)

National Wetland Inventory

- Wetlands

Terrain Model - Percent Slope

- < 20%
- 20%+

FEMA National Flood Hazard Layer

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

FIGURE 6



**Benicia OS Parcels
Solano County, CA**

Electric Infrastructure
Distribution

Cadastral
Parcels
Project Site

Benicia Zoning
OS Open Space Parcels (8)

National Wetland Inventory
Wetlands

Terrain Model - Percent Slope
< 20%
20%+

FEMA National Flood Hazard Layer
1% Annual Chance Flood Hazard
Regulatory Floodway
0.2% Annual Chance Flood Hazard
Area with Reduced Risk Due to Levee

FIGURE 7



**Benicia OS Parcels
Solano County, CA**

Electric Infrastructure
Distribution

Cadastral
Parcels
Project Site
OS Open Space Parcels (8)
Areas Suitable for Solar Development