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GEOG370.007

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Site Suitability Analysis for a New Community Art Center in San Francisco

Introduction:

Access to arts and cultural spaces is not always evenly distributed across cities. San Francisco's wealthier and more central neighborhoods tend to have better access to these spaces, in comparison to southern neighborhoods. By using spatial analysis in QGIS, we aim to identify an optimal location for a new community-based art center within San Francisco that:

- is accessible by public transportation (MUNI),
- within underserved neighborhoods (Equity Strategy Neighborhoods),
- not near existing art and cultural centers, and
- is on available land.

Question: Where in San Francisco should a new community-based art center be located to maximize access for underrepresented or underserved populations?

Methods:

Identifying Relevant Layers

- These data sources were gathered from the San Francisco open data portal, downloaded as GeoJSON's, and imported as layers in QGIS.

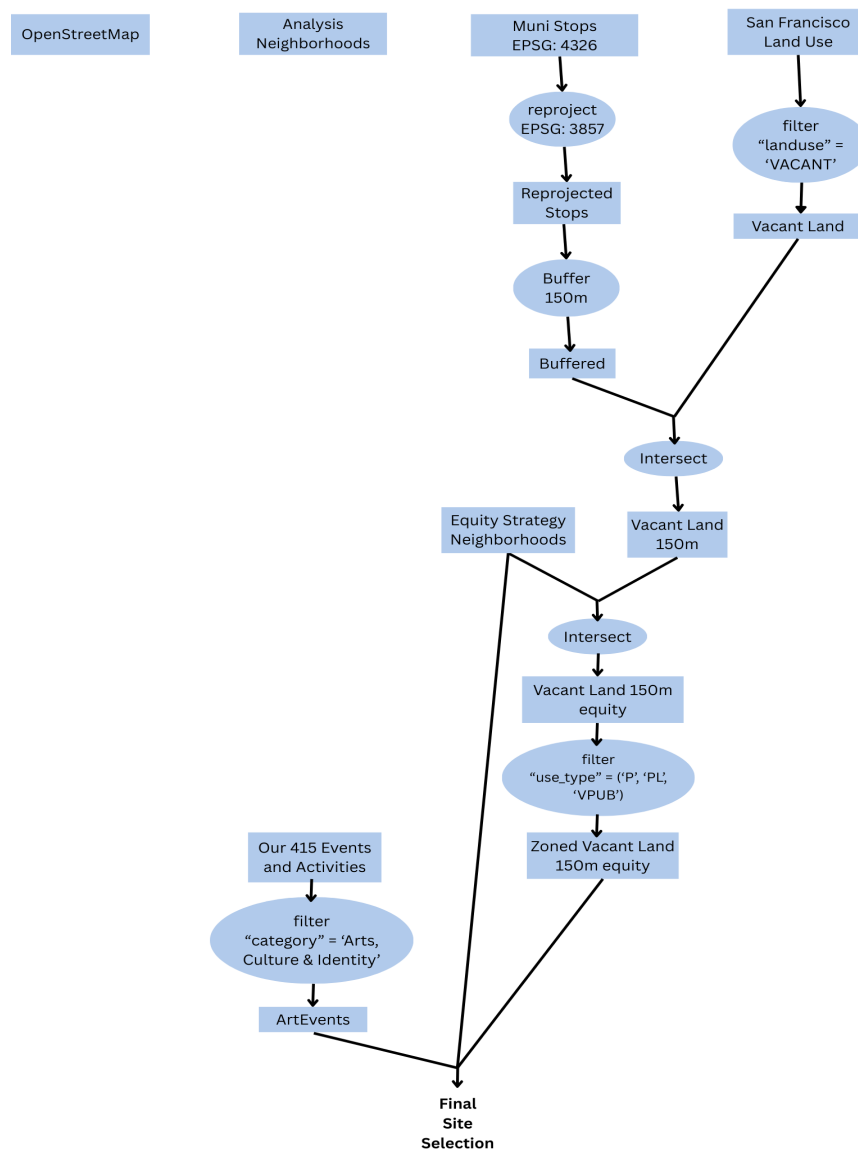
Layer	Purpose	Data
Equity Demographics	Identify underserved communities	Equity Strategy Neighborhoods
Public Transit Stops / Routes	Ensure accessibility by transit	MUNI transportation stops dataset
Existing Art & Cultural Centers	Map existing arts and cultural programs to avoid overserved areas	Our415 Events
Land Use / Vacant Parcels	Identify available land	San Francisco Land Use

Data Preparation and Filtering

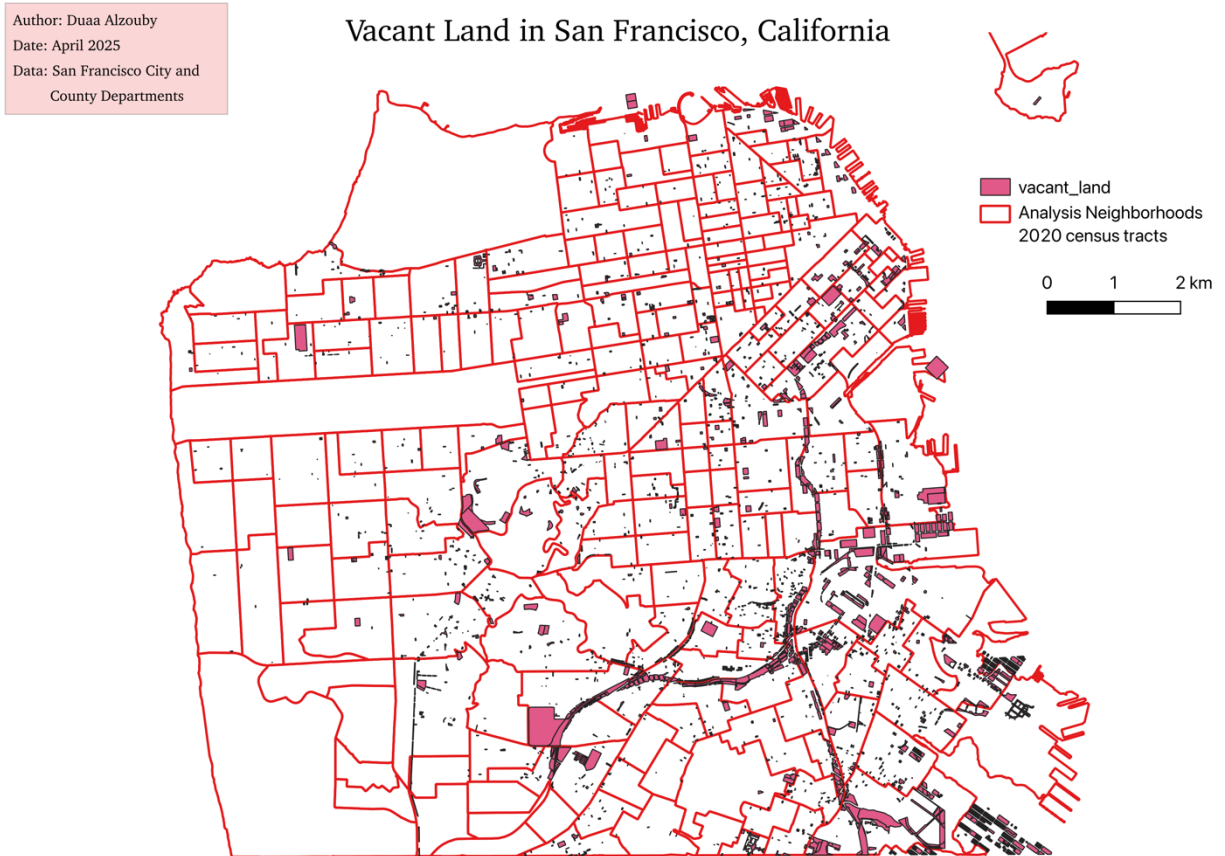
- Land Use Filtering: The 'San Francisco Land Use' layer, was filtered using the select by expression feature, where "landuse" = 'VACANT'. This information was saved as a new layer called 'Vacant Land'.
- Transit Accessibility Buffer: The 'Muni Bus Stops' layer was reprojected from EPSG: 4326 to EPSG: 3857 to be buffered. The reprojected layer was buffered using a 150-meter radius for walking accessibility. This buffered layer was intersected with the vacant land layer to narrow down the vacant land within a 150-meter radius of a bus stop.

- Equity Neighborhood Filter: The equity strategy neighborhoods layer was intersected with the buffered vacant land layer to prioritize underserved populations.
- Zoning Filter: The remaining parcels were filtered by 'use_type' codes suitable for community development
 - 'P' (Public), 'PL' (Public Land), and 'VPUB' (Vacant Public)
- Art Events Filter: The Our415 Events layer was filtered for events in the 'Arts, Culture & Identity' category. This information mapped event distribution to visualize areas already containing art centers.
- Site Selection: Using the Art Events, Equity Strategy Neighborhoods, and the remaining parcel land data to visually review the candidate sites within the Equity Strategy Neighborhoods and identify the ones more isolated from the art events. The site selected is next to James Denman Middle School and a variety of educational centers in the south of San Francisco.

Figure 1- Flowchart



Note. Rectangles represent layers, ovals represent functions.

Results:**Figure 2***Vacant Land in San Francisco, California*

Note. Map shows the filtered land by vacancy. The vacant land appears to be clustered mainly in the east of the city.

- Number of original land parcels: ~155,000.
- Number of parcels after filtering for vacancies: ~3,000

Figure 3
San Francisco Vacant Land with Bus Stops

Author: Duaa Alzouby
Date: April 2025
Data: San Francisco City and
County Departments

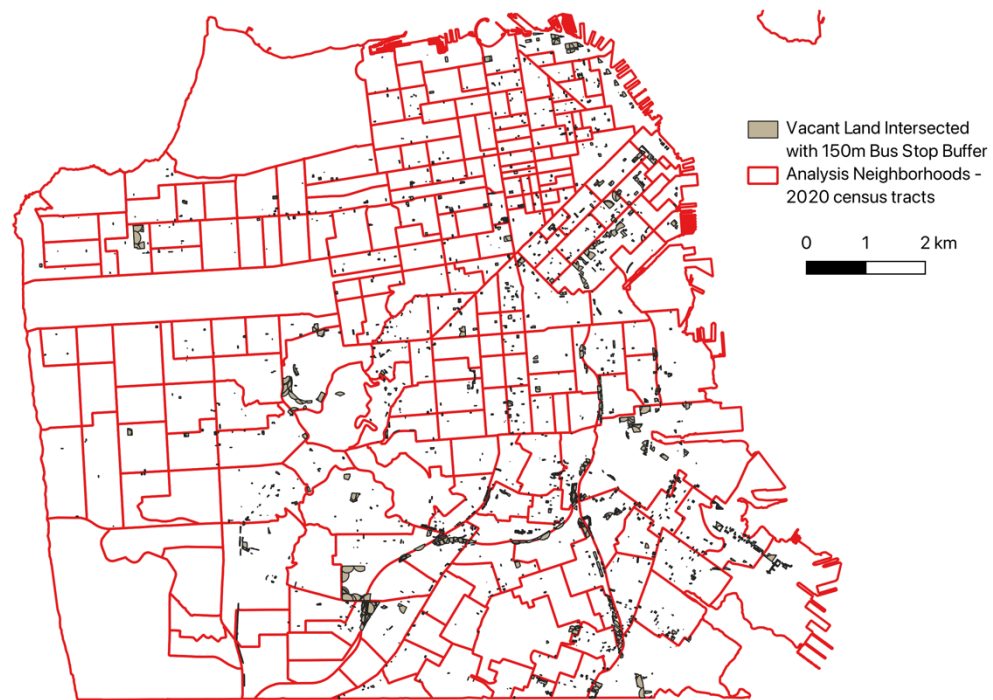
San Francisco Vacant Land with Bus Stops



Note. Map shows the 150-meter buffer around the Muni transportation system bus stops.

Figure 4*Vacant Land in San Francisco within 150-meters of a Bus Stop*

Author: Duaa Alzouby
Date: April 2025
Data: San Francisco City
and County Departments

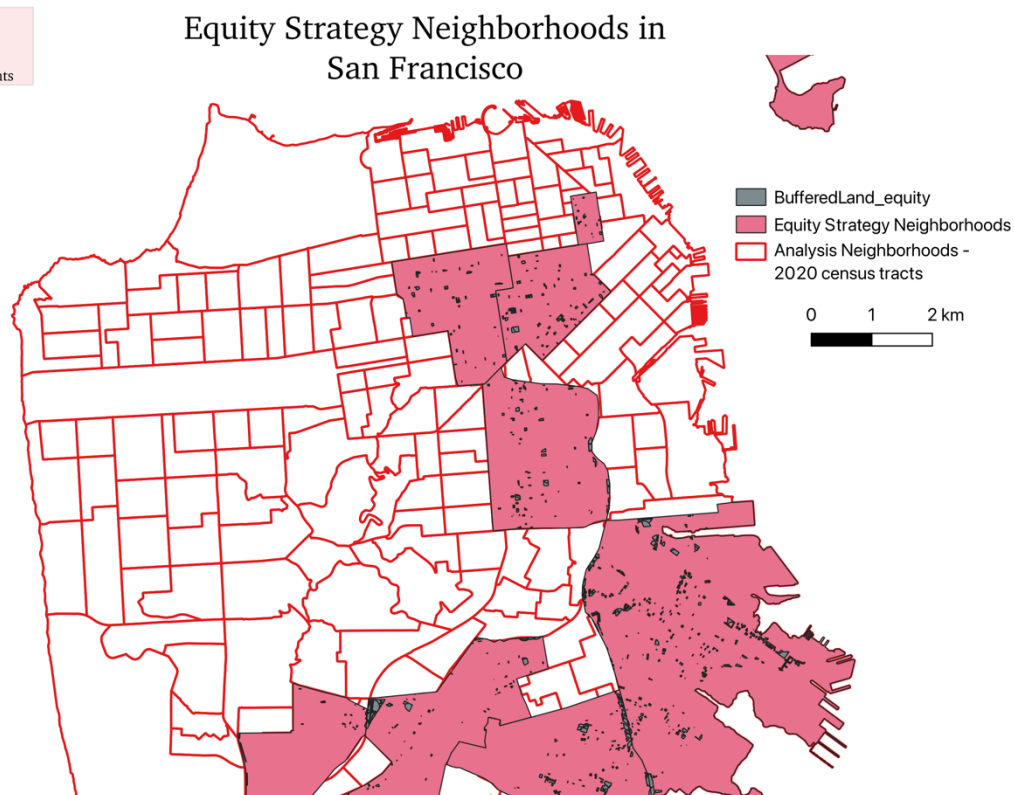
**Vacant Land in San Francisco within
150 meters of a Bus Stop**

Note. Map shows the resulting land parcels available for use after intersecting with the buffer.

- Number of parcels after intersecting with buffer: ~2,000

Figure 5
Equity Strategy Neighborhoods in San Francisco

Author: Duaa Alzouby
 Date: April 2025
 Data: San Francisco City
 and County Departments



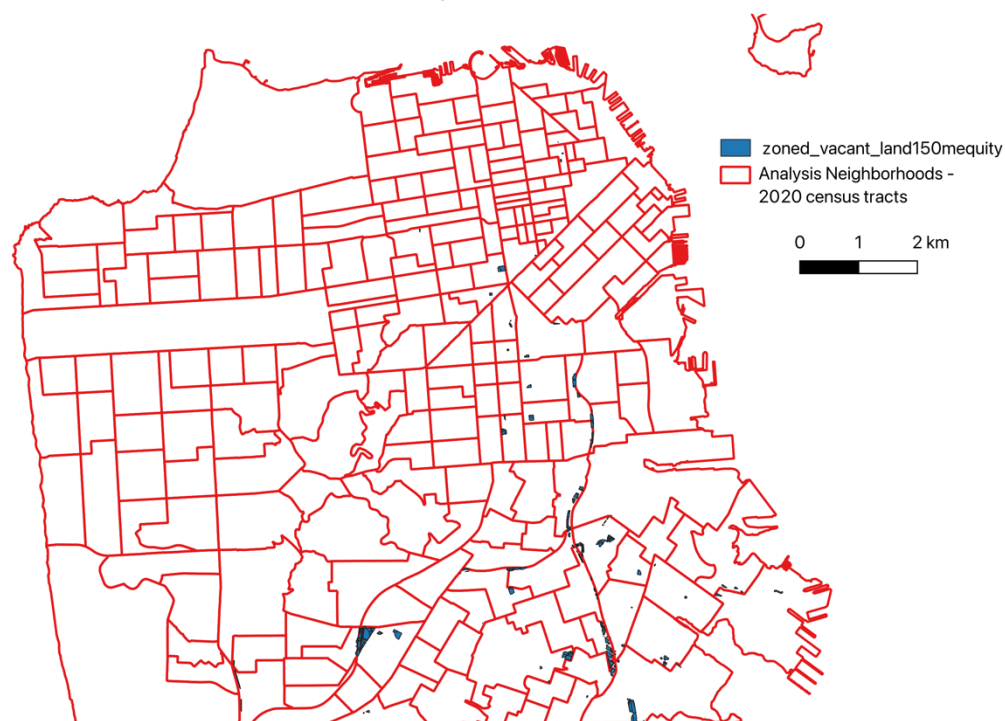
Note. Image shows the equity strategy neighborhoods with the intersected vacant land parcels.

- Number of land parcels after equity filter: 574

Figure 6*Accessible Vacant Public Land in Underserved Communities, San Francisco*

Author: Duaa Alzouby
 Date: April 2025
 Data: San Francisco City
 and County Departments

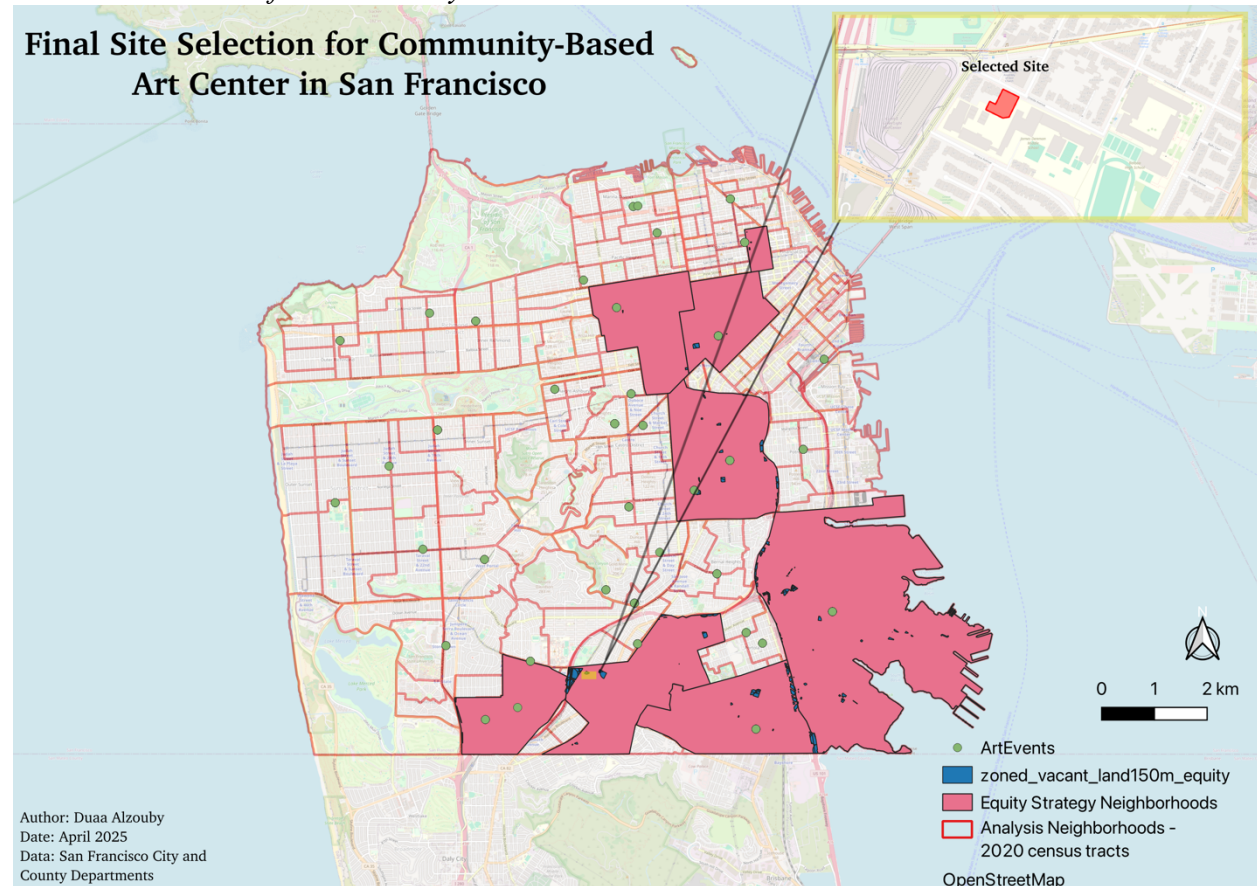
Accessible Vacant Public Land in Underserved Communities, San Francisco



Note. Map shows the vacant land parcels after being filtered by zoning types suitable for community use.

Number of land parcels after zoning filter: 574

Figure 7
Final Site Selection for Community-Based Art Center in San Francisco



Note. Map shows the candidate sites and the filtered art events layer overlapping the equity strategy neighborhoods with an inset of the selected site for the community art center.

Originally, there were over 155,000 land parcels of land in San Francisco. After filtering for vacant land parcels, there were over 3,000 sites. Once all the functions had been executed, the number of candidates was cut down to 574. These parcels are accessible by transit, in residential areas, lack existing art programming, and are sufficiently sized.

Discussion/Conclusion:

The spatial analysis identified a site meeting all criteria: transit accessibility, prioritization of underserved communities, availability of developable land, and a lack of nearby arts programming.

Notable comments:

- Vacant land classifications were flawed — some sites overlapped highways and needed manual checking.
- Filtering by zoning was unnecessary- filtering for vacancies already eliminated most of the unsuitable parcels.

References:

- “Analysis Neighborhoods - 2020 Census Tracts Assigned to Neighborhoods: Datasf.” *Seal of the City and County of San Francisco*, 8 July 2022, data.sfgov.org/Geographic-Locations-and-Boundaries/Analysis-Neighborhoods-2020-census-tracts-assigned/sevw-6tgi/about_data.
- “Muni Stops: Datasf.” *Seal of the City and County of San Francisco*, 22 Feb. 2025, data.sfgov.org/Transportation/Muni-Stops/i28k-bkz6/data.
- “San Francisco Land Use - 2020: DataSF.” *Seal of the City and County of San Francisco*, 17 Oct. 2023, data.sfgov.org/Housing-and-Buildings/San-Francisco-Land-Use-2020/ygi5-84iq/about_data.
- “Equity Strategy Neighborhoods: Datasf.” *Seal of the City and County of San Francisco*, 30 July 2024, data.sfgov.org/Transportation/Equity-Strategy-Neighborhoods/f8bh-m8ez/about_data.
- “OUR415 Events and Activities: Datasf.” *Seal of the City and County of San Francisco*, 28 Apr. 2025, data.sfgov.org/Economy-and-Community/Our415-Events-and-Activities/8i3s-ih2a/about_data.