

Silicon Valley on Foot: Mapping Walkability in Santa Clara County, California

Objective

Santa Clara County, CA, also known as the "Silicon Valley," is home to some of the world's biggest names in the tech industry. However, tech wealth has not translated into funds for public services, especially in the case of public transportation. This, combined with sprawling residential development, leads to an area that, as a whole, is difficult to live in without a car. The objective of this analysis is to measure the availability of essential services in San-

ta Clara County within walking distance. Furthermore, this walkability surface will be mapped to census block groups and will use this block group analysis to determine the total population residing in each walkability category. Lastly, this block group map will be used to determine if there is a correlation between percent minority population and walkability in Santa Clara County.

Methodology

1. Determine Essential Services

11 destination types were included in the analysis. Each service was assigned a "weight" based on its importance, as well as a distance that would be considered "walkable" (400 meters, or about a quarter mile, in most cases.)

2. Obtain Point Datasets

Most points were extracted using Reference USA's business database and plotted using longitude and latitude data. A few datasets were available from CAL-ATLAS, the California geospatial data clearinghouse. Points were also created from the centroids of the open space areas.

3. Create Network Dataset and Generate Polygons from Network Distance

A network was created from the street dataset, and using the blank tool, all areas within the relevant distance from each point type (accessible by walking that distance on streets) were identified. These "network distances" were then exported as polygons.

4. Create Walkability Surface

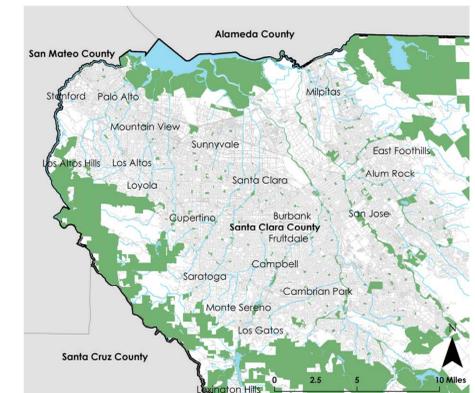
These polygons were converted to raster files, and added together (using their respective weights) with the raster calculator tool.

5. Map Walkability Surface to Census Units

Using the "Zonal Statistics as Table" tool, mean walkability was aggregated by census block.

6. Use Census Data for Analysis

Data was separated by walkability category, and within these categories percent of total population and minority population living within these areas were calculated.



Study Area

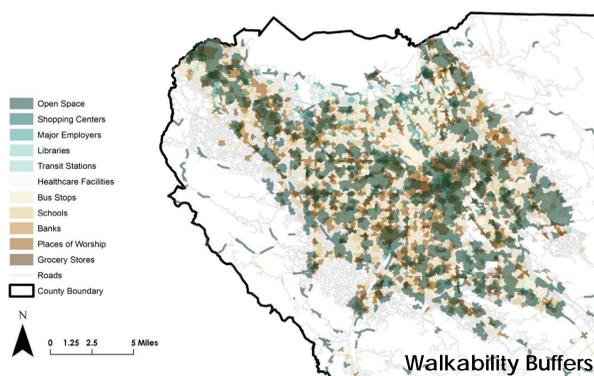
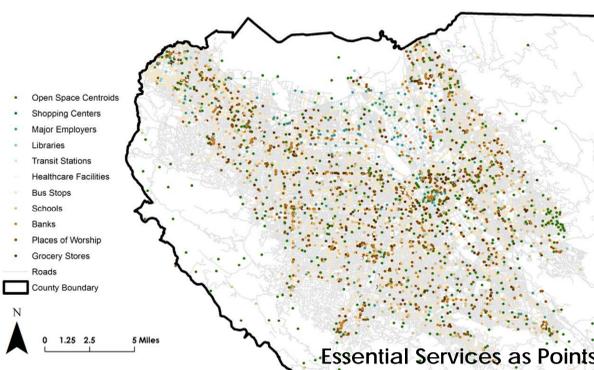
Conclusions

From this analysis, a few trends emerged:

- No area reached the top score of 10 for walkability.
- About 23% of SCC residents live in a block group that is not walkable or has very low walkability.
- Most of the population (69%) lives in an area of medium walkability.
- A minority of the population (7%) lives in an area of high or exceptional walkability.
- There were only slight differences in the walkability profiles between the white and non-white population.

For future analysis, this walkability surface could also be used for analysis by other census units (blocks or tracts) and with other census data (income levels, car ownership, or age, for example.)

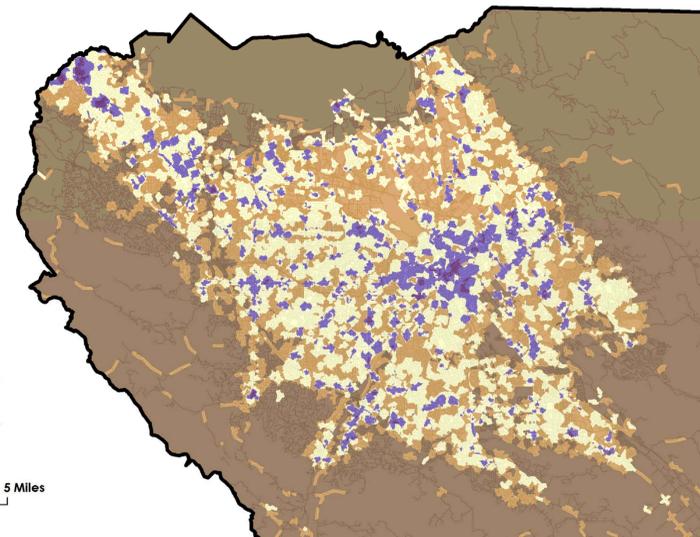
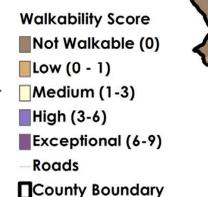
Block Group Walkability Score	Number of Residents	Percent of Santa Clara County Population	Percent of White Population	Percent of Non-White Population
Not Walkable	2277	.04	.18	.08
Low	411879	23.12	25.44	21.07
Medium	1228118	68.93	66.42	71.15
High	139368	7.82	8.0	7.7
Exceptional	0	0	0	0
Total	178 642	100	100	100



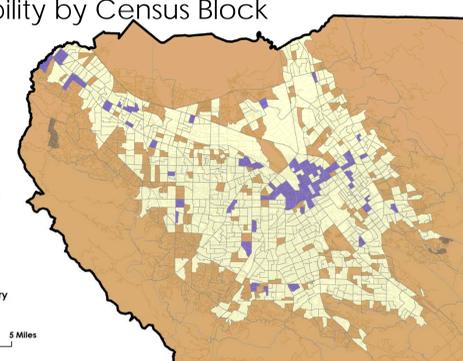
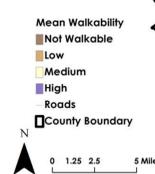
Point Type	Weight
Health Care	2
Grocery Store	2
Major Employer	1.5
Open Space	1
School	1
Transit Station	.75
Bus Stop	.5
Place of Worship	.5
Banks	.25
Library	.25
Shopping Center	.25
Total	10

By aggregating the walkability surface to Census blocks, it is possible to determine the total population in each walkability type, and to apply other Census data as well.

Walkability Raster Surface



Walkability by Census Block



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Data From Reference USA, US Census Bureau (2010) and CAL-ATLAS

All Projections in California Stateplane FIPS III (Meters)

