STEEPNESS IN SAN FRANCISCO

FINAL PROJECT (USP4)

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Description
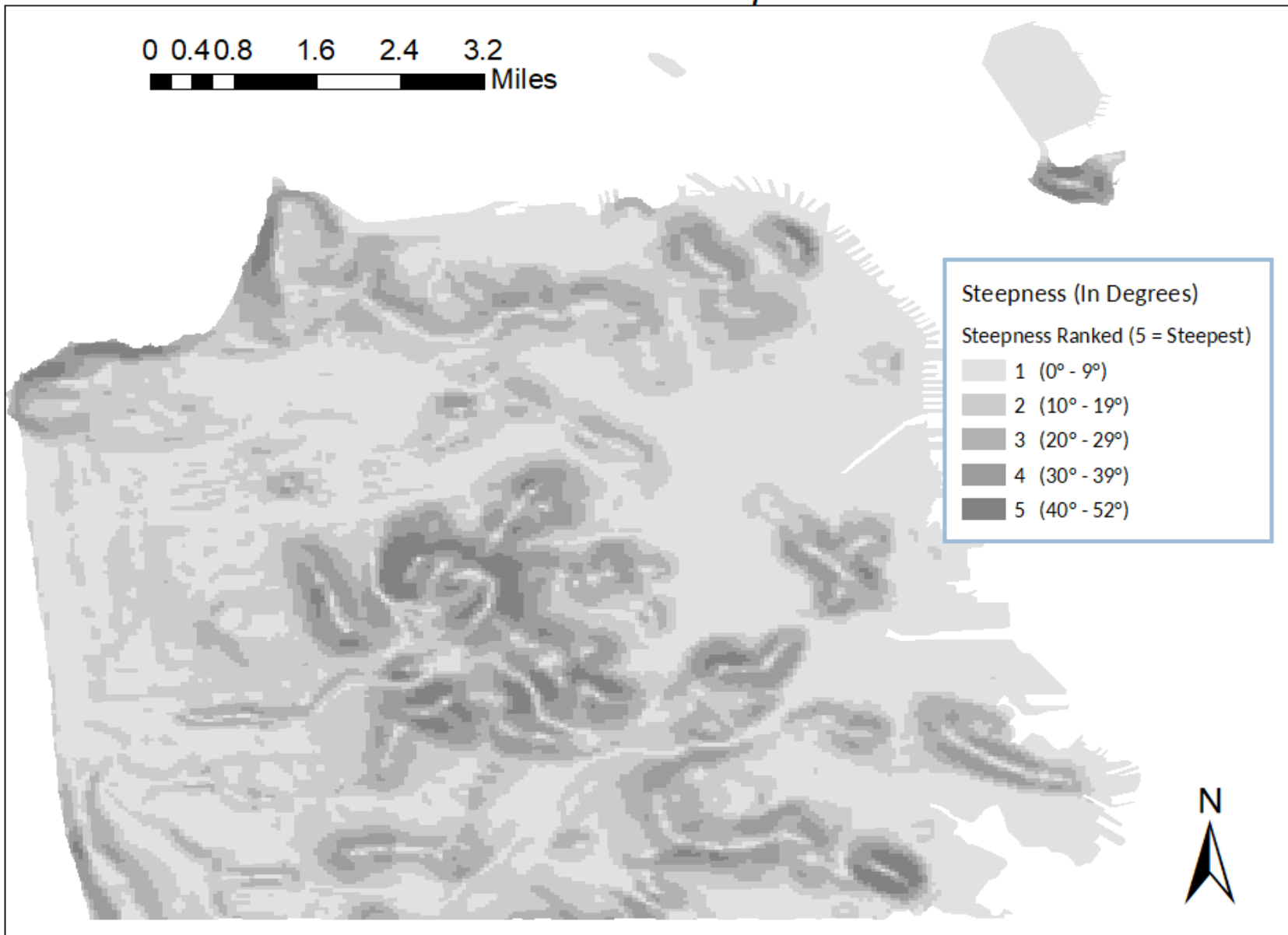
- San Francisco is well-known for its hilly geography and steep streets.

- Maps about its steepness will give insight about how to navigate it for tourists who have difficulty with steep terrain, like the elderly and handicapped people.

- Steepness raster from Week 10 Lecture stuff

- Topo-to-raster

- Slope

- Int, Raster_to_Polygon

- Field calculator

- Categorized and Dissolved everything into 5 (multi-part) polygons for different steepness tier.
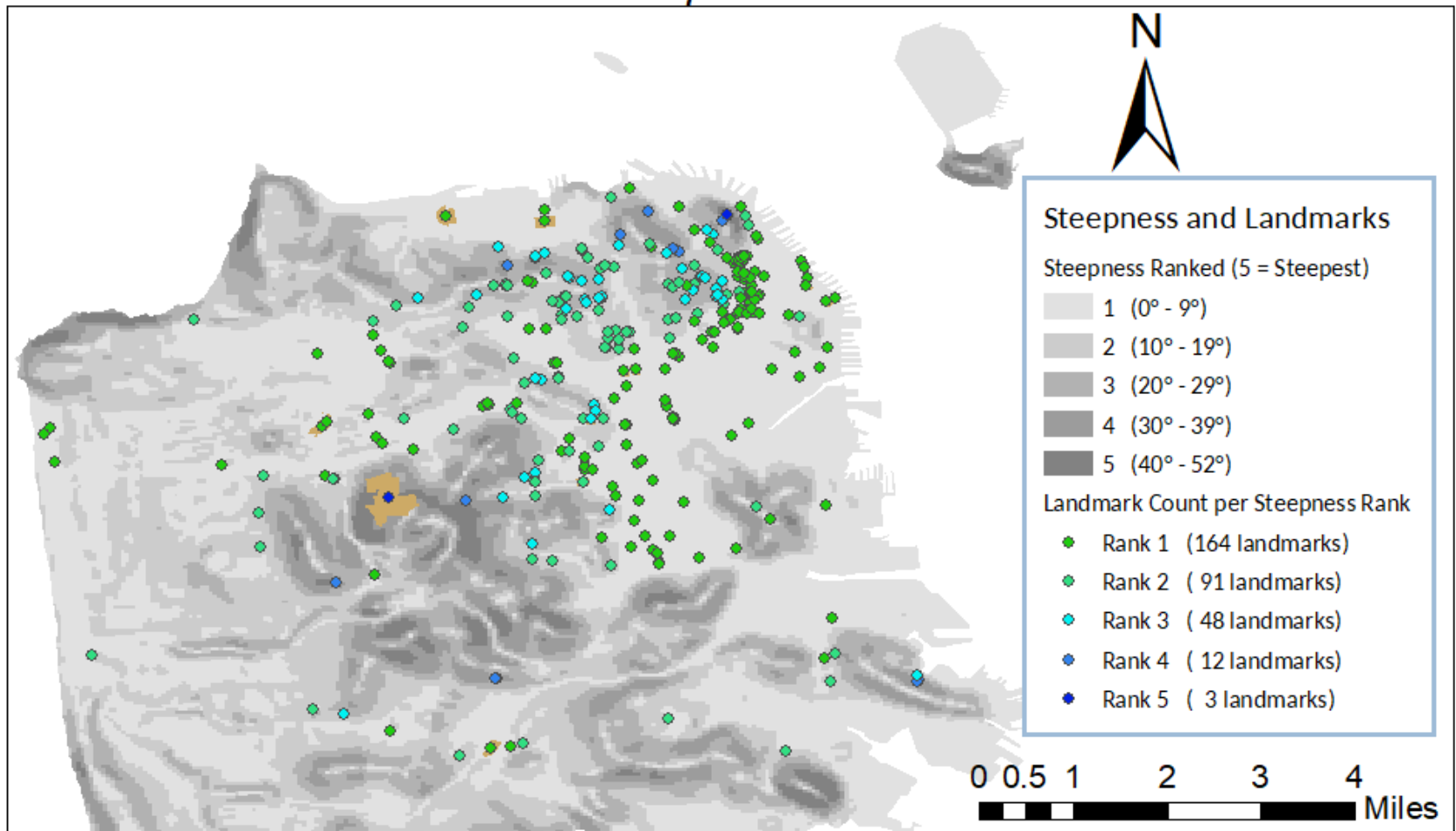
San Francisco Steepness

0   0.4 0.8   1.6   2.4   3.2
Miles

Steepness (In Degrees)

Steepness Ranked (5 = Steepest)

- 1 (0° - 9°)
- 2 (10° - 19°)
- 3 (20° - 29°)
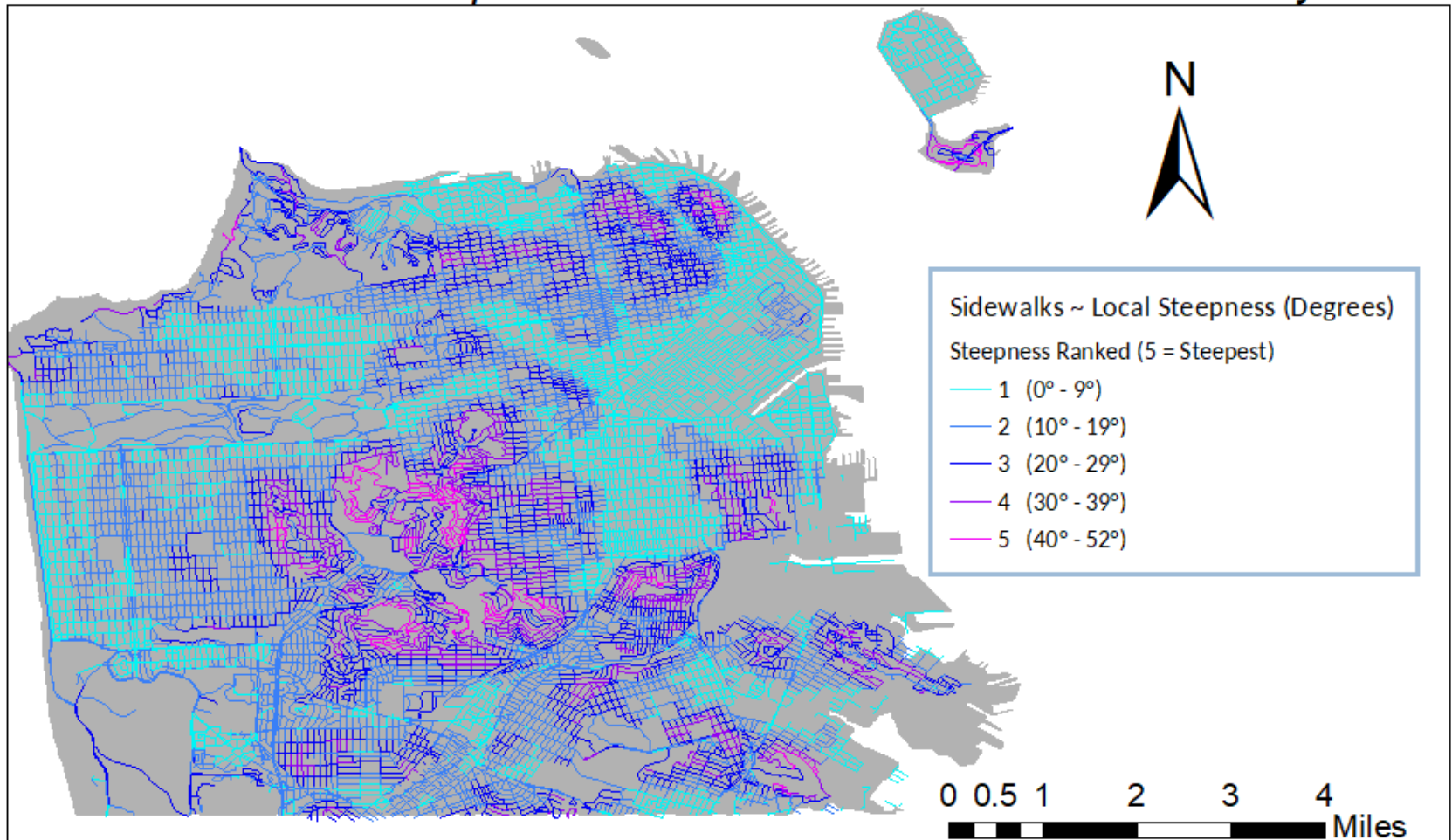- 4 (30° - 39°)
- 5 (40° - 52°)

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Secondary Maps

□ Made 3 maps on using this base map and another shape-files, using Spatial Join

- Landmarks (Polygons)
  - Spatial Join = "Have Their Center In"
- Sidewalks (Poly-lines)
  - Spatial Join = "Intersect"
- Public Transit (Points and Poly-lines)
  - Spatial Join = "Within"

San Francisco Steepness and Landmarks

Steepness and Landmarks

Steepness Ranked (5 = Steepest)
- 1 (0° - 9°)
- 2 (10° - 19°)
- 3 (20° - 29°)
- 4 (30° - 39°)
- 5 (40° - 52°)

Landmark Count per Steepness Rank
- Rank 1 (164 landmarks)
- Rank 2 (91 landmarks)
- Rank 3 (48 landmarks)
- Rank 4 (12 landmarks)
- Rank 5 (3 landmarks)

0 0.5 1 2 3 4 Miles

Landmarks in San Francisco and which steepness rank they fall in. This map is meant to be used by tourists who have difficulty climbing steep terrain (e.g. wheelchair users, elderly), to see if a landmark is walkable towards or otherwise (must use public transit, taxi, Uber, etc. instead). Landmarks are shown with brown polygons, but will be represented as points over them to make tiny landmarks more visible.

San Francisco Steepness and Sidewalks/Pedestrian Walkways

Sidewalks ~ Local Steepness (Degrees)

Steepness Ranked (5 = Steepest)

— 1 (0° - 9°)
— 2 (10° - 19°)
— 3 (20° - 29°)
— 4 (30° - 39°)
— 5 (40° - 52°)

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0 0.5 1 2 3 4 Miles

Map of San Francisco's sideway-segments & walkways. The colors represent the steepness of the sidewalk's local area, not the necessarily the steepness of the sidewalk itself. Light turquoise areas are flattest and most reliable for wheelchair users and pedestrians who don't want to climb sidewalk stairs.

San Francisco Steepness and Public Transit Coverage

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Steepness and Public Transit

Steepness Ranked (5 = Steepest)

	1 (0° - 9°)
	2 (10° - 19°)
	3 (20° - 29°)
	4 (30° - 39°)
	5 (40° - 52°)

Public Bus-stops by Steepness Rank

- Rank 1: 1921 (~93/sq mi)
- Rank 2: 1275 (~91/sq mi)
- Rank 3:   597 (~76/sq mi)
- Rank 4:   207 (~56/sq mi)
- Rank 5:   33 (~33/sq mi)
- —— Public Subway
- • Public Subway Stations

0 0.5 1   2   3   4 Miles

Steepness of San Francisco and Public Transit Coverage, ranked by elevation contours' degrees. Steepness levels have different amounts of bus-stops and coverage density (Number of bus-stops per square mile). Additional data includes subways and subway stations. Public Transit will allow wheelchair users to reach parts of the city, where steepness would otherwise make it inaccessible for them to travel to by sidewalk alone.
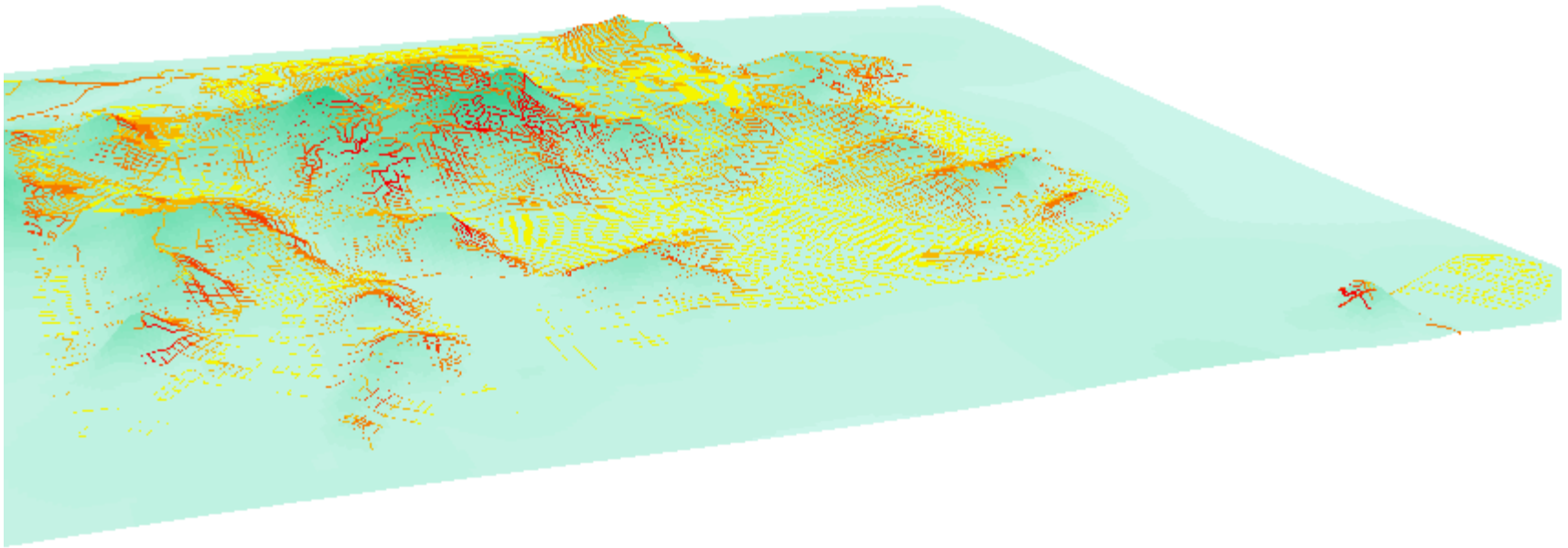
Old Version

San Francisco Steepness and Public Transportation
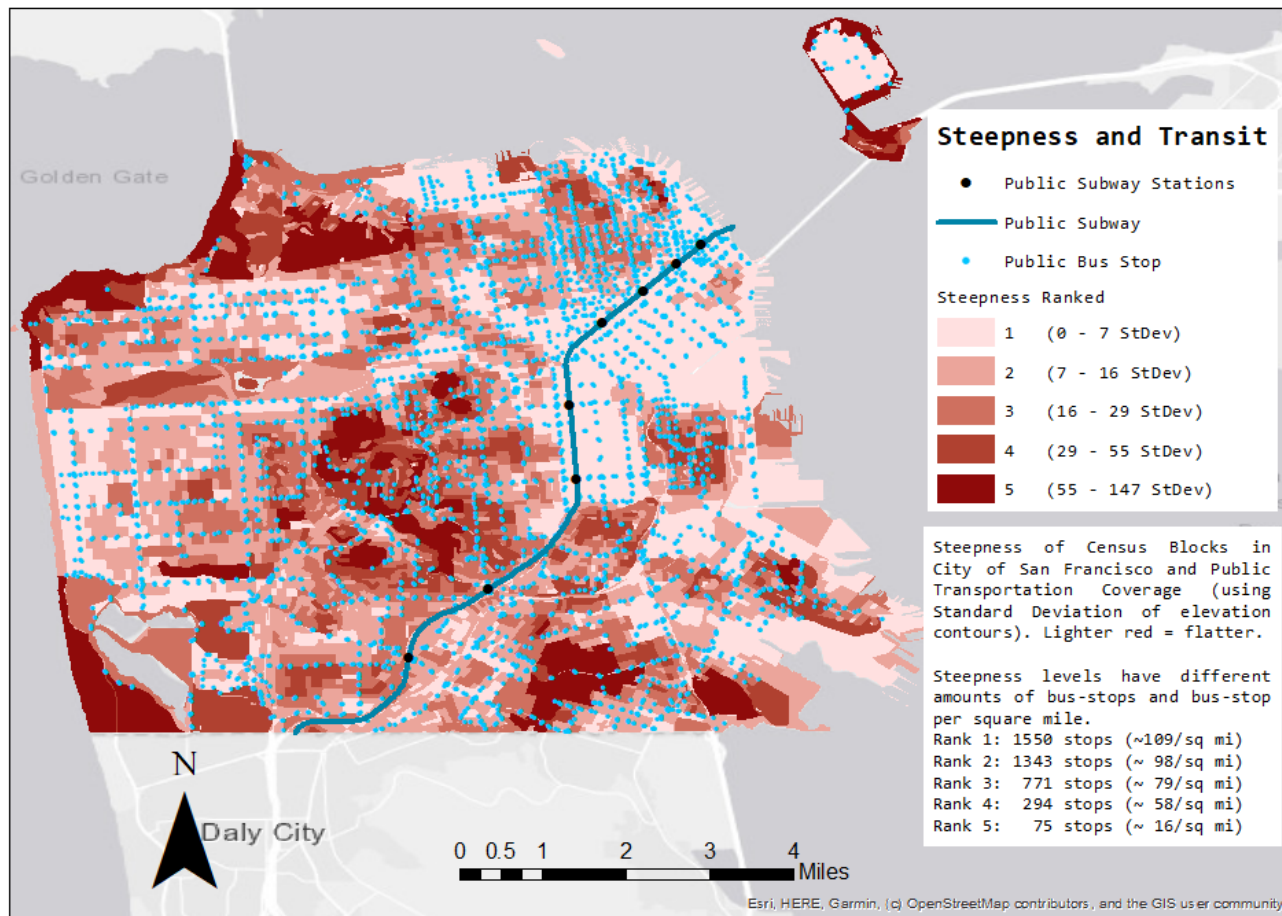
Steepness in 3D

- ArcScene of sidewalk steepness.

Possible improvements

- Less pixelated raster of the slopes
- Increase the number of tiers/ranks of steepness to reduce spatial auto-correlation issues