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Warehouses in the Inland Empire, San Bernardino County

For this project I wanted to examine the expansion of warehouse architecture in the Inland Empire over the last several years, specifically in the portion of San Bernardino County in which I have encountered the most rapid change. While I initially intended to conduct a survey of all warehousing in San Bernardino County (Inland region), I ultimately shrank my scope to a handful of cities I am familiar with, namely San Bernardino, Redlands, Colton, Rialto, Highland, Grand Terrace, and Loma Linda. This chosen research extent is entirely arbitrary; I grew up in Redlands and decided to examine the areas I most recognize on frequent freeway excursions. This project would yield more telling results should it include cities like Fontana, Rancho Cucamonga, and Ontario, which houses another airport; in my heads-up digitizing process, I found that these cities' warehouse districts dwarf those of the San Bernardino Tri-City area.

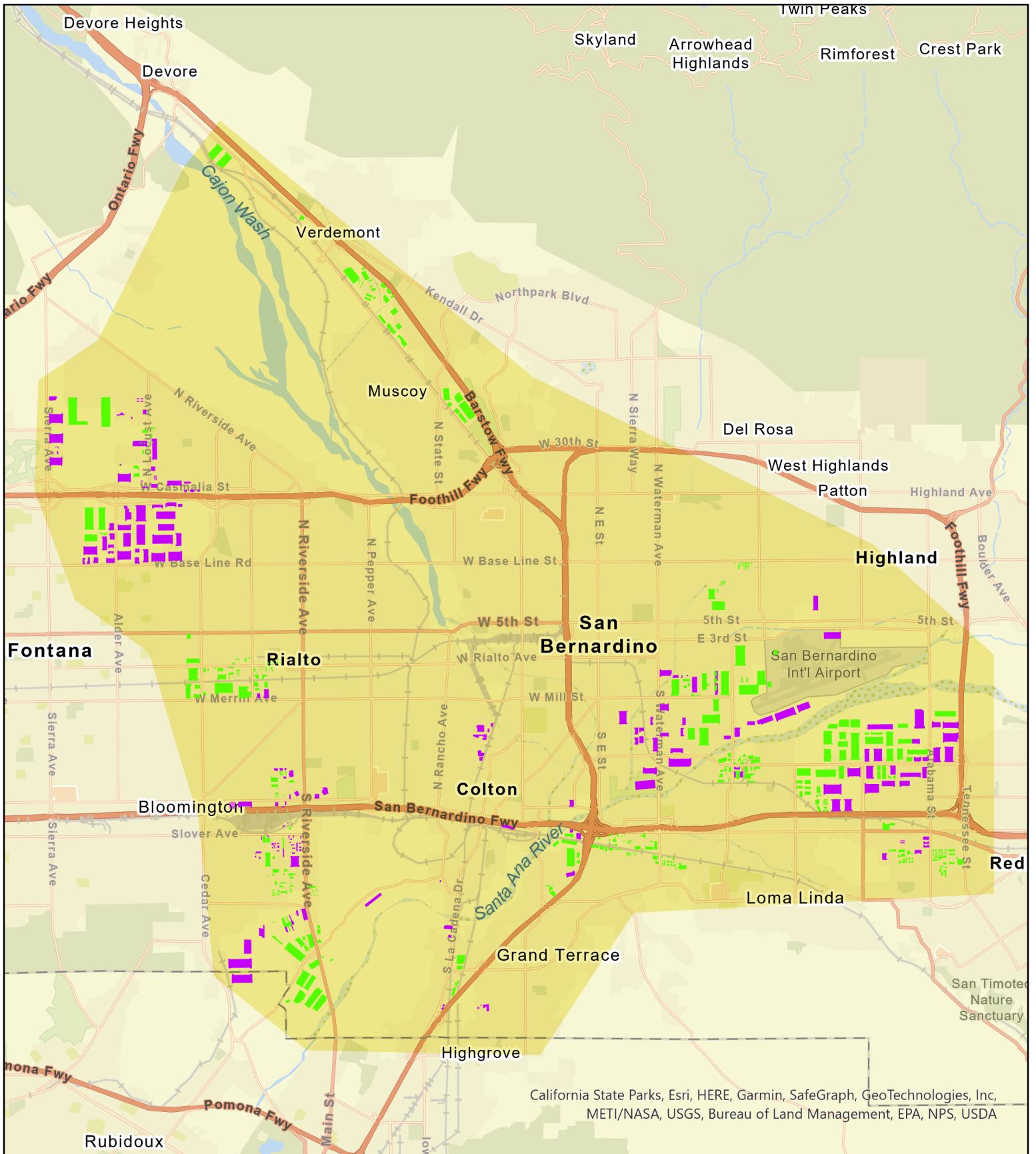
Beyond the geographic scope, I too had to downsize my initial plan to digitize more snapshots in time. Through the Public San Bernardino County GIS Database, I found historical aerial imagery from every year since 2010; I had hoped to do each year, if not every four years, but my finished product contains digitized warehouses only from 2010 and 2022.

I used heads-up digitizing in ArcGIS Pro to create the outlines of all warehouse buildings in the examined area. Most warehouses could be identified from above as easily as from the freeway, with massive area footprints and obvious truck bays. Some other warehouse structures, I know from experience, may not actually house commercial shipping facilities. Some of these buildings house offices, dance studios, auto body shops, furniture superstores, specialty appliance outlets, or craft breweries. Nonetheless, I digitized "warehouse" buildings based on a quick evaluation of criteria including the size of the attached truck bay(s), the size of the attached parking lot, and the building's proximity to developments of much larger warehouses. In this way I was able to distinguish warehouse architecture (functions varying) from other massive structures like shopping centers or churches.

This warehouse selection criteria may not be suitable for official analytical purposes, where a building's function as a commercial shipping hub or storage facility should outweigh its "architecture." However, for the sake of this project, my research seeks only to examine the proliferation of this *type of building*. I emphasize that because my hand applied the same criteria in "warehouse" selection for 2010 and 2022, any marginal error in building count should be dismissed. Consider the yearly warehouse counts and area totals with a margin of error, dependent upon the same human counting both times.

The results show a clear expansion of warehousing which confirms the undisputed observations of many Inland Empire residents. In the areas I examined, bounded by the golden polygon, more than 200 new freestanding warehouse buildings were constructed between 2010 and 2022, with total square footage nearly doubling (59,400,000 to 110,400,000 square feet). Beyond this, the new warehouses are larger than the existing ones. In 2010, the average warehouse of the standing 428 was 135,000 square feet. In 2022, the average warehouse of the standing 652 is 170,000 square feet. Almost 4 square miles, represented by the green and magenta on the map, are dominated by box-shaped monuments to their contents, and their potential to belong to someone else somewhere else. For scale, the golden polygon covering the examined cities holds about 114 square miles.

The rigorous heads-up digitizing process took away time from further analysis, for which I already have ideas; in San Bernardino in particular, it would be interesting to see how many of these new huge warehouses occupy parcels previously broken up into many residential lots.



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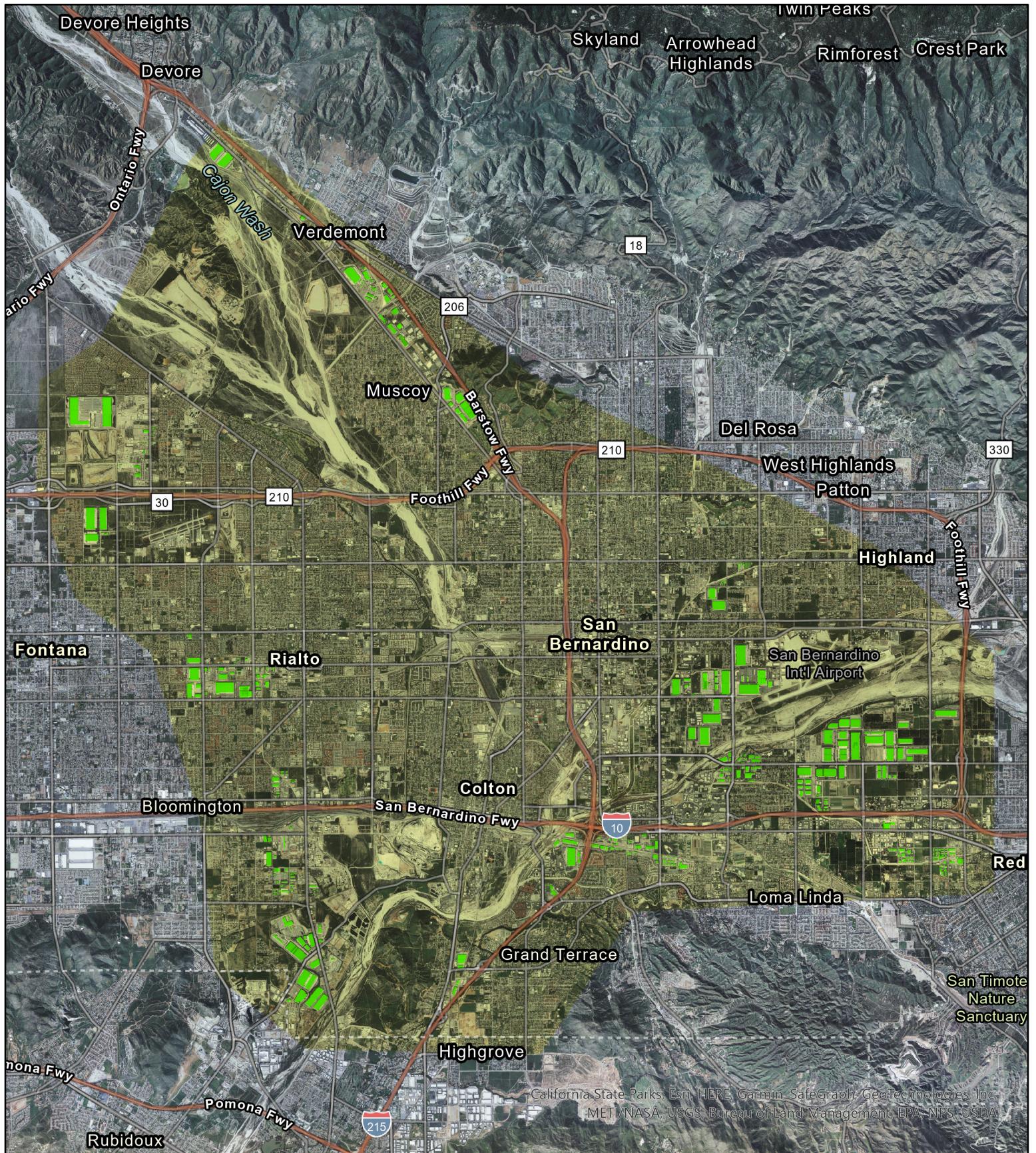
Search area: Cities of San Bernardino, Redlands, Colton, Rialto, Highland, Grand Terrace, Loma Linda

2010: 428 warehouses totaling 59,400,000 sq ft (~2 sq mi)

2022: 652 warehouses totaling 110,400,000 sq ft (~4 sq mi)

125% increase in avg warehouse size

Cartography by Aaron Goodman
Data source: gis.sbcounty.gov/san-bernardino-county-aerial-imagery/



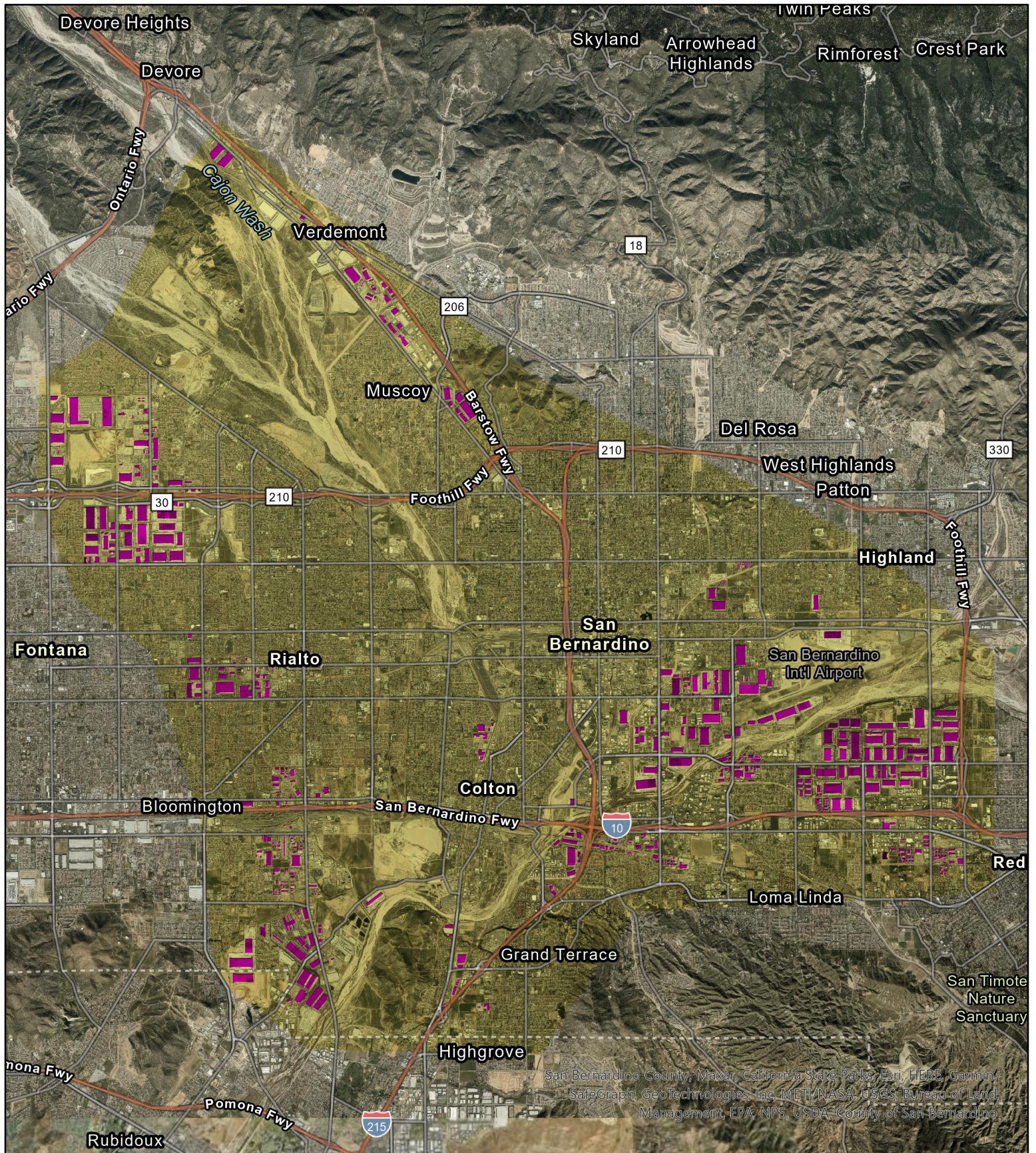
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Search area: Cities of San Bernardino, Redlands, Colton, Rialto, Highland, Grand Terrace, Loma Linda

0 1 2 4
Miles
Scale: 1:120,000

2010: 428 warehouses totaling 59,400,000 sq ft (~2 sq mi)
avg 135,000 sq ft

Cartography by Aaron Goodman
Data source: gis.sbccounty.gov/san-bernardino-county-aerial-imagery



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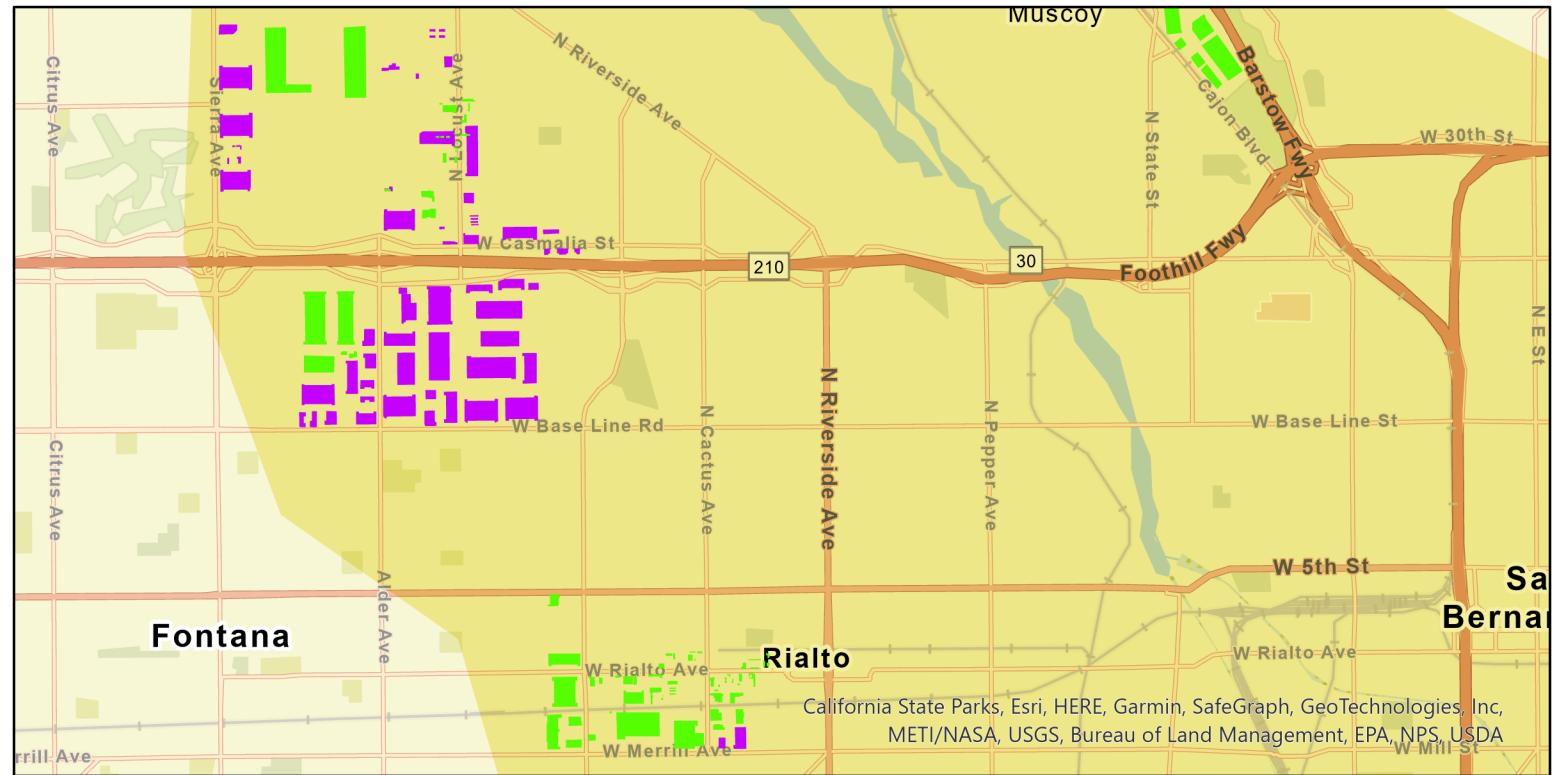
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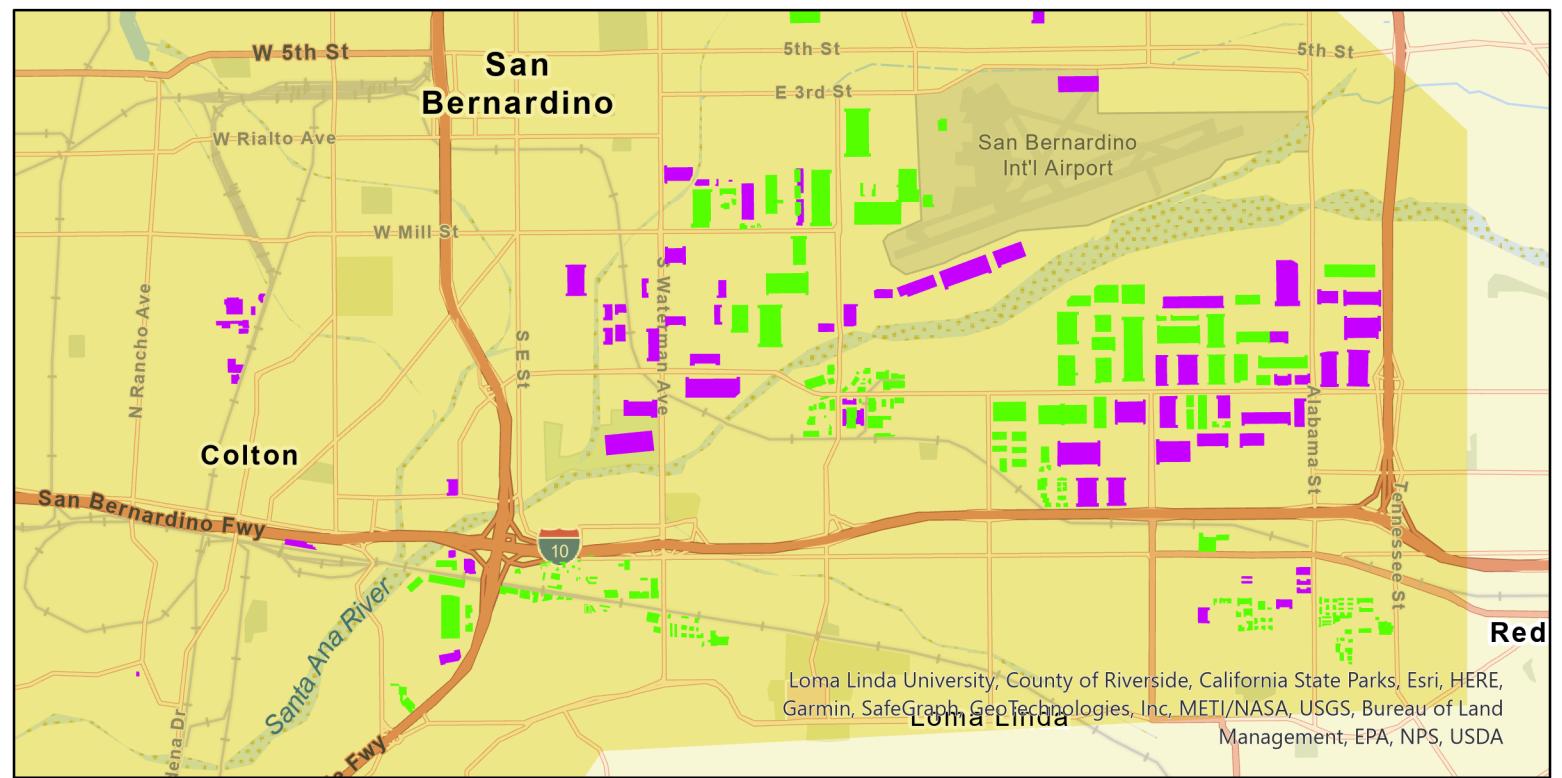
2022: 652 warehouses totaling 110,400,000 sq ft (~4 sq mi)
avg 170,000 sq ft

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Rialto, CA - 210 freeway hub



San Bernardino, CA - airport hub, bounded by I-10, I-215, and 210 freeways

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2010: 428 warehouses totaling 59,400,000 sq ft (~2 sq mi)

2022: 652 warehouses totaling 110,400,000 sq ft (~4 sq mi)

125% increase in avg warehouse size

Scale: 1:75,000 Cartography by Aaron Goodman

Data source: gis.sbccounty.gov/san-bernardino-county-aerial-imagery/