

Final Project: Goose Hollow Storefront Businesses

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Project Understanding & Scope

The City of Portland is seeking a better understanding of the on-the-ground state of storefront businesses in the area. Vacancies have been a continuous issue since the COVID pandemic in 2020, so learning more about what could be driving it in certain areas could help the city fill in the gaps. This report uses GIS techniques as a method of collecting, analyzing, and visualizing storefront business vacancies in order to assist the city in their future endeavors. While this report only covers a small subset of businesses within the Goose Hollow neighborhood of SW Portland, the GIS methods used were purposely employed to be scalable to datasets of any size. Furthermore, it allows for direct comparison on a building/lot level, which visually communicates ‘dead spots’ within the city where vacancies are the worst.

Methodology

Selecting a Study Area

While this report was going to originally cover all of Goose Hollow/Stadium District, time constraints limited analysis only a portion of the business district. I chose the Southern portion, centered around the Jefferson St. Max Station. This was because the Northern part is much more characterized by the Stadium



to

and game day business, whereas the Southern portion is much more residential, with businesses geared towards serving locals and other nearby institutions such as Lincoln High School. While

this area is likely close enough to still get business on game days, the local network felt different enough to divide the survey in this way.

Collecting Addresses

Once the study area was selected, address collection began by ground-truthing different addresses on foot and/or by bicycle. Storefront businesses were found and logged by taking a picture and attaching a pin to it, associating an address with the building. Once collection was done, all the addresses were sorted into an excel table containing the business name, as well as the address components (e.g., house number, street name, street type, ZIP, etc.). Some businesses, such as law practices and real estate consultants, were left out of this list since it didn't quite fall into the "storefront," business category. These types of practices would not accept walk-in business and aren't necessarily trying to entice a consumer to enter their practice. Restaurants, car shops, and other types of businesses are though, which is why they were included in the collection.



Figure 2: Ground-Truthing Businesses

	A	B	C	D	E	F
1	Business	Address	City	State	Zip Code	Country
2	BMW of Portland	2001 SW Jefferson St	Portland	Oregon		97201 United States
3	Willamette Dental	1933 SW Jefferson St	Portland	Oregon		97201 United States
4	Goose Hollow Inn	1927 SW Jefferson St	Portland	Oregon		97201 United States
5	Fehrenbacher Hof	1225 SW 19th Ave	Portland	Oregon		97205 United States
6	Goose Hollow Flowers	1219 SW 19th Ave	Portland	Oregon		97205 United States
7	Esquire Motors (Vacant)	1853 SW Jefferson St	Portland	Oregon		97201 United States
8	Vacant	1717 SW Madison St	Portland	Oregon		97205 United States
9	Vacant	1776 SW Madison St	Portland	Oregon		97205 United States
10	Kinara Thai	1126 SW 18th Ave	Portland	Oregon		97205 United States
11	One Creativity and Design	1234 SW 18th Ave	Portland	Oregon		97205 United States
12	Fingers & Toes	1250 SW 18th Ave	Portland	Oregon		97205 United States
13	Vacant	1700 SW Jefferson St	Portland	Oregon		97205 United States
14	Blue Star Donuts	1701 SW Jefferson St	Portland	Oregon		97205 United States
15	Rush Bowls	1710 SW Jefferson St	Portland	Oregon		97201 United States
16	Go Foods	1720 SW Jefferson St	Portland	Oregon		97201 United States
17	Vacant	1728 SW Jefferson St	Portland	Oregon		97205 United States
18	Bellagios Pizza	1742 SW Jefferson St	Portland	Oregon		97201 United States
19	Bold Coffee and Books	1755 SW Jefferson St	Portland	Oregon		97205 United States
20	Grand Prix Motors	1233 SW 16th Ave	Portland	Oregon		97205 United States
21	Primary Exotics	1615 SW Jefferson St	Portland	Oregon		97201 United States
22	Leaky Roof Gastro Pub	1538 SW Jefferson St	Portland	Oregon		97201 United States

Figure 3: Organizing Addresses in Excel

Analysis Overview

The steps for ArcGIS analysis of the business data follow these three main phases:

Geocoding Addresses -> Buffer Point Data -> Spatial Join to Buildings Shapefile

Geocoding

1. Now with an organized table, it can be accessed in an ArcGIS project file as a standalone table. In order to visualize these addresses on a map, the Geocode Addresses tool can be used to turn it into point data.

2. Once geocoded, every individual storefront business can be seen. While this looks nice with a small amount of data, visualizing large datasets with thousands of points among a bigger geographic



area wouldn't look as good. A better method would be to visualize by building, creating

more visual clarity on a wider scale, as well as allowing analysis between single-use and multi-use buildings respectively. Building shapefiles can be found in the Metro RLIS dataset and imported into ArcGIS for quick access.

Buffer Point Data

3. In order to get the attributes from the point data into the building polygons, a spatial join must be done. However, geocoding isn't exact and some points don't quite overlap with the polygons for a join yet. To remedy this, buffer the point data by a small amount so that all the points will intersect with a building.



Spatial Join Datasets

4. It's important to make sure all of the data in the attribute tables are cleaned up and ready before doing a spatial join. While you can try it again if it doesn't work correctly the first time, minimizing extra steps after the join makes the workflow much faster. One example is that there is no quantitative field for vacancy in the data currently. That can be added by selecting by attribute where the business name is equal to vacant, then followed by calculating your new fields value.

Business	Vacancy	BLDG_ADDR *
Vacant	1	1704 SW JEFFERSON ST
Rush Bowls	0	1704 SW JEFFERSON ST
Go Foods	0	1704 SW JEFFERSON ST
Bellagios Pizza	0	1704 SW JEFFERSON ST
Vacant	1	1704 SW JEFFERSON ST

5. Now it is time to Spatial Join through the Geoprocessing Tools. **Pick join operation One-to-One.** This will lose the individual business data (as seen in Figure 6), but it will group the data by building, allowing for calculation of building statistics.
6. Go to the Fields tab in the Spatial Join tool and click edit. Irrelevant fields can be removed here based on what analysis is being conducted. The most important thing is to select the vacancy field that was made and change the action from first to **sum**.

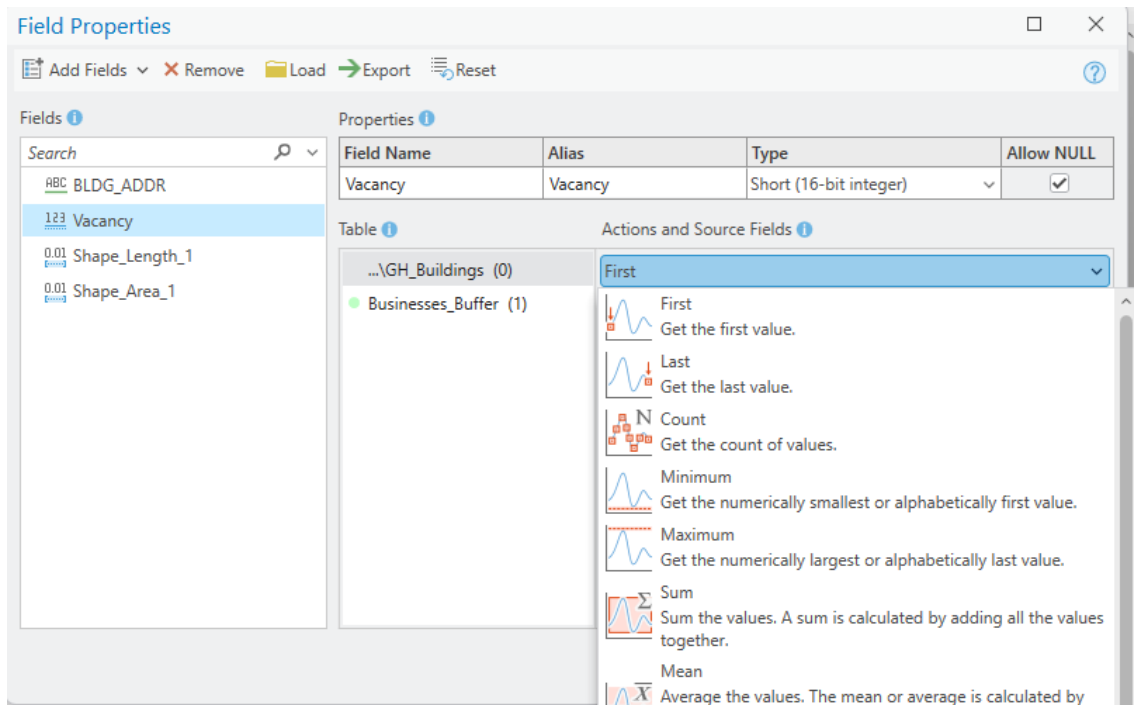


Figure 7: Field Properties Menu

7. Run the tool. This will give a field for all the vacancies within a building, as well as the total amount of businesses within a building.

Vacancy	Join_Count	BLDG_ADDR
2	5	1704 SW JEFFERSON ST
0	3	1234 SW 18TH AVE
0	1	1126 SW 18TH AVE

Figure 8: Attributes after Spatial Join

Findings

What is the Percentage of Vacancy for All Surveyed Buildings?

Storefront Business Vacancy as a Percentage in Building



Although many businesses that I surveyed were single-use, the couple mixed-use buildings that I surveyed had at least half or fully occupied spaces. Anecdotally, these spaces have had many businesses in and out of these buildings over the years, but it seems

like right now is a high point for foot traffic. The new coffee shop, Bold Coffee and Books, seems to be hitting a niche that other businesses in the past have not been able to do. With a larger dataset, percentages of mixed-use buildings across the city could be directly compared to see if specific complexes are receiving more or less foot traffic. This method could also be extended to food cart pods and other types of irregular businesses based in one lot.

Does Proximity to an LRT Stop Decrease Vacancy?

Storefront Business Vacancy with Extreme Poverty Rates (by Census Tract)



Map Prepared by: Ethan Morehouse

Data Sources: 2023 ACS 5-Year Income Estimates (Census Tracts).
Portland RLIS - Neighborhoods and Buildings Shapefiles.
Businesses collected by Author.

Using the percentage building visualization, other types of analysis can be layered on top to reveal interesting patterns.

Overlaying buffers around transit stops may be able to reveal patterns about where foot traffic goes when someone gets off of a bus or Max. In this case, it does show likely foot traffic routes from the station. Businesses are positioned along Jefferson St and up 18th Ave, which is toward the nearest Providence Park Gate. Going further Northwest or Southwest are also much steeper elevations, which could impact someone's likelihood to explore in that direction.

Does Census Tract Income Impact Business Vacancy?

Storefront Business Vacancy with Extreme Poverty Rates (by Census Tract)



Map Prepared by: Ethan Morehouse

Data Sources: 2023 ACS 5-Year Income Estimates (Census Tracts).
Portland RLIS - Neighborhoods and Buildings Shapefiles.
Businesses collected by Author.

Finally, I wanted to visualize how income of different Census Tracts may affect which businesses survive and which ones go out of business. This corridor is at the intersection of four different Tracts, and from the map the lower income ones are the only areas with vacancies. However, I hesitate to make any wide-sweeping claims with this data since, on top of being such a low sample size, these businesses are only a couple blocks apart. As seen in the previous map, foot traffic likely goes along Jefferson and 18th, the borders of the Tracts, so businesses aren't just serving a single tract, they're serving all of them. If comparisons between tracts is to be done, a more complete dataset for each tract would have to be collected and compared.

Limitations and Conclusions

This method of analyzing storefront data (visualizing by building/lot) shows a lot of potential for future analysis. No matter if there's 5, 500, or 5000 addresses, the labor of analysis will stay the same, allowing for quick and efficient analysis that can be scaled to citywide projects. My individual analysis though was held back by the initial data collection step. Surveying takes a lot of effort and manpower that I didn't have, so while the methods may prove fruitful, it's only as good as the data you're able to collect. Still, some interesting patterns were revealed, such as likely foot traffic routes from the Max Stop, so I'm excited to see what else can be found across different neighborhoods.

Works Cited

Morehouse, Ethan. (2026). *Storefront Business Addresses*.

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