

Lettuce Grow: Site selection for new community gardens within the City of Portland

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RESEARCH QUESTION

Where are the best potential locations for new community gardens within the City of Portland?

INTRODUCTION

Portland has often been regarded as an influential city when it comes to the green minded Pacific Northwest. One way that Portland demonstrates its commitment to sustainability and its sense of community is through its Community Gardens program. This program has made gardening available to Portland neighborhoods since 1975 - providing fresh food, promoting healthy eating habits, and serving as an affordable market for low income Portlanders.

There are currently 51 community gardens located throughout the city, developed and operated by volunteers. However, as Portland’s population grows and the economy continues to struggle, it is important to continue to grow this valuable project by increasing the number of community gardens in the city.

METHODOLOGY

To begin framing our research, we defined a set of criteria that satisfy the ideal conditions for a community garden within Portland city limits. The list of criteria we have identified is based on similar criteria used from other projects that identified potential urban agriculture locations, as well as availability of data and factors we deemed as relevant.

We began by geocoding existing community garden sites. We then entered geocoded garden sites, the Portland DEM, household income, and grocery stores into the map document. We then used the Slope and Aspect tools to those data from the Portland DEM, and Euclidean Distance tool to determine the distance from any given point to grocery stores and existing urban farms.

We then reclassified slope, distance to grocery stores, distance to existing community gardens, and income into 10 classes using Reclassify. We also had to reclassify aspect so that all of its directional degree values were integers. Next, we added land-use zoning to the map document and entered it and all of the reclassified datasets into the Weighted Overlay tool. Here we made slopes >30% and land-use types other than open space restricted. Then, we assigned the following weights, determined using the Analytical Hierarchy Process, to each of the datasets: 62% income, 16% distance from existing community gardens, 11% slope, 8% aspect, 2% distance from existing grocery stores, and 1% zoning.

The output of the Weighted Overlay tool was a raster showing the rating of each cell - however, since we needed the data in a format in which we are able to determine addresses, we converted it back to vector form. After adding tax lots to our map document, we used the Zonal Statistics tool - inserting the ratings raster as the input, tax lots as the zone, and selecting mean as the calculation for each zone. The output of the Zonal Statistics tool was tax lot polygons with the average rating of the cells in their attributes. From this list, we eliminated sites <0.25 acres and those without listed owners.

DISCUSSION

Our project yielded reliable results for ranking a preliminary, baseline inventory for suitable community garden sites within the City of Portland. The initial top ten rated sites based on our weighted criteria only yielded three sites that are realistic options for hosting a community garden. Consequently, we had to manually select the following seven best rated sites by cross-referencing satellite imagery of the sites to ensure they were either vacant/had limited development, not heavily forested, and easily accessible to the public. We expected to go through our results by hand, as the studies we reviewed had to conduct extensive “ground trouting” to confirm whether the selected sites from their GIS analysis were conducive to gardening. Moreover, the latest data we were able to attain for open space zoning was from 2010, and several of the sites we analyzed had structures built on them since the latest land-use data became available.

We speculate our model would be improved if we included a maximum cap for tree canopy cover, as many of our sites were heavily forested. In addition, we would try restricting the processing extent to vacant sub-zones within open-space zoned properties, as several properties zoned for open-space were sub-zoned for other categories that allowed for development like schools and low-density residential. Despite the tedium of hand-selecting sites in this analysis, we are confident our model provides a reliable and realistic ranking system for the most suitable areas to start new community gardens in Portland.



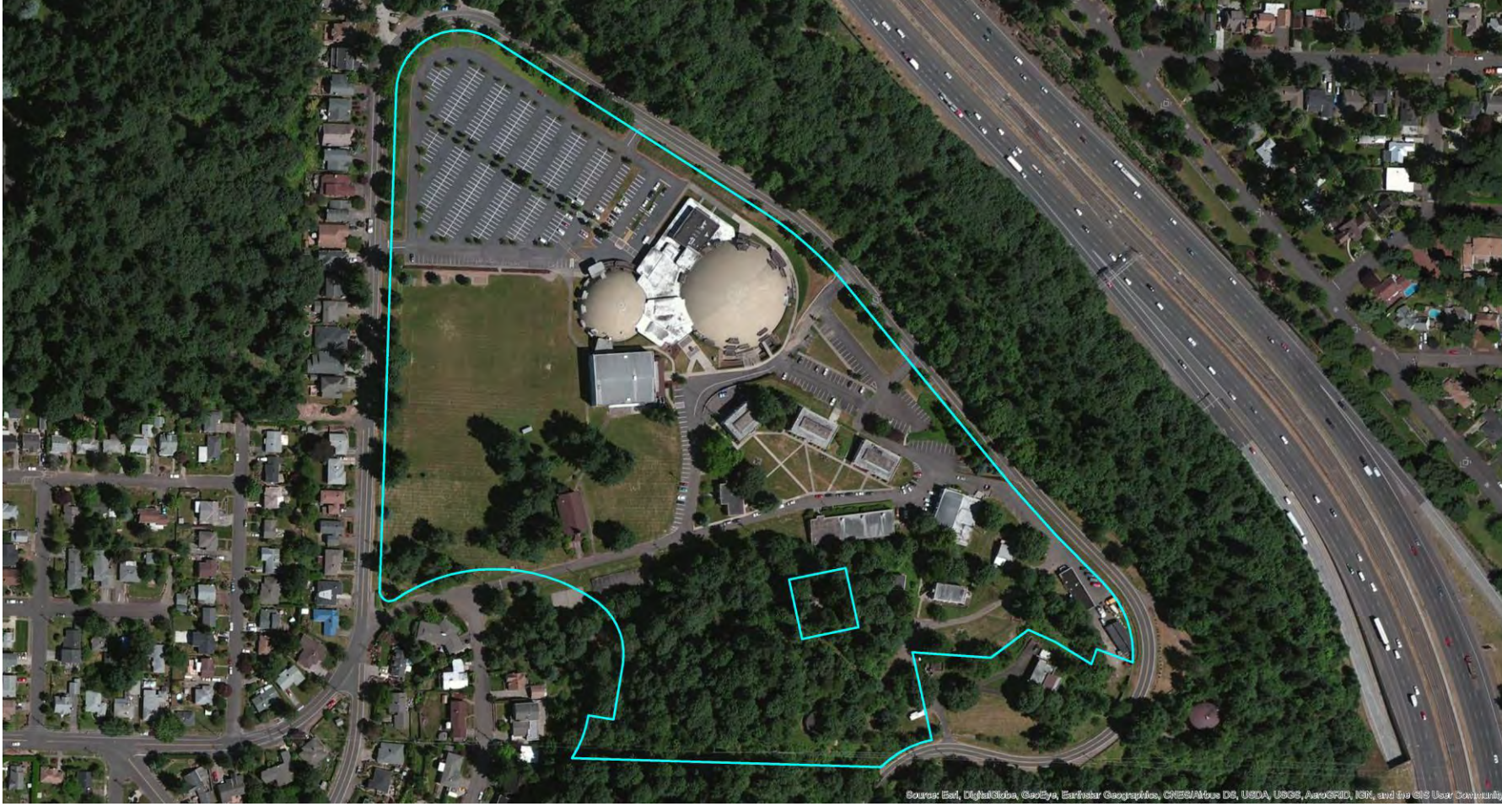
Metro, no address
Acres: 32.40, Rating: 1.7002

9



Metro/City of Portland, NE 33rd Ave
53.60 acres, 0.0995 rating

6

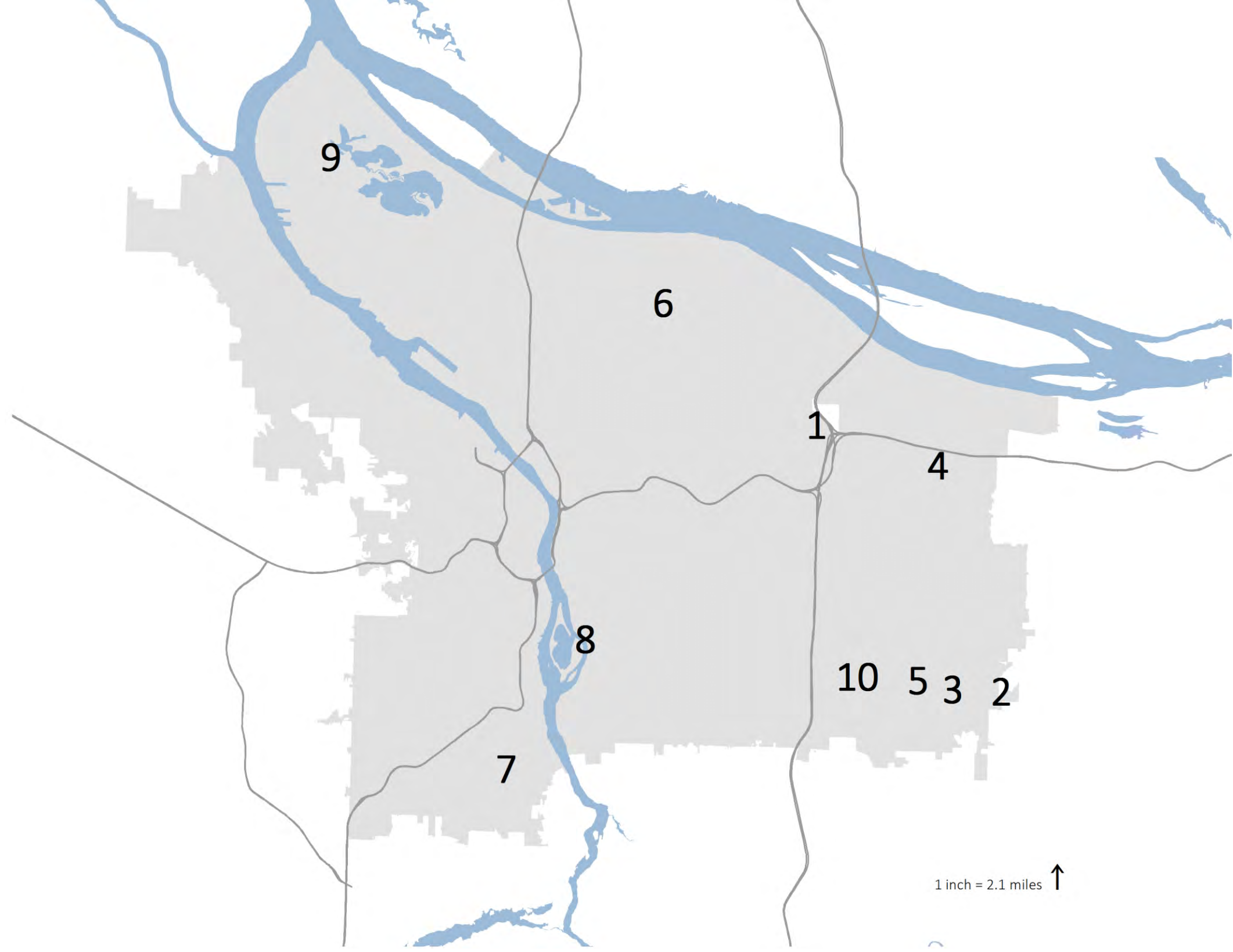


1 City Bible Church, 9400 NE Mason St
Acres: 27.93 , Rating: 0.0053



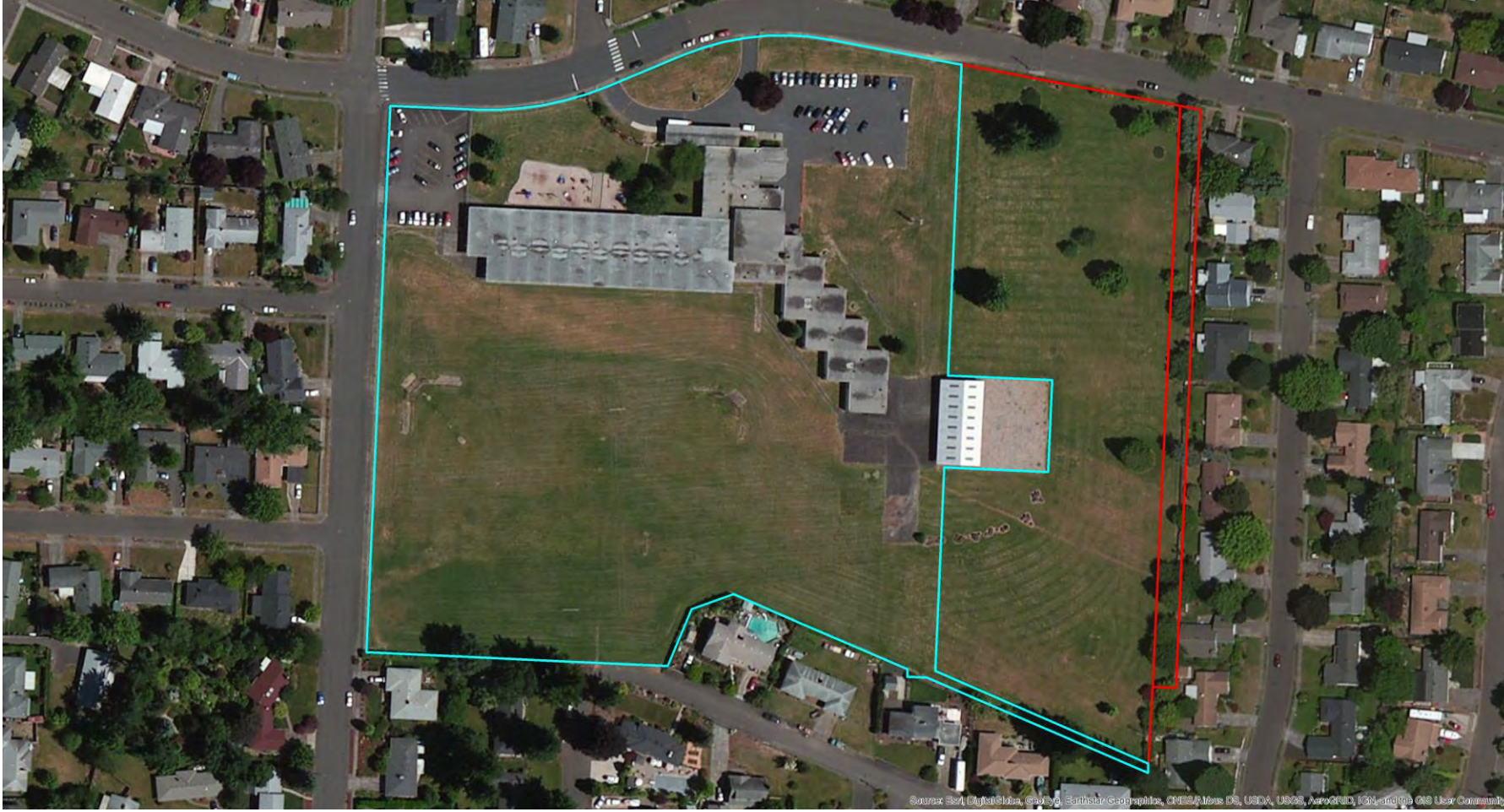
OR Hwy Commission, SE McLaughlin Blvd
Acres: 2.72, Rating: 0.1044

8



Lewis & Clark College, 425 SW Maplecree Dr
Acres: 1.34, Rating: 0.1035

7



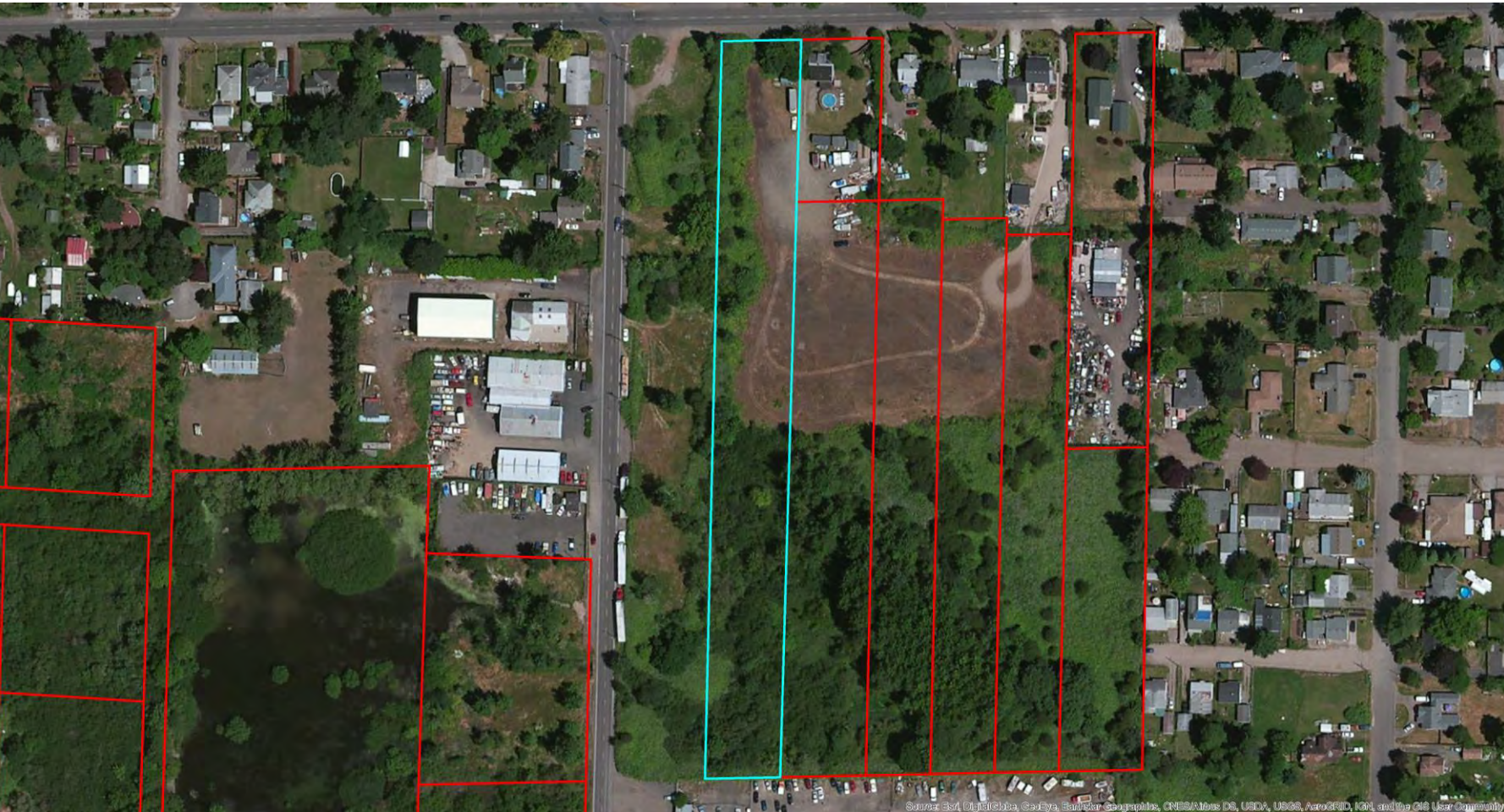
4 Parkrose School District, 10636 Prescott St
Acres: 10.57, Rating: 0.0279



2 City of Portland (Env. Services), no address
Acres: 11.39, Rating: 0.0064

City of Portland (Env. Services), no address
Acres: 2.35, Rating: 1.8105

10



Sunrise Manor LLC, 5727 SE 136th Ave
Acres: 1.55, Rating: 0.0794

5



3 Seapy Family, 14741 SE Foster Rd
Acres: 8.90, Rating: 0.0083



SOURCES
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