

Locating 5 Community Supported Agriculture Sites in Washington County

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GEOG 592
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- Background
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- Geographic Extents
- Methodology
- Results
- Limitations and Qualifications

Presentation Overview

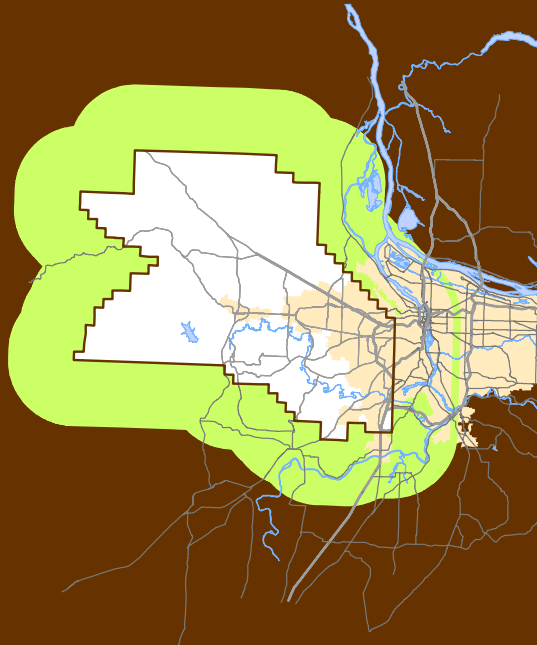
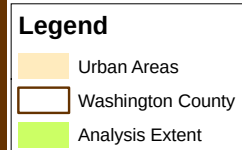
- Washington County is now home to half a million people.
- It is also the home to 8 Community Supported Agriculture (CSA) Farm sites and 27 other farms listed in the Tri-County Farm-Fresh Foods, Inc. website.
- CSA farms are one component of building a sustainable agricultural system.
- By 2030 the county population is forecast to increase by almost 195,000.
- Just as we forecast and purchase space for open areas for parks, we should also save land for locally grown produce.

Background

- Locate 5 new CSA farms within Washington County. These will be converted from existing farms.
- Select the new farm sites based on the locations of existing CSA farms to minimize overlap.
- Select location based on nearby population and employment to make the farms as accessible as possible.
- Take into account not only current population and employment levels, but also future levels.
- Examine drop sites for the selected candidates to facilitate future marketing.

Objectives

Geographic Extent:
Primarily
Washington
County and
portions of
Multnomah and
Clackamas
Counties.



Data Layers and Geographic Extent

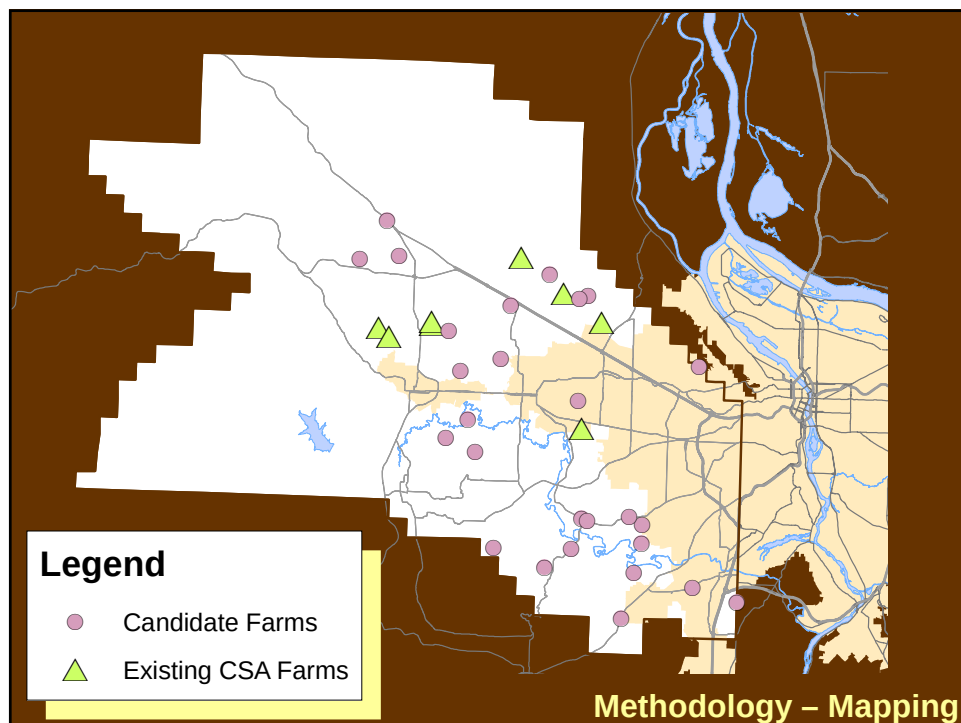
Data Sources:

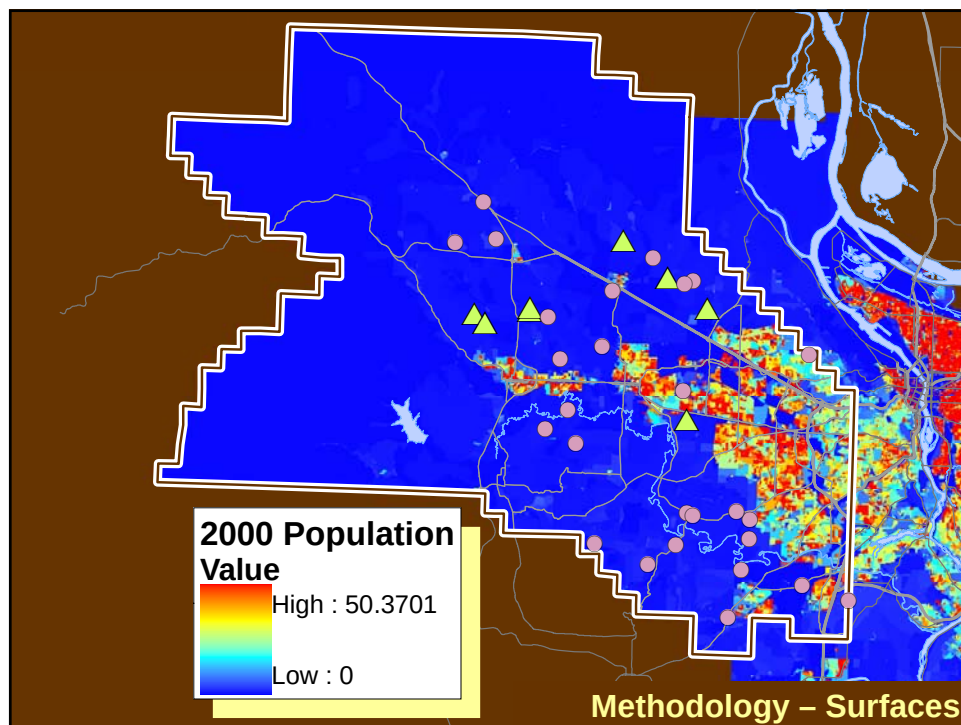
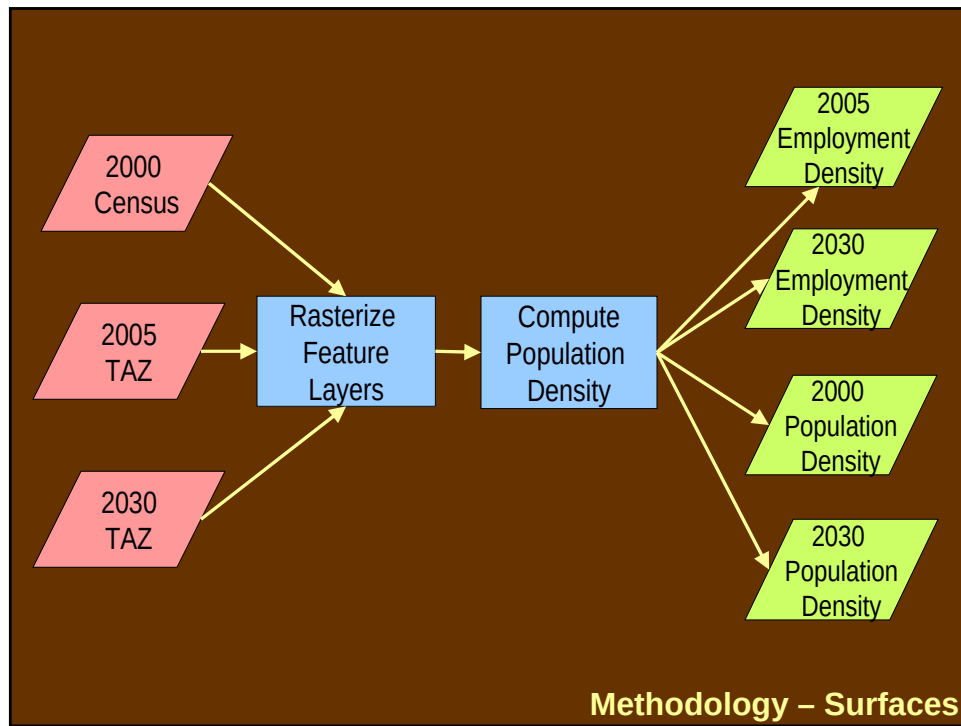
2005 TAZ Data	Metro
2030 Projected TAZ Data	Metro
2000 Census Data	US Census Bureau
CSA Farms	The Oregonian's PDXGreen website
Existing Tri County Farms	TriCountyFarm.org
Washington Co. Tax Lots	RLIS
Aerial Imagery	RLIS & USDA.gov
2009 County / City Boundaries; Other contextual data (rivers, streets, etc.)	RLIS

Data Layers and Geographic Extent

- Step 1: Map the existing CSA farms and conversion candidates.
- Step 2: Create population and employment surfaces.
- Step 3: Validate data.
- Step 4: Calculate service area values for each candidate.
- Step 5: Score candidates.
- Step 6: Identify best candidates for conversion to CSA

Methodology – Overview





OID	FIPS	DESC	TOTAL	URBAN	RURAL	Shape_Length	Shape_Area	RURAL_num	Density
2753	410670317061013	81013CT3117	121	121	0	778.841821	37771.169389	0	0.003204

$(11.5 \text{ persons/cell}) \times (\text{cell}/3600 \text{ sq ft}) \times (5200 \text{ sq ft/sq mi}) = 89056 \text{ persons per sq mi}$



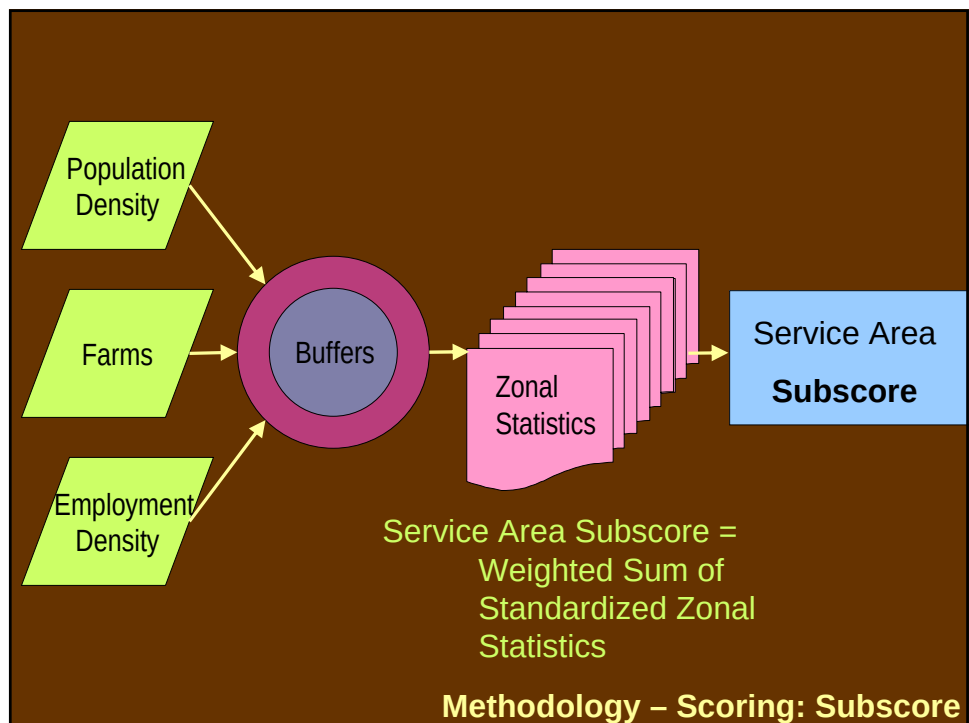
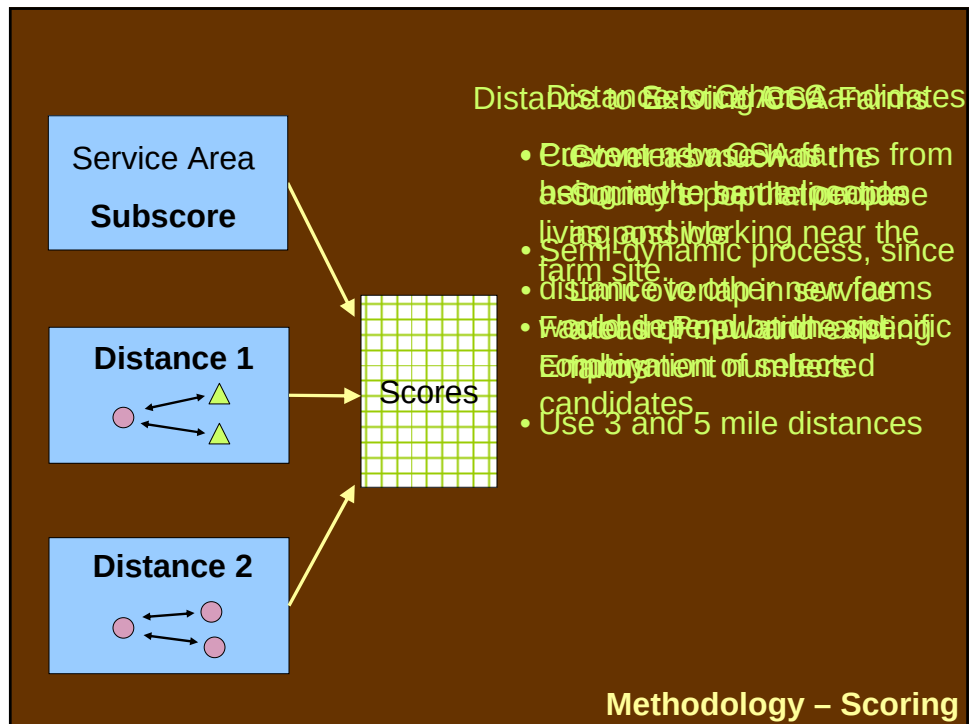
Methodology – Validation

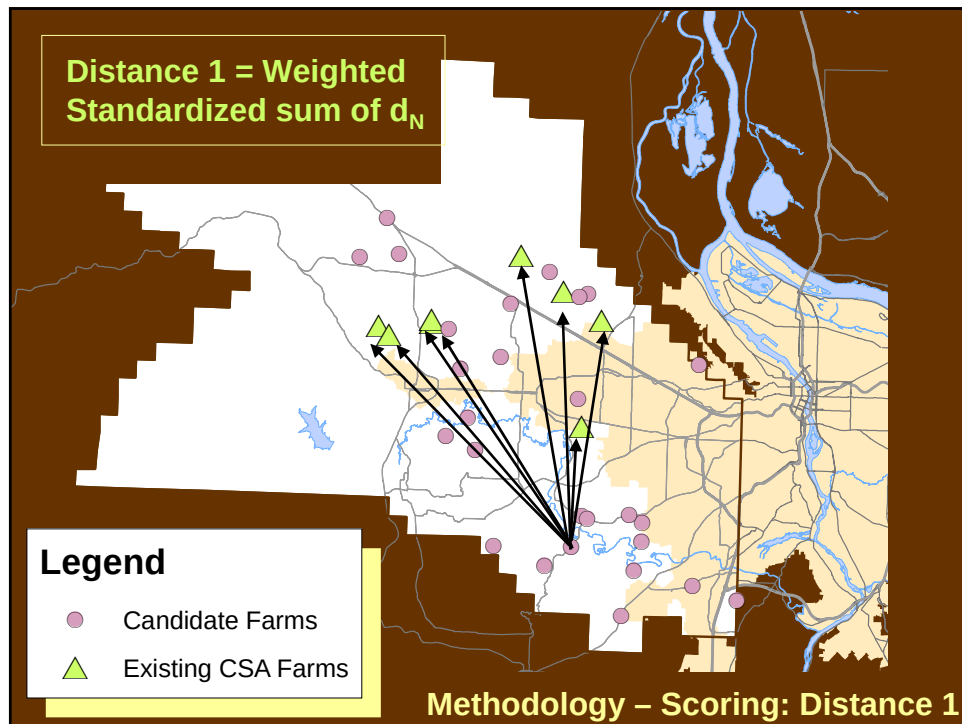
Initial Score Design

Ideal candidate for conversion to CSA farm would:

- Have a high number of people living near by
- Also be near employment clusters
- Be in an area expected to increase in density
- Not be located near other CSA farms
- Not overlap other candidates' service areas

Methodology – Scoring

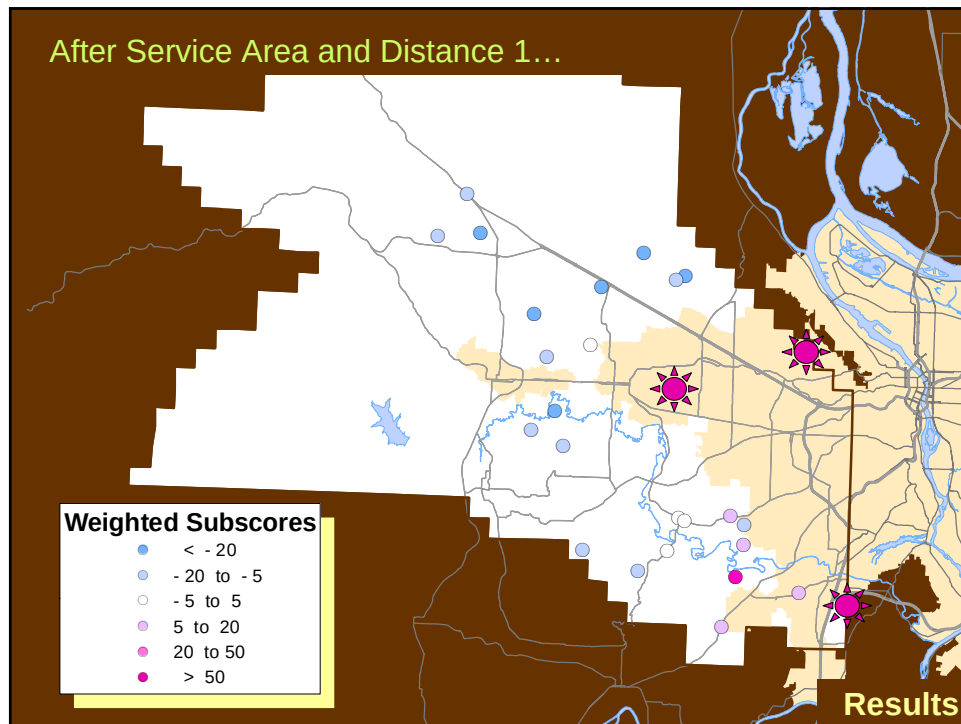




Simplifying Distance 2 Calculation

- To calculate the cumulative distance between 5 best candidates out of a pool of 27 total would require 80730 combinations.
- Based on their very high Service Area and Distance 1 Subscores, 3 candidates were selected early.

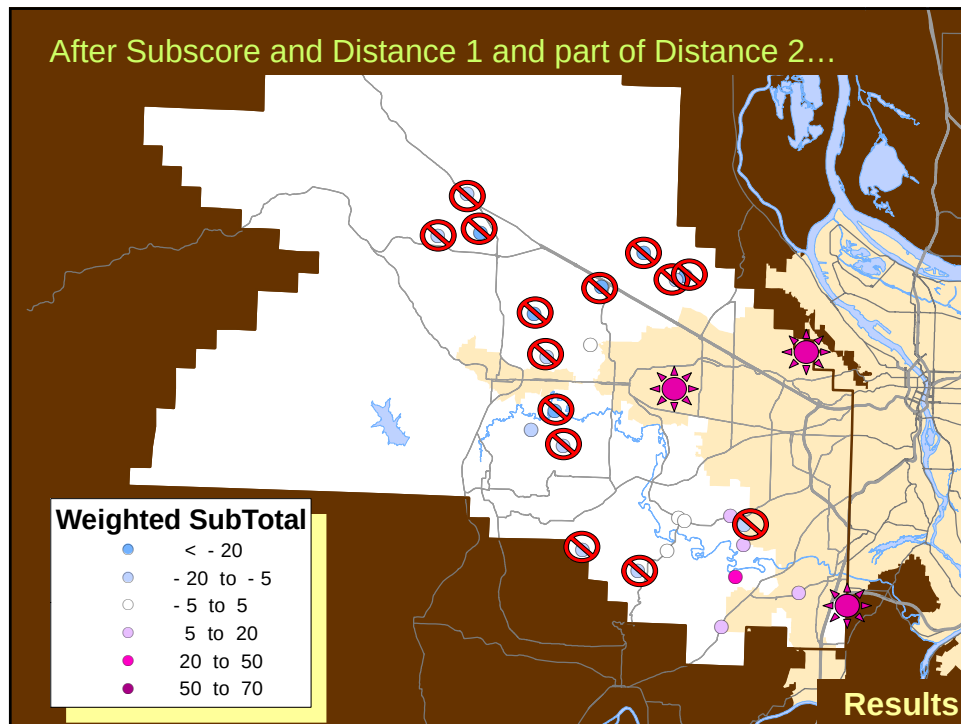
Methodology – Scoring



Simplifying Distance 2 Calculation

- The distance from each of the remaining 24 candidates to the 3 early selections was calculated.
- Based on this partial calculation of Distance 2, 14 more candidates had no chance of catching up and were culled from the field.
- Now the combinatorial was a more manageable 2 selections out of a field of 10 – [45 combinations]

Methodology – Scoring

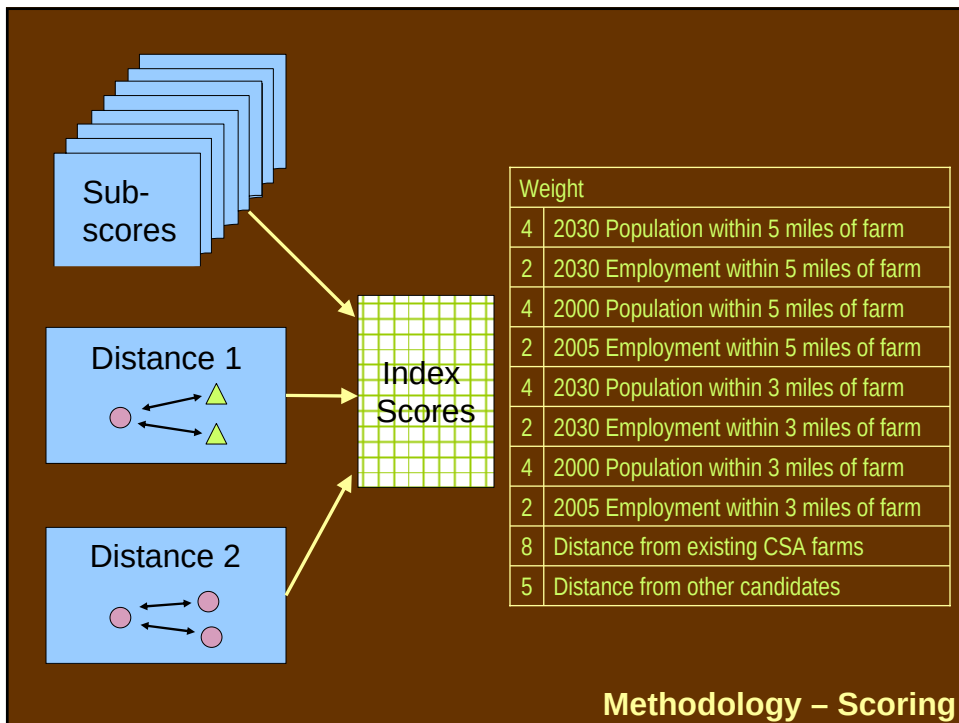
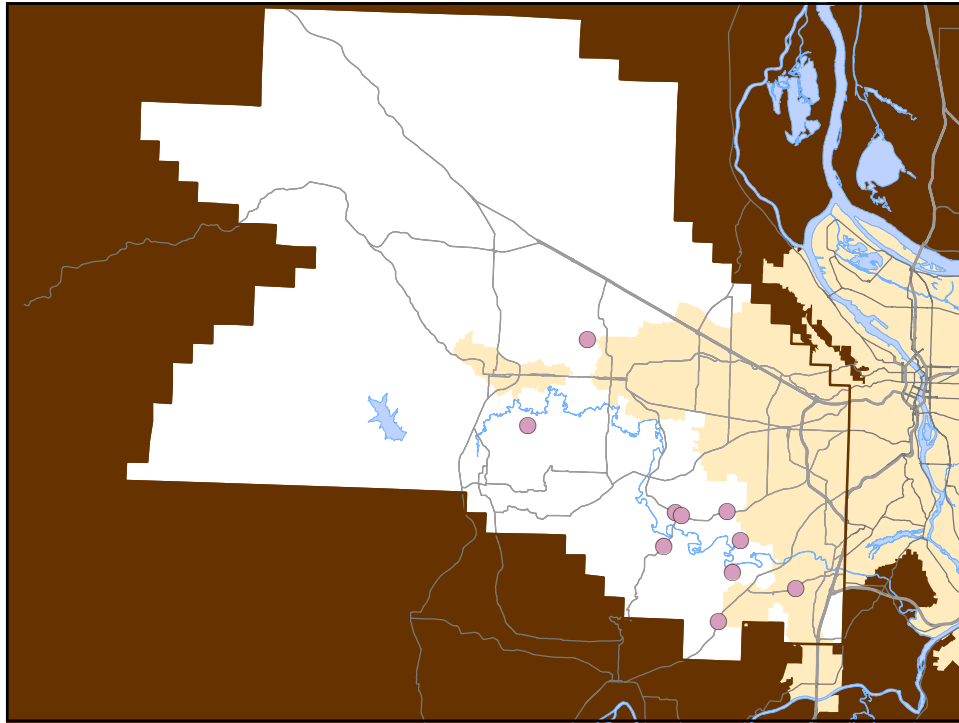


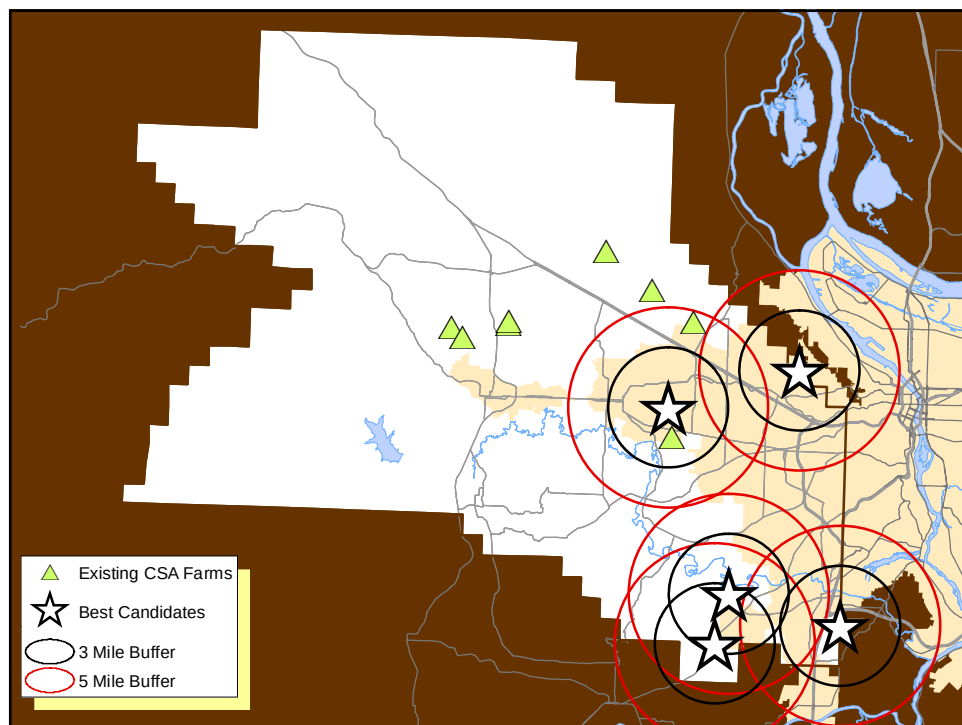
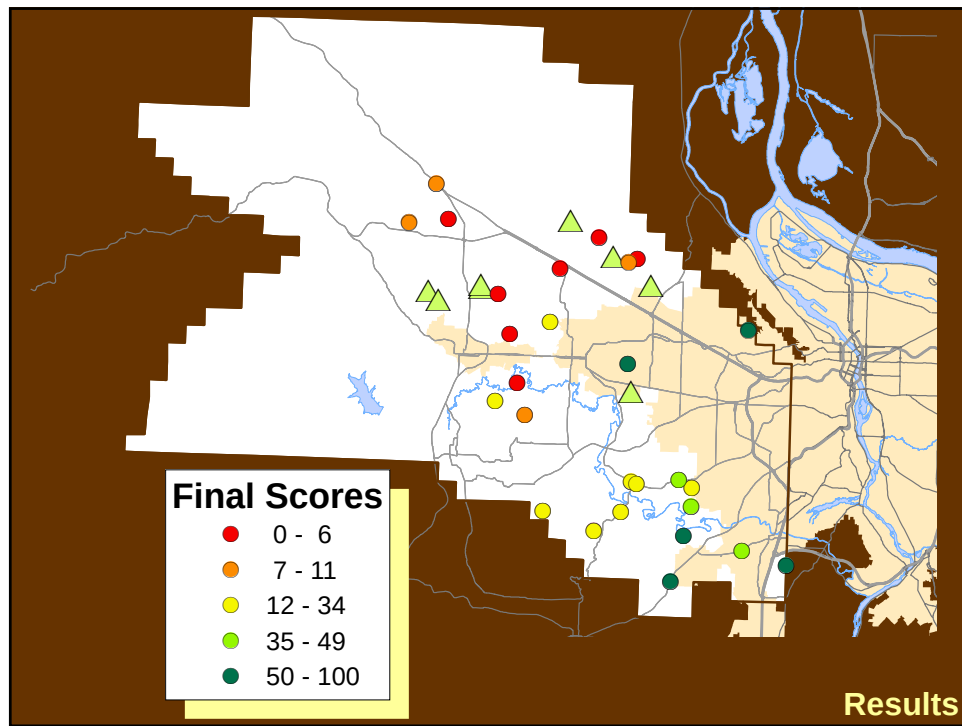
Simplifying Distance 2 Calculation

- For each of the 45 combinations, the distance between candidates was calculated.
- Quickly it became clear that regardless of the pairing and the resulting Distance 2 Subscore, two candidates stood out from the field and would be selected.

Distance 2 Subscore = Weighted Sum of
(Distance to 3 early selections) and
(Distance to other late selection)

Methodology – Scoring



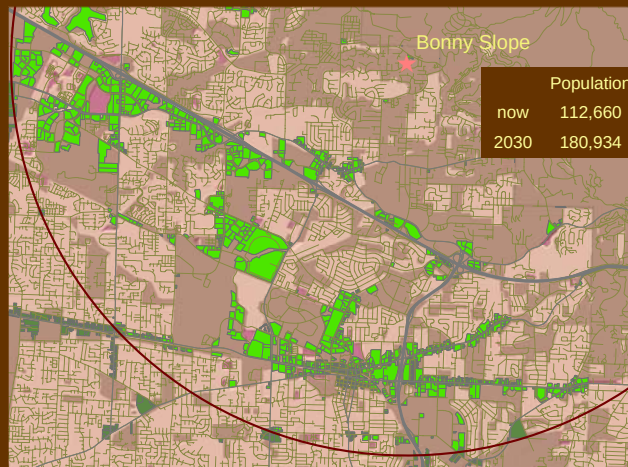


- Three and five mile Buffers are arbitrary
- 2030 Population levels are projected estimates from Metroscape TAZ data.
- Yamhill and Columbia counties were not factored into the model.
- Weighting of the scoring was arbitrary and a best guess.
- No consideration of economic levels or demographics were taken into consideration which certainly would affect the customer base of CSA farms

Limitations \ Qualifications

Potential Drop Points for Bonny Slope CSA

Commercial near Bonny Slope



	Population	Employment
now	112,660	107,415
2030	180,934	148,361

0 1 2 Miles

Implementation – Marketing



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