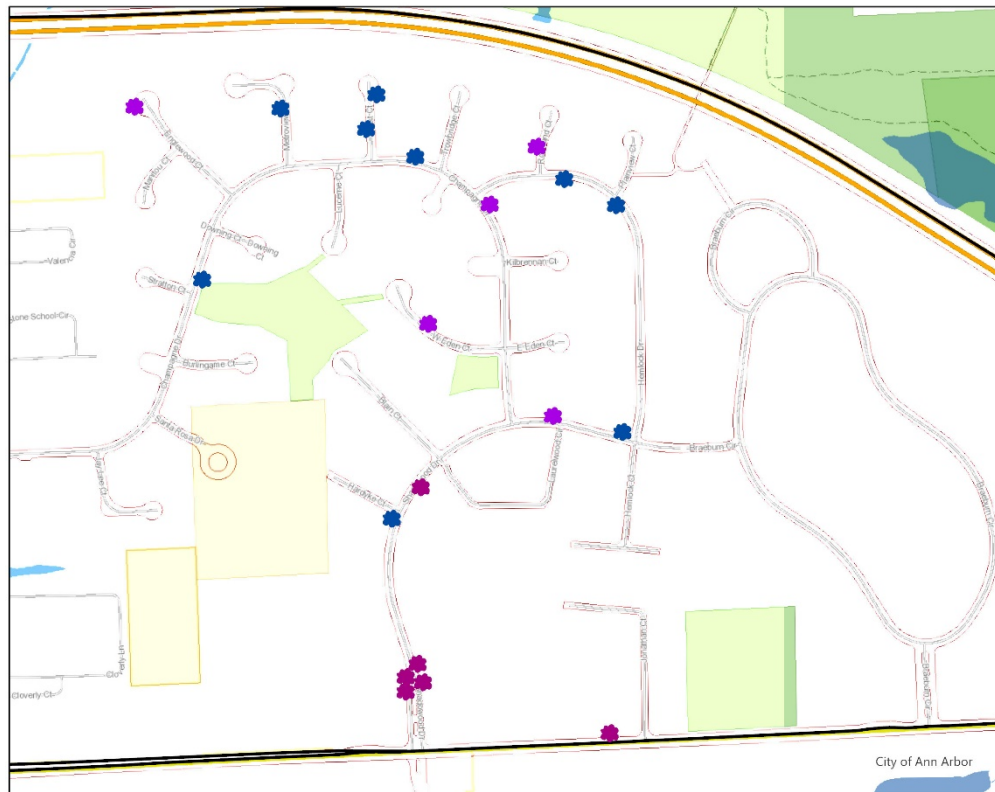


Project Example

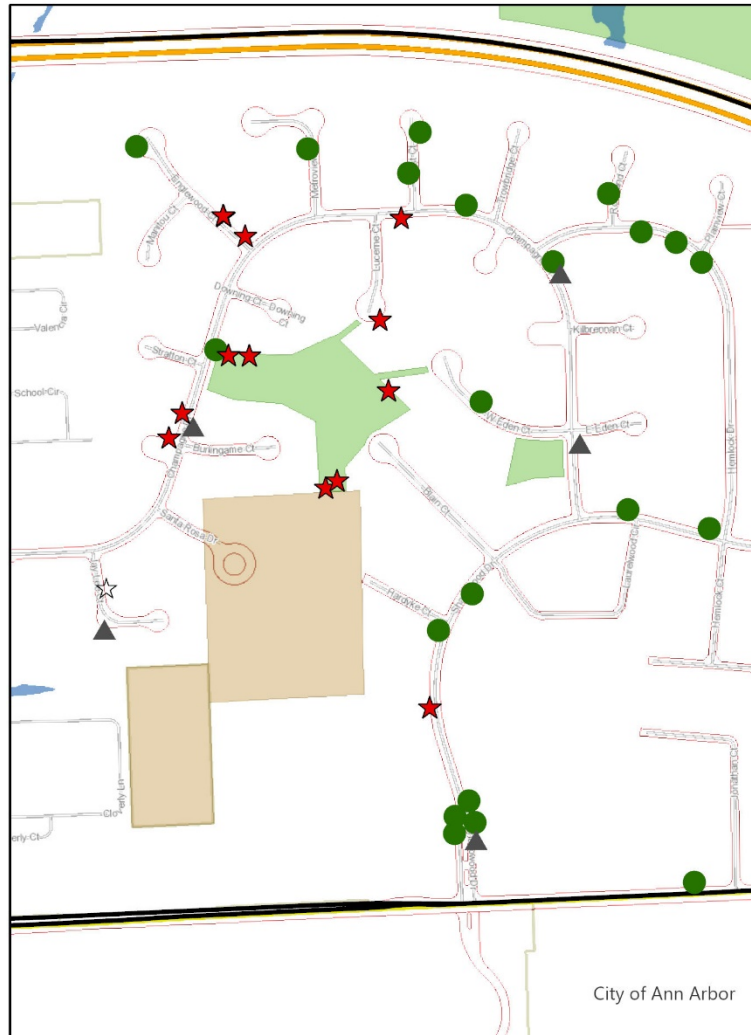


Vacant Planting Sites

Size

- Large
- Medium
- Small

□ Census Tracts



Trees

Maintenance

- Plant Tree
- ★ Priority 1 Removal
- ☆ Priority 2 Removal
- ★ Priority 3 Removal
- ▲ Stump Removal
- ▮ Census Tracts

Cost Estimates

I used a couple of different strategies for estimating costs.

Vacant Sites Only

Assuming we only plant all available vacant sites with the largest tree size each can accommodate and choose the most expensive trees in each size class, cost estimates will be as follows:

$(x \text{ small trees} \times \$295) + (y \text{ medium trees} \times \$280) + (z \text{ large trees} \times \$295) =$
maximum total for planting

If all vacant sites are planted with the largest tree size each can accommodate and we assume the cost of each tree to be the average price of its size class, cost estimates will be as follows:

$(x \text{ small trees} \times \$252.85) + (y \text{ medium trees} \times \$270) + (z \text{ large trees} \times$
 $\$266.47) = \text{total planting}$

When calculating watering (post-planting care) costs, I assumed that the maximum number of waterings (12) is administered. Waterings cost \$5 per tree per watering. Therefore:

$n \text{ trees} \times 12 \text{ waterings} \times \$5 = \text{watering cost}$

The high-end cost estimate for planting all vacant sites and providing post-planting waterings is total maximum planting cost + watering cost. The more conservative estimate is total planting + watering cost.

Stumps and Replacements

If the Dean Fund wishes to expand the number of available planting sites in an area of interest, it may pursue the option of removing stumps and planting replacement trees. Stump removals are estimated to \$116.88 per stump *on average*. **It follows that the cost of removing all stumps in an area of interest is $n \text{ stumps} \times \116.88 . Cost will vary depending on the size of the stump,** with larger stumps demanding larger sums of money.

Price may rise to as much as \$1,000 for especially giant or troublesome stumps.

The costs of planting replacement trees can be calculated using the equations described in the previous subsection; however, doing so would require information on the size classification of the now-vacant site. To simplify things, I opted for a high-end cost estimate by multiplying the total number of stump sites by \$295 (the maximum price for all tree species in the bid tab):

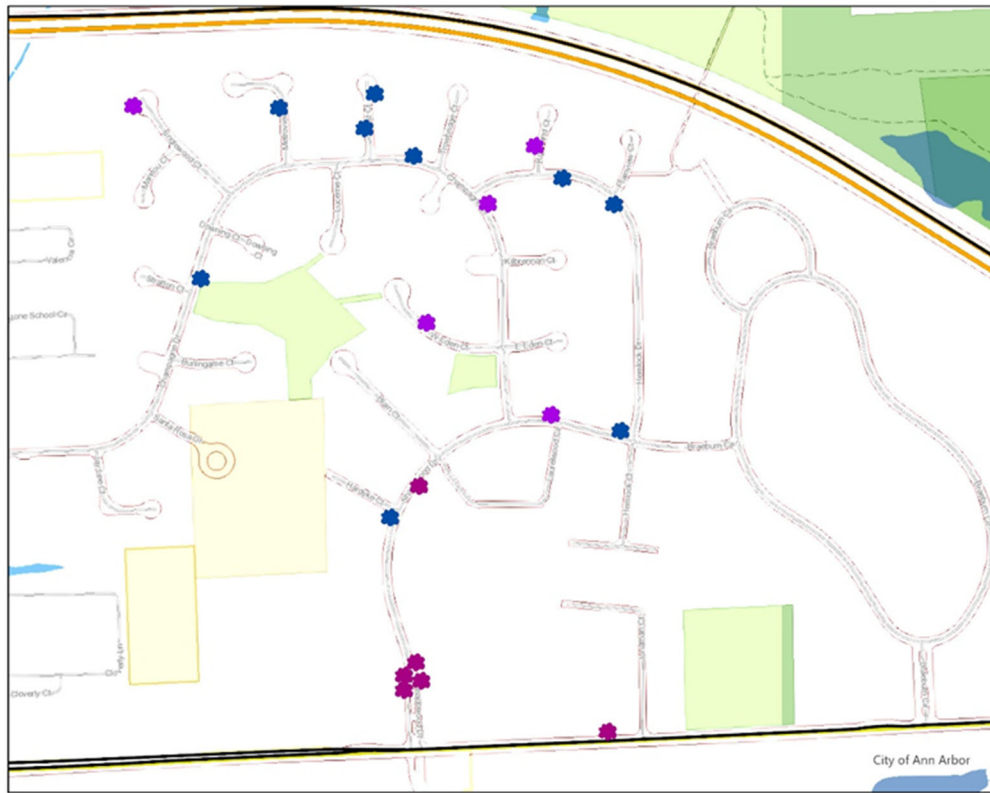
$$\mathbf{n \text{ stumps} \times \$295 = \text{maximum cost of replacement plantings}}$$

The costs of watering these additional plantings are calculated in the same manner as in the above subsection.

The estimated cost for removing stumps, replacing them with trees, and providing post-planting waterings is

$$\mathbf{n \text{ stumps} \times (\$116.88 + \$295 + \$60) = \$471.88 \times n \text{ stumps}}$$

For Example...



Vacant Planting Sites

Size

- Large

 Medium

Small

- Census Tracts

Above is Bryant Neighborhood, located in Tract 4056. There are 19 trees total. (For now, we will exclude the small tree located on Ellsworth and limit our scope to the non-major roads.)

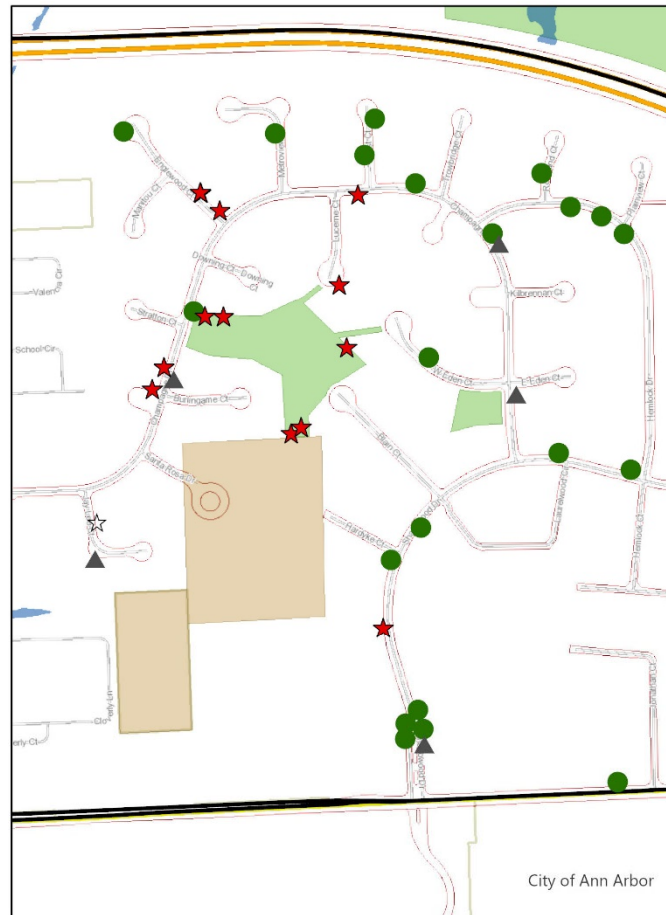
Cost estimates for vacant sites only will then be as follows:

\$5,030 maximum planting cost

\$5,012.48 estimated from averages

\$1,140 maximum watering costs

\$6,170 maximum total planting costs



Trees

Maintenance

- Plant Tree
- ★ Priority 1 Removal
- ☆ Priority 2 Removal
- ★ Priority 3 Removal
- ▲ Stump Removal
- ▭ Census Tracts

Removing the four stumps in the area of interest would cost approximately \$467.52. At maximum, replacing all four stumps with trees would cost no more than \$1,180 for planting and \$240 for watering, for a total of **\$1,887.52**.