

Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

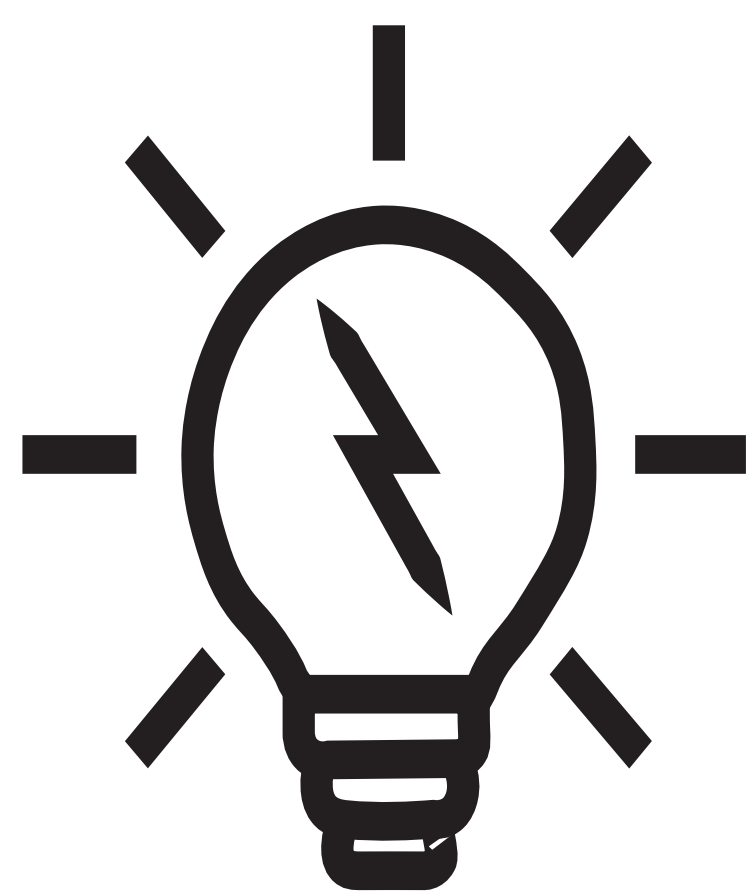
Why a tree inventory?

Tree inventories are used to assess and manage forest and community trees. As a tool for Urban Forest Management, they guide and inform public officials to prioritize and budget to effectively and proactively manage public trees. Beyond the aesthetic appeal trees offer, they provide a multitude of ecosystem services to individuals, businesses, and visitors alike. Their benefits range from improving air quality, increasing property values and lowering energy costs, to beautifying neighbourhoods and improving overall wellbeing. In addition to providing the location of trees that need removal, maintenance or pruning, they are able to determine the overall health of public trees. They can be used for management and policy recommendations, to quantify the dollar value of a city's urban forest, and to educate residents about the benefits of all well-managed community forest.



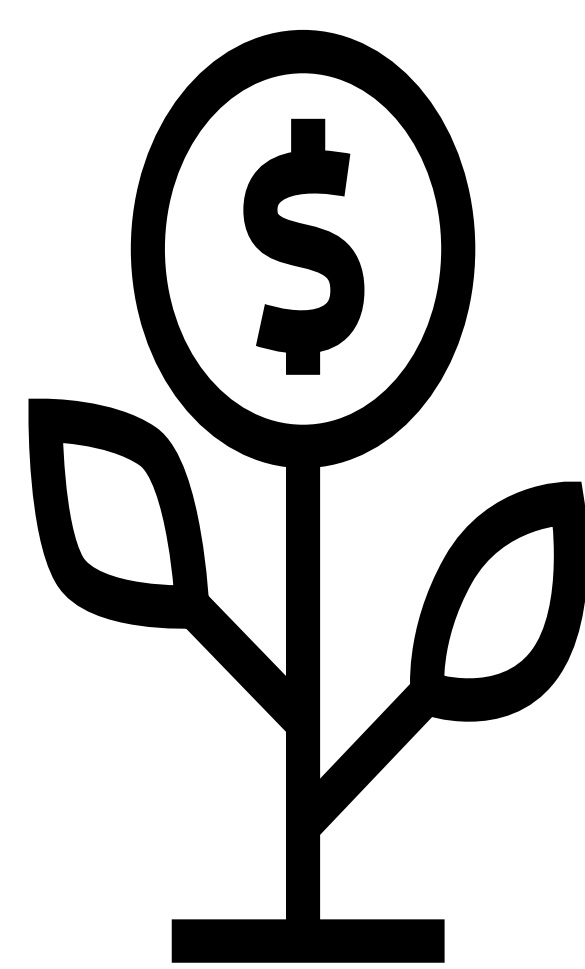
Added Property Value

Trees improve the value of homes and the aesthetic appeal of a neighbourhood. In addition to providing shade and privacy, a well maintained landscape add curb appeal and increases the value the property.



Energy Savings

Trees benefit neighborhoods and homes by reducing electricity costs. During hot summer months their shade can reduce air conditioning use and during the winter they provide wind barriers to decrease the need for heating.



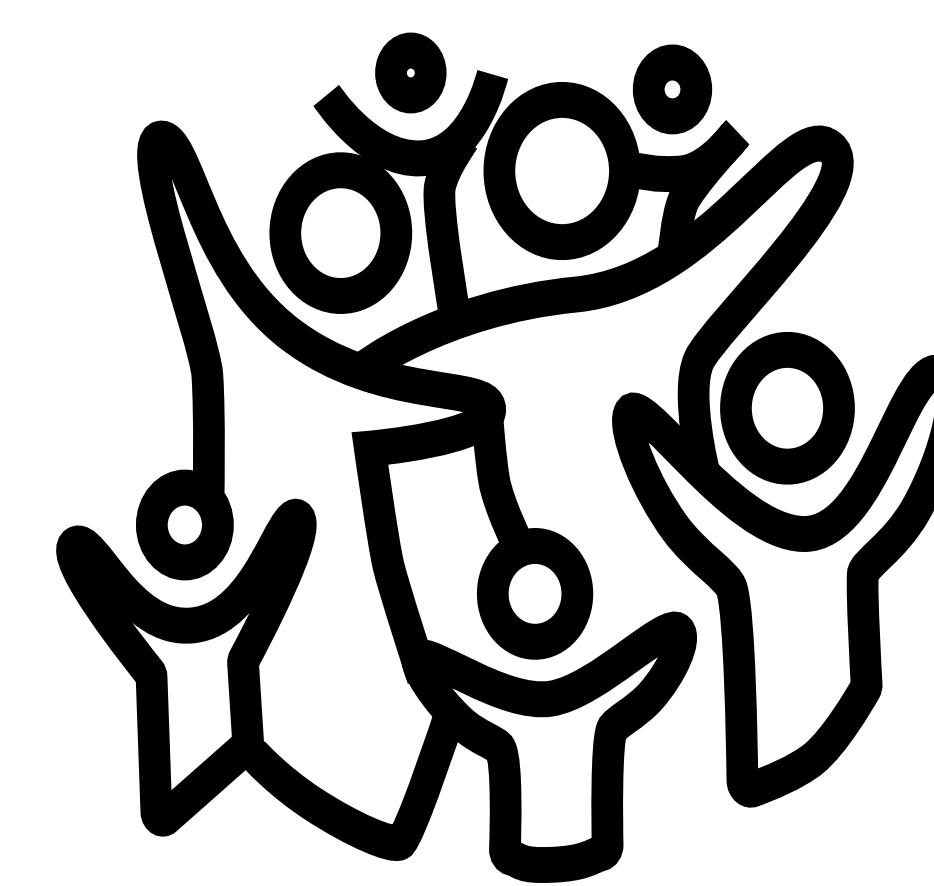
Cleaner Air

Trees improve air quality by absorbing and storing CO2 while releasing oxygen back into the atmosphere. They clean the air by absorbing odor and pollutants the filtering out airborne particles.



Improved Drainage

Trees reduce stormwater runoff by absorbing the water down its trunk and into the earth below. They act as natural sponges by filtering water and preventing stormwater from carrying pollutants into natural waterways like rivers and lakes.



Happy People

The ecosystem services trees provide improve the health and wellbeing of humans. The U.S. Forest Service calculates that trees are saving more than 850 human lives a year and preventing 670,000 incidences of acute respiratory symptoms.

Project Objectives

- Provide the City of Ramsey with the information and resources necessary to make better budgetary and management decisions for their upcoming Comprehensive Plan.
- Conduct an inventory of a corridor within the COR.
- Collect DBH, Overall Health, and Space Analysis information for each street tree.



Planting for Growth



Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

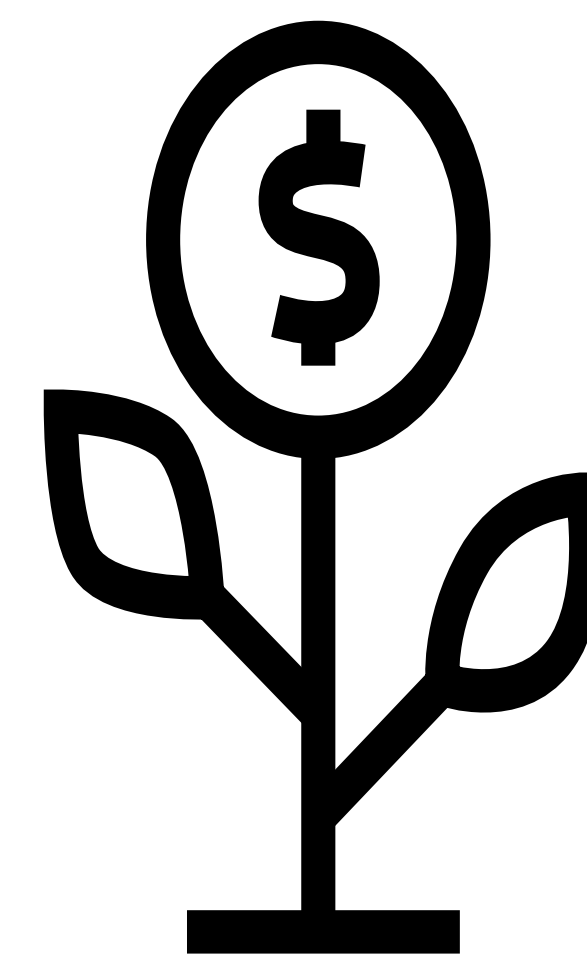
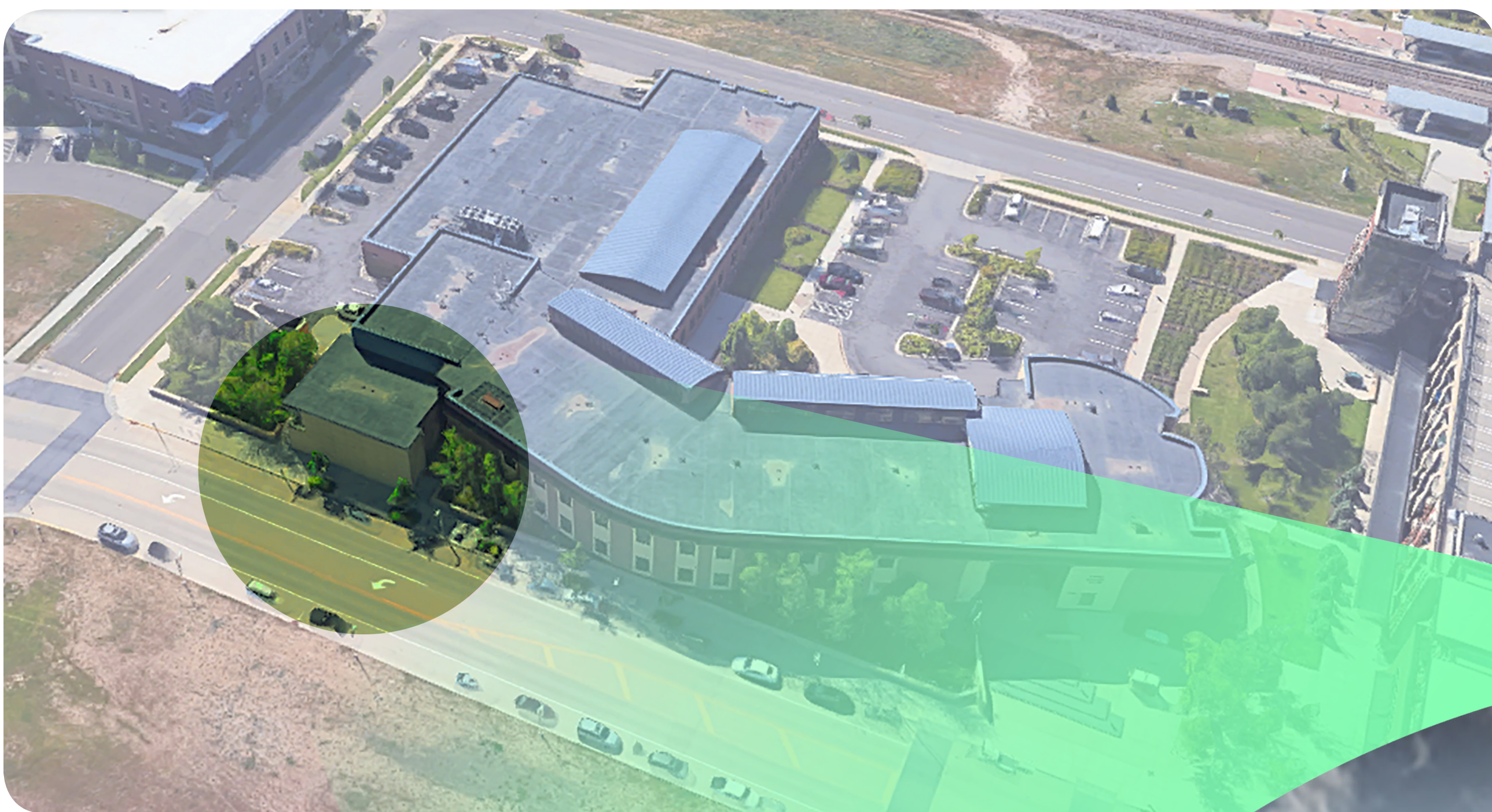
Instructor | Fernando Burga
Lead | Chris Anderson

Cultivating vibrant and resilient streets in the City of Ramsey

20 Years of Benefits

Trees are unique assets to cities and properties because they generally appreciate in value as they grow and age. Some trees do survive the urban environment for over a century, but most city street trees have a lifespan of around 20 years. Even so, in two decades a tree can impart significant benefits, and as the tree ages it more efficiently provides ecological services to owners and the wider community.

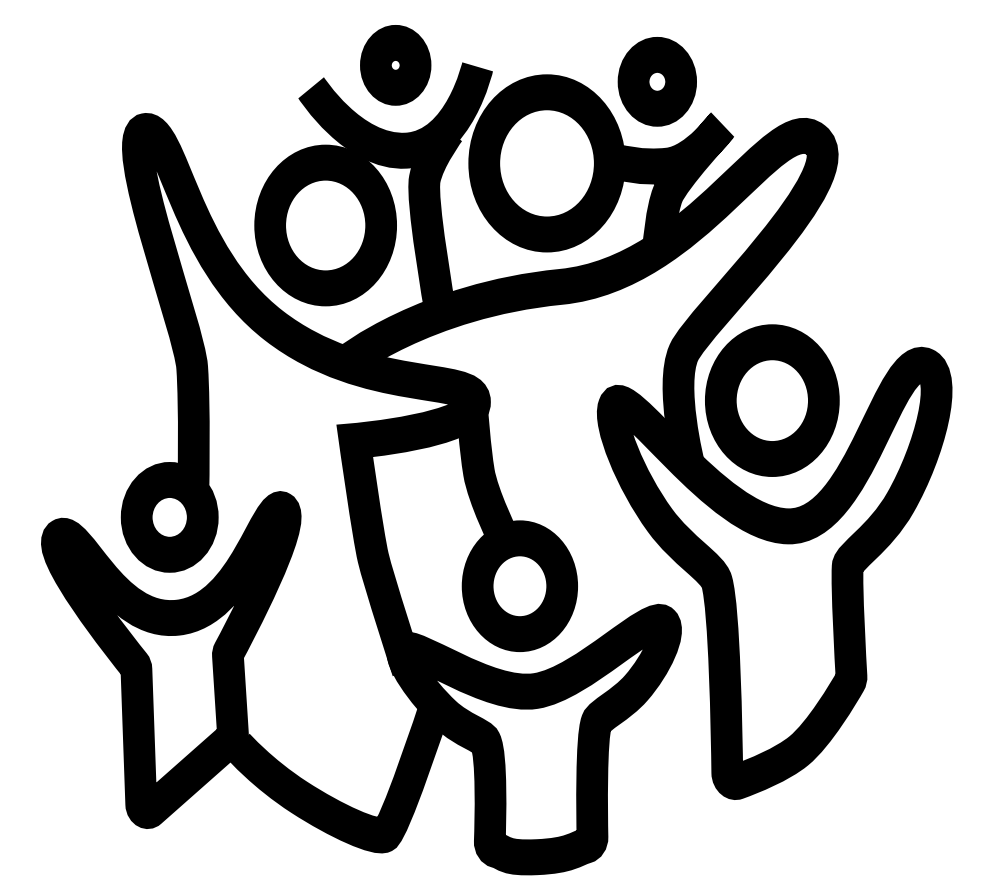
Featured below are two street oaks planted at the eastern corner of Ramsey City Hall. Over the next 20 years, they will perform services valuing \$1,168, and they will increase property value as the canopy grows.



Between 2017 and 2037, these trees will reduce atmospheric CO₂ by 10, 676 lb, about the annual CO₂ emission of a typical passenger vehicle. Trees can sequester (trap) CO₂ in the tree body; they also reduce pollutants by intercepting particulate matter (e.g. dust and smoke). Energy saving benefits also reduce power production, lowering emissions.



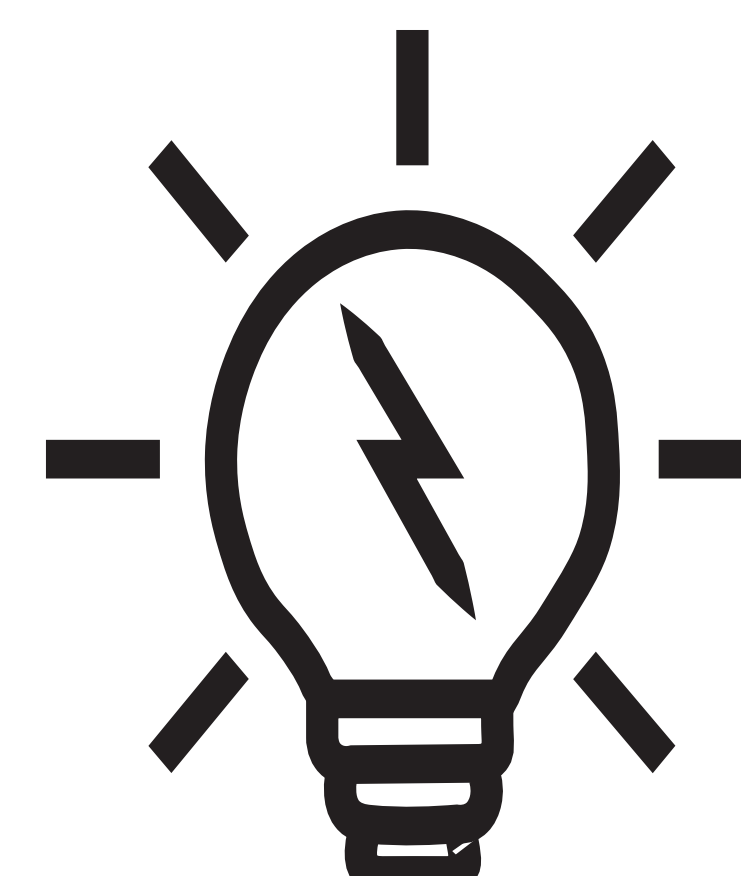
In 2017, these two trees will add \$23 to the property's value. A tree's Leaf Surface Area (LSA) is an effective predictor of a tree's impact on property value: as the canopy grows, it becomes a greater asset.



In two decades, these trees will conserve 1,461 kWh of electricity, the equivalent of running a 750-watt microwave for 81 days. They will also conserve 285 therms, which is enough to operate a household dryer for 59 days with natural gas. Trees produce energy savings by shading buildings to reduce air conditioning, buffering wind to conserve heat, and cooling surrounding air temperature via evapotranspiration (as water leaves the canopy, it becomes a cooling vapor).



Over the next 20 years, these trees will intercept 19,093 gallons of stormwater--that would fill over 477 bathtubs! This will prevent pollutants from quickly washing from impervious surfaces (like concrete and asphalt) into the nearby Mississippi River. Trees can hold rain on leaves, bark, and branches. Root networks are also more effective than the soil matrix at moving water, promoting infiltration (movement of water into soil) and water storage in the tree and soil.



Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson



- Benefits:**
- Fast growth rate
 - Adapts to urban stress
 - Tolerates air pollution and drought
 - Shading canopy
 - Fragrant blossoms

- Weaknesses:**
- Weak structure
 - Falling flowers and fruit need clean-up
 - Threatened by verticillium wilt, leaf spots, and powdery mildew

- Traits:**
- Bean-like seed pods
 - Large leaves
 - Irregular crown
 - Mature height: 60'
 - Mature canopy: 25'

Catalpa (genus *Catalpa*)

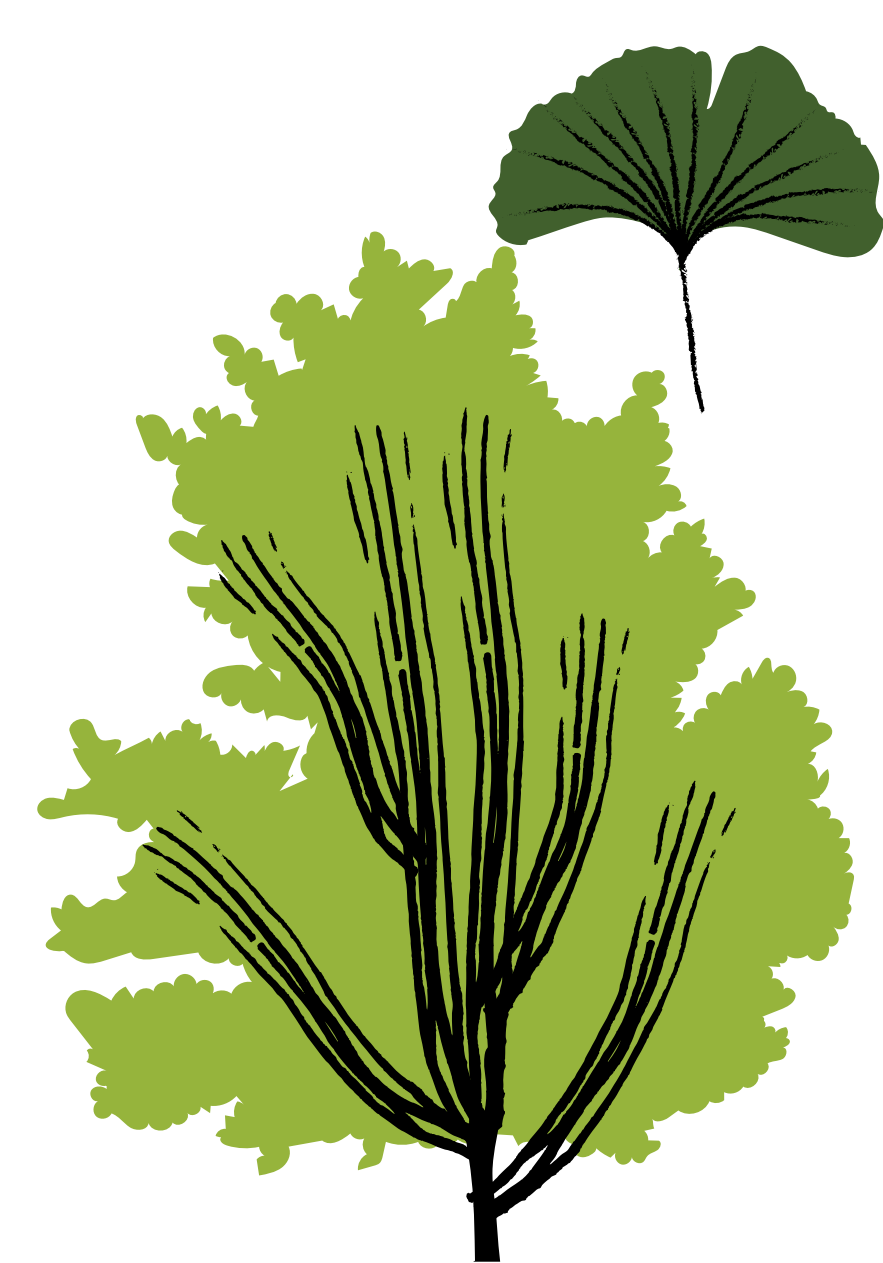


- Benefits:**
- Low maintenance
 - Adapts to urban stress
 - Tolerates salt, alkaline soil, and drought
 - Profuse spring flowering

- Weaknesses:**
- Susceptible to disease and fungus, including fireblight and scab
 - Requires full sun

- Traits:**
- Dense, rounded tree
 - Grows small fruit
 - Mature height: 30'
 - Mature canopy: 20'

Crabapple (genus *Malus*)



- Benefits:**
- Low Maintenance
 - Adapts to urban stress
 - Tolerates air pollution, salt, aconfined spaces
 - Grows in alkaline, acidic, and compacted soil
 - Shading canopy
 - Leaves turn bright yellow in fall

- Weaknesses:**
- Slow growth rate
 - Requires full sun

- Traits:**
- Short branches
 - Fan-shaped leaves
 - Mature height: 80'
 - Mature canopy: 30'

Ginkgo (genus *Ginkgo*)



- Benefits:**
- Native species
 - Adapts to urban stress
 - Tolerates drought
 - Grows in most soil textures, in alkaline and anaerobic soil
 - Shading canopy
 - Colorful fall foliage

- Weaknesses:**
- Limited tolerance to compaction, salt, and confined spaces
 - Branch loss
 - Threatened by the Asian Longhorned Beetle and fungus

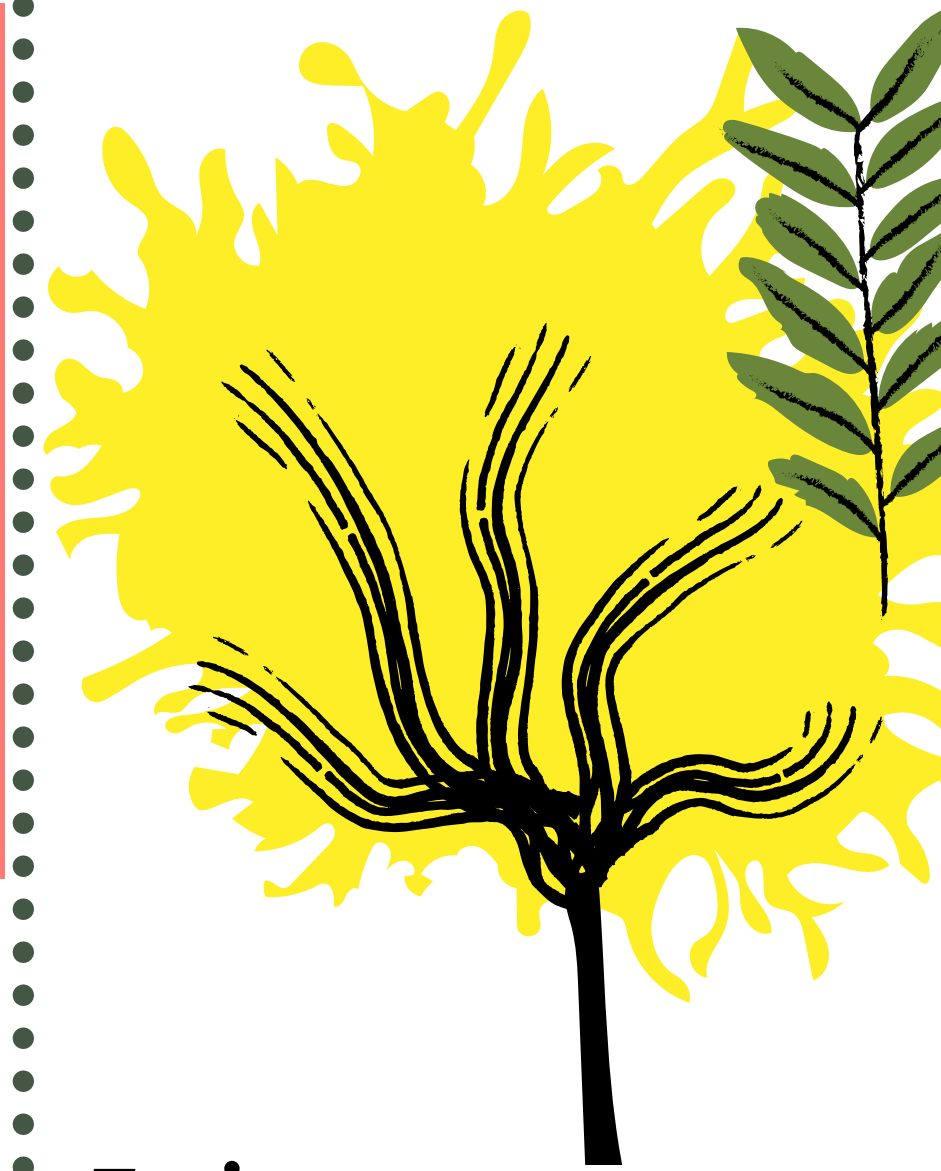
- Traits:**
- 5-lobed leaves
 - Round/oval growth
 - Mature height: 50'-90'
 - Mature canopy: 35'-40'

Maple (genus *Acer*)



Trees in Ramsey

Trees are incredibly diverse, with each species providing a specific range of advantages and disadvantages. Cities, businesses, and community members can determine the best trees for planting based on tree qualities (e.g. shading, ornamentation) as well as restrictions on planting conditions (e.g. soil type, limited space). Disease and invading insects also present challenges to planting--Ash trees, for example, are not recommended for new planting due to the prevalence of Emerald Ash Borers.



- Benefits:**
- Native species
 - Fast growth rate
 - Adapts to urban stress
 - Tolerates salt and drought
 - Grows in alkaline soil
 - Strong branches
 - Colorful fall foliage

- Weaknesses:**
- Susceptible to insect attacks
 - Pods require clean-up

- Traits:**
- Compound leaves
 - Mature height: 70'
 - Mature canopy: 40'

Honey Locust (genus *Gleditsia*)



- Benefits:**
- Native species
 - Moderate to fast growth rate
 - Adapts to urban stress
 - Tolerates of salt, moisture, drought, and wind
 - Shading canopy

- Weaknesses:**
- Requires full sun
 - Susceptible to Dutch Elm Disease

- Traits:**
- Toothed leaves
 - Umbrella-like crown
 - Mature height: 70'
 - Mature canopy: 40'

Elm (genus *Ulmus*)



- Benefits:**
- Native species
 - Fast growth rate
 - Adapts to urban stress
 - Tolerates pollution
 - Grows in most soil textures
 - Colorful fall leaves

- Weaknesses:**
- Intolerant of salt
 - Requires full sun
 - Susceptible to Oak Wilt

- Traits:**
- Narrow crown
 - Large acorns
 - Mature height: 80'-100'
 - Mature canopy: 40'-60'

Oak (genus *Quercus*)



- Benefits:**
- Native species
 - Fast growth rate
 - Tolerates salt
 - Grows in compacted and alkaline soil
 - Shading canopy
 - Tough, elastic wood

- Weaknesses:**
- Lower tolerance for drought conditions
 - Requires full sun
 - Threatened by the Emerald Ash Borer, and is not recommended for new planting

- Traits:**
- Compound leaves
 - Rounded crown
 - Mature height: 65'-90'
 - Mature canopy: 20'-40'

Ash (genus *Fraxinus*)

methods

4

Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

downtown COR

5

Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

residential

6

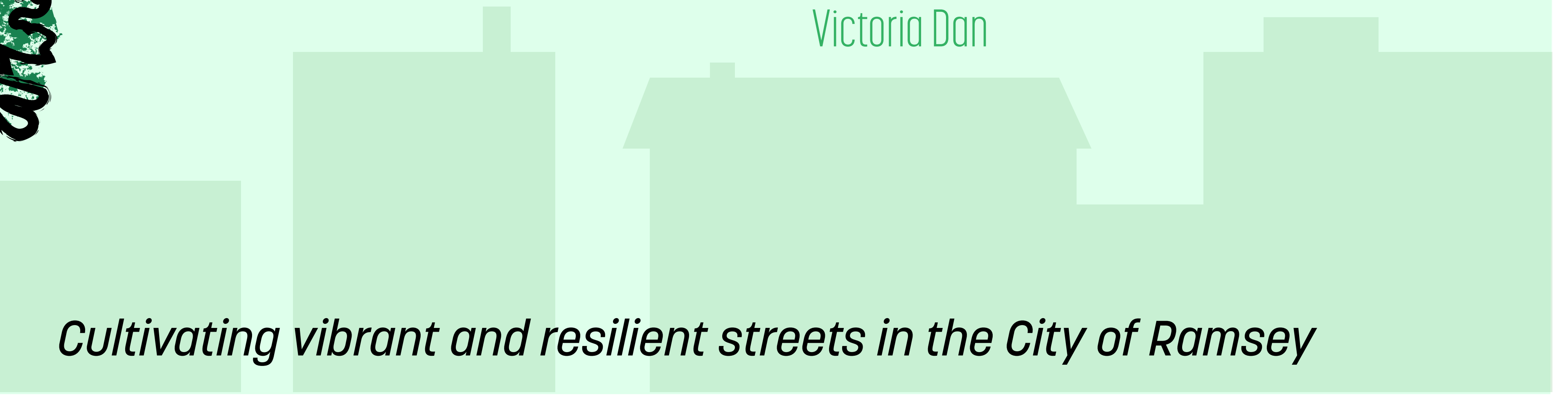
Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson



Planting for Growth



Cultivating vibrant and resilient streets in the City of Ramsey

Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

digital tools



Planting for Growth



Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

Cultivating vibrant and resilient streets in the City of Ramsey

CONCLUSION



Planting for Growth



Team | Ada Moreno Gomez
Nick Kieser
Victoria Dan

Instructor | Fernando Burga
Lead | Chris Anderson

Cultivating vibrant and resilient streets in the City of Ramsey