



Urban Forest Management Plan



A photograph of a suburban street scene, including a sidewalk, trees, and a street sign, overlaid with a blue tint. The text "TABLE OF CONTENTS" is centered in white.

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A blue-tinted photograph of an outdoor basketball court in a park. The court is in the foreground, with white lines on the asphalt. In the background, there are several tall palm trees, a street lamp, and a basketball hoop on the left. The sky is overcast. The word "VISION" is written in white, sans-serif capital letters in the center of the image.

VISION



The Salinas urban forest is a well-funded and maintained living asset that creates a flourishing shelter enjoyed by all community members and provides shade and protection, fresh air and oxygen, and physical and mental benefits that promote a healthier, sustainable future for all.

1

INTRODUCTION

1.1

HISTORICAL AND ENVIRONMENTAL CONTEXT

The native inhabitants of the Salinas area were the Costanoan Indians, also known as the Ohlone, who occupied the California central coast between Big Sur and San Francisco. Smaller banded groups dwelled along the coast, including the Salinan Indians to the south. (Johnston 1977). The Salinas River watershed consisted of wooded creeks and marshland that provided the native tribes with a myriad of resources, such as staple food sources, materials for making baskets and tools, and fresh water. Tree species that are historically recorded consist of well-vegetated willow thickets, mixed willow cottonwood forests, coast live oaks, and sycamores (Beller et al. 2009).

The establishment of ranchos in the early 1800s marked the emergence of Salinas as a city (City). However, it was not until the latter part of the century that the central valley was recognized for its fertile soil. The conversion of grazing land to an agriculture encouraged rapid City growth, and the Monterey County Board of Supervisors incorporated the City of Salinas in 1874 (Durham 1998).

COSTANOANS

Also known as the Ohlone, occupied the California central coast between Big Sur and San Francisco.

SALINAS RIVER

The Salinas River watershed consisted of wooded creeks and marshland that provided the native tribes with a myriad of resources, such as staple food sources, materials for making baskets and tools, and fresh water.



WILLOW & OAK

Tree species that are historically recorded consist of well-vegetated willow thickets, mixed willow cottonwood forests, coast live oaks, and sycamores (Beller et al. 2009).



FERTILE SOIL

The conversion of grazing land to an agriculture encouraged rapid City growth, and the Monterey County Board of Supervisors incorporated the City of Salinas in 1874 (Durham 1998).



URBAN DEVELOPMENT

Following World War II, major urban and suburban development converted farmland into an urban landscape where churches, schools, hotels, and commercial corridors created opportunities to plant trees.



The City's agricultural success significantly altered the Salinas valley ecosystems and ecology through fragmentation, irrigation, runoff of nutrients and pesticides, and the stabilization of water flows (Beller et al. 2010). Like many developing cities, invasive species such as arundo and eucalyptus were introduced. Following World War II, major urban and suburban development converted farmland into an urban landscape where churches, schools, hotels, and commercial corridors created opportunities to plant trees.

Today, elements of Salinas's history remain throughout the downtown area, where buildings are framed by mature street trees that provide shade, beauty, and community character.





1.2

WHY SALINAS NEEDS AN URBAN FOREST MANAGEMENT PLAN

The need to have an equitable, connected tree canopy that is resilient against changing environmental conditions is increasingly important in Salinas. Some common concerns that were expressed throughout the development of this urban forest management plan (UFMP) was the urgency of increasing canopy cover, enforcing tree protection policies, and having an effective tree planting and maintenance program, especially in neighborhoods with dense housing. With a population of more than 166,000 people and a 7.8% canopy cover recorded in the 2015 Urban Forest Assessment (City of Salinas 2015), investments to enhance the urban forest is critical. As illustrated in **Exhibit 1-1**, trees provide numerous environmental, economic, and social benefits that help mitigate the environmental risks experienced in urban areas such as heavy air pollution and the urban heat island effect. Some existing and projected threats in the Salinas region that could be further mitigated by increasing the urban forest and its resources include the following:

- Monterey County's lack of affordable housing and dense population negatively affects the environment, open spaces, and sense of community (Smith 2004).
- Land use policies that don't align with community choice and affect all residents, such as prioritizing the development of subdivisions (Smith 2004).

When considering environmental and socioeconomic risks, a resilient urban forest that is well-managed and maintained can provide multi-benefit solutions to alleviate environmental issues that results in a higher quality of life for all community members in the City of Salinas.



Exhibit 1-1. Benefits of Trees

BENEFITS OF TREES IN AN URBAN ENVIRONMENT

HEALTH	ENVIRONMENTAL/INFRASTRUCTURE SERVICES
<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>CLEANER AIR Trees absorb pollutants and filter particulates out of the air by trapping them on their leaves and bark.</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>SAVING ENERGY Shade trees can lower air-conditioning costs 56% annually, burning fewer fossil fuels.</p> </div> </div>
<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>CONNECTING WITH NEIGHBORS Trees can encourage civic pride while tree plantings provide opportunities for community involvement.</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>BEAUTY Trees add character to city streets and residential areas as they radiate with colors, flowers, textures, and shapes.</p> </div> </div>
<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>RAINWATER CAPTURE Trees capture rainfall, recharging groundwater supplies and helps prevent stormwater from carrying pollutants to the ocean.</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>FRESH FOOD Trees provide food in the form of fruits, nuts, leaves, bark, and roots.</p> </div> </div>
<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>SHADE Trees cool cities by up to 10 °F and shaded areas can be 20-40 °F cooler than peak temperatures.</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>WILDLIFE HABITAT Trees support the lives of many wildlife and insect species and provide them with food, shelter, and nesting sites.</p> </div> </div>
	
<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>HEALTHIER COMMUNITIES Trees improve mental health and public health by decreasing respiratory illnesses and encouraging outdoor recreation.</p> </div> </div>	



1.3 DEVELOPING THE SALINAS UFMP

In February 2021, the California Department of Forestry and Fire Protection (CAL FIRE) awarded the City of Salinas grant funding from Proposition 68 to complete the UFMP and plant 300 trees on City properties. The City's Forestry, Engineering and Waste, Water, and Energy divisions (within the Public Works department) are the main City entities that were responsible for overseeing the UFMP's development and implementation. The divisions provided key insights into City practices, coordinated with internal and external interested parties, and participated in community engagement events.



Urban Forest Inventory Analysis

An inventory of all City-managed trees was conducted in 2014 and 2015, and the City used TreeKeeper software to record maintenance requests through 2018. The 2014-2018 inventory data was used to analyze the City-managed trees based on sustainability metrics and to estimate the environmental services and economic benefits provided by these public trees. The sustainability metrics analyzed include species diversity, age distribution based on diameter at standard height (DSH), tree condition distribution, water use rating, and climate preparedness. These metrics determine the condition of the City-managed urban forest and help identify what management practices will need to be improved to have the most meaningful impact on tree health and safety. The inventory analysis used the i-Tree Eco software developed by the U.S. Forest Service (USFS 2020) to model the environmental services and economic benefits of the inventoried trees. These include annual carbon sequestration, diverted runoff, pollution removal, total carbon storage, and functional and structural dollar values. Dollar amounts are equated to the environmental services and are useful for public education, City planning, and exploring long-term funding mechanisms.

Analysis of Current Plans, Policies, and Ordinances

A comprehensive review of the status of Salinas' urban forestry program provides a baseline for understanding the effectiveness of City tree management. This review included extensive analyses of urban forest policies, funding mechanisms, tree management practices, ordinances, and procedures. Long-range planning documents related to the urban forest were identified by the City and reviewed as part of the UFMP baseline, including the General Plan, Alisal Neighborhood Revitalization Plan, Urban Greening Plan, Parks and Libraries Master Plan, and the most recent Urban Forest Assessment. Understanding the existing conditions provided a baseline to compare current actions against best management practices (BMPs) and goals, and to identify areas for improvement to ensure the City meets the standards of sustainable urban forest management.





Departmental and Elected Official Interviews

The internal review of the Salinas urban forestry program was conducted through a series of nine interviews with various City staff and elected officials. Each was asked how their role affects tree management, tree planting, protection, internal City procedures, and maintenance efforts. The list of City staff and elected officials who participated in the interview process are identified in **Table 1-1**.

Table 1-1. List of City Staff and Elected Officials Interviewed

Department	Staff
Public Works	<ul style="list-style-type: none"> Maintenance Superintendent Urban Forestry Manager Senior Engineer City Engineer National Pollutant Discharge Elimination Systems (NPDES) Program Manager
Community Development	<ul style="list-style-type: none"> Director
Elected Officials	<ul style="list-style-type: none"> Council member
Fire	<ul style="list-style-type: none"> Deputy Fire Chief
Library and Community Services	<ul style="list-style-type: none"> Parks and Recreation Superintendent

The following is a sample of some of the questions explored during these interviews:

- How do you envision the Salinas urban forest in the next 30 years?
- Do you have suggestions/thoughts for improving your department’s role regarding tree management?
- Are existing policies considered appropriate for efficient tree management?
- Are there specific locations that need to be prioritized for tree planting?
- What are the biggest challenges facing the expansion of the urban forest?

Gathering input from City staff and elected officials illuminated reoccurring themes of the urban forest program and areas of greatest needs and concerns.

Community Engagement

Community engagement was a critical component throughout the creation of the UFMP to ensure a diverse representation of community members were informed, involved, and represented. A series of in-person and virtual outreach events helped the consultants understand the core values of community members in Salinas, such as their love for the City’s parks and the need for public educational resources about trees.

The engagement strategy included the following activities:

- Bilingual public tree survey that was circulated online and in-person (total of 145 responses)
- Three tabling events at the Alisal Farmers Market with educational materials and resources about the City's tree inventory
- Online outreach through the City's social media channels and networks (website, e-newsletter, Instagram, Facebook)
- Local outreach to community-based organizations and nonprofits
- Four Working Group meetings consisting of 10 community members to understand interested parties' priorities and concerns of the urban forest
- Community Event Collaboration with Amor Salinas (Make a Difference Day, October 2022)



A blue-tinted photograph of a city street intersection. In the foreground, several cars are stopped at a traffic light. In the background, there are multi-story brick buildings and a street sign that reads "W Alisal St".

2

KEY FINDINGS



2.1 The City Needs an updated tree inventory.

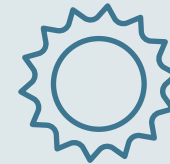
An inventory of City managed trees was last completed in 2014 and should be updated so City leadership can base decisions on current and accurate data. The City should complete a new inventory and establish a mechanism to ensure data for each tree is no more than 3-5 years old at any given time. Maintaining the inventory can be accomplished if the City can achieve a consistent and optimal maintenance cycle of all trees in its inventory.



2.2 Improvements to the City's urban forest record keeping system are essential.

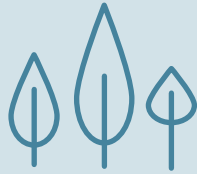
The City uses the Q-Alert system, an internal database managed by the GIS department; Public Works uses Q-Alert to manage its tree work requests. The City also uses Tree Keeper, which is useful for grant reporting. The two systems are managed separately and cannot be updated concurrently, leading to inaccurate tree inventory information, annual

service data, and management information. The City will need to improve its record-keeping strategies and merge the two systems to ensure funding and management decisions are made using the most current data.



2.3 The urban forest is not prepared for threats from pests, diseases, or climate change.

Cities with tree inventories that have low species diversity may be more susceptible to invasive pests, pathogens, or significant weather events. The City's current street tree palette contains a list of seven predominantly small-stature trees that has resulted in an overrepresentation of species in the inventory, including sweet gums, London planes, pears, plums, and magnolias. Many of these species are simultaneously not prepared for the impacts of climate change. The City can prepare for these expected changes by selecting and planting species that are predicted to perform well in future climate conditions, thereby increasing species diversity in the City. This UFMP includes a recommended species palette to implement upon adoption.



2.4 The City's canopy cover is low and not equitably distributed.

The UFMP's canopy cover assessment revealed that Salinas currently has an 11.5% canopy cover. However, spatial analysis of the canopy cover throughout the City showed that it is not equally distributed. Within the analysis area, canopy cover by council districts range from 6.6% to 17.4% and canopy cover by census tracts range from 1% to 23.3%. Roughly 50% of all parks and bus stops and roughly 80% of all bikeways have less than 10% canopy cover. Areas with higher pollution burden and vulnerability have lower tree canopy cover and proportionally more low-income and marginalized community members. The City will need to strengthen its tree planting and preservation strategies and ensure focus is put on low canopied areas first to increase the overall canopy cover equitably throughout the City.



2.5 Community members value trees as a vibrant resource.

Open discussions with City staff and community members show that the Salinas community believes trees are a valuable City asset. Community members expressed the desire and need for more trees and public education about the benefits of the urban forest. Overall, community members would like to become more involved in the City's efforts to increase tree canopy; however, the gap between community wants and the City's capacity to fulfill them is wide. Investments in the Urban Forest program will need to occur for City staff to create a balance of allocated resources towards a sustainable maintenance and tree planting program, and to update community outreach and education campaigns.



2.6

The City's long-range planning efforts should prioritize the urban forest.

Updates are needed to the City's long-range planning efforts and municipal code comprehensive planning efforts, as there is currently some inconsistency regarding planning for trees. More recent planning efforts, such as the Neighborhood Vibrancy - Urban Greening Plan, recognize the importance of trees and provide guidance for prioritizing tree planting. However, the General Plan has very little guidance, policies, or goals regarding trees. As the overall blueprint for the City, updating the General Plan to prioritize trees will help to achieve the goals of this UFMP.



2.7

Policies and ordinances that protect trees on private property should be enhanced.

The City's Municipal Code Chapter 35: Trees and Shrubs protects street trees and other trees grown on City-managed property. However, the chapter could be significantly strengthened to improve tree protection policies during construction, to identify stricter penalties for violation of the ordinance, and to add specificity for the types of trees that are protected. Additionally, other sections in the municipal code do not protect trees planted on private property. One of the strongest ways to ensure the City does not experience a net loss of canopy cover is to improve and enforce tree protection ordinances and policies on private property. The City will need to improve its tree protection policies and partner with community members to plant and protect more trees, in order to meet canopy cover goals.



3

CANOPY COVER

Canopy cover refers to the layer of leaves, branches, and stems that provide tree coverage of the ground when viewed from above.

3.1 CITYWIDE CANOPY COVER

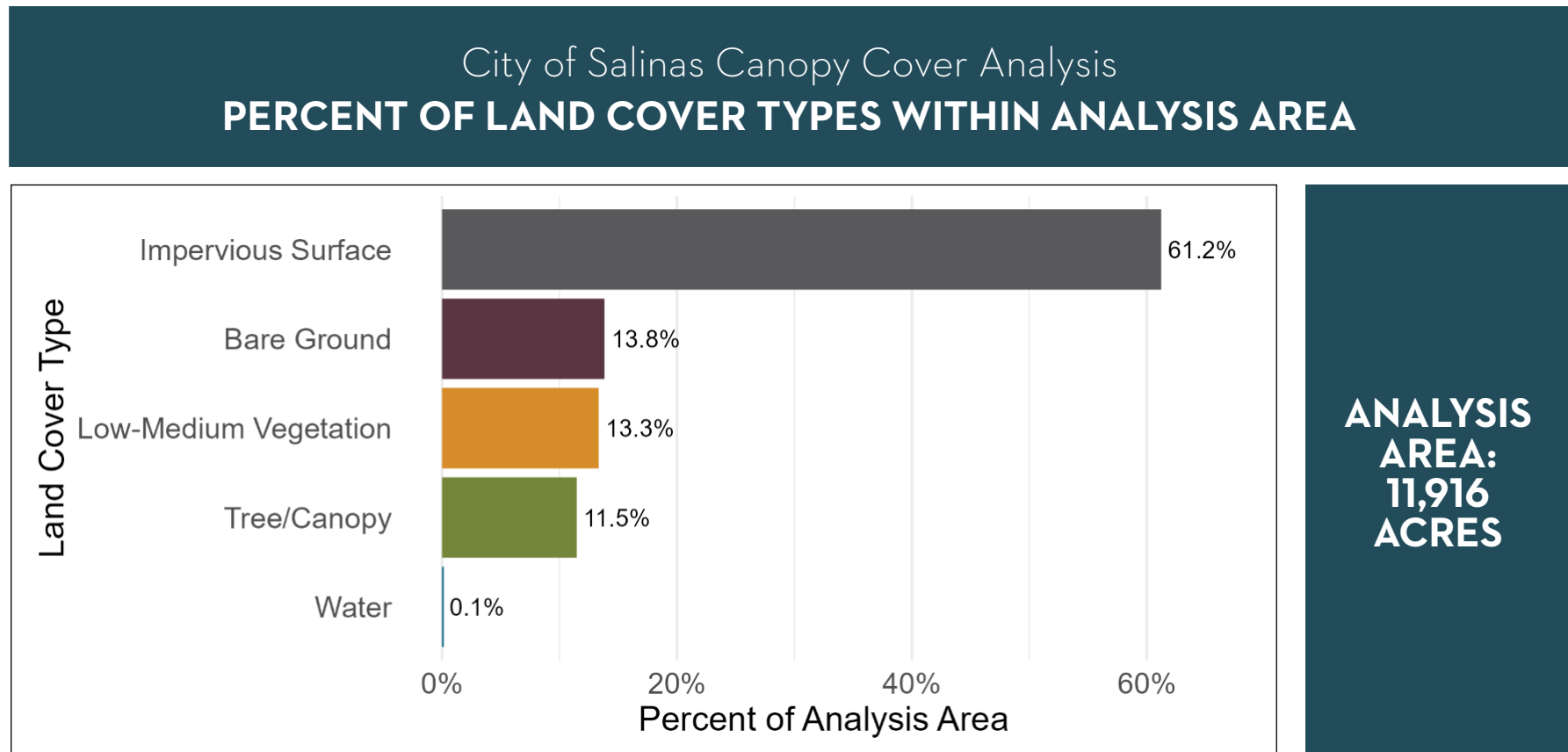
Canopy cover refers to the layer of leaves, branches, and stems that provide tree coverage of the ground when viewed from above. Tree canopy cover can have a positive impact on communities as it provides many environmental benefits and services. When analyzing the Salinas Tree Survey, survey respondents heavily expressed a desire to increase canopy cover, especially in parks, open spaces, and main streets throughout the City. Research has found that residents who live adjacent to green spaces and trees have lower levels of illness and disease compared to other people of similar income levels (Wolf et al. 2015). Thus, neighborhood and park environments that have a substantial amount of canopy cover can reduce socioeconomic inequalities.





A Citywide canopy cover assessment was conducted for Salinas using satellite imagery and spatial analysis (see the UFMP Technical Assessment for methodology details). The results of the canopy cover analysis are shown in **Exhibit 3-1**, Land Cover Classification, and **Exhibit 3-2**, Map of Tree Canopy Cover in Salinas. The canopy cover analysis revealed that Salinas has an existing canopy cover of approximately 11.5%.

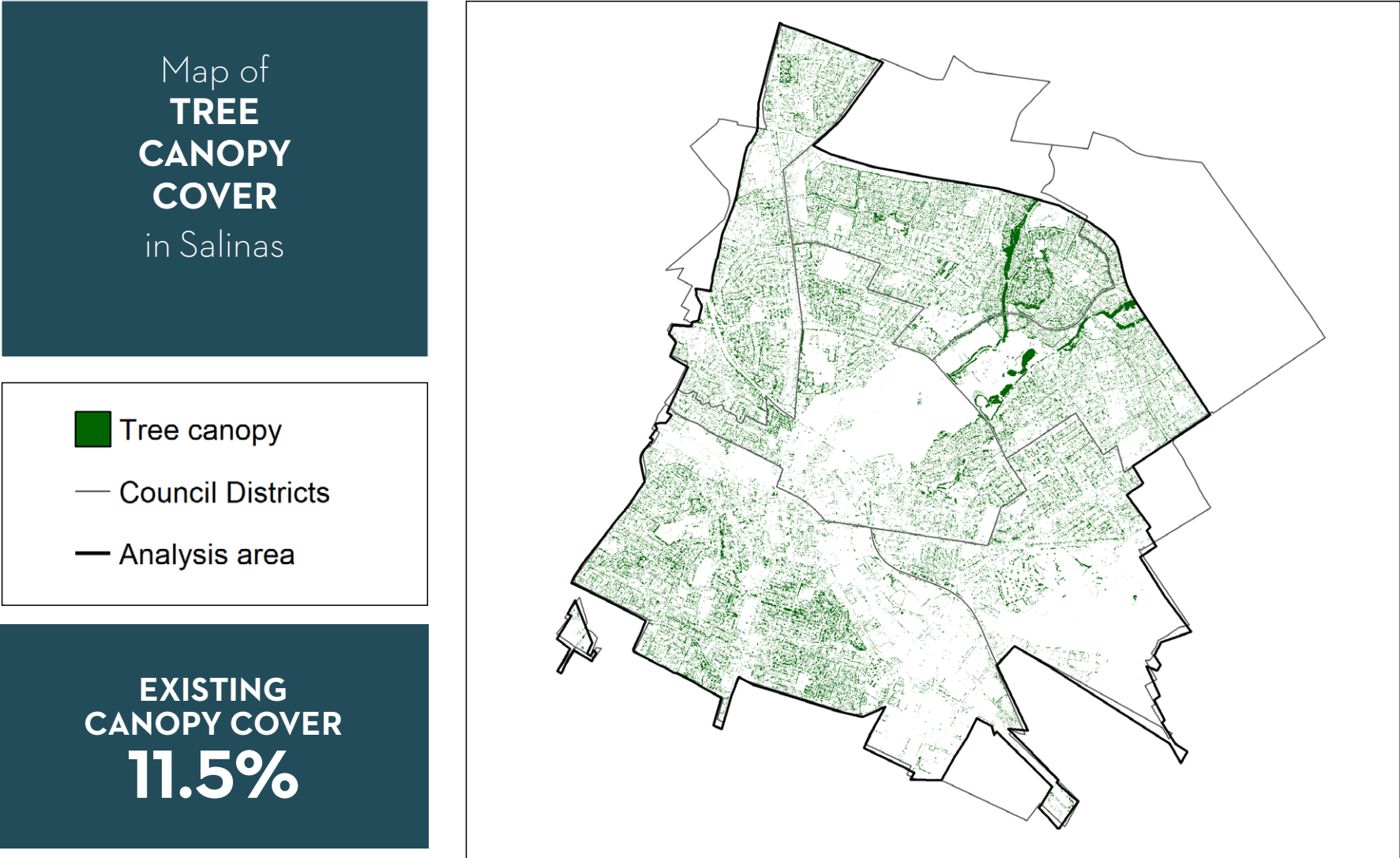
Exhibit 3-1. Land Cover Classification



Source: USDA 2020.



Exhibit 3-2. Map of Tree Canopy Cover in Salinas



Source: USDA 2020.



Goal for Salinas:
15% canopy cover
Citywide to be
achieved over the
next 20 years.



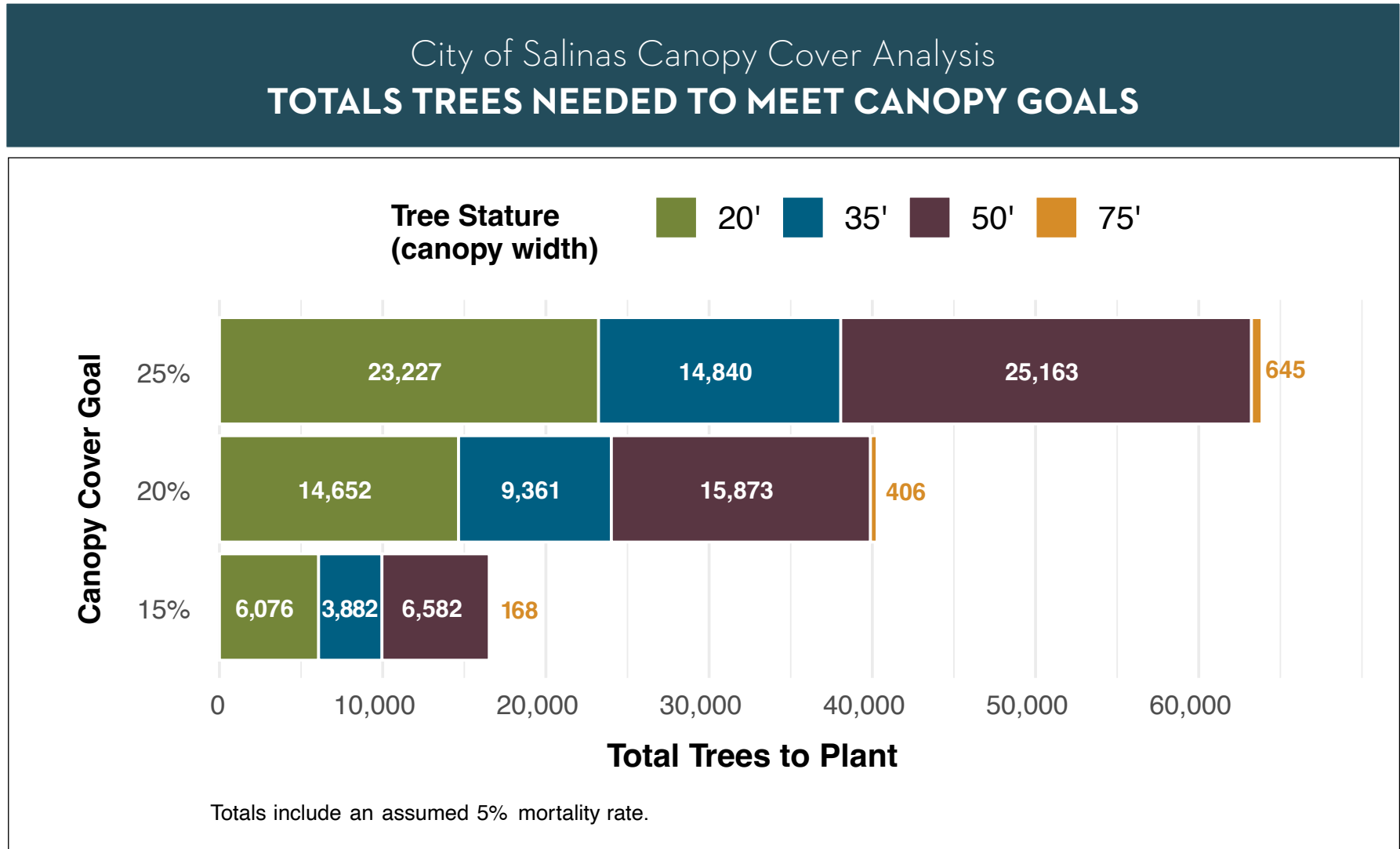
CANOPY COVER

3.2 INCREASING CANOPY COVER

Exhibit 3-3 presents the total number of new trees of different statures (20-, 35-, 50-, and 75-foot canopy spreads) that would need to be planted over the next 20 years to increase canopy cover to reach 15%, 20%, or 25% canopy cover goals. Based on analysis conducted in the UFMP Technical Assessment, a realistic canopy cover goal of 15% was selected for the City. The ratio of tree statures was calculated based on the sizes of all planting spaces within the City, using tree inventory data. **Exhibit 3-4** presents the number of trees that would need to be planted annually over the next 20 years to reach 15%, 20%, and 25% canopy cover goals. The same ratio of tree statures presented in **Exhibit 3-3** is assumed.



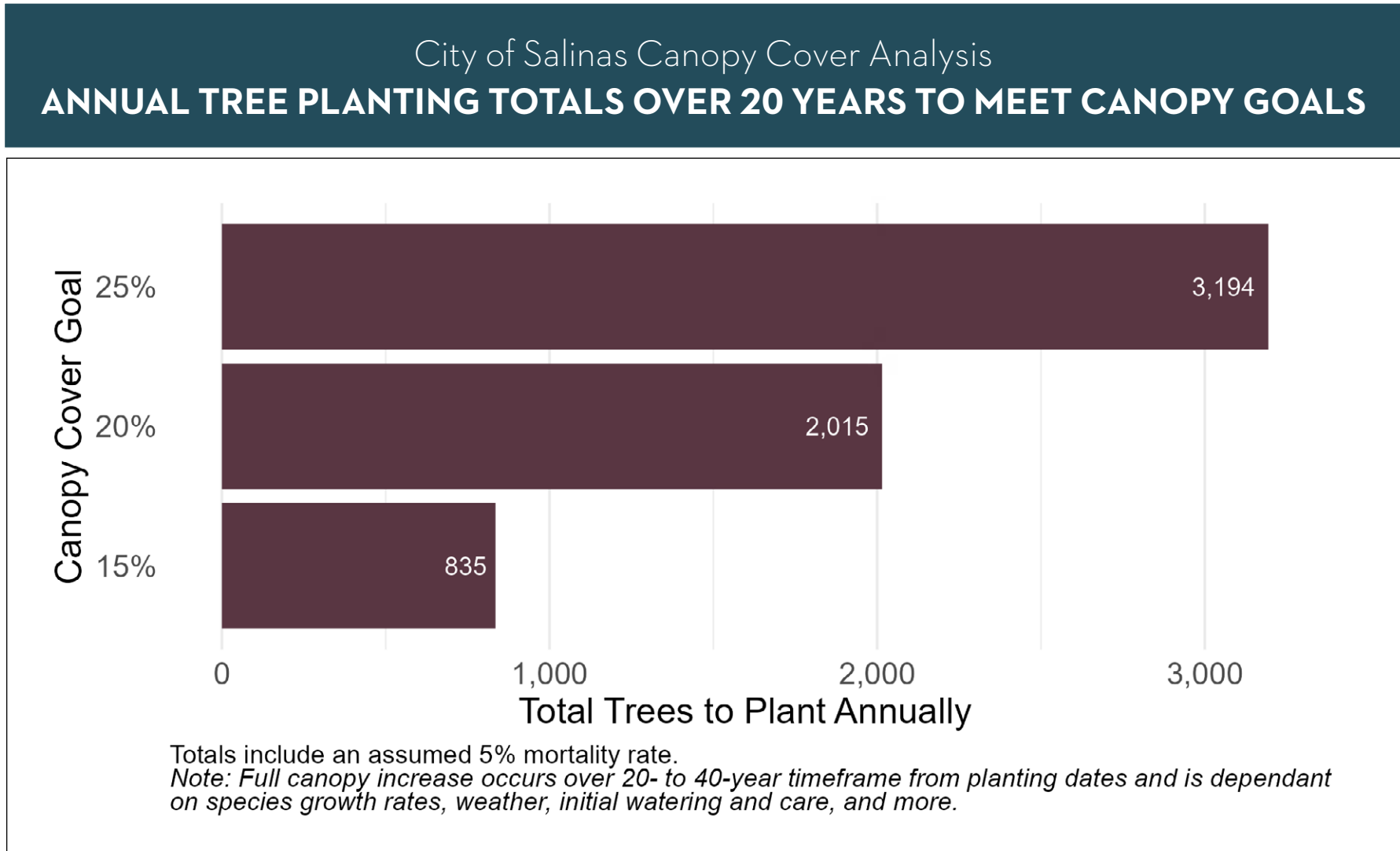
Exhibit 3-3. Total Number of Trees Needed to Increase Canopy Cover Above 11.5%



Sources: USDA 2020; City of Salinas Tree Inventory (City of Salinas 2014 and additional inventory data).



Exhibit 3-4. Total Number of Trees Needed to Plant per Year for 20 Years to Increase Canopy Cover



Sources: USDA 2020; City of Salinas Tree Inventory (City of Salinas 2014 and additional inventory data).



3.3 TREE EQUITY

Canopy cover, heat severity, pollution burden, and other environmental factors are often distributed inequitably throughout a city. Studies have shown that due to identifiable systemic injustices and socioeconomic factors, inequitable canopy cover and pollution vulnerability disproportionately affects low-income and marginalized communities (Locke et al. 2020). When addressing this issue of inequity, it is important to consider and understand the ways in which parts of the city differ in terms of population, land use, current canopy cover, existing planting spaces, and other environmental factors. This section uses council districts and census tracts to examine equity issues pertaining to canopy cover and pollution burden in Salinas.

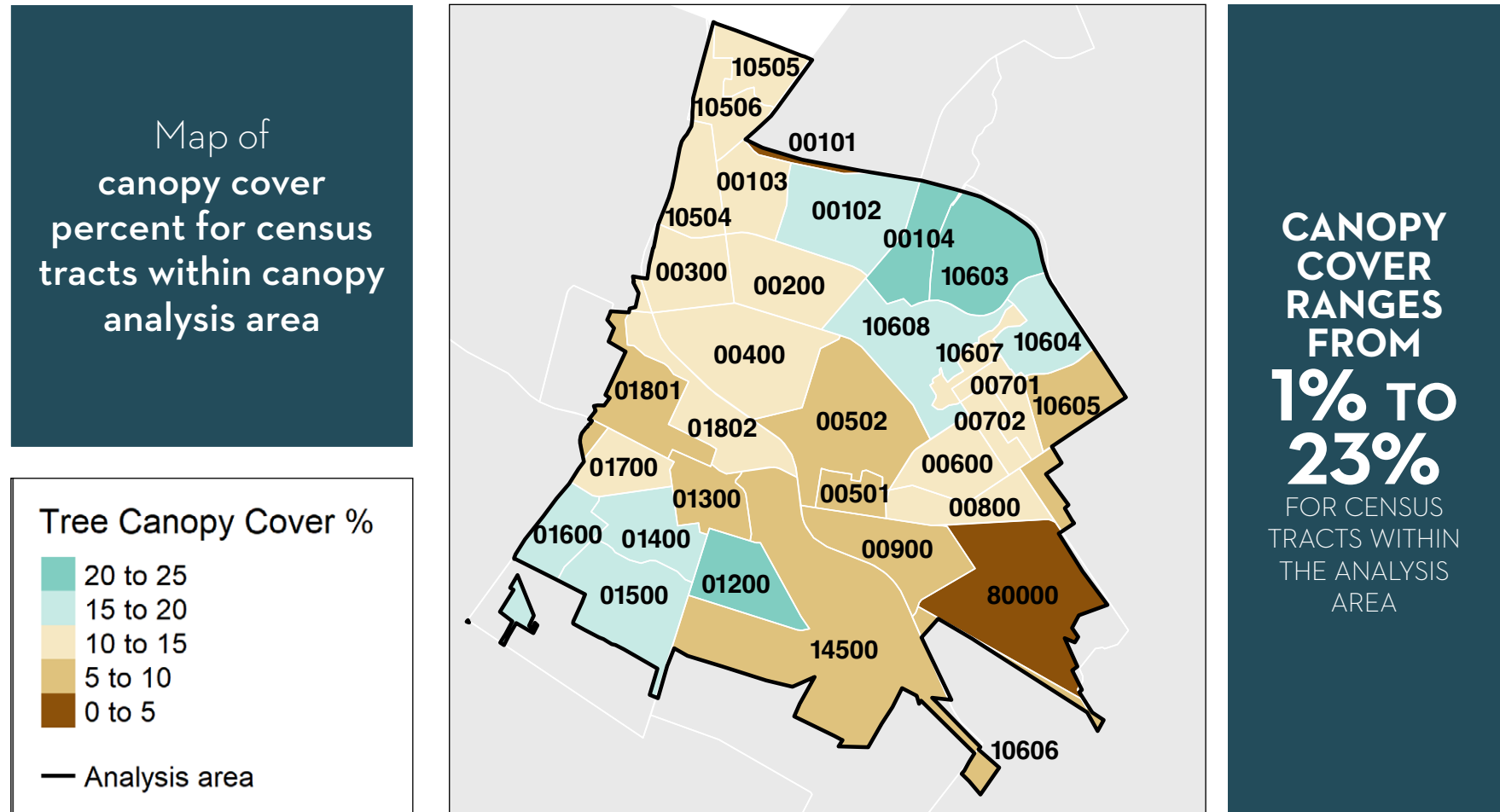
The canopy and equity analyses conducted for this UFMP revealed the following key findings. For more information and context, including methodology and full analysis, see the technical Assessment.





Canopy cover for census tracts within the analysis area ranges from 1% to 23.3% , as shown in **Exhibit 3-5**.

Exhibit 3-5. Map of Canopy Cover

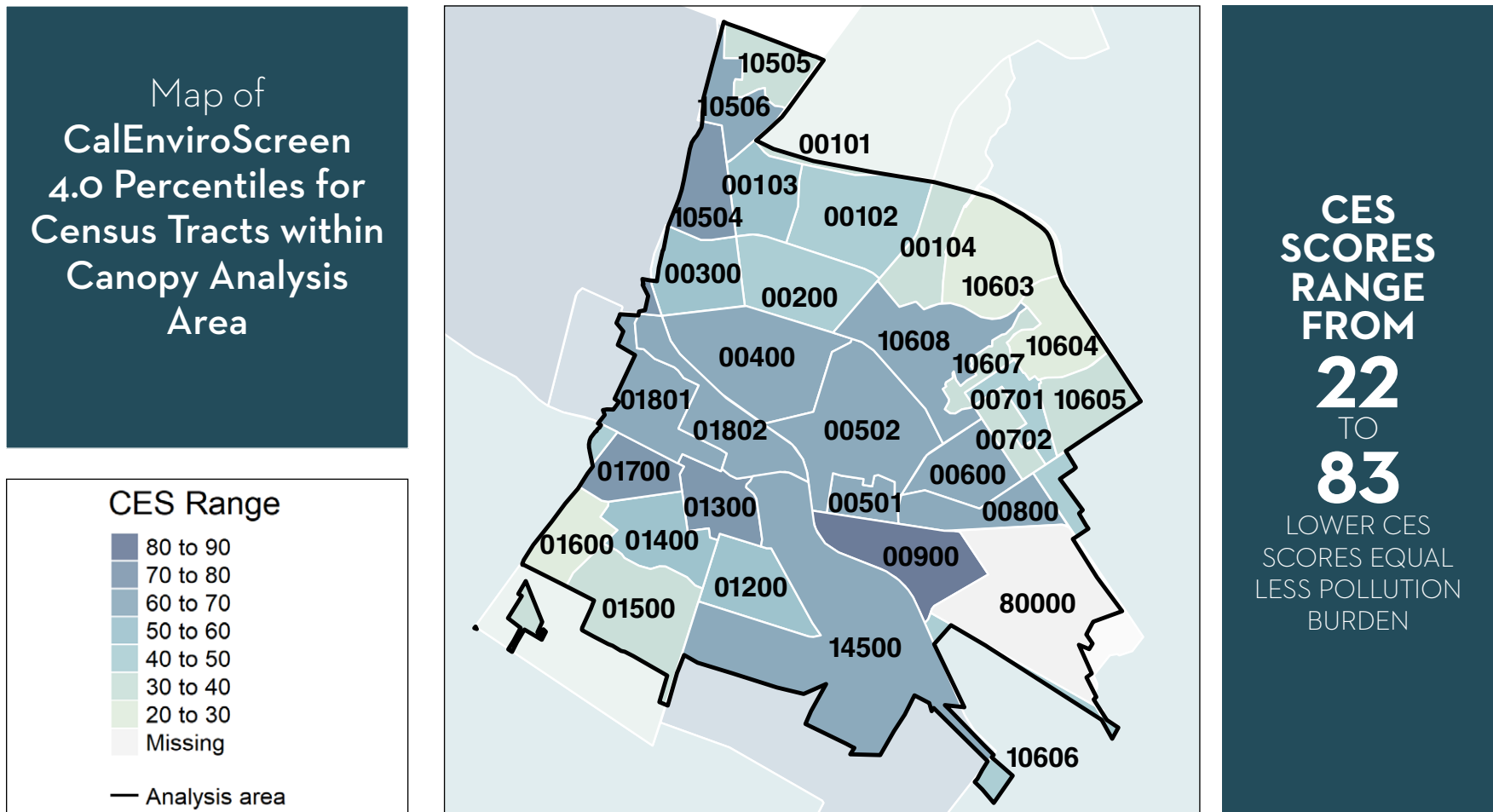


Sources: USDA 2020



CalEnviroScreen (CES) measures pollution burden and vulnerability, for census tracts. Within the analysis area, CES scores range from 22 to 83, as shown in **Exhibit 3-6**. The lower the CES score, the less pollution burden the census tract experiences.

Exhibit 3-6. Map of CalEnviroScreen 4.0 Percentiles for Census Tracts within Canopy Analysis Area

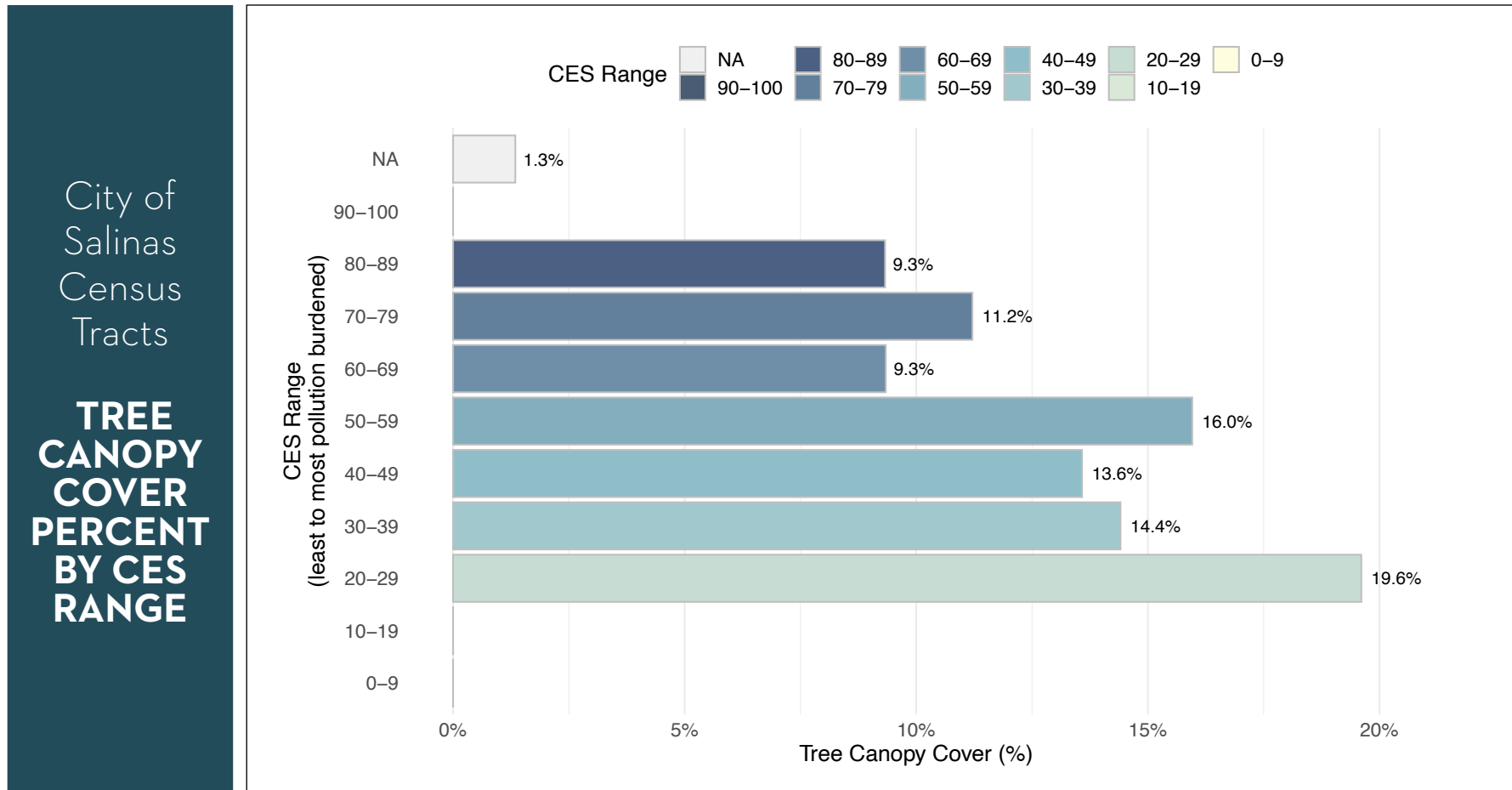


Source: CalEnviroScreen 4.0 (OEHHA 2023).



In Salinas, census tracts with lower CES scores tend to have higher canopy cover, as shown in **Exhibit 3-7**.

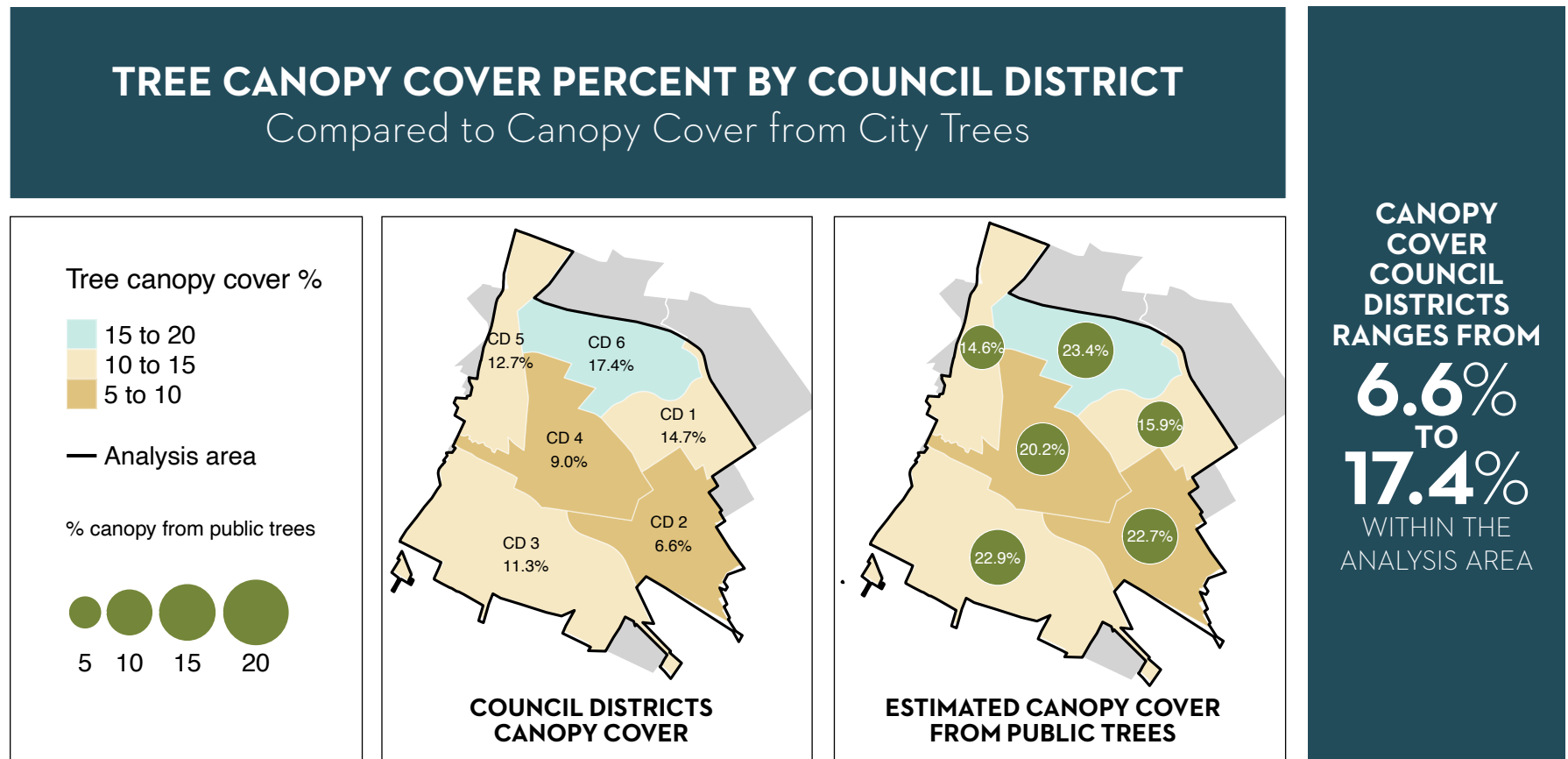
Exhibit 3-7. CalEnviroScreen 4.0 Compared to Tree Canopy Cover for Analysis Area in Salinas



Source: CalEnviroScreen 4.0 (OEHHA 2023); USDA (2020).

Canopy cover for council districts within the analysis area ranges from 6.6% (Council District 2) to 17.4% (Council District 6) with the percent of canopy coming from City-managed trees ranging from 14.6% (Council District 5) to 23.4% (Council District 6), as shown in **Exhibit 3-8**.

Exhibit 3-8. Tree Canopy Cover Percent by Council District Compared to Canopy Cover from City Trees



Source: USDA 2020; City of Salinas Tree Inventory (City of Salinas 2014).



Roughly half of all parks have less than 10% canopy cover, and two-thirds of all parks have less than 20% canopy cover, as shown in **Exhibit 3-9**.

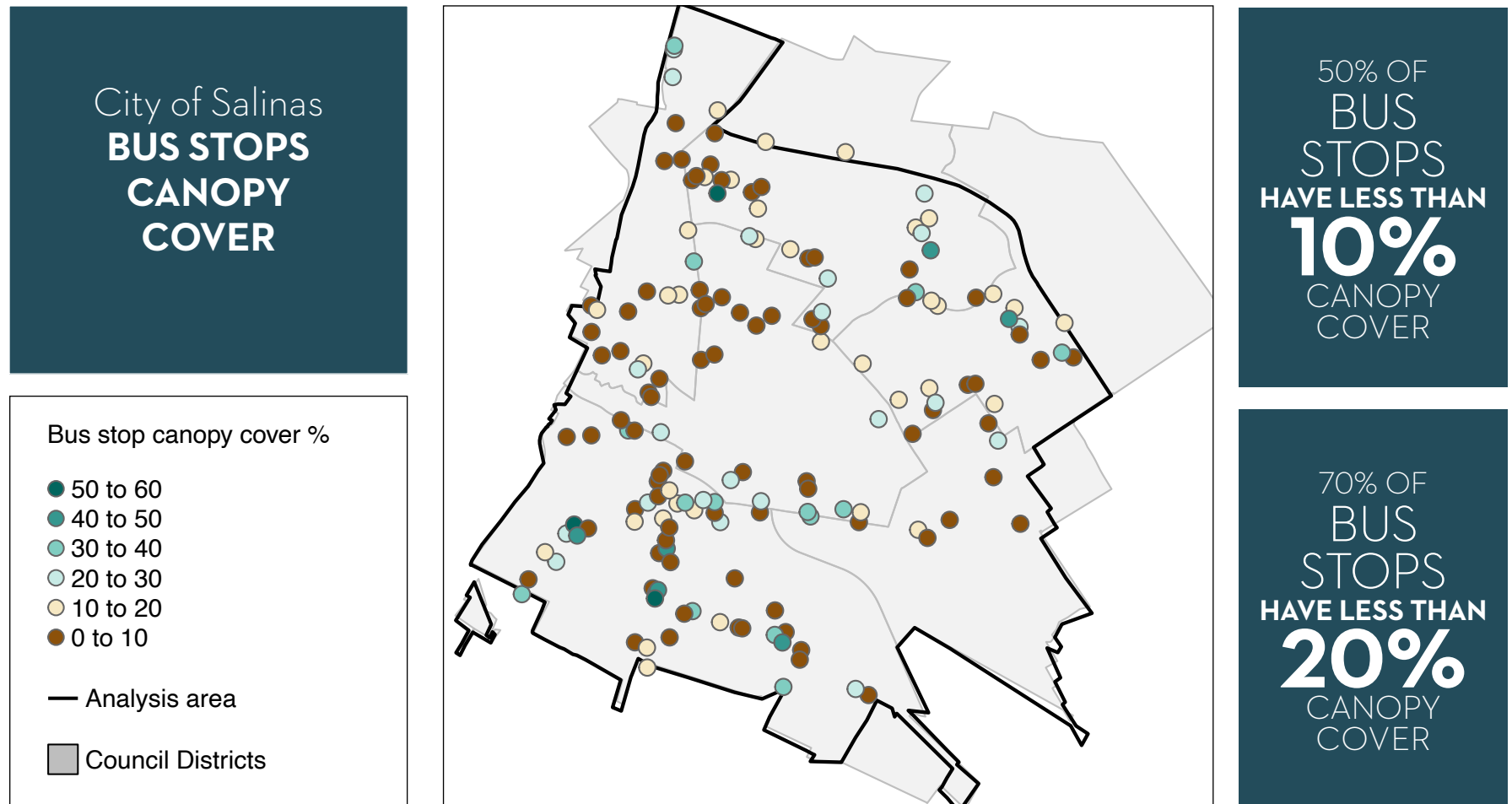
Exhibit 3-9. City of Salinas Parks Canopy Cover



Source: USDA 2020; City of Salinas GIS Portal 2022.

Of all bus stops, 50% have less than 10% canopy cover and over 70% have less than 20% canopy cover, as shown in **Exhibit 3-10**.

Exhibit 3-10. City of Salinas Bus Stops Canopy Cover

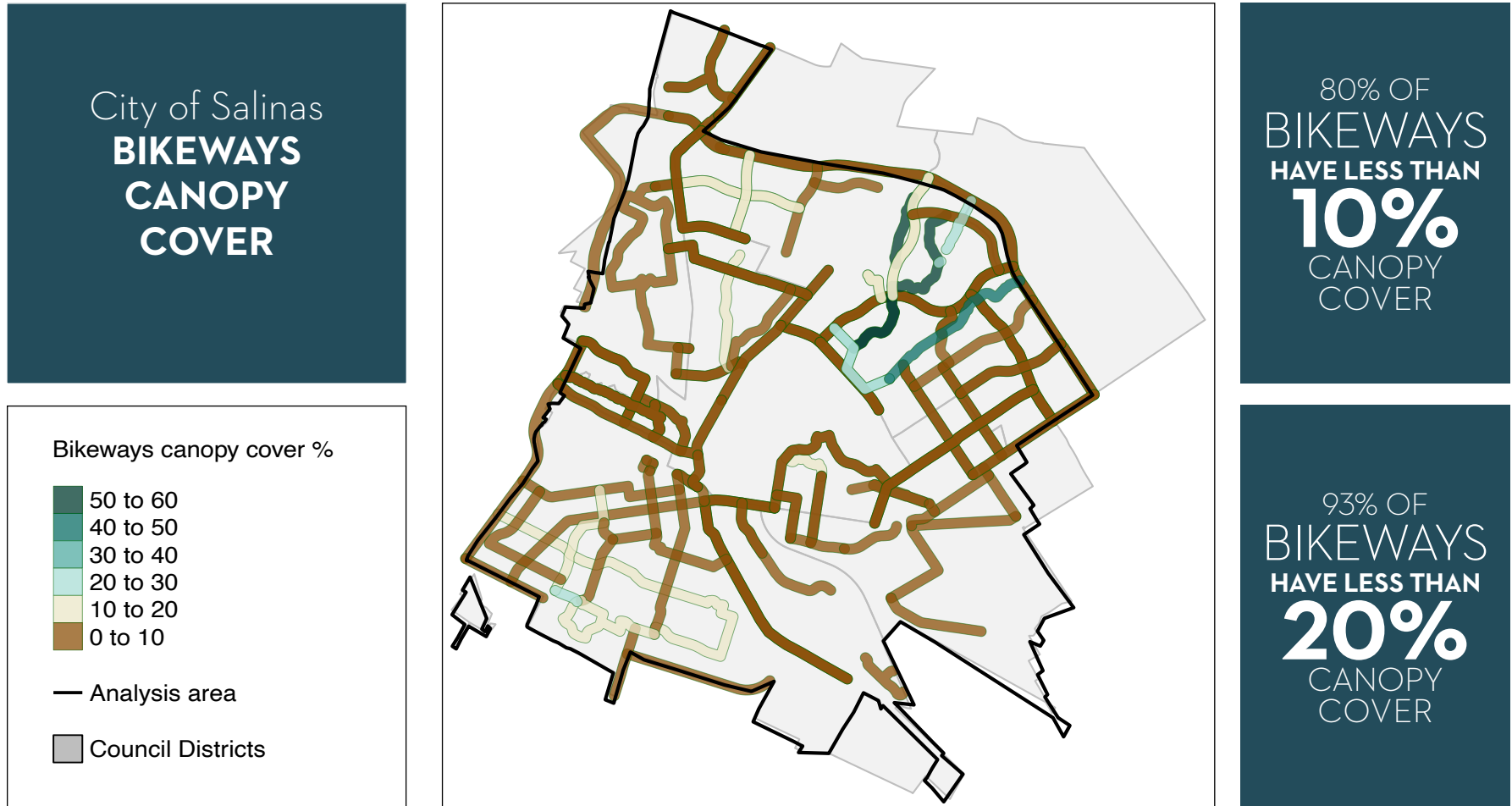


Source: USDA 2020; City of Salinas GIS Portal 2022



Roughly 80% of all bikeways have less than 10% canopy cover and 93% have less than 20% canopy cover, as shown in **Exhibit 3-11**.

Exhibit 3-11. City of Salinas Bikeways Canopy Cover



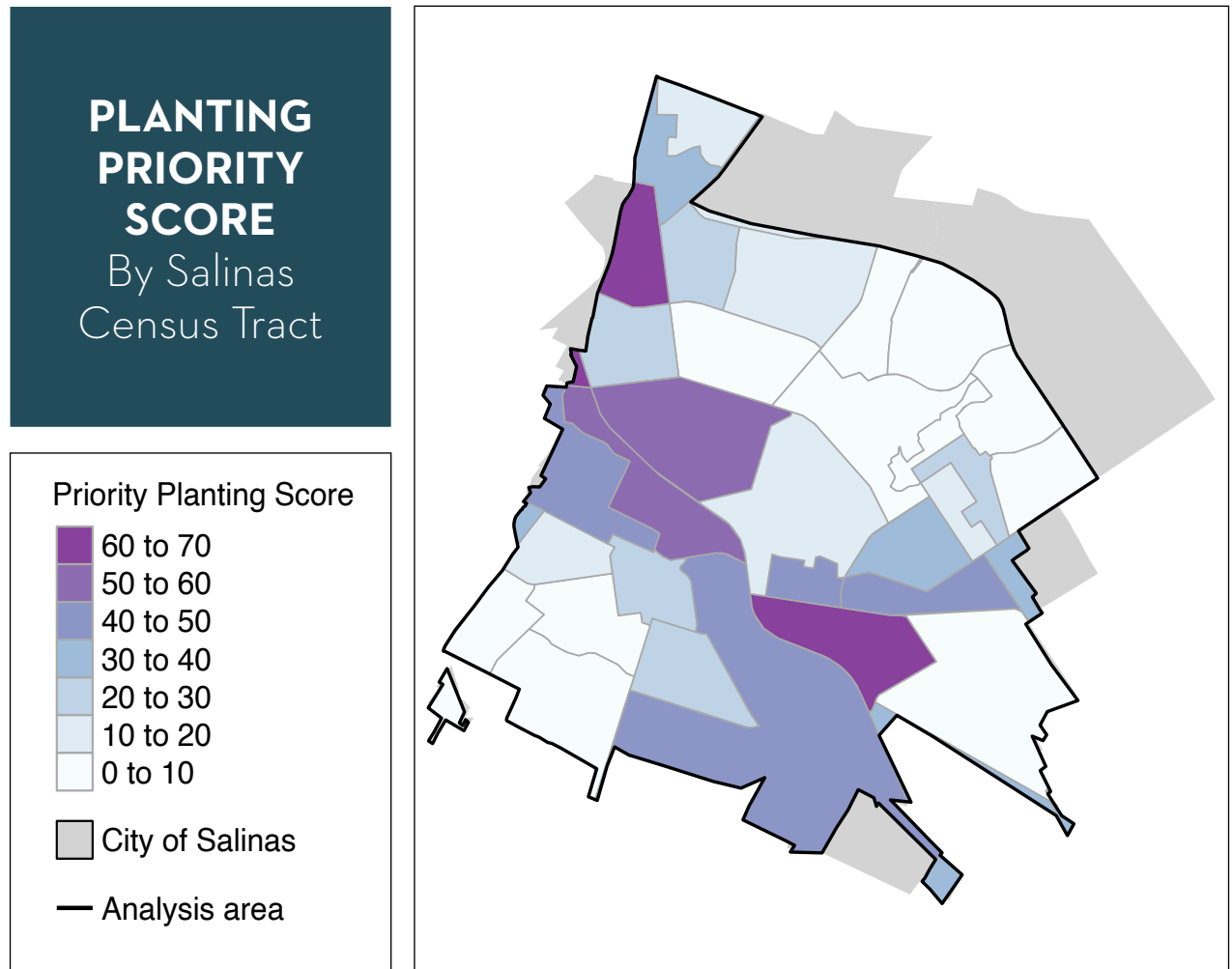
Source: USDA 2020; City of Salinas GIS Portal 2021.



3.4 OPPORTUNITY AND PRIORITY PLANTING AREAS

The Priority Planting Score (PPS), presented in **Exhibit 3-12**, indicates where the City should focus tree planting efforts by census tract for a more equitably distributed canopy cover. The study area for developing the PPS was limited to the canopy analysis study area. A higher PPS indicates a higher priority for focused tree planting efforts. PPS considers current canopy cover, distribution of land use type, total recorded City-managed vacant planting sites, pollution burden and equity, and relative population and acreage (see the UFMP Technical Assessment for methodology details).

Exhibit 3-12. Planting Priority Score by Salinas Census Tract



Source: City of Salinas Tree Inventory (City of Salinas 2014); City of Salinas GIS Portal 2021; USFS 2020.

4

STATUS OF THE URBAN FOREST



4.1 ENVIRONMENTAL SERVICES/ ECONOMIC BENEFITS

i-Tree Eco (USFS 2020) was used to analyze tree inventory records to determine the value of the environmental services the City’s trees provide. The software uses tree inventory data such as tree species, DSH, health condition, and height to determine the environmental benefits, both in terms of quantity and economic value. The City’s inventory includes 31,870 total trees (City of Salinas 2014), with 31,692 data points containing all data needed for inclusion in the i-Tree model. Carbon sequestration is the amount of carbon annually removed from the air by the City’s trees. Avoided runoff represents the annual

quantity of rainwater that is diverted from the stormwater management system by the trees, and air pollution removal includes the amount of annual removal of ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and particulate matter < 2.5 micrometers (µm) from the air. In addition to these environmental services, Salinas’ tree inventory increases property values; provides shade, food and habitat for wildlife; reduces the urban heat island; and improves public health. These services contribute directly to community members’ quality of life, and discussing their merits is one method to encourage residents and business owners to participate in urban forest programs.

Table 4-1 details the annual amount of carbon sequestered, stormwater diverted, and air pollution removed, and the estimated annual economic benefit values.

Table 4-1. Annual Environmental Services and Benefits Provided by City Managed Tree Inventory

Service	Annual Environmental Benefit	Annual Environmental Impact	Annual Economic Value
Carbon Sequestration (carbon dioxide removed from air by trees)	361 tons	The carbon removed from the City’s air by the urban forest is equivalent to 812,907 passenger vehicle miles.	\$61,500
Avoided Runoff	2,612,945 gallons	This benefit is equivalent to the average annual water usage of 24 American homes.	\$23,300
Air Pollution Removal (ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter < 2.5 µm)	9.12 tons	The pollution removed by the City’s tree inventory is equivalent to the carbon dioxide emissions of 4.51 tons of burned coal.	\$82,900

Sources: City of Salinas Tree Inventory (City of Salinas 2014) and i-Tree Analysis (USFS 2020).



The financial value of Salinas’ tree inventory is presented in **Table 4-2**. Each tree in Salinas’s inventory has an average City asset value of \$3,155. The functional value represents the annual value of the environmental services that the trees provide (\$5.29/year). Each tree delivers approximately \$56.72 in ecosystem services based on the inventory’s combined functional and carbon storage values each year. This value is lower than the California average of \$110.63 (McPherson et al. 2016), which is likely due, in large part, to the age of the inventoried trees, with nearly 88% classified as either immature or young (see Section 4.4, DSH Distribution Summary). The quantity of environmental benefits trees provide will increase as they age. The City can expect that, with proper maintenance and care of its inventory, the environmental benefits will continue to increase as the trees mature.



Table 4-2. Financial Value of City-Managed Trees

Value	Description	Asset Amount	Per-Tree Value
Carbon Storage (9,561 tons)	Amount of carbon held in trees	\$1,630,000	\$51.43
Structural	The costs associated with replacing all trees with a tree of a similar age and size.	\$100,000,000	\$3,155
Functional	Value based on the services trees perform	\$167,700	\$5.29

Sources: City of Salinas Tree Inventory (City of Salinas 2014) and i-Tree Analysis (USFS 2020).

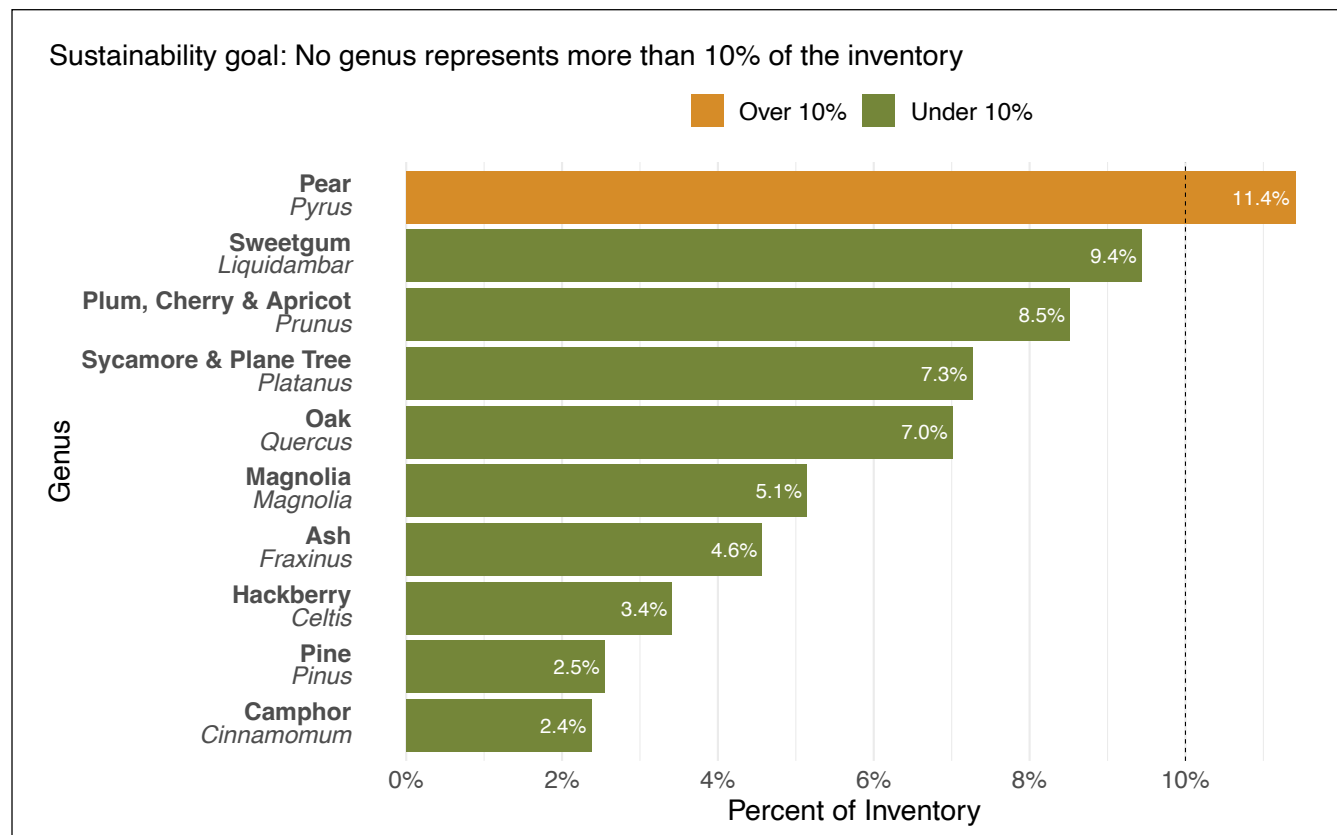


4.2 SPECIES DIVERSITY SUMMARY

Salinas' tree inventory consists of 33,820 tree sites, including 31,870 trees (composed of 36 families, 120 genera, and 24 species), 1,448 stumps, and 502 vacant sites. The top 10 most commonly occurring genera in the City's tree inventory are shown in **Exhibit 4-1**.

City of Salinas
Inventory
**GENUS
DIVERSITY**

The top 10 genera
make up
61.7%
(20,865 trees) of the
City's inventory.



Source: City of Salinas Tree Inventory (City of Salinas 2014).



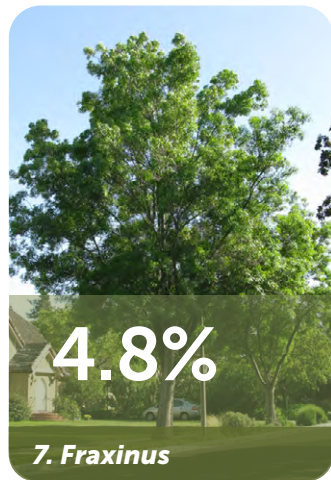
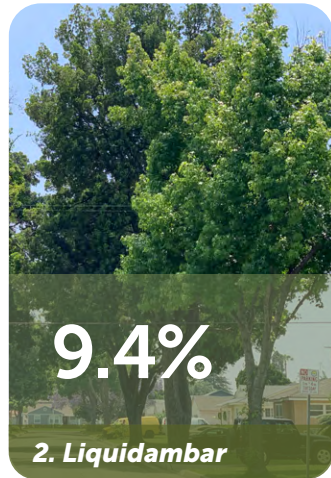
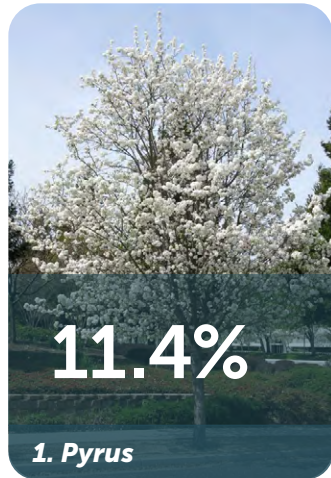
Exhibit 4-1. Top 10 Tree Genera in the City Inventory

TOP 10 Genera *in the City Inventory*

Sustainability Goal: No genus represents greater than 10% of Inventory

■ Meets Goal

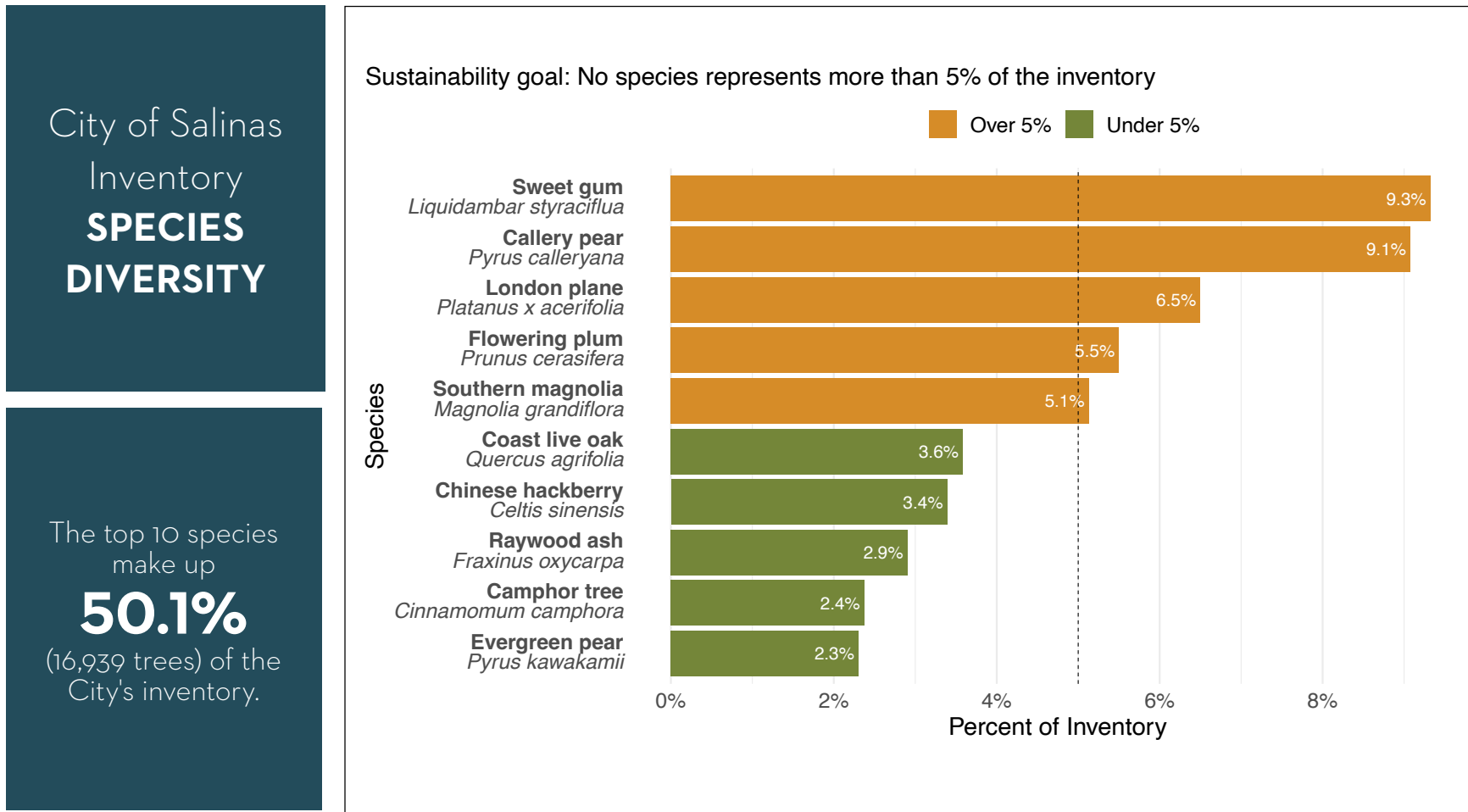
■ Does Not Meet Goal



Source: City of Salinas Tree Inventory (City of Salinas 2014).



The top 10 most commonly occurring species in the City's inventory are shown in **Exhibit 4-2**.



Source: City of Salinas Tree Inventory (City of Salinas 2014).



Exhibit 4-2. Top 10 Tree Species in the City Inventory

TOP 10 Species in the City Inventory

Sustainability Goal: No species represents greater than 5% of Inventory

■ Meets Goal

■ Does Not Meet Goal

9.9%

1. Sweet gum
Liquidambar styraciflua

9.6%

2. Callery pear
Pyrus calleryana

6.9%

3. London plane
Platanus x acerifolia

5.8%

4. Flowering plum
Prunus cerasifera

5.4%

5. Southern magnolia
Magnolia grandiflora

3.8%

6. Coast live oak
Quercus agrifolia

3.6%

7. Chinese hackberry
Celtis sinens

3.1%

8. Raywood ash
Fraxinus oxycarpa

2.5%

9. Camphor tree
Cinnamomum camphora

2.4%

10. Evergreen pear
Pyrus kawakamii

Source: City of Salinas Tree Inventory (City of Salinas 2014).



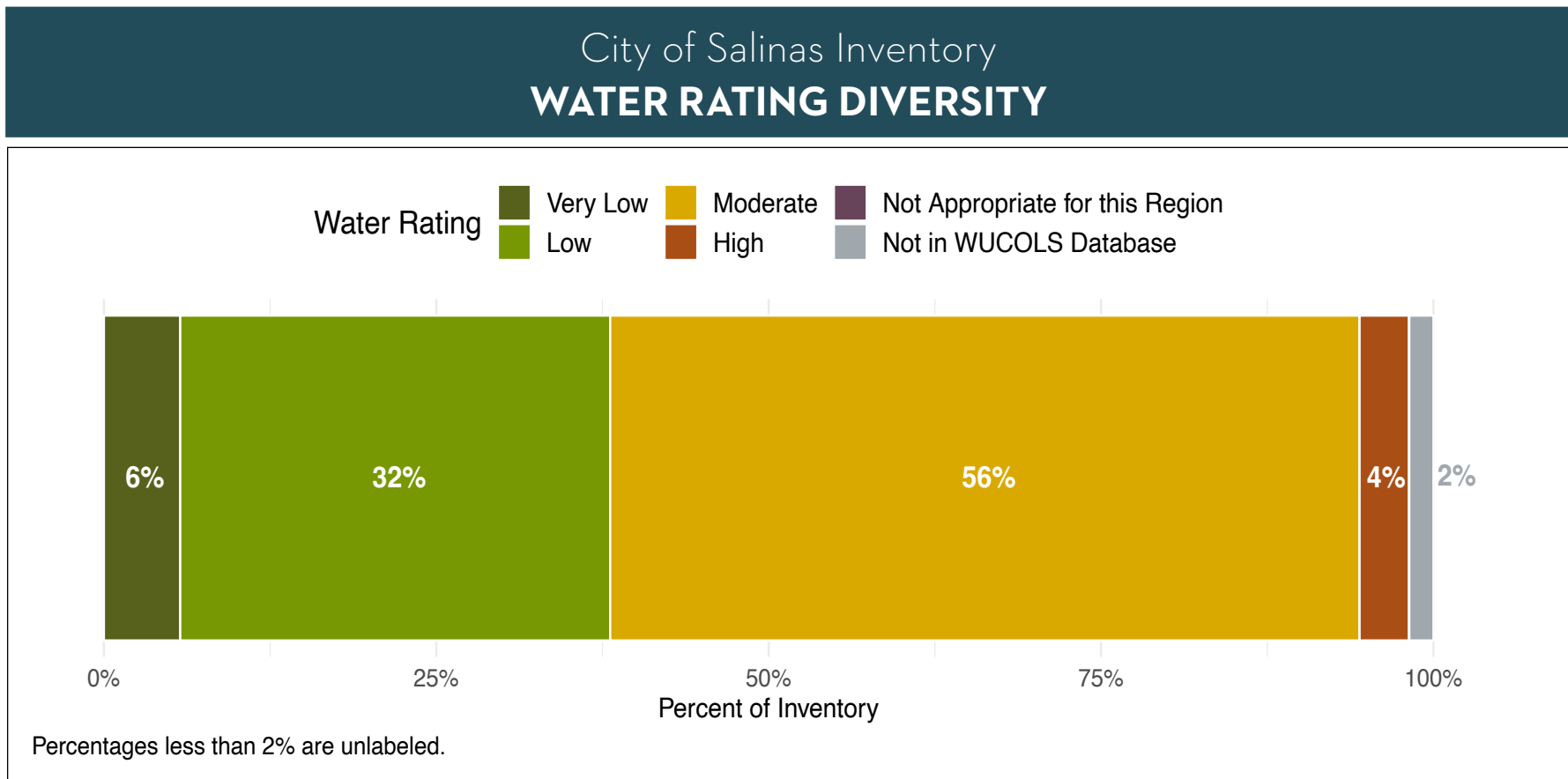
4.3 CLIMATE PREPAREDNESS

Over the past century, average maximum temperatures in California have increased between 1.6°F to 2.5°F, and these temperatures are expected to continue to rise over the coming years (WRCC 2018). Longer, more intense periods of drought and more variable periods of precipitation with increased flooding (Swain et al. 2018) will make finding additional irrigation water a challenge, and allocating funding for irrigation improvements for street trees a priority (McBride and Lacan 2018). The City can prepare for these expected changes by selecting and planting species that are predicted to perform well in future climate conditions. There are many considerations when looking at the climate appropriateness of urban tree species. This analysis considers tree species' water needs using Water Use Classification of Landscape Species (WUCOLS) and future climate suitability based on research conducted by McBride and Lacan (2018).



Exhibit 4-3 shows the percent of trees in the inventory that fall into each WUCOLS water use category. WUCOLS classifies plants as very low, low, moderate, or high-water users. WUCOLS water ratings are often part of the guidelines for selecting trees species palettes throughout California. Species that are rated as high or moderate water users will require more water resources to than lower rated species.

Exhibit 4-3. Water Use Rating Distribution of the City's Tree Inventory



Source: City of Salinas Tree Inventory (City of Salinas 2015); McBride and Lacan (2018).



In 2018, a climate suitability study was conducted for street trees in California. This research picked one California city to represent each of the 16 hardiness zones present in California. Common tree species in these representative cities were then compared to common tree species in cities with current temperatures equal to the predicted temperatures of the representative cities in 2099. A list of species that will be unsuitable for future climates was created based on their absence from warmer cities, professional opinions, and WUCOLS ratings of unsuitable or high.

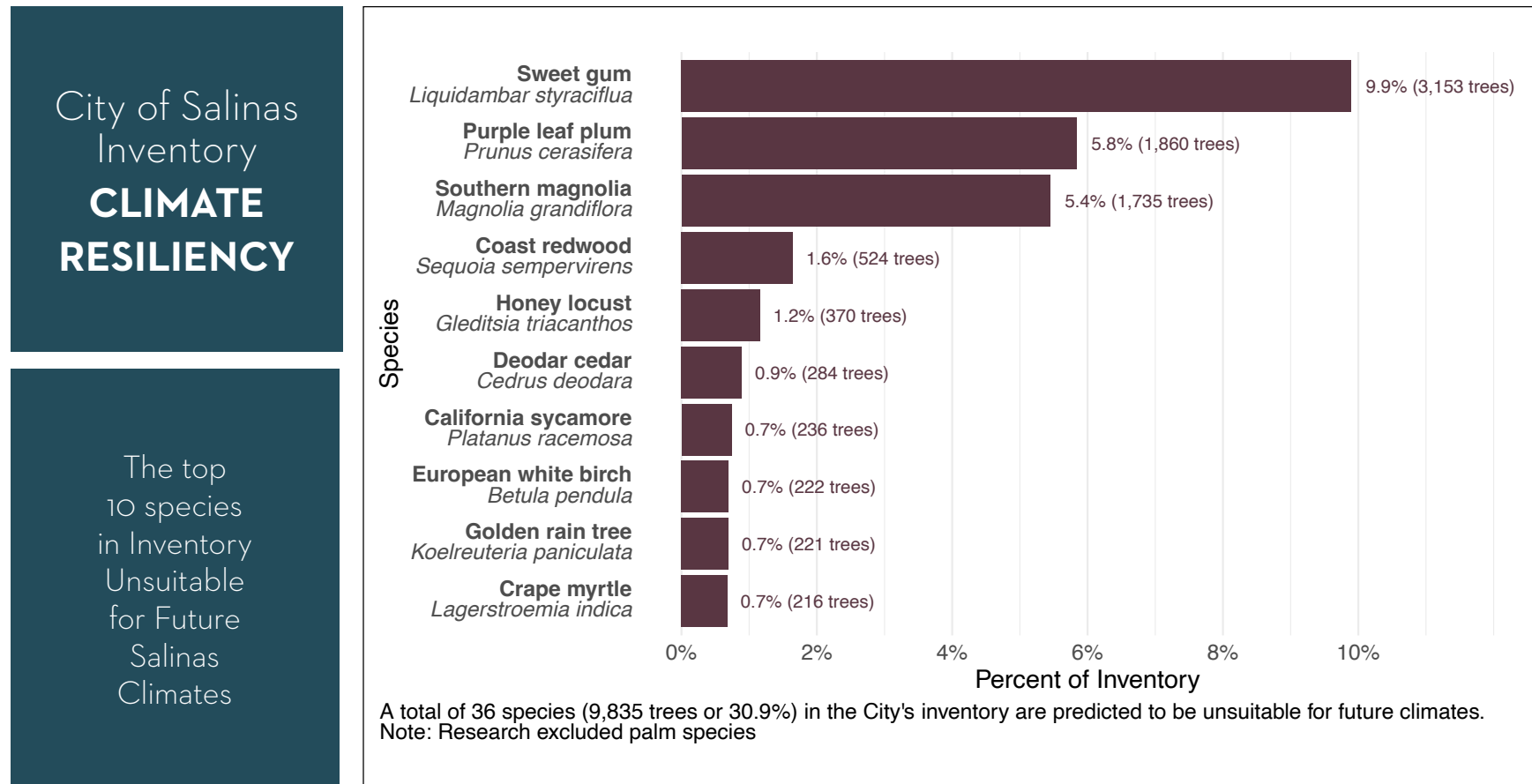
Using results from McBride and Lacan's research to compare to Salinas' inventory, there are 36 tree species in the City that are predicted to be heat and water sensitive in Salinas' future climate. These species make up 9,835 trees and 31% of the City's inventory.





Exhibit 4-4 presents the top 10 most commonly occurring of these species. This list indicates the potential for a gradual decline of tree canopy cover over time. Based on this list of species, the City will need to determine which species should remain on its palette and prioritize species that will be able to withstand hotter and dryer weather if future drought conditions persist.

Exhibit 4-4. Top 10 Species Predicted to be Unsuitable for Salinas’s Future Climate



Source: City of Salinas Tree Inventory (City of Salinas 2015); McBride and Lacan (2018).



4.4 DSH DISTRIBUTION SUMMARY

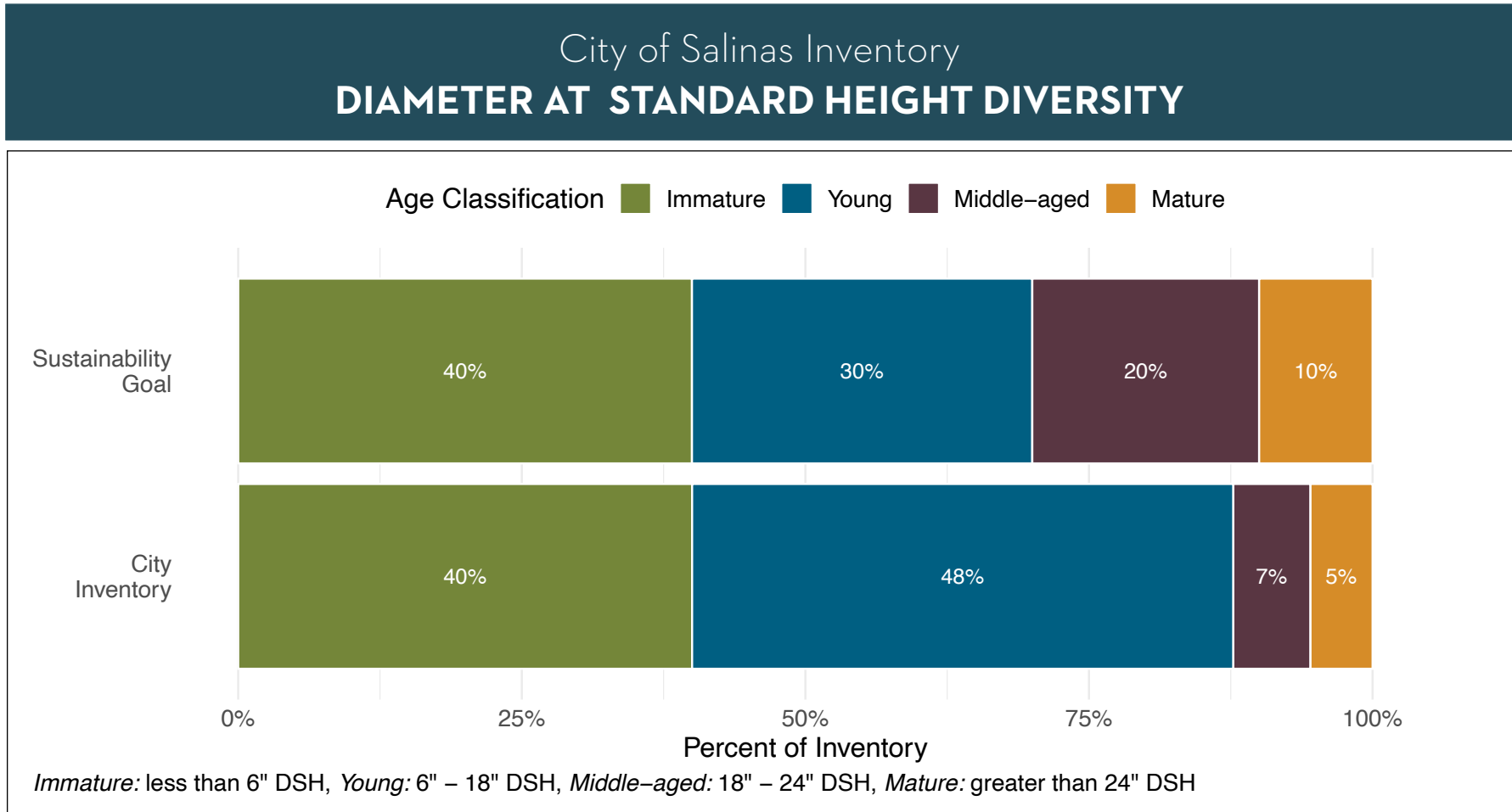
The most common and least invasive method to approximate the age of a living tree is to measure the trunk diameter at 4.5 feet above the ground (DSH). General age recommendations suggest an urban forest have a distribution of immature trees (40%) to replace failing or aging ones, young (30%) and middle-aged (20%) trees to provide the bulk of economic and environmental benefits, and relatively fewer mature trees (10%) that have most of their life behind them but that provided significant environmental benefits for many years (Morgenroth et al. 2020; Richards 1983). Since trees vary in maximum stature and growth patterns, using DSH to determine age can only be considered an estimate.





The age distribution of Salinas’ tree inventory is presented in **Exhibit 4-5**. The DSH distribution for the top 10 species in the inventory is presented in **Exhibit 4-6**.

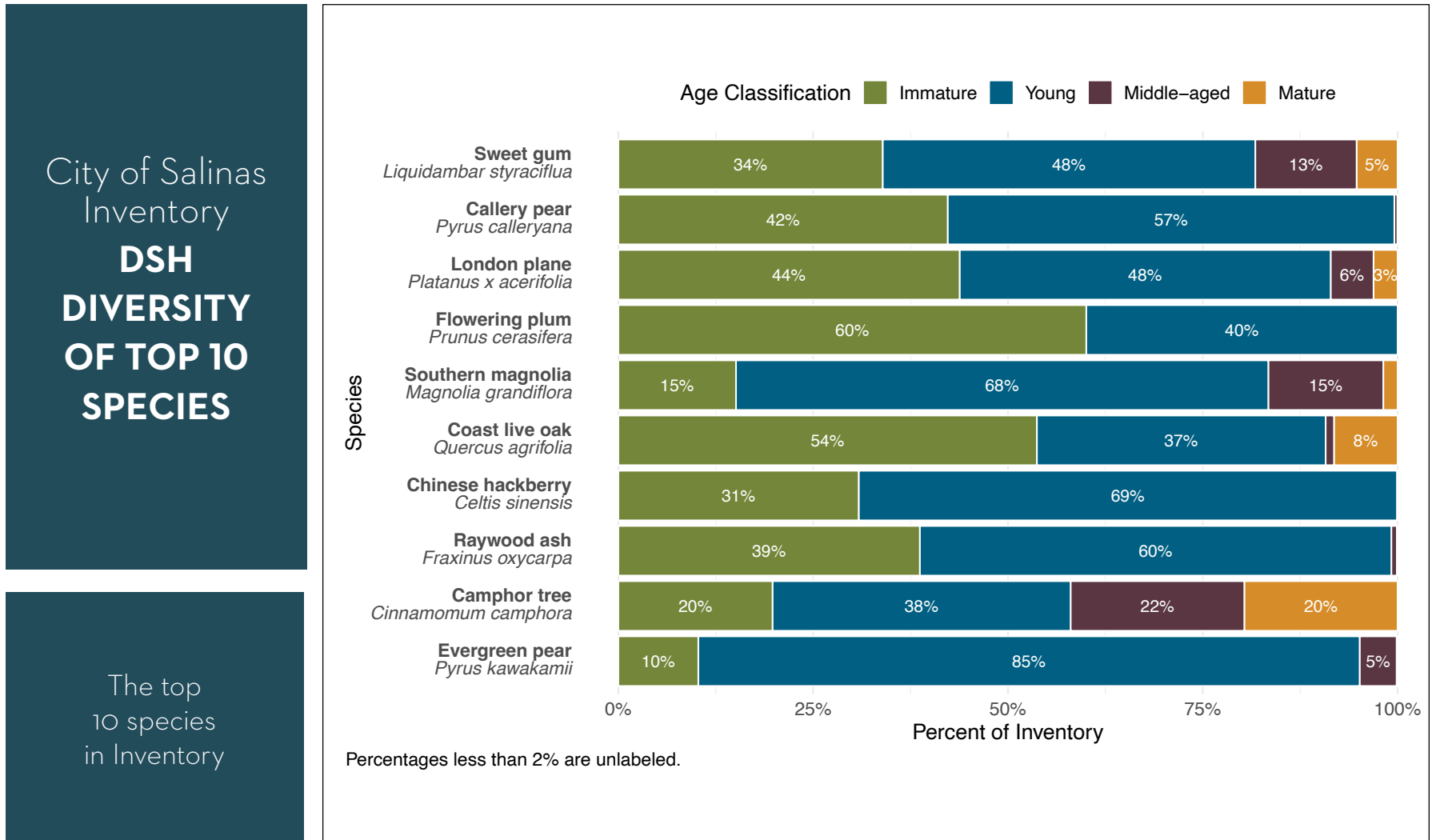
Exhibit 4-5. DSH Distribution of the City’s Tree Inventory



Source: City of Salinas Tree Inventory (City of Salinas 2014).



Exhibit 4-6. Top 10 Species Predicted to be Unsuitable for Salinas’s Future Climates



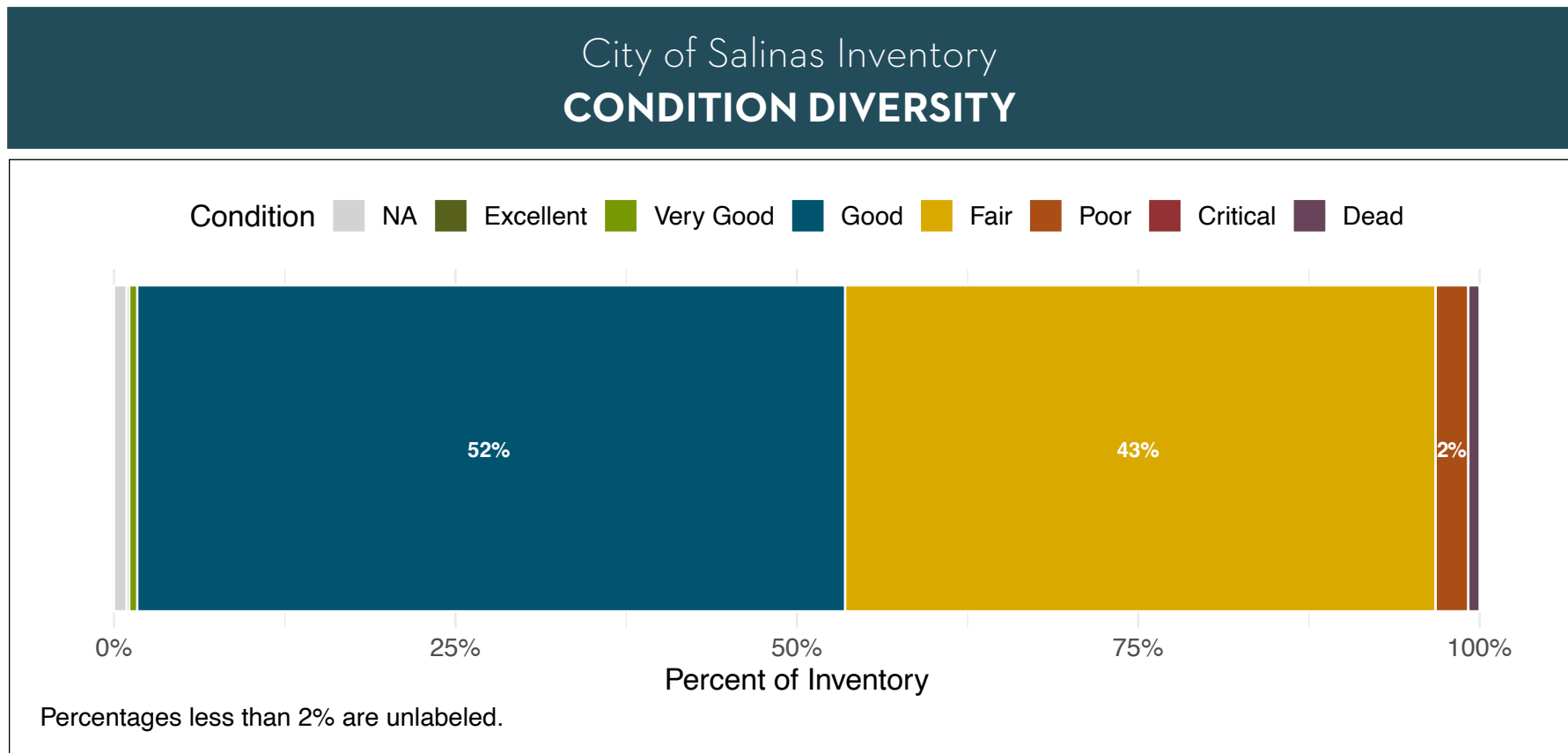
Source: City of Salinas Tree Inventory (City of Salinas 2015); McBride and Lacan (2018).



4.5 TREE CONDITION

The health composition of Salinas' tree inventory is shown in **Exhibit 4-7**.

Exhibit 4-7. Condition Distribution of the City's Tree Inventory



Source: City of Salinas Tree Inventory (City of Salinas 2014).

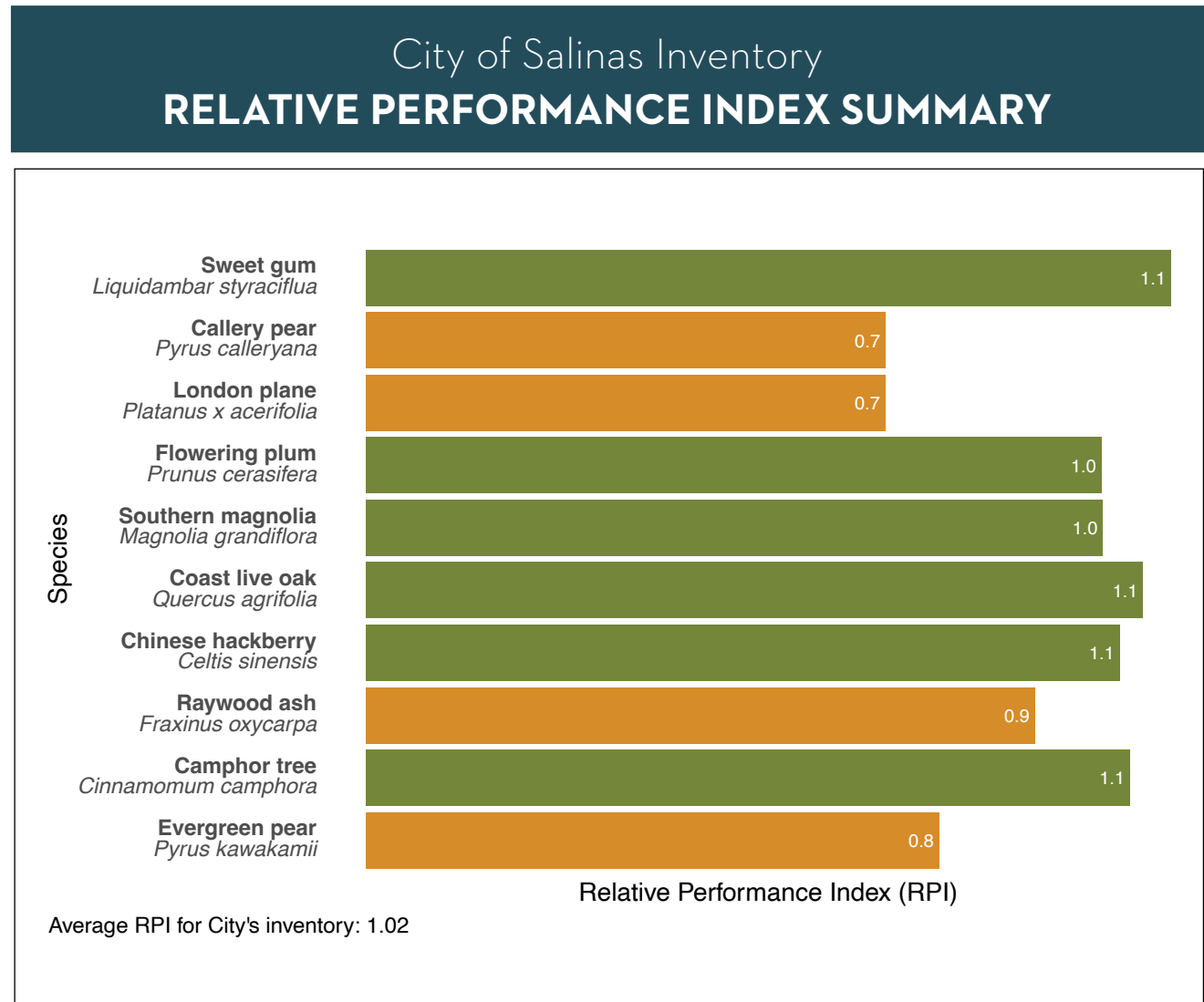


4.6 RELATIVE PERFORMANCE INDEX SUMMARY

The Relative Performance Index (RPI) identifies which species are doing well and which may be having issues. Trees with an RPI of 1.0 or higher are performing as well or better than the average tree in the inventory. The average RPI for the City’s tree inventory is 1.02.

The RPIs of the top 10 most commonly occurring species in Salinas’ inventory are shown in **Exhibit 4-8**.

Exhibit 4-8. City’s Tree Inventory Relative Performance Index



Source: City of Salinas Tree Inventory (City of Salinas 2014); i-Tree (USFS 2020).



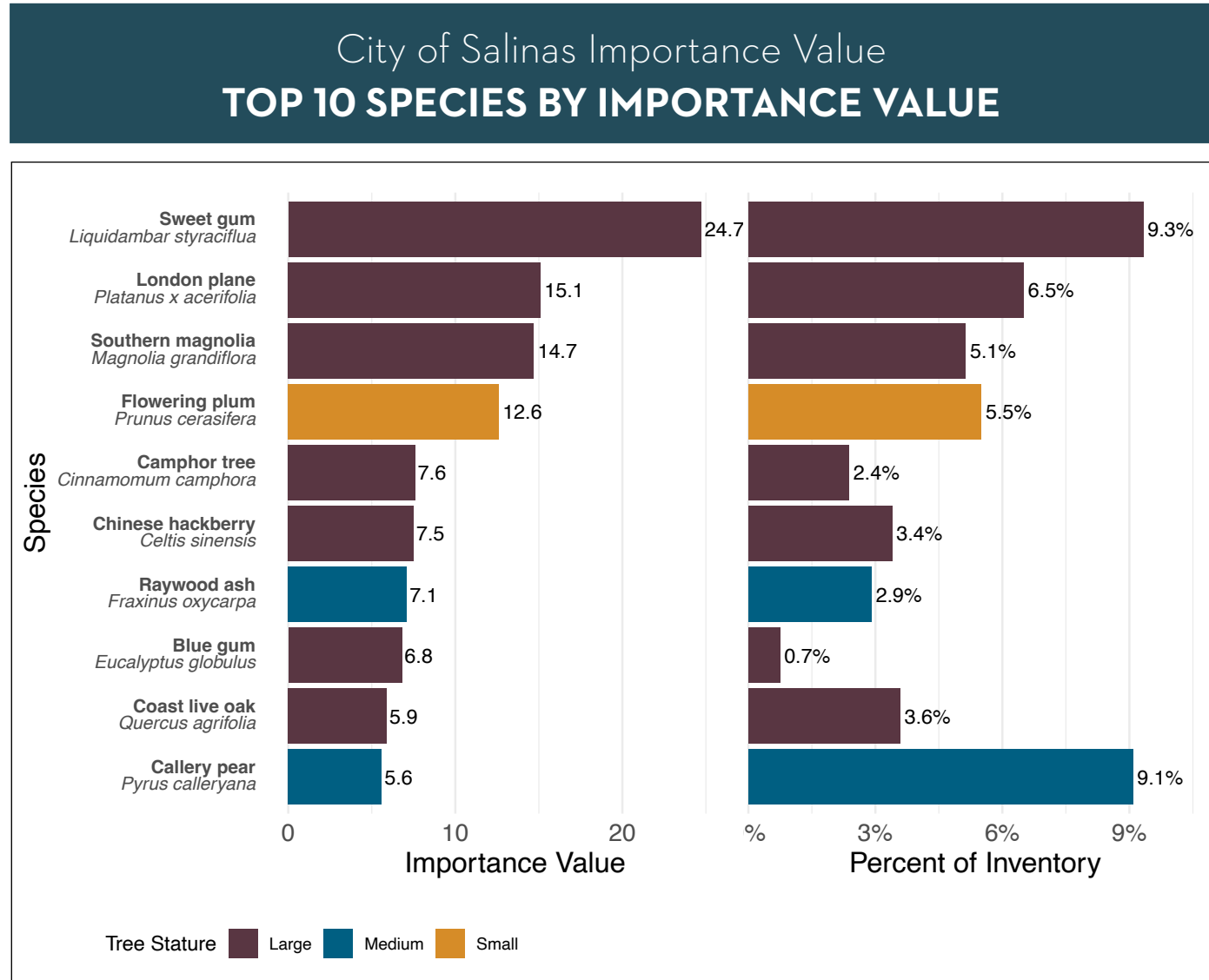
4.7 IMPORTANCE VALUES SUMMARY

The importance value of tree species combines the percentage of the species in the population of City-managed trees with its corresponding percentage of leaf area.

The top 10 species with the highest importance values are shown in

Exhibit 4-9.

Exhibit 4-9. Ten Species with the Highest Importance Values in the City's Inventory



Source: City of Salinas Tree Inventory (City of Salinas 2014); i-Tree (USFS 2020).





5

URBAN FOREST
MANAGEMENT



5.1 BUDGET, FUNDING, AND STAFFING

The City's 2020-2021 fiscal year included a \$1,992,423 for tree management activities and staff salaries. **Table 5-1** shows the City's annual tree management budget by work performed in-house (City staff) and contractors. Of the total annual budget, \$1,282,423 was allocated to in-house activities, and \$710,000 was allocated to contractor services. It should be noted that some activities that these funds support are not related to trees. However, they are allocated to the Urban Forestry Division to support all labor activities. Annual staff time spent on tree management activities are shown in **Table 5-2**. The City has not filled two positions for several years, Urban Forestry Crew Supervisor and Tree Trimmer I, which has impacted the quantity of work that can be completed.

Table 5-1. Salinas Annual Tree Management 2020-2021 Budget

Budget Line Item	FY 2020/2021
In-House Maintenance Activities	
Tree planting	\$50,000
Tree/stump removal and grinding	\$320,000
Storm clean-up	\$20,000
Q-alert tree maintenance requests	\$175,000
Salary and benefits of all Urban Forestry Division Staff*	\$557,672
Equipment, vehicle maintenance, and other expenditures*	\$159,751
Contractor Maintenance Activities	
Street tree grid pruning	\$710,000
Maintenance Activities Total	\$1,992,423

Note:*Some activities that these funds support are not related to trees. However, they are allocated to the Urban Forestry Division to support all labor activities.



Table 5-2. Urban Forestry Positions and Funding

Position (no. people in role)	FTE equivalent time spent on tree maintenance activities
Vacant Positions	
Urban Forestry Crew Supervisor (1)	N/A
Urban Forest Worker II	N/A
Filled Positions	
Maintenance Manager (1)	0.5
Senior Urban Forest Worker (1)	1
Urban Forest Worker I (2)	2
Urban Forest Worker II (3)	3
Clerical/Office Support (3)	0.4
Subtotal	6.9



The estimated funding increases needed to achieve BMPs for Salina’ urban forest are detailed in **Table 5-3**.

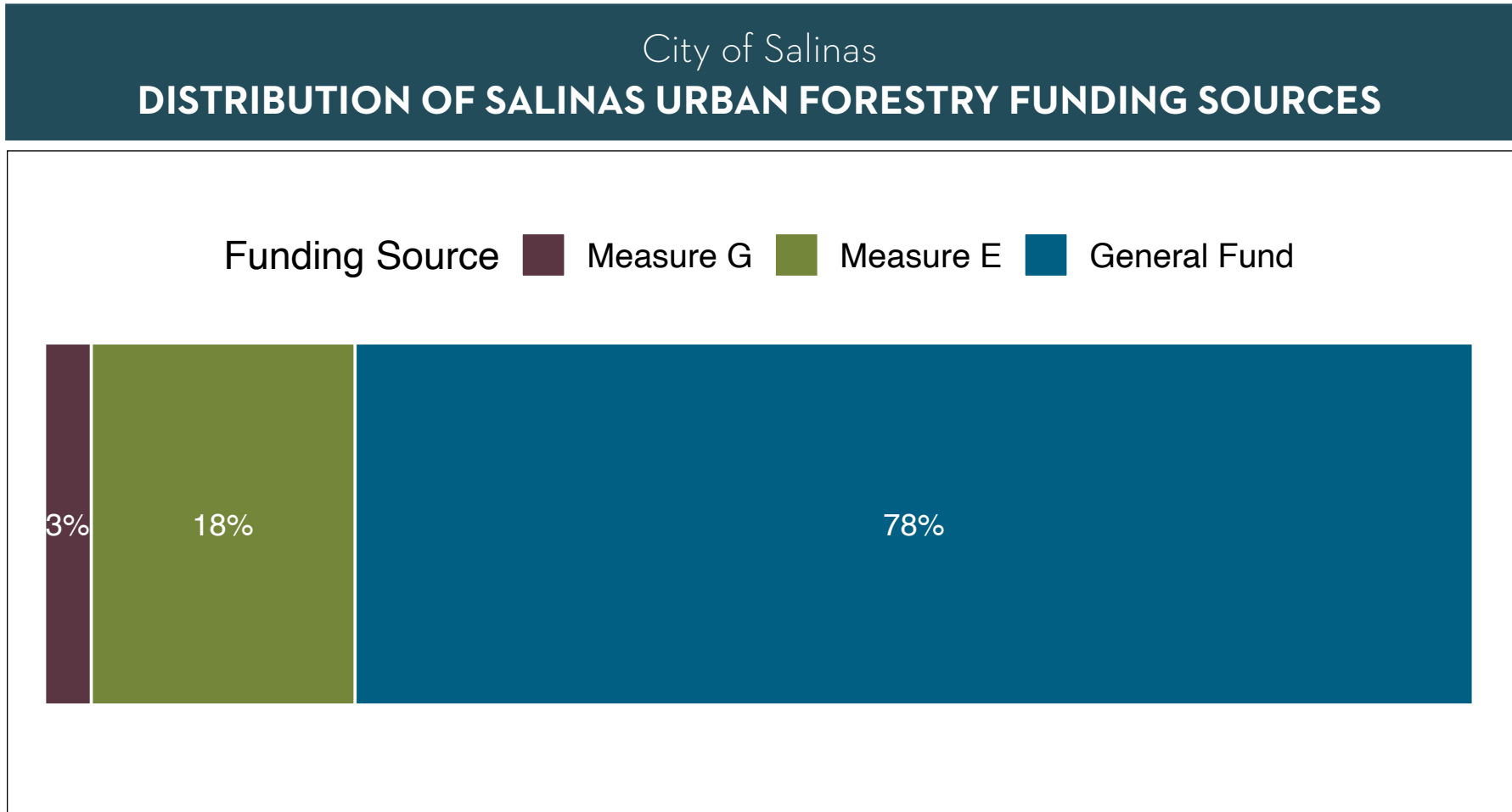
Table 5-3. Estimated Funding Needed to Achieve Best Management Practices

Current management practice	Best Management Practice (BMP)	Current Funding	Funding Needed to Achieve BMP (First Year)	Funding Gap
Annual Maintenance Activities				
No formal tree planting program	Tree Planting (1,515 trees annually)	\$50,000	\$444,160	\$394,160
No formal establishment care program	3-Years Establishment Care of Newly Planted Trees	\$0	\$100,248	\$100,248
57 Year pruning Cycle	6 Year Pruning Cycle	\$900,000	\$1,443,751	\$543,751
25 Trees removed per year	Tree and Stump Removal Year 1: 637 Year 20: 971	\$320,000	\$637,400	\$317,400
Annual Maintenance Activity Totals		\$1,270,000	\$5,370,636	\$4,100,636
5-Year Maintenance Activity				
Tree inventory, non-regularly updated	Tree Inventory, updated every 5 years	\$0	\$221,220	\$221,220
5-Year Maintenance Activity Total		\$0	\$221,220	\$221,220
Total Maintenance Activities		\$1,270,000	\$5,591,856	\$4,321,856



Exhibit 5-1 shows the funding sources that contribute to the City’s urban forest budget for FY 2020/2021.

Exhibit 5-1. Distribution of Salinas Urban Forestry Funding Sources



Source: City of Salinas Tree Inventory (City of Salinas 2014).



5.2 ANNUAL SERVICE DATA

Annual service data relating to tree maintenance and assessment are provided in **Table 5-4**.

Table 5-4. Annual Tree Service Data

Tree Planting	Establishment Care	Tree Pruning	Tree Removal	Urban Wood Reuse	Tree Inspection and Assessment
<p>Most trees planted in the City of Salinas are through the Adopt-A-Tree Program. It is estimated that an average of 35 trees are planted yearly. An estimated 80 trees were planted in 2022.</p>	<p>The City does not currently have funding dedicated to providing establishment care and watering to newly planted City-managed trees. Instead, establishment care and watering are primarily conducted by volunteers and through the City’s Adopt-A-Tree Program. Some establishment care takes place for new development projects, but enforcement and inspection are limited.</p>	<p>City records show that 2,216 trees were pruned between 2019 and 2022, averaging 554 trees per year. At this pace, the City’s pruning cycle is at 57.2 years. The recommended pace is 5 to 7 years.</p>	<p>Between 2019 and 2022, the City removed 103 trees.</p>	<p>The City has a mulching program.</p>	<p>Currently, the City of Salinas does not have a systematic framework in place for assessing tree risk.</p>



6

COMMUNITY ENGAGEMENT



6.1 WORKING GROUP

The City's UFMP Working Group was formed to bring together City staff, individuals from the environmental field, and community advocates to help advise the UFMP's development. A list of Working Group members is provided in **Table 6-1**. Four Working Group meetings were held between August 2022 and July 2023, and each meeting was facilitated by the consultant team.

Table 6-1. Salinas Urban Forest Management Plan Working Group Members

Name	Affiliation
Brian Frus	City of Salinas
Adriana Robles	City of Salinas
Maria Contreras	City of Salinas
Victor Baez	City of Salinas
Yazmin Ochoa-Flores	City of Salinas
Cathy Andrews	City of Salinas
Rachel Saunders	Big Sur Land Trust
Joanna Devers	Community member
Leticia Hernandez	Community advocate
Rolando Aguilar	Recent college graduate



96% of survey respondents view trees as a valuable community asset that contribute to the quality of life in Salinas

6.2 PUBLIC SURVEY

An online survey in English and Spanish was created to identify the public’s perception and understanding of the City’s trees and to offer a space for public feedback as the City developed its UFMP. The 23-question survey was open between June 2022 through November 2022, and was distributed through various City public outreach activities, such as social media platforms, newsletters, City library, farmers markets, community events, and communications sent by City staff and local community-based organizations. In total, 145 survey responses were recorded. A summary of themes is included in **Table 6-2**.

Table 6-2. Summary of Salinas Tree Survey Responses

Topic	Responses
Views of trees as a City asset	<ul style="list-style-type: none">• 96% believe that trees contribute to their quality of life• 74% view trees more important than or equally as important as other City-maintained infrastructure• Top two most important benefits of trees: cooling neighborhood homes and improving the environment



74%

view trees more important than or equally as important as other City-maintained infrastructure

Topic	Responses
Public participation	<ul style="list-style-type: none"> • Top concerns of respondents to growing trees on their property were damage to infrastructure and the cost to trim trees • To assist the City with reaching its canopy cover goals, respondents willing volunteer at a community tree planting and plant a tree on their private property • Respondents believe providing financial support to trim trees and information on tree care and tree trimming would best help them plant and care for trees in their own yard
Trees in public spaces	<ul style="list-style-type: none"> • 71% believe trees in public spaces are in fair or poor condition • 43% of respondents want to see more trees planted in parks and open spaces, and main streets
Opinions on tree protection ordinances	<ul style="list-style-type: none"> • 75% were in support of a tree protection ordinance that protects trees on private property in the same way it protects trees on public property
Goals of the Urban Forest Management Plan	<ul style="list-style-type: none"> • Maintaining the existing trees • Removing dead, dying, or hazardous trees





6.3 MAKE A DIFFERENCE DAY

The consultant team collaborated with Amor Salinas, a City-led initiative committed to Citywide beautification, to execute a community park event on National Make a Difference Day on October 22, 2022. The volunteer event was hosted in three different parks throughout the City: Laurel Heights Park, Azahel Cruz Park, and Cesar Chavez Park. During the event, volunteers repaired and restored different park elements, including fence painting, litter cleanup, and sand raking and tree planting. Approximately 70 volunteers of various ages participated in UFMP engagement to discuss the benefits of trees and desires for the future of the urban forest. This face-to-face UFMP engagement included interactive graphic boards, maps, and open dialogue.

Attendees shared the following ideas and opinion, summarized in **Table 6-3**.







Table 6-3. Summary of Community Engagement Responses

<p>Engage How do we get more people involved with Salinas trees?</p>	<p>Grow Where/how can we get more trees planted on non-City owned land</p>
<ul style="list-style-type: none"> • Organize family/teen events about trees • Provide educational resources about how to water trees • Provide school garden projects • Increase City and community member collaborations • Make tree planting presentations at high schools and middle schools • Educate the public about tree policies • Advertise the benefits of trees 	<ul style="list-style-type: none"> • Host events and contests to incentivize tree planting • Reimburse community members who plant trees plantings in yards • Improve communication between the public and the City tree management practices • Promote drought-tolerant trees • City mandates on minimum number of trees planted • Donate a tree • Promote tree plantings during homeowners' landscape renovations • Encourage property owners to plant trees on multifamily rental properties



6.4 POP-UP EVENT

The consultant team held a tabling event at the Alisal Farmers Market on Tuesday, July 19th, 2022. The consultant team provided graphic engagement boards, urban forest fast-facts sheets, flyers for the urban forest summit event, and hard copies of the Salinas tree survey at their booth, which provided an interactive experience for interested community members. Many community members took this opportunity to reflect on and share thoughts about their relationship with trees in their hometown of Salinas. Participants shared a wide range of opinions, from “Our city needs to figure out how to keep trees alive,” to “Trees are too messy.” Public outreach allowed the consultant team to develop connections with the Salinas community and discuss opportunities and challenges regarding the UFMP with people of various backgrounds and age groups.

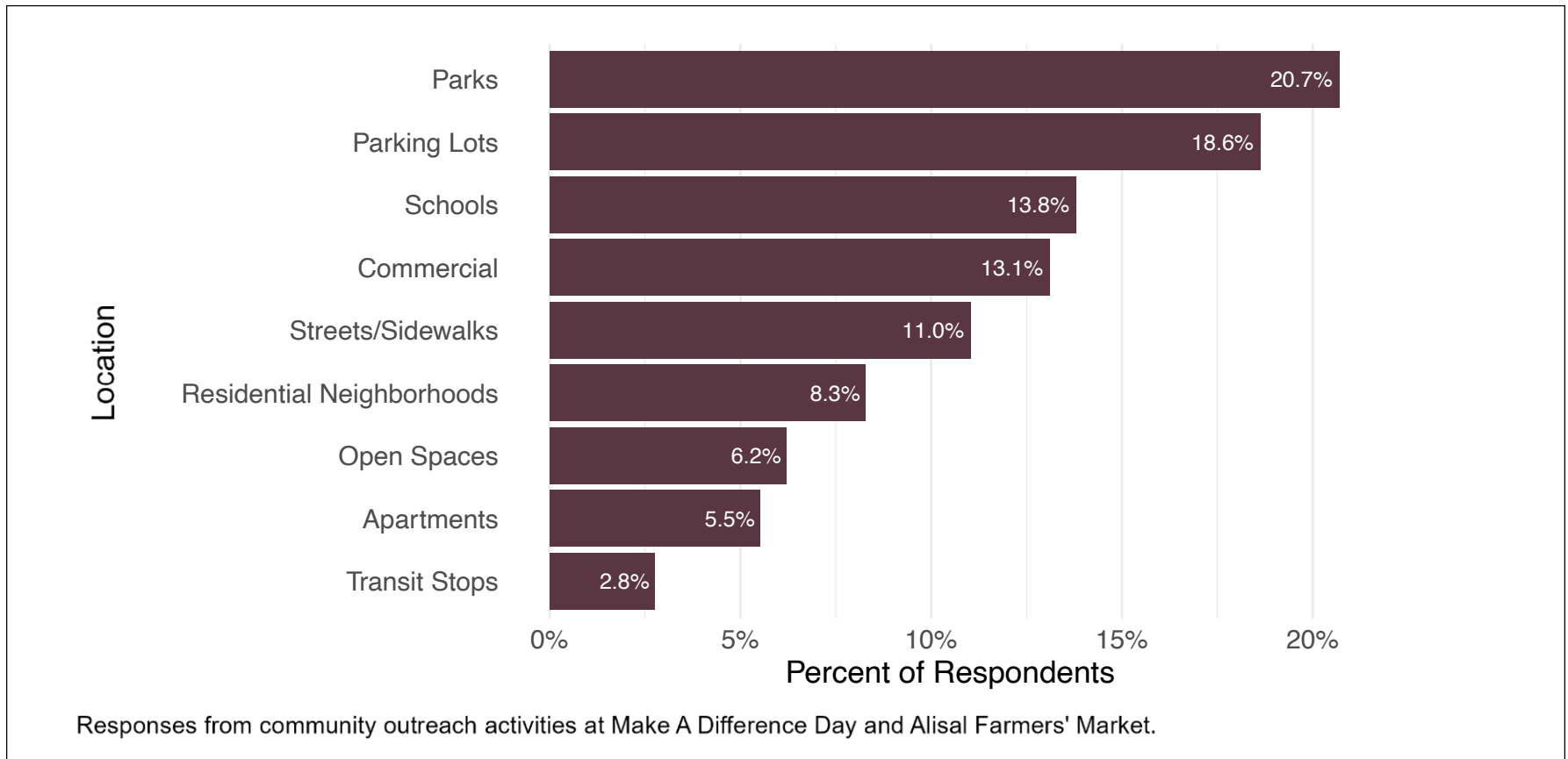
Several different metrics were collected from community members through all outreach events.

Exhibit 6-1 illustrates community responses to the question, “Where does the City need more trees?” Dudek gathered 145 responses from Salinas community members from two outreach events.



Exhibit 6-1. Community Responses to “Where does the City need more trees?”

City of Salinas
COMMUNITY EVENT SURVEY RESULTS
 Where does the City need more trees?





7

STRATEGIC PLAN



STRATEGIC PLAN

The Salinas UFMP Strategic Plan lays out a roadmap to achieving Salinas’s vision statement for the ideal urban forest.

Guiding Principle	Strategy
A sufficiently funded plan	The urban forest is sustainably managed through financial investment and staffing.
A maintained living asset	Trees are maintained to improve the health, longevity, safety, and functional capacity of the existing urban forest, and to ensure that the future urban forest can reach its potential to provide the full range of environmental benefits and services
A flourishing tree canopy enjoyed by all	Existing trees are maintained and new trees will be strategically planted to increase canopy cover equitably across Salinas.
Enhanced quality of life for community members	The quality of life in Salinas is further enhanced by benefits and services provided by the urban forest.
Prepared for climate change	The thriving urban forest results in reduced urban heat islands, increased energy efficiency, resilience to pests and diseases, and landscapes that conserve water.
A balance between trees and infrastructure	Trees are included in the beginning of the planning process to provide landscaped settings and habitat, maximize environmental benefits, and reduce infrastructure conflicts.



GUIDING PRINCIPLES

GUIDING PRINCIPLE 1:

A sufficiently funded plan

STRATEGY	Action No.	ACTION	Time Frame
The urban forest is sustainably managed through financial investment and staffing.	1A	Apply for state grants and increase nonprofit and other partnerships to increase funding for tree planting and care establishment	Ongoing
	1B	Pursue tree planting opportunities through community volunteer events or collaborating with local organizations to reduce the cost of tree planting	Ongoing
	1C	Communicate the economic value of trees to decision makers	Ongoing
	1D	Develop a strategy to increase tree maintenance funds as the City's trees age and require increased maintenance costs	Medium
	1E	Pursue CAL FIRE grant funding to develop an urban wood reuse program	Short
	1F	Identify opportunities to leverage future development projects to increase resources for urban forest management	Medium
	1G	Annually provide a report on the City's return on investment from the funding that is allocated to urban forest management	Ongoing



GUIDING PRINCIPLE 2:

A Maintained Living Asset

STRATEGY	Action No.	ACTION	Time Frame
Trees are maintained to improve the health, longevity, safety, and functional capacity of the existing urban forest, and to ensure that the future urban forest can reach its genetic potential to provide the full range of services.	2A	Increase number of field crew staff to eight tree workers to address all routine tree management needs and Q-Alert community requests	Medium
	2B	Establish a pruning cycle of 5 to 7 years for all City-managed trees	Long
	2C	Create a tree risk management program that includes risk assessments every 3 to 5 years	Medium
	2D	Update tree planting standards to include irrigation	Short
	2E	Adopt the Recommended Species List (Appendix B) for use by all City departments to guide tree planting.	Short
	2F	Implement an irrigation program that new trees receive adequate water	Medium
	2G	Plant 835 new trees per year over 20 years to achieve 15% canopy cover goals	Ongoing



(continued)

	2H	Implement a formative pruning program for young and newly planted trees to mitigate potential tree structure and safety issues	Medium
	2I	Explore partnerships for developing an urban wood reuse program, such as programs for tree removal and milling, to turn removed trees into usable lumber	Short
	2J	Monitor trees rated as poor or dead in the City's tree inventory to determine appropriate management actions	Short
	2K	Conduct a new right-of-way tree inventory	Short
	2L	Update the City's right-of-way tree inventory every 5 years to ensure the City has accurate information about all its tree assets	Ongoing
	2M	Reapply for Tree City USA status and maintain the City's designation	Ongoing



GUIDING PRINCIPLE 3:

A Flourishing Tree Canopy Enjoyed By All

STRATEGY	Action No.	ACTION	Time Frame
Existing trees are maintained, and new trees will be strategically planted to increase canopy cover equitably across Salinas.	3A	Achieve a 15% Citywide canopy cover over the next 20 years	Long
	3B	Prioritize planting throughout Salinas census tracts based on the Priority Planting Score and map to increase canopy cover equitably throughout the City	Medium
	3C	Create an annual plan for tree planting, prioritizing empty tree wells, parks, bus stops, and bikeways, where appropriate	Ongoing
	3D	Tailor tree planting and preservation plans by council district to meet differing needs throughout the City: Council District 1: private property tree preservation, planting initiatives focused on parks and open spaces Council District 2: planting initiatives focused on residential areas not impacted by the airport Council District 3: planting initiatives focused on business engagement Council District 4: planting initiatives focused on parks and business engagement Council District 5: planting initiatives focused on business engagement Council District 6: public space tree preservation	Short
	3E	Ensure tree planting programs consider economic impacts on Salinas community members.	Ongoing
	3F	Ensure planting programs are linguistically and culturally appropriate	Ongoing
	3G	Prioritize large stature trees that contribute to more leaf area and importance value	Ongoing



GUIDING PRINCIPLE 4:

Enhance The Quality Of Life For Community Members

STRATEGY	Action No.	ACTION	Time Frame
The quality of life in Salinas is further enhanced by the benefits and services of the urban forest.	4A	Create a program for community members to participate in tree care and maintenance in their own neighborhoods (i.e., developing a community forester program, community tree care workshops, tree plantings)	Short
	4B	Provide guidance and educational materials to property owners regarding responsibility for maintaining trees in the public right-of-way and how to properly care for and water trees	Short
	4C	Identify safe routes to school, bicycle routes, walking trails, and routes to parks and recreational areas for tree planting	Short
	4D	Identify streets where trees are lacking and pursue tree planting opportunities along these routes, beginning with areas identified by community members during public input, including Sanborn Road, Williams Road, Alisal, and North Salinas	Short



GUIDING PRINCIPLE 5:

Prepared for Climate Change

STRATEGY	Action No.	ACTION	Time Frame
The thriving urban forest results in reduced urban heat islands, increased energy efficiency, resilience to pests and diseases, and landscapes that conserve water.	5A	Decrease the frequency of sweetgum, Callery pear, London plane, and cherry plum for new tree plantings	Ongoing
	5B	Plant trees rated by the Water Use Classification of Landscape Species (WUCOLs) as low and very low	Ongoing
	5C	Ensure that age classes of trees are sufficiently distributed to ensure environmental benefits continue, by consistently planting 835 trees per year	Ongoing
	5D	Allocate more resources towards pruning as 87% of inventory will reach mature and middle age at same time	Short
	5E	Monitor low Relative Performance Index (RPI) trees and replace declining trees as necessary	Medium
	5F	Implement updated Citywide tree standards and details	Short
	5G	Annually review the City recommended tree species list and update it as appropriate to ensure species are suitable for current and future climate conditions, are low water use, will achieve species diversity standards, and will prioritize well-adapted local and regionally native species	Ongoing



GUIDING PRINCIPLE 6:

A Balance Between Trees And Infrastructure

STRATEGY	Action No.	ACTION	Time Frame
Trees are included in the beginning of the planning process to provide landscaped settings and habitat, maximize environmental benefits, and reduce infrastructure conflicts.	6A	Invest in a community outreach and education program focused on overall benefits of trees; proper establishment care; “right tree, right place”; and mitigating conflicts between trees and infrastructure	Ongoing
	6B	Update Municipal Code Chapter 35: Trees and Shrubs per recommendations in Chapter 5 of the UFMP Technical Assessment to strengthen tree replacement, tree protection, and code violations	Short
	6C	Update Municipal Code Sections 9-41 and 9-45 per recommendations in Chapter 5 of the UFMP Technical Assessment to clarify developer responsibilities with tree installation	Short
	6D	Update Municipal Code Chapter 37 per recommendations in Chapter 5 of the UFMP Technical Assessment to improve the way trees are protected on private property	Short
	6E	Update the General plan per recommendations in Chapter 5 of the UFMP Technical Assessment to add tree protection goals, policies, and actions that align with this UFMP	Medium
	6F	Update the 2017 Neighborhood Vibrancy-Urban Greening Plan per Chapter 5 of the UFMP Technical Assessment to align canopy cover goals, tree planting standards, and recommended tree species with this UFMP	Medium



GUIDING PRINCIPLE 6:

A Balance Between Trees And Infrastructure

STRATEGY	Action No.	ACTION	Time Frame
Trees are included in the beginning of the planning process to provide landscaped settings and habitat, maximize environmental benefits, and reduce infrastructure conflicts	6G	Update the 2019 Parks, Rec, and Libraries Master Plan per Chapter 5 of the UFMP Technical Assessment to prioritize park tree planting as described in this UFMP	Medium
	6H	Update the Alisal Homeownership and Neighborhood Revitalization Strategy to directly address trees and Capital Improvement Projects that align with recommendations in this UFMP	Medium
	6I	Ensure a City arborist is directly involved in reviewing new development designs, project permits, and removal applications to ensure best arboricultural practices are enforced and trees are protected where possible	Short
	6J	Allocate funding to create a staff position or on-call contract for a certified arborist to implement planning policies on private property including code enforcement, site plan review, post-installation inspections	Short



8

IMPLEMENTATION PLAN



ONGOING ACTIONS

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
1A	Apply for state grants and increase nonprofit and other partnerships to increase funding for tree planting and care establishment.	PW	\$
1B	Pursue tree planting opportunities through community volunteer events or collaborating with local organizations to reduce the cost of tree planting.	PW, R&CS	\$
1C	Communicate the economic value of trees to decision makers.	PW, City	\$
1G	Annually provide a report on the City’s return on investment from the funding that is allocated to urban forest management.	PW	\$
2G	Plant 835 new trees per year over 20 years to achieve 15% canopy cover goals	PW	\$\$\$\$
2L	Update the City’s right-of-way tree inventory every 5 years to ensure the City has accurate information about all its tree assets	PW	\$\$\$\$
2M	Reapply for Tree City USA status and maintain the City’s designation	PW	\$
3C	Create an annual plan for tree planting, prioritizing empty tree wells, parks, bus stops, and bikeways, where appropriate	PW, R&CS	\$
3E	Ensure tree planting programs consider economic impacts on Salinas community members.	PW, R&CS, CD	\$
3F	Ensure planting programs are linguistically and culturally appropriate	PW, R&CS, CD	\$
3G	Prioritize large stature trees that contribute to more leaf area and importance value	PW	\$\$
5B	Plant trees rated by the Water Use Classification of Landscape Species (WUCOLs) as low and very low	PW	\$
5C	Ensure that age classes of trees are sufficiently distributed to ensure environmental benefits continue, by consistently planting 835 trees per year	PW	\$\$\$\$
5G	Annually review the City recommended tree species list and update it as appropriate to ensure species are suitable for current and future climate conditions, are low water use, will achieve species diversity standards, and will prioritize well-adapted local and regionally native species	PW, CD	\$

RESPONSIBLE PARTY: PW = Public Works; CD = Community Development; R&CS = Recreation and Community Services; City = City council action required
COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



SHORT TERM ACTIONS 1-5 YEARS

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
1E	Pursue CAL FIRE grant funding to develop an urban wood reuse program.	PW	\$
2D	Update tree planting standard to include irrigation	PW	\$
2E	Adopt the Recommended Species List (Appendix B) for use by all City departments to guide tree planting.	PW, City	\$
2I	Explore partnerships for developing an urban wood reuse program, such as programs for tree removal and milling, to turn removed trees into usable lumber	PW	\$
2J	Monitor trees rated as poor or dead in the City's tree inventory to determine appropriate management actions.	PW	\$\$
2K	Conduct a new right-of-way tree inventory	PW	\$\$\$\$
3D	Tailor tree planting and preservation plans by council district to meet differing needs throughout the City: Council District 1: private property tree preservation, planting initiatives focused on parks and open spaces Council District 2: planting initiatives focused on residential areas not impacted by the airport Council District 3: planting initiatives focused on business engagement Council District 4: planting initiatives focused on parks and business engagement Council District 5: planting initiatives focused on business engagement Council District 6: public space tree preservation	PW, City	\$\$
4A	Create a program for community members to participate in tree care and maintenance in their own neighborhoods (i.e., developing a community forester program, community tree care workshops, tree plantings).	PW, R&CS	\$\$

RESPONSIBLE PARTY: **PW** = Public Works; **CD** = Community Development; **R&CS** = Recreation and Community Services; **City** = City council action required

COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



SHORT TERM ACTIONS 1-5 YEARS (CONTINUED)

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
4B	Provide guidance and educational materials to property owners regarding responsibility for maintaining trees in the public right-of-way and how to properly care for and water trees.	PW	\$
4C	Identify safe routes to school, bicycle routes, walking trails, and routes to parks and recreational areas for tree planting.	PW	\$\$
4D	Identify streets where trees are lacking and pursue tree planting opportunities along these routes, beginning with areas identified by community members during public input, including Sanborn Road, Williams Road, Alisal, and North Salinas.	PW	\$\$
5D	Allocate more resources towards pruning as 87% of inventory will reach mature and middle age at same time	PW, City	\$\$\$\$
5F	Implement updated Citywide tree standards and details	PW	\$
6B	Update Municipal Code Chapter 35: Trees and Shrubs per recommendations in Chapter 5 of the UFMP Technical Assessment to strengthen tree replacement, tree protection, and code violations	PW, City	\$
6C	Update Municipal Code Sections 9-41 and 9-45 per recommendations in Chapter 5 of the UFMP Technical Assessment to clarify developer responsibilities with tree installation.	PW, City	\$
6D	Update Municipal Code Chapter 37 per recommendations in Chapter 5 of the UFMP Technical Assessment to improve the way trees are protected on private property.	PW, City	\$
6J	Ensure a City arborist is directly involved in reviewing new development designs, project permits, and removal applications to ensure best arboricultural practices are enforced and trees are protected where possible	PW, R&CS, CD	\$\$
6K	Allocate funding to create a staff position or on-call contract for a certified arborist to implement planning policies on private property including code enforcement, site plan review, post-installation inspections.	PW, City	\$\$\$\$

RESPONSIBLE PARTY: PW = Public Works; CD = Community Development; R&CS = Recreation and Community Services; City = City council action required
COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



MEDIUM TERM ACTIONS 5-10 YEARS

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
1D	Develop a strategy to increase tree maintenance funds as the City’s trees age and require increased maintenance costs	PW, City	\$\$\$\$
1F	Identify opportunities to leverage future development projects to increase resources for urban forest management	PW, CD, City	\$\$
2A	Increase number of field crew staff to eight tree workers to address all routine tree management needs and Q-Alert community requests	PW, City	\$\$\$\$
2C	Create a tree risk management program that includes risk assessments every 3 to 5 years	PW	\$\$\$\$
2F	Implement an irrigation program that new trees receive adequate water	PW	\$\$\$\$
2H	Implement a formative pruning program for young and newly planted trees to mitigate potential tree structure and safety issues.	PW	\$\$\$\$

RESPONSIBLE PARTY: **PW** = Public Works; **CD** = Community Development; **R&CS** = Recreation and Community Services; **City** = City council action required
COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



MEDIUM TERM ACTIONS 5-10 YEARS (CONTINUED)

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
3B	Prioritize planting throughout Salinas census tracts based on the Priority Planting Score and map to increase canopy cover equitably throughout the City	PW	\$
5E	Monitor low Relative Performance Index (RPI) trees and replace declining trees as necessary	PW	\$\$\$
6E	Update the General plan per recommendations in Chapter 5 of the UFMP Technical Assessment to add tree protection goals, policies, and actions that align with this UFMP	PW, CD, City	\$\$
6F	Update the 2017 Neighborhood Vibrancy-Urban Greening Plan per Chapter 5 of the UFMP Technical Assessment to align canopy cover goals, tree planting standards, and recommended tree species with this UFMP	PW, CD, City	\$\$
6G	Update the 2019 Parks, Rec, and Libraries Master Plan per Chapter 5 of the UFMP Technical Assessment to prioritize park tree planting as described in this UFMP	PW, R&CS, City	\$\$
6H	Update the Alisal Homeownership and Neighborhood Revitalization Strategy to directly address trees and Capital Improvement Projects that align with recommendations in this UFMP	PW, CD, City	\$\$

RESPONSIBLE PARTY: PW = Public Works; CD = Community Development; R&CS = Recreation and Community Services; City = City council action required
COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



LONG TERM ACTIONS 10 YEARS+

ACTION NO.	ACTION	RESPONSIBLE PARTY	COST
2B	Establish a pruning cycle of 5 to 7 years for all City-managed trees	PW	\$\$\$\$
3A	Achieve a 15% citywide canopy cover over the next 20 years	PW, R&CS, CD	\$\$\$\$

RESPONSIBLE PARTY: PW = Public Works; CD = Community Development; R&CS = Recreation and Community Services; City = City council action required
COST: \$ Low 0-\$25,000, \$\$ Medium (\$25,000 - \$50,000), \$\$\$ High (\$50,000 - \$100,000), \$\$\$\$ Very High (>\$100,000)



9

MONITORING PLAN

VIBRANT CITIES LAB ASSESSMENT

The City can use the Vibrant Cities Lab Community Assessment and Goal-Setting Tool to monitor the implementation of the UFMP. The tool is used as an assessment to define the City's current state of a specific area of urban forest sustainability. Each metric is assigned a point value, and the City is assigned a "Total Current Score" and a "Gap Score," or how far off the current state is from the desired goal. A gap score between 20 to 40 is not far from achieving the goals of its urban forest program. Conversely, gap scores of 40+ indicate that a City is still implementing programs and policies to close the gaps and develop a sustainable urban forest.

Public Works, the City Engineer, and the consultant team conducted Salinas's first assessment on February 2, 2023. **Table 9-1** provides the results from the first assessment, which set the baseline for the City's "Total Current Score" at its pre-UFMP metrics.

Based on the first assessment, the City has a current score of 11, with a gap score of 73. The City's UFMP monitoring plan should be based around the Vibrant Cities Lab Community Assessment and Goal Setting Tool and be retaken each year to track, measure, and highlight progress. The assessment can also be used to demonstrate successes and justify additional funding asks to City Council. Since the City first took the assessment, several of the responses that had significant gaps, such as the lack of a UFMP (gap of 5), have already been achieved.





Table 9-1. Tree Canopy Goal Summary

(1 of 5)

Category	Current Rating	Goal Rating	Gap		
Canopy cover	The existing canopy cover for entire municipality is 50%-75% of the desired canopy.	1	The existing canopy is >75%-100% of desired.	2	1
Inventory and assessment methodology	Complete or sample-based inventory of publicly owned trees.	1	Systematic comprehensive inventory system of entire urban forest - with information tailored to users and supported by mapping in municipality-wide GIS system. Provides for change analysis.	4	3
	Complete, detailed, and spatially explicit, high-resolution Urban Tree Canopy (UTC) assessment based on enhanced data (such as LIDAR) - accompanied by comprehensive set of goals by land use and other parameters.	3	Urban tree canopy assessment utilized effectively to drive urban forest and green infrastructure policy and practice municipality-wide and at neighborhood or similar management level	4	1
Publicly owned trees	Complete tree inventory that includes detailed tree condition ratings.	2	Complete GIS tree inventory that includes detailed tree condition and risk ratings.	4	2
Publicly owned natural areas	Ecological structure and function of all natural areas assessed and documented.	3	Ecological structure and function of all natural areas assessed and documented.	3	0
Private property trees	Aerial, point-based assessment - capturing extent and location.	1	Bottom-up sample based assessment, as well as detailed UTC analysis of entire urban forest, including private property, integrated into municipality-wide [multi-agency] GIS system. LIDAR and hyper-spectral imaging most helpful.	4	3
Relative performance index by species	All six most common species have higher RPI scores than the average of all species in community. (>1)	4	All six most common species have higher RPI scores than the average of all species in community. (>1)	4	0



(2 of 5)

Category	Current Rating	Goal Rating	Gap		
Use of native vegetation	Voluntary use of native species on publicly and privately owned lands; invasive species are recognized.	1	Use of native species is encouraged on a project-appropriate basis in all areas; invasive species are recognized and discouraged on public and private lands.	2	1
Align municipal departments	Municipal departments/agencies recognize potential conflicts and reach out to urban forest managers on an ad hoc basis – and vice versa.	1	Informal teams among departments and agencies communicate regularly and collaborate on a project-specific basis.	2	1
Engage residents in planning and implementation	Many active neighborhood groups engaged in advancing urban forest goals, but with little or no overall coordination with municipality or its partnering NGOs.	2	Proactive outreach and coordination efforts by municipality and NGO partners resulting in widespread citizen involvement and structured engagement among diverse neighborhood groups.	4	2
Environmental equity	Tree planting and outreach is not determined equitably by canopy cover or need for benefits.	-1	Equitable planting and outreach at the neighborhood level is guided by strong resident involvement in low canopy/high need areas. Residents participate actively in identifying needs for their neighborhoods, planning, implementation, and monitoring	4	5
Trees acknowledged as vital community resource	General ambivalence or negative attitudes about trees, which are perceived as neutral at best or as the source of problems. Actions harmful to trees may be taken deliberately.	-1	Trees widely acknowledged as providing environmental, social, and economic services – resulting in some action or advocacy in support of the urban forest.	2	3



(3 of 5)

Category	Current Rating	Goal Rating	Gap		
Engage large private landowners and institutions	Large private landholders are generally uninformed about urban forest issues and opportunities.	-1	Landowners develop tree management plans that advance municipal urban forest goals.	2	3
All utilities work with municipality, employ best management practices	No utility consideration of the health of the urban forest resource.	-1	Utilities employ best management practices, recognize potential municipal conflicts, and reach out to urban forest managers on an ad hoc basis - and vice versa.	2	3
Green industry embraces goals, high standards	Little or no cooperation among segments of green industry or awareness of municipality-wide urban forest goals and objectives.	-1	Specific collaborate arrangements across segments of green industry in support of municipality-wide goals and objectives.	2	3
Develop urban forest management plan	No urban forest management plan.	-1	New or recent urban forest and green infrastructure management plan which targets public and private tree planting and protection based on assessment of anticipated benefits - and assures these benefits are distributed equitably among neighborhoods.	4	5
Cooperative planning with other municipalities	Municipalities have no interaction with each other or the broader region. No regional planning or coordination on urban forestry.	-1	Some urban forest planning and cooperation across municipalities and regional agencies.	2	3
Forestry plan integrated into other municipal plans	Urban forestry plan mentions how it could meet other municipal objectives or inform other planning efforts.	-1	Once completed, urban forestry planning team works with other agencies to align current and future objectives.	2	3



(4 of 5)

Category	Current Rating		Goal Rating		Gap
Urban forestry program capacity	Lack of personnel and/or adequate equipment severely limits needed maintenance. Few resources, if any available to achieve new goals.	-1	Team has capacity and will in the future to achieve all goals of the urban forest management plan, to maintain the resource over time, and adapt management as circumstances change.	2	3
Municipality-wide urban forestry funding	Ad hoc funding for emergency, reactive management.	1	Sustained, long-term funding from multiple municipal, regional, and/or state agencies, along with private sources to implement a comprehensive urban forest management plan and provide for maintenance and adaptive management as circumstances change.	4	3
Growing site suitability	Appropriate tree species are considered in site selection.	1	All trees planted in sites with adequate soil quality and quantity, and with sufficient growing space and overall site conditions to achieve their genetic potential and thus provide maximum ecosystem services. Where growing conditions are poor, guidance provided on how to improve soil volume, quality, other factors.	4	3
Tree establishment and maintenance	Some tree planting and establishment occurs, but with limited overall municipality-wide planning and post-planting care.	-1	Planting and post-planting care and maintenance protocols in place.	2	3
Management of publicly owned natural areas	Only reactive management to facilitate public use, e.g. hazard abatement, trail maintenance.	1	Management plan in place for each publicly owned natural area to facilitate appropriate public use.	2	1
Policies that foster good urban forestry on private lands	No tree protection ordinance, or one that's weak and rarely enforced.	-1	All relevant municipal policies require or incentivize adherence by private owners to standards incorporated in the plan. Incentives and sanctions applied when appropriate.	4	5



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Category	Current Rating	Goal Rating	Gap		
Tree protection policy and enforcement	Policies in place to protect public trees and employ industry best management practices, but rare or inconsistent enforcement.	1	Integrated municipality-wide policies and practices to protect public and private trees, consistently enforced and with penalties sufficient to deter violations.	4	3
Monitoring	No monitoring.	-1	Monitoring on a regular basis with rotating schedule for each area. Monitors are professionals or volunteers trained to collect specific data required by municipality. Multi-year data available for trend analyses.	2	3
Tree risk management	Citizens and city staff report tree safety issues to the forestry department or manager (e.g., 3-1-1 system, online form, etc.). System tracks the time between damage report and mitigation action.	1	Policies and ordinances in place to minimize tree damage and removal on commercial developments, and public capital. Protection measures conform to ANSI A300 standards and ISA BMPs.	3	2
Urban wood and green waste utilization	No utilization plan; wood and other green waste goes to landfill with little or no recycling and reuse.	-1	Comprehensive plan and processes in place to utilize all green waste one way or another, to the fullest extent possible.	4	5
Total Current Score		11	Total Goal Rating		84
Total Gap Score					78




TREE CITY USA
Arbor Day Foundation


**SALINAS VALLEY
GIRL SCOUTS**
"Go Getters"
Troop 35708



REFERENCES



- Beller E. E., M. N. Salomon, and R. M. Grossinger. 2010. Historical Vegetation and Drainage Patterns of Western Santa Clara Valley: A Technical Memorandum Describing Landscape Ecology in Lower Peninsula, West Valley, and Guadalupe Watershed Management Areas. SFEI contribution 622. Oakland, California: San Francisco Estuary Institute. November 2010. https://www.sfei.org/sites/default/files/biblio_files/HistoricalEcology_of_Western_SantaClaraValley_SFEI_111910.pdf.
- City of Salinas. 2014. City of Salinas Tree Inventory Data. Conducted by Davey.
- City of Salinas. 2015. Urban Forest Assessment Report. <https://www.cityofsalinas.org/our-city-services/public-works/water-waste-energy/neighborhood-vibrancyurban-greening/sidebar/tree-information>. Accessed on May 23, 2023
- City of Salinas. 2021. City of Salinas Open Data, GIS Portal 2021. <https://cityofsalinas.opendatasoft.com/pages/homepage/>.
- Durham, D. 1998. California's Geographic Names: A Gazetteer of Historic and Modern Names of the State. Clovis, California: Word Dancer Press.
- Johnston, R. 1977. The Beginnings of Salinas: Brief History to 1874. 2nd ed. Monterey County Historical Society.
- Locke, D.H., B. Hall, J.M. Grove, S.T.A. Pickett, L.A. Ogden, C. Aoki, C.G. Boone, and J.P.M. O'Neil-Dunne. 2021. "Residential housing segregation and urban tree canopy in 37 US Cities." *npj Urban Sustainability* 1, 15. <https://doi.org/10.1038/s42949-021-00022-0>.
- McBride, J.R., and I. Lacan. 2018. "The Impact of Climate-Change Induced Temperature Increases on the Suitability of Street Tree Species in California (USA) Cities." *Urban Forestry & Urban Greening* 34:348–356.
- McPherson, E.G., N. van Doorn, and J. de Goede. 2016. "Structure, Function and Value of Street Trees in California, USA." *Urban Forestry & Urban Greening* 17:104–115.
- Morgenroth, J., D.J. Nowak, and A.K. Koeser. 2020. "DBH Distributions in America's Urban Forests—An Overview of Structural Diversity." *Forests* 11(2): 135. doi:10.3390/f11020135.
- OEHHA (Office of Environmental Health Hazard Assessment). 2023. CalEnviroScreen 3.4 [online software]. May 18, 2023. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>.
- Richards, N.A. 1983. "Diversity and Stability in a Street Tree Population." *Urban Ecology* 7(2): 159–171.



REFERENCES

- Smith, D. 2004. "Why Affordable Housing is an Environmental Issue." *Culture, Society, and Praxis* 2(2): Article 10. <https://digitalcommons.csumb.edu/csp/vol2/iss2/10>.
- Swain, D.L., B. Langenbrunner, J.D. Neelin, and A. Hall. 2018. "Increasing Precipitation Volatility in Twenty-First-Century California." *Nature Climate Change* 8:427-433. <https://www.nature.com/articles/s41558-018-0140-y>.
- USFS (U.S. Forest Service). 2020. i-Tree Eco [online software]. <https://www.itreetools.org/tools/i-tree-eco>.
- Wolf, K.L. S.T. Lam, J.K. McKeen, G.R.A. Richardson, M. van den Bosch, and A.C. Bardekjian. 2020. Urban Trees and Human Health: A Scoping Review. *International Journal of Environmental Research and Public Health* 17(12): 4371. <https://doi.org/10.3390/ijerph17124371>.
- WRCC (Western Regional Climate Center). 2018. "California Climate Tracker." Accessed January 10, 2018. <http://www.wrcc.dri.edu/monitor/cal-mon/index.html>.





Urban Forest Management Plan



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