

# URBAN FOREST, WATER, AND CLIMATE PROJECT

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Office of Sustainability and  
Riverside Public Utilities

Public Workshop  
January 26, 2022

[RiversideCA.gov](https://www.RiversideCA.gov)

# HELLO AND WELCOME



## Meeting Agenda

- Council Directive
- Data gathering process
- Overview of Riverside's water resources & challenges
- Riverside's climate change challenges
- Benefits of Trees and preliminary tree canopy analysis
- Q&A session

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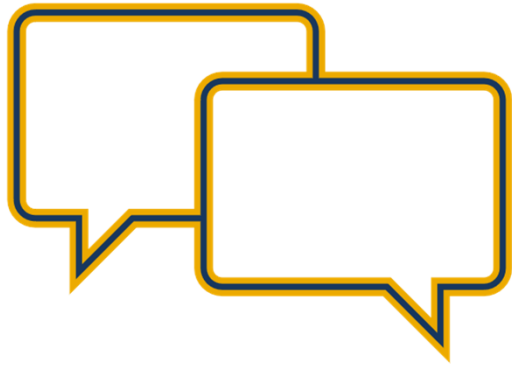
**This public workshop is being recorded and will be posted on the website.**

Visit: [RiversideCA.gov/Media](https://RiversideCA.gov/Media)

Search: Urban Forest, Water and Climate Project



# INTRODUCTIONS



1. How long have you resided in Riverside?
2. What Ward do you live in?

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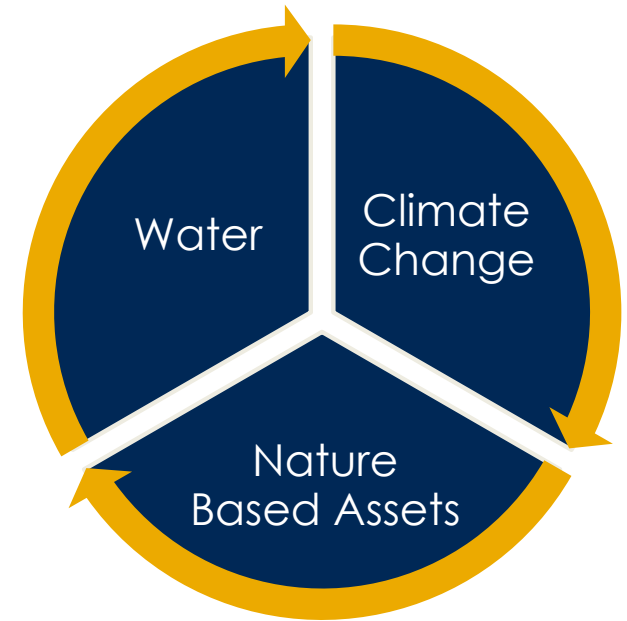
**Online Participants:** Please use the poll box for your responses.

**Call-in Participants:** Please take the online survey available at <https://www.riversideca.gov/press/urban-forest-water-and-climate-project>



# COUNCIL DIRECTIVE

“...evaluate current **climate conditions** impacting or being impacted by the City's **water supply** such as temperature, pollution and carbon sequestration benefits resulting from **tree canopies, greenspaces, and tributaries to the Santa Ana River.**”



# COUNCIL DIRECTIVE



Inform the City's sustainability and water management policies to help adapt to climate changes



Set recommendations on steps needed to maintain or increase the City's climate (nature-based) assets



Establish how increases or decreases in irrigation affect the City's climate assets

# ACTIONS TO DATE



Literature Research



iTree Resource  
Analysis



Evaluated City's  
existing data sets



Analysis of  
relevant existing  
City policies



Data gap analysis

# RIVERSIDE'S WATER RESOURCES

**100%**

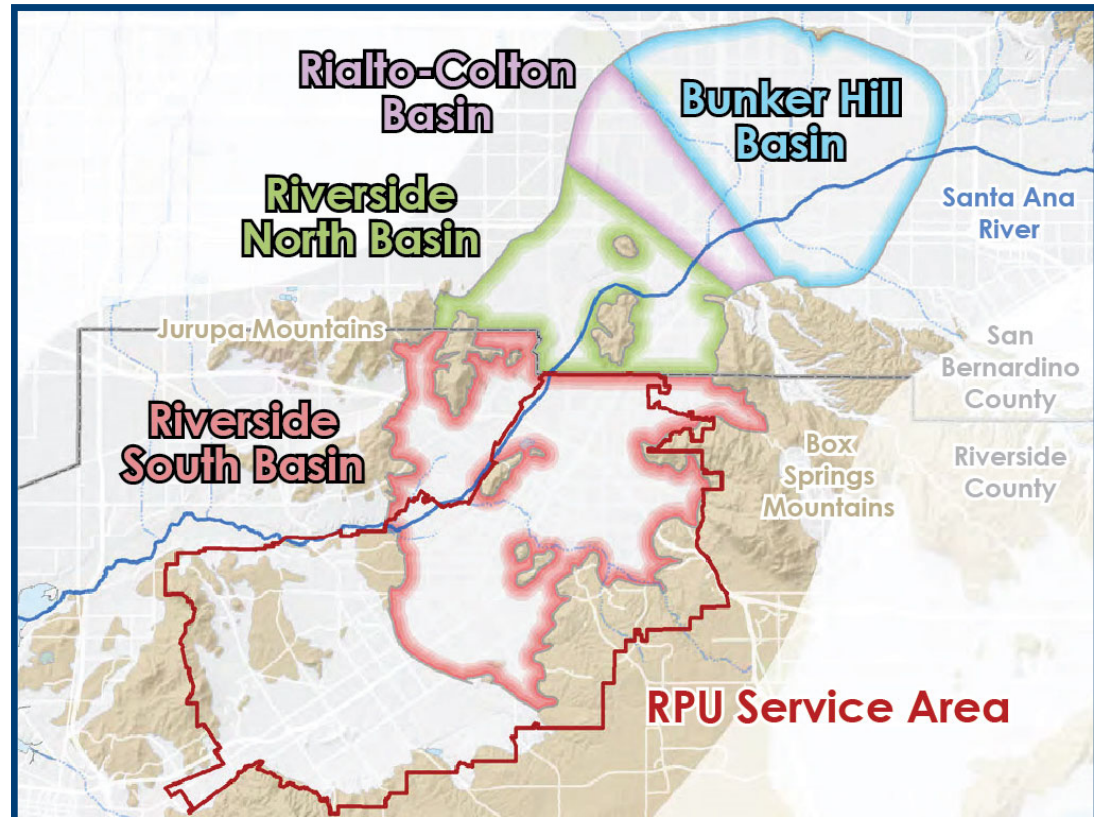
Of the City's potable  
(drinking) water has been  
supplied from local  
groundwater sources since  
2009

Serves a Population of

**306,140**

**69K**

Service Connections



# WATER CHALLENGES



## Groundwater Conditions

Rainfall is 22% below historical annual average resulting in historical lows of water levels



## Climate Change

Less snowpack, shorter winters and longer, drier summers.



## Urban Growth

Increase in population and associated water needs is projected to be greater than Riverside's available water supply sources within 10 years.



# MAKING CONSERVATION A CA WAY OF LIFE

**New Water Efficiency Regulations** – In 2018, the California State Legislature enacted two bills Senate Bill (SB) 606 and Assembly Bill (AB) 1668, to establish a new foundation for long-term improvements in water conservation and drought planning to adapt to climate change and the resulting longer and more intense droughts in California.

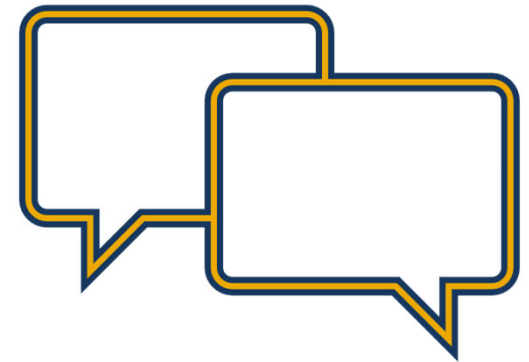


SB 606 and AB 1668 affect water conservation and drought planning for urban water suppliers, among other sector water suppliers.

State regulatory agencies are conducting **research** to estimate the **water demand of urban tree canopy** and assess the **risks to urban trees** from this legislation.

# LET'S ENGAGE ABOUT WATER

1. What is your biggest concern about water?
2. How did the most recent drought impact you?
3. How did you prioritize your outdoor water use?
4. With its limited water sources, how would you like the City to prioritize water on City-managed properties?



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# 2018 CALIFORNIA CLIMATE ASSESSMENT HIGHLIGHTS

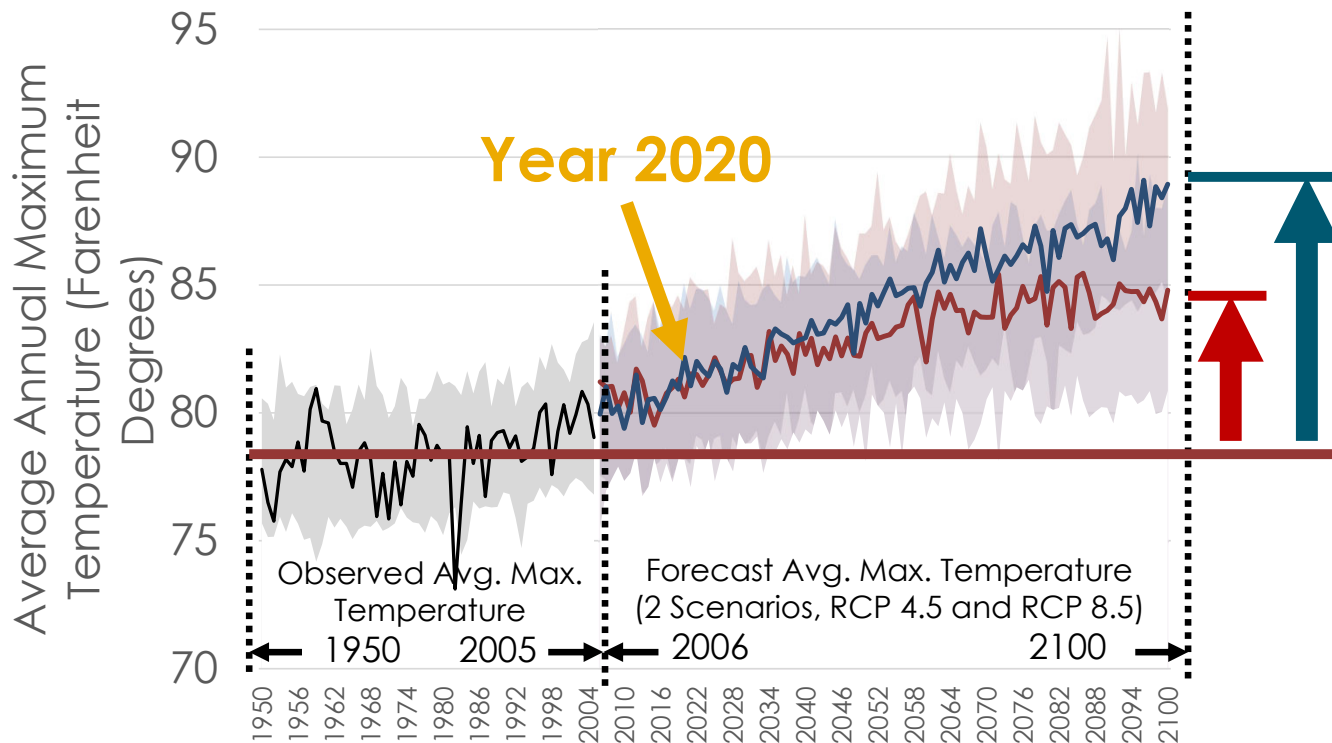
for the Los Angeles Region (including Riverside)

- 1 Continued future warming over the region.
- 2 Extreme temperatures are expected to increase.
- 3 Despite small changes in average precipitation, dry and wet extremes are both expected to increase.
- 4 Projections indicate that wildfire may increase over southern California.



# RIVERSIDE AVERAGE ANNUAL MAX TEMP.

Average Annual Maximum Temperature for Riverside, California  
Observed (1950 - 2005) | Average of Modeled ( RCP 4.5 and RCP 8.5 2006-2100)



## By 2100

Average Annual  
Maximum  
Temperature  
Increases  
**5-8°F**

Data Source: California Energy Commission, CalAdapt Data: <https://cal-adapt.org/tools/extreme-heat/>



# INCREASING EXTREMES IN WEATHER

	Average Hottest Day	Number of Days Above 102° F
2005	110° F	15 Days/Year
2100	<b>114°-120° F</b> (+ 4° to 10° F)	<b>60-90</b> Days/Year

Data Source: California Energy Commission, CalAdapt Data: <https://cal-adapt.org/tools/>

## Additionally:

1. Duration and depth of drought;
2. Intensity of extreme precipitation; and
3. More days needing air conditioning and fewer days requiring heat.



# CLIMATE CHANGE = THREAT MULTIPLIER

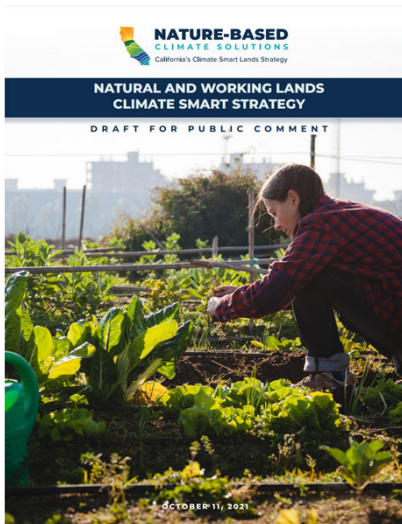


Note: The term, "Threat Multiplier" was coined by the Department of Defense in reference to climate change impacts on U.S. Security.



# 30X30 PLAN – EMBODIED IN 2025 STRATEGIC PLAN

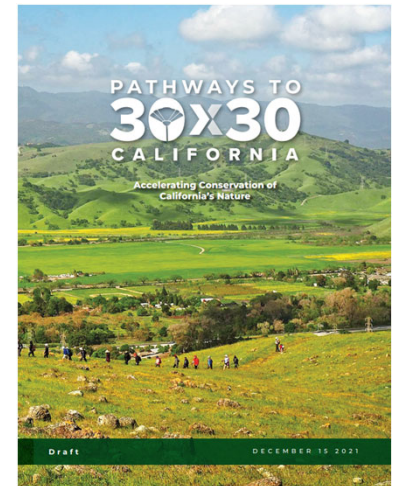
**Environmental Stewardship Goal 4.5.** Maintain and conserve 30% of Riverside's natural lands in green space including, but not limited to, agricultural lands and urban forests in order to protect and restore Riverside's rich biodiversity and accelerate the natural removal of carbon, furthering our community's climate resilience.



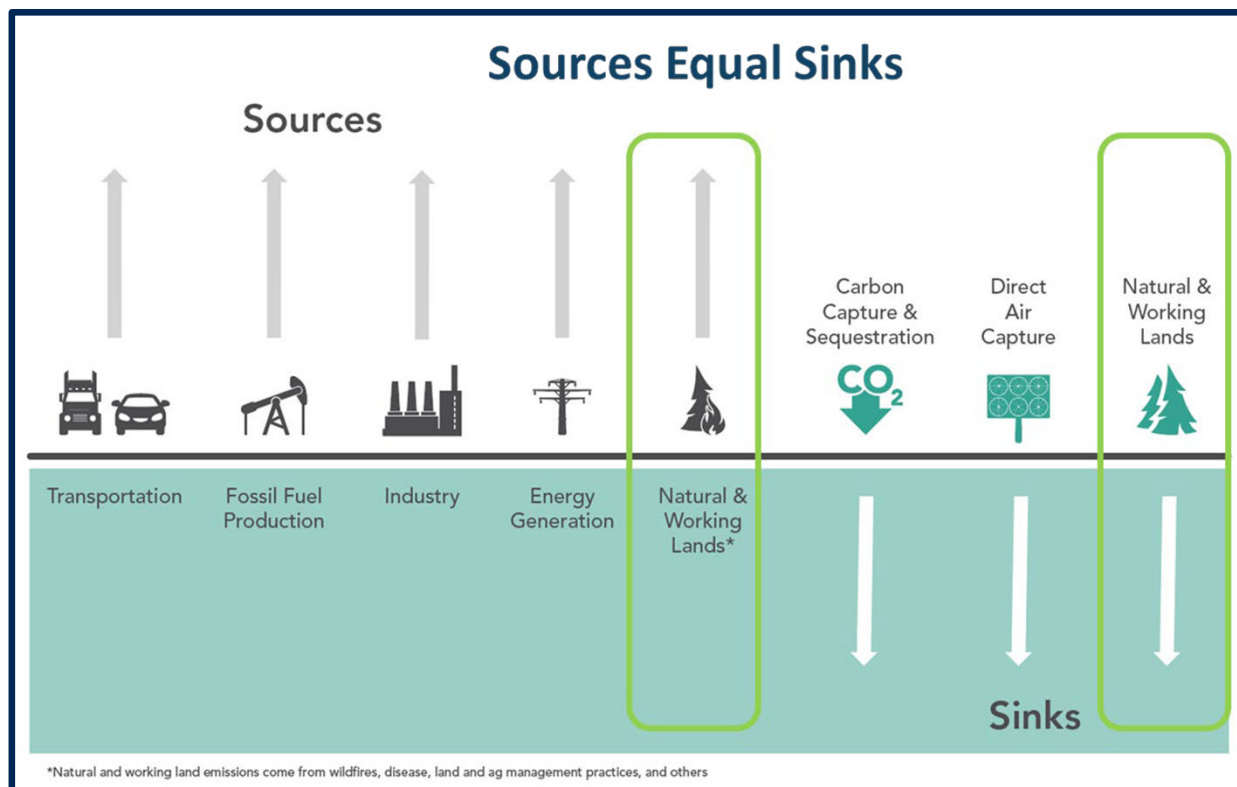
30x30 is part of an **international movement to use conservation of natural areas** to protect biodiversity and combat climate change.

October 2020: Governor Newsom signed Nature Based Solutions Executive Order N-82-20

**Elevated the role of natural and working lands in the fight against climate change & advancing biodiversity conservation**



# CARB SCOPING PLAN: NATURAL & WORKING LAND SOLUTIONS



## Statewide Goal: Carbon-Neutrality by 2045

- Include Natural and Working Lands Emissions Sources and Sinks
- Minimize Emissions from Sources
- Maximize Emissions Sinks

Source: CARB, 2022 Scoping Plan Update Modeling and Scenario Workshop, Natural and Working Lands, December 2, 2021



# LET'S ENGAGE ABOUT CLIMATE

1. Please identify how much you think climate change threatens your personal health, safety, and quality of life?
2. Please select 3 of the most important actions the City can take to address climate change.
  - Support urban forests, open space and agriculture
  - Ensure Riverside's electricity is carbon-neutral
  - Support electric vehicle charging and other zero-carbon fueling (e.g., hydrogen)
  - Make it easier to walk, bike or take transit instead of using a car
  - Require all-electric new buildings
  - Prepare and implement a climate action plan



# NATURAL AND WORKING LANDS – CLIMATE ASSETS



Graphics Source: CARB, 2022 Scoping Plan Update, Kick-Off Focus Area Workshop, Natural and Working Lands, June 9, 2021

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# BENEFITS OF URBAN FORESTRY & URBAN GREENING

“In urban areas, **expanding the tree canopy** by planting trees along streets and walkways and in parks and yards and managing the existing canopy **increases carbon sequestration ... and can help reduce heat island effects, support water infrastructure, filter air, and improve health and well-being.**

**Urban vegetation and soil management also provide important co-benefits such as stormwater management and cooling.”**

*Source: CARB, CA 2030 NWL Climate Change Implementation Plan, January 2019 Draft, page 17*



# BENEFITS & COSTS OF URBAN FORESTS

## Environmental

- Improved air quality
- Carbon sequestration
- Water quality enhancement
- Stormwater capture /reduced runoff
- Urban heat island mitigation
- Shade/energy usage reduction

## Social

- Crime reduction
- Traffic reduction
- Increased public health

## Economic

- Increased property values
- Improved retail business
- Enhanced rental rates
- Infrastructure cost savings

## Costs

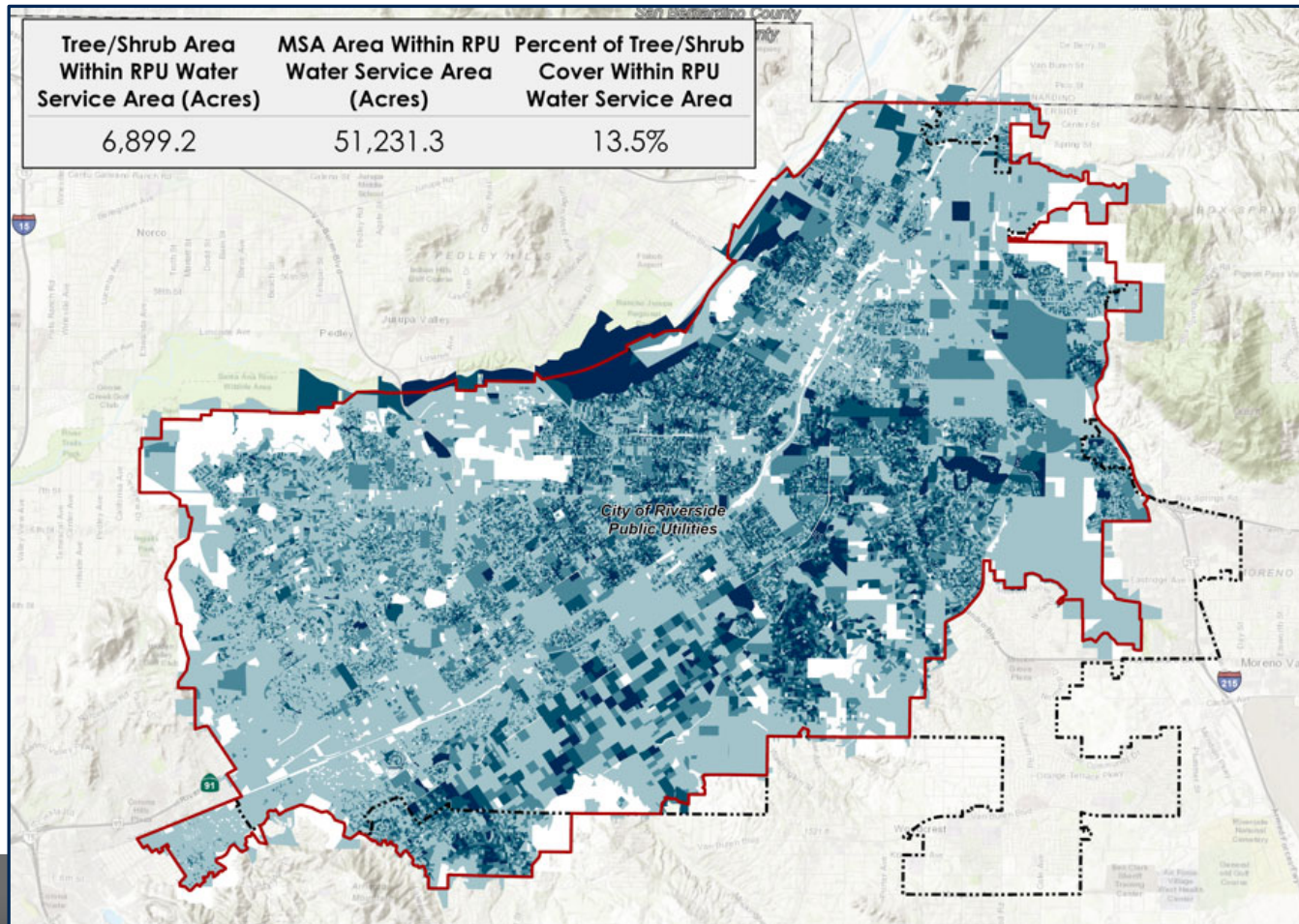
- Planting/Removing
- Maintenance (pruning, mulching, monitoring)
- Watering
- Removing green waste
- Infrastructure damage
- Air Emissions (biogenic VOC)

## Threats

Climate change | Drought | Soil compaction | Disease | Funding



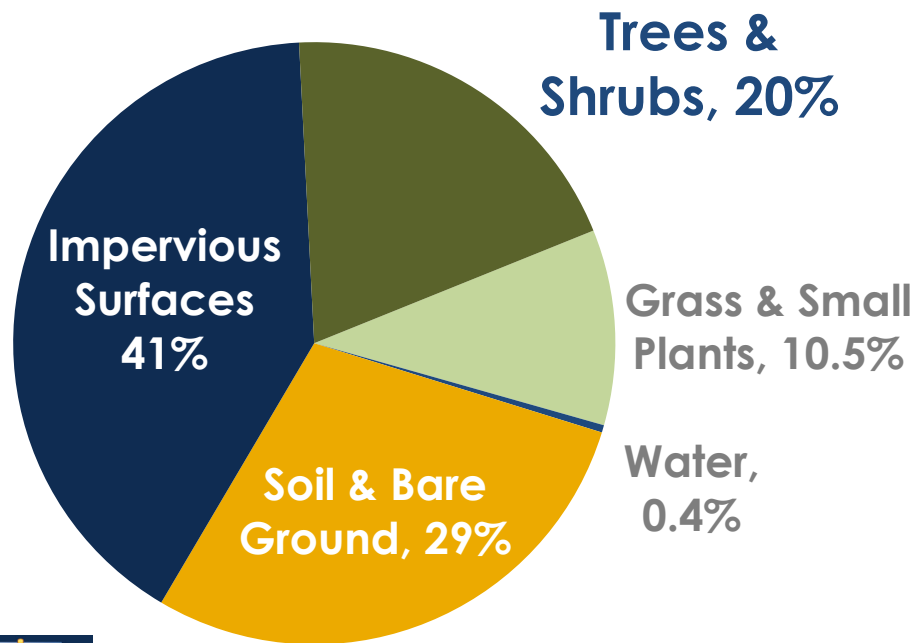
# WHERE ARE RIVERSIDE'S TREES LOCATED?



# I-TREE 7.1 CANOPY RESULTS

## Land Cover in Riverside

1,000 randomly selected points sampled to estimate results



## Value of Trees and Shrubs

### Climate and CO<sub>2</sub>e

<b>62,090</b> MT CO <sub>2</sub> e Stored Annually \$3,183,458*	<b>1,226,580</b> MT CO <sub>2</sub> e Sequestered Overall \$62,890,137*
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\* Using U.S. EPA Social Cost of Carbon at \$51.27/MT CO<sub>2</sub>e

### Air Pollutants

Ozone <b>267 tons</b> \$122,123	PM2.5 <b>2.17 tons</b> \$145,100	PM10 <b>258 tons</b> \$110,433
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# LET'S ENGAGE ABOUT TREES

1. Trees are considered “green infrastructure”. How important are trees compared to other infrastructure in the City?
2. Please select the three most significant threats facing trees in your neighborhood or in the City.
  - Drought
  - Insect pests and disease
  - Development/land use change (e.g., injury or removal during development)
  - Lack of care and/or investment in the urban forest
  - Harsh urban growing environment
  - Incorrect pruning practices
  - Vandalism
  - Lack of planting
  - Trees do not face any threats





## EXISTING POLICIES AFFECTING WATER AND CLIMATE ASSETS

- "Making Conservation a CA Way of Life" regulations
- Urban Water Management Plan (Last Update, June 2021)
- Parks Master Plan
- Urban Forestry Policy (Update Underway)
- Street Tree Maintenance Plan (Update Underway)
- Water Conservation Ordinance (Last update 2021)
- Water Shortage Contingency Plan (Last update 2021)
- Climate Action Plan (Planned for 2022-2025)
- General Plan (Update Planned for 2022-2025)
- Victoria Avenue Policy





# CLOSING QUESTION

What are the top three actions the City can take to support the City's Urban Forest, recognizing that many of these may require more funding?

- Develop a City heritage tree program
- Allow residents to plant and care for trees in the public right-of-way
- Provide sufficient City urban forest management staff and budget
- Enhance the standard of care and monitoring for City trees
- Provide more tree care and watering education and outreach
- Provide incentives to encourage tree planting
- Support water for trees during drought
- New fees, fines, or taxes to fund tree management
- Develop and implement a Citywide Urban Forestry Management Plan
- The City does not need to do anything else for the urban forest and trees



# SURVEY RESULTS



# NEXT STEPS

- Incorporate community input and finalize project report
- Present report to Board of Public Utilities and City Council in March
  - Receive direction regarding future steps beyond this effort

Visit [RiversideCA.gov/Media](https://RiversideCA.gov/Media) | Search **Urban Forest, Water and Climate Project** for future updates



# CONTACT INFORMATION



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## Project Team

Office of Sustainability and RPU

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# THANK YOU!



## Questions?

