

# PARTNERS IN COMMUNITY FORESTRY

2024 CONFERENCE



# Planning an Equitable Urban Forest



PUBLIC EXCHANGE™

USC Dornsife  
*Spatial Sciences Institute*

USC School  
of Architecture

PRESENTED BY:

**Clarissa Boyajian**

Urban Forest and Data Technical Lead  
Office of Forest Management  
Board of Public Works | City of Los Angeles

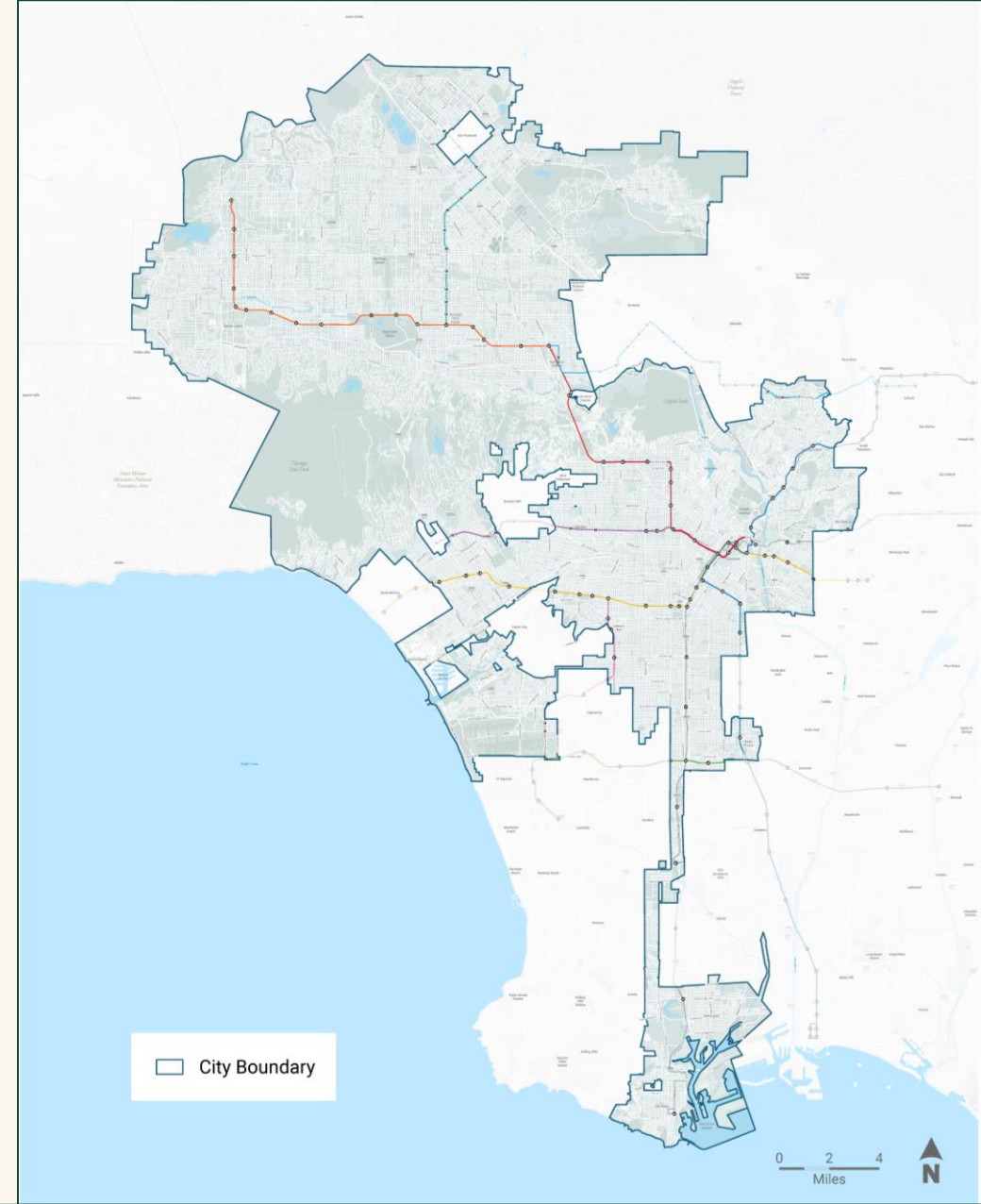
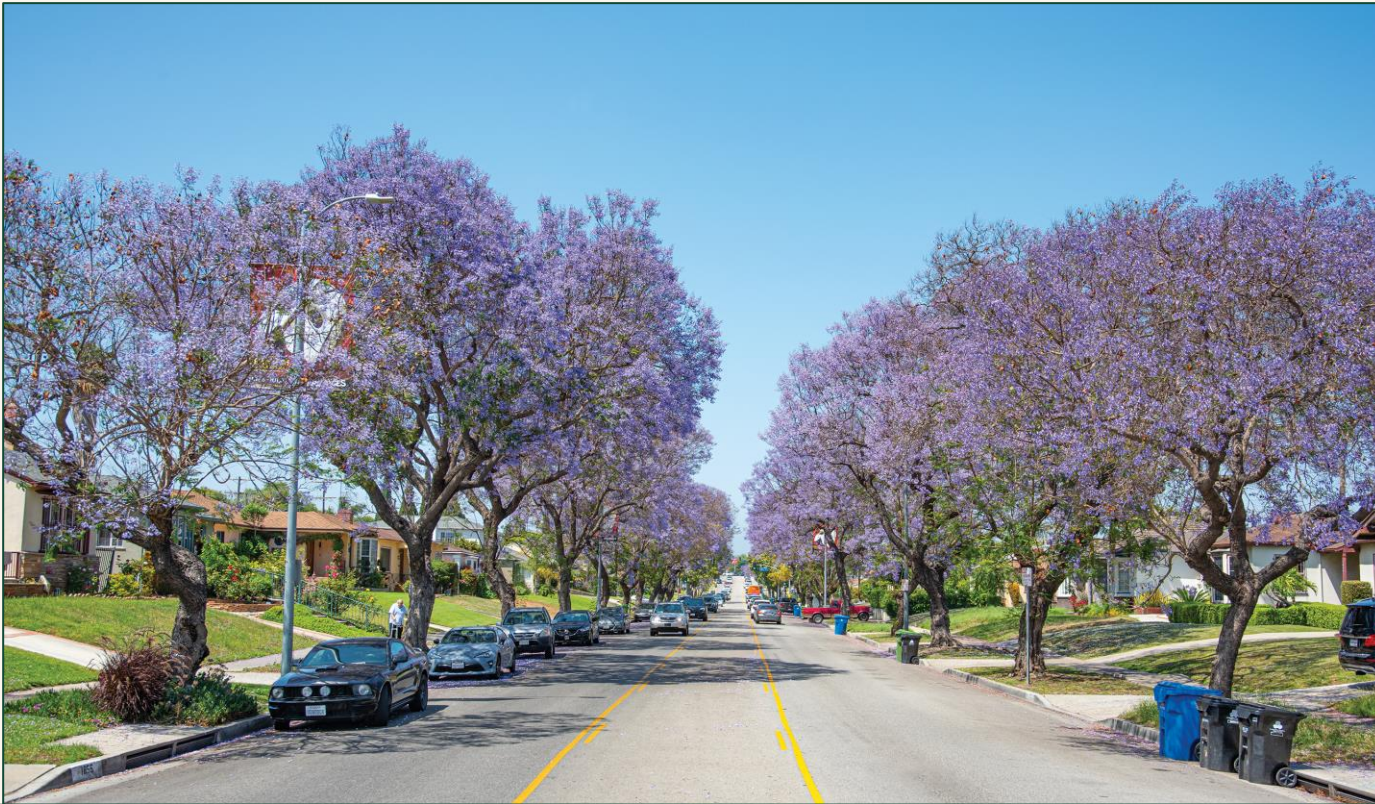
**Esther Margulies**

Professor of Practice  
Co – PI USC Urban Trees Initiative  
University of Southern California





# City of Los Angeles is Large Partnership is Key





**ARLA**



# Partnership is Key

- Many partner types:
  - **Government** (federal/state/county/city)
  - **Nonprofit organizations**
  - **Universities**
  - **Private sector**
  - **Inter-City coordination**
- All partners engaging in:
  - **Collaboration**
  - **Strategic and thoughtful community engagement**
- Canopy equity research:
  - **Urban Forest Equity Collective (UFEC)**
  - **USC Trees Initiative**





**ARLA**

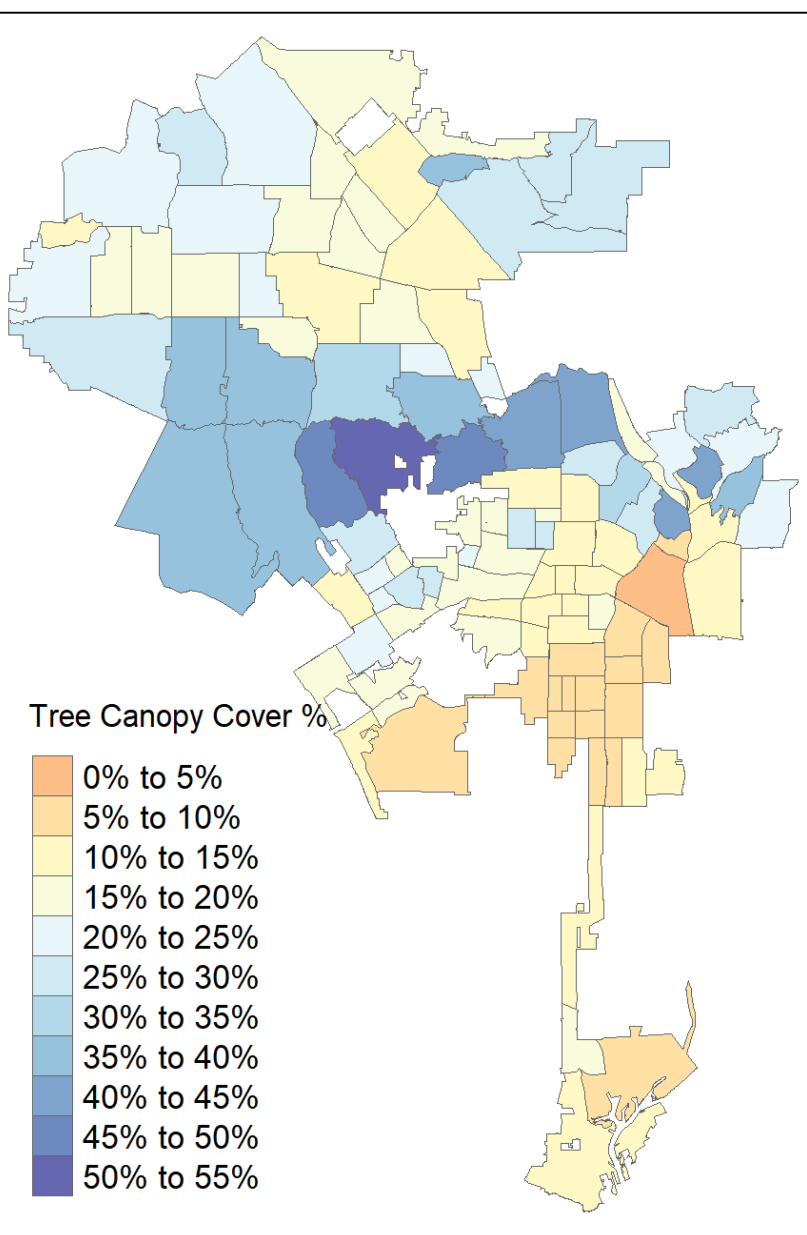


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# UFEC Research

- Types of Equity:
  - **Distributional**
  - **Recognitional**
  - **Procedural**
- Planting Tier Framework:
  - **Tier 1:** open planting locations
  - **Tier 2:** create new locations (ex: de-paving/stump grinding)
  - **Tier 3:** built environment redesign
- Spatial Analysis:
  - **Do we have enough planting locations to reach canopy goals?**
    - Street tree Tier 1 locations (1%)
    - Private property open yard locations (99%)





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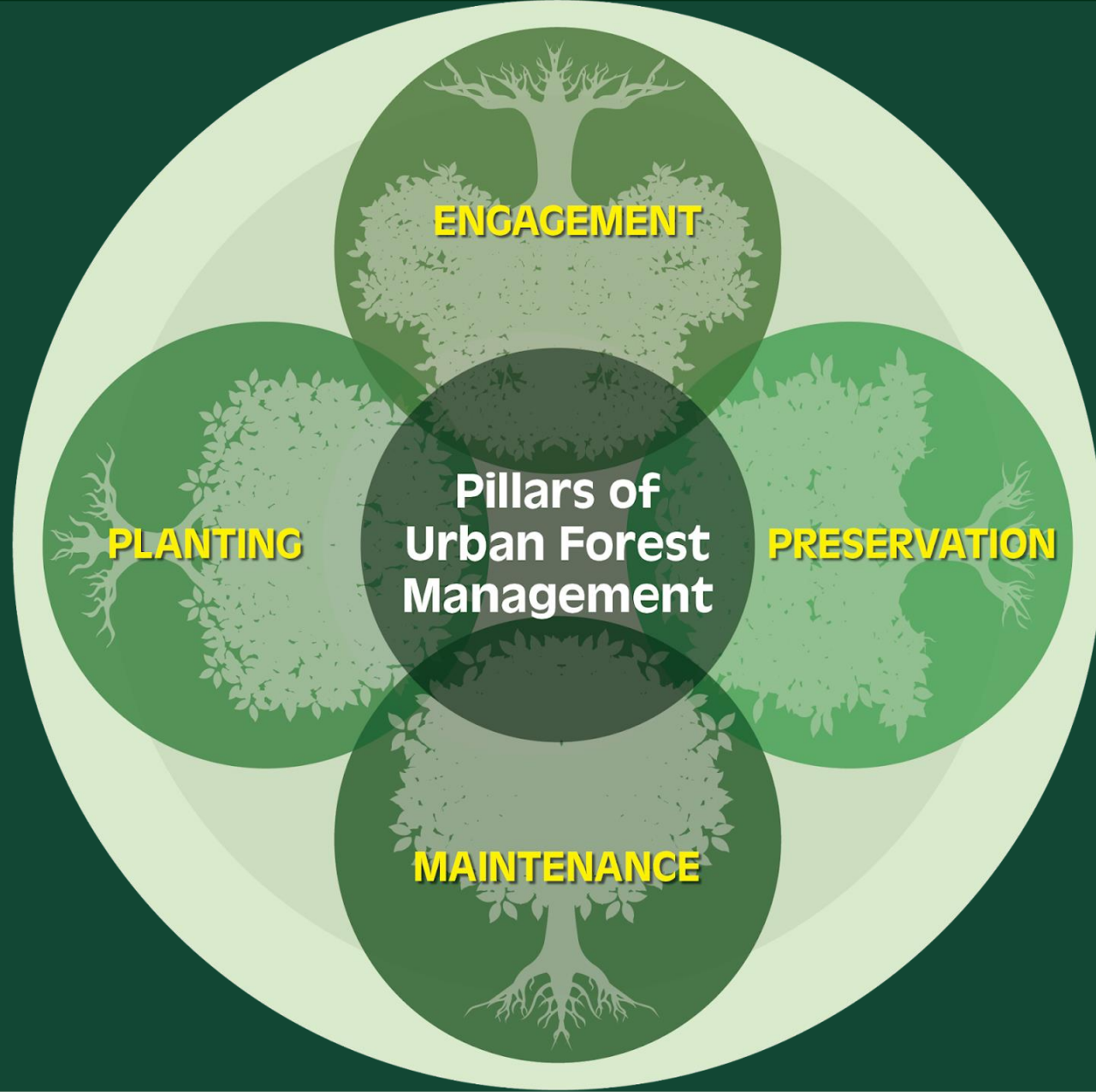




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## What's Next?

- Adopt the City's first Urban Forest Management Plan
  - **All types of equity included**
  - **Create neighborhood level canopy expansion plans**
- Shift thinking
  - **Trees are public infrastructure**
  - **Canopy expansion, not tree planting number**
- Continue exploring complexity and “how”



## The USC Team

Spatial Sciences Institute,  
Landscape Architecture and  
Urbanism, Earth Sciences



John Wilson  
USC Spatial Sciences  
Institute



Esther Margulies  
USC School of  
Architecture



Will Berelson  
USC Earth Sciences



Beau MacDonald  
USC Spatial Sciences  
Institute



Aviva Wolf-Jacobs  
USC Spatial Sciences  
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Community  
Partnerships



David Galaviz  
USC University  
Relations



Dulce Acosta  
USC University  
Relations



Melinda Ramos-Alatorre  
USC University  
Relations



Coleman Reardon  
USC University  
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Steve Wesson  
USC University  
Relations

Public  
Exchange



Kate Weber  
USC Dornsife Public  
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Marianna Babbani  
USC Dornsife Public  
Exchange



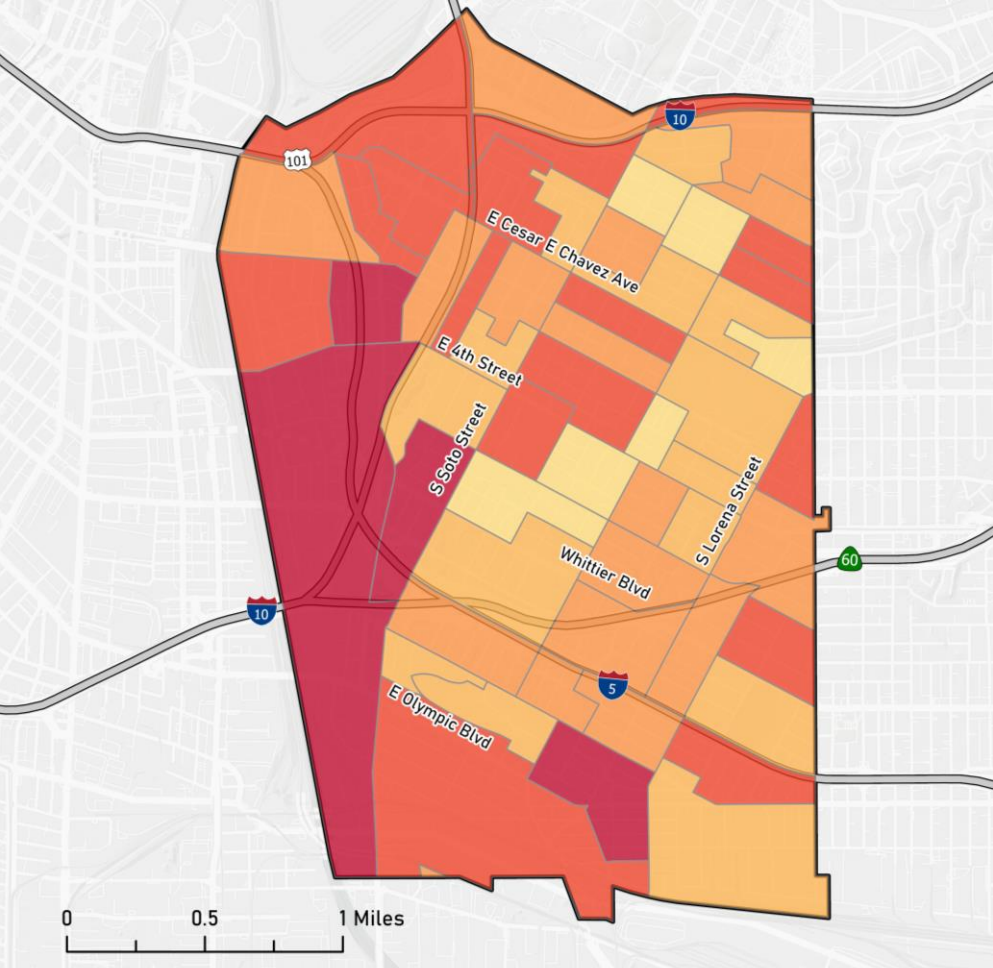
Rachel Wald  
USC Dornsife Public  
Exchange

# USC Public Exchange Team

- USC Dornsife Spatial Sciences Institute
- USC Earth Sciences
- USC School of Architecture
- USC Community Relations
- USC Dornsife Public Exchange

Public Exchange connects a wide range of academic researchers with policy, industry, and non-profit partners that need their expertise to tackle complex challenges. Our team of project managers and innovators build projects with a laser-focus on impact. By making academic expertise more easily accessible than ever before, applying rigorous research, and delivering actionable tools to address the world's most intractable issues, our projects maximize impact.

As a first-of-its-kind program based at the USC Dornsife College of Letters, Arts and Sciences, founded by former Dean Amber Miller, Public Exchange connects partners with the right team of USC researchers, defines a scope and timeline, and provides project management from start to finish. Our model provides Public Exchange partners with the data, analysis and evidence-based recommendations they need to solve big challenges.



# Equity Based Strategy

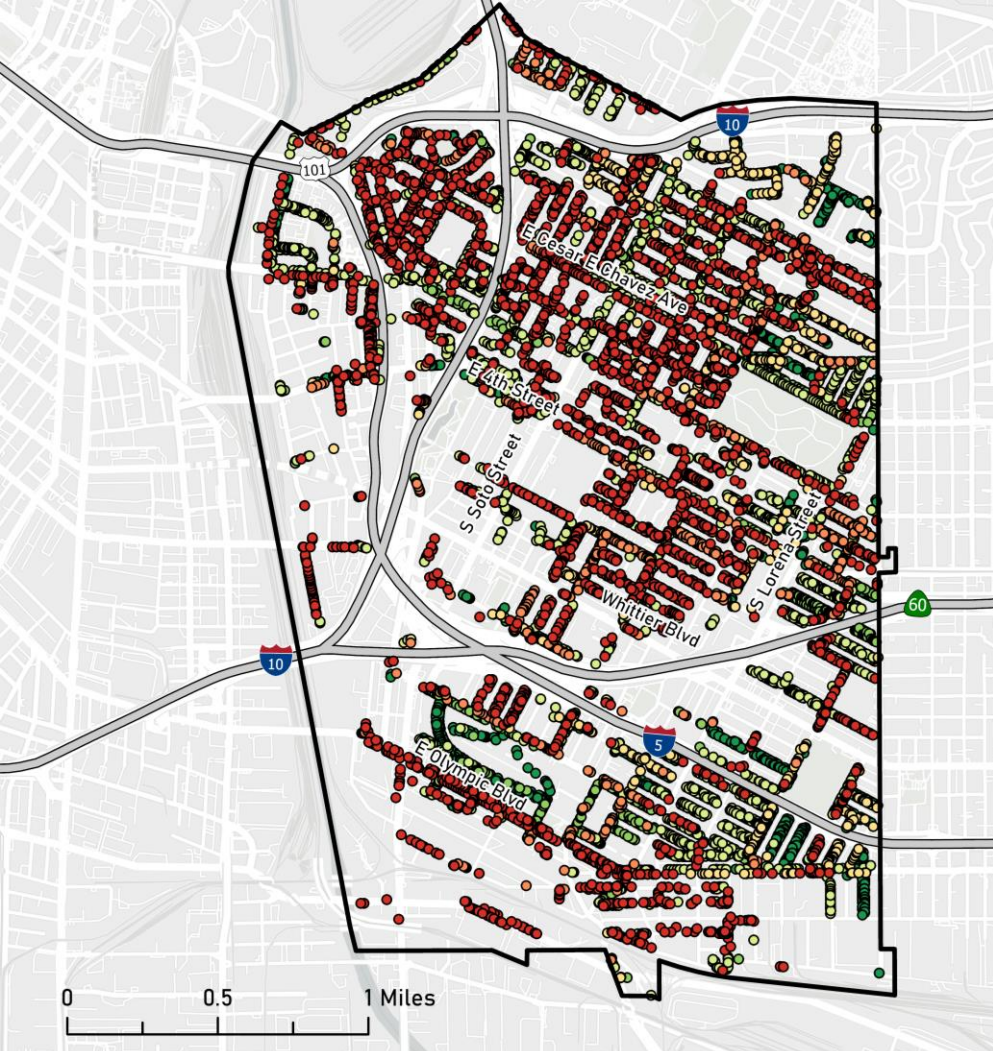
- Boyle Heights is one of the earliest suburbs of downtown Los Angeles settled in the mid 19<sup>th</sup> Century it has been home to many different ethnicities and cultural groups over time.
- Identify geographic areas with populations most vulnerable to extreme heat and the least resources to avoid health impacts.

Criteria met: Criteria:

<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #800000; margin-right: 5px;"></span> 5</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FF4500; margin-right: 5px;"></span> 4</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FF8C00; margin-right: 5px;"></span> 3</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; margin-right: 5px;"></span> 2</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; margin-right: 5px;"></span> 1</li> </ul>	<ul style="list-style-type: none"> <li>High % persons &lt; 15 and &gt; 65 years of age</li> <li>High % persons commute by bus or walking</li> <li>High % households with income below federal poverty level</li> <li>Low tree canopy density (LMU/CURes)</li> <li>High PM2.5 fine particulate matter score (Cal EnviroScreen 4.0)</li> <li>High urban heat island effects index (Cal-EPA UHII)</li> </ul>
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Top quartile, urban census block groups across Los Angeles County





Parkway width and presence of overhead utilities with City of Los Angeles street tree inventory data

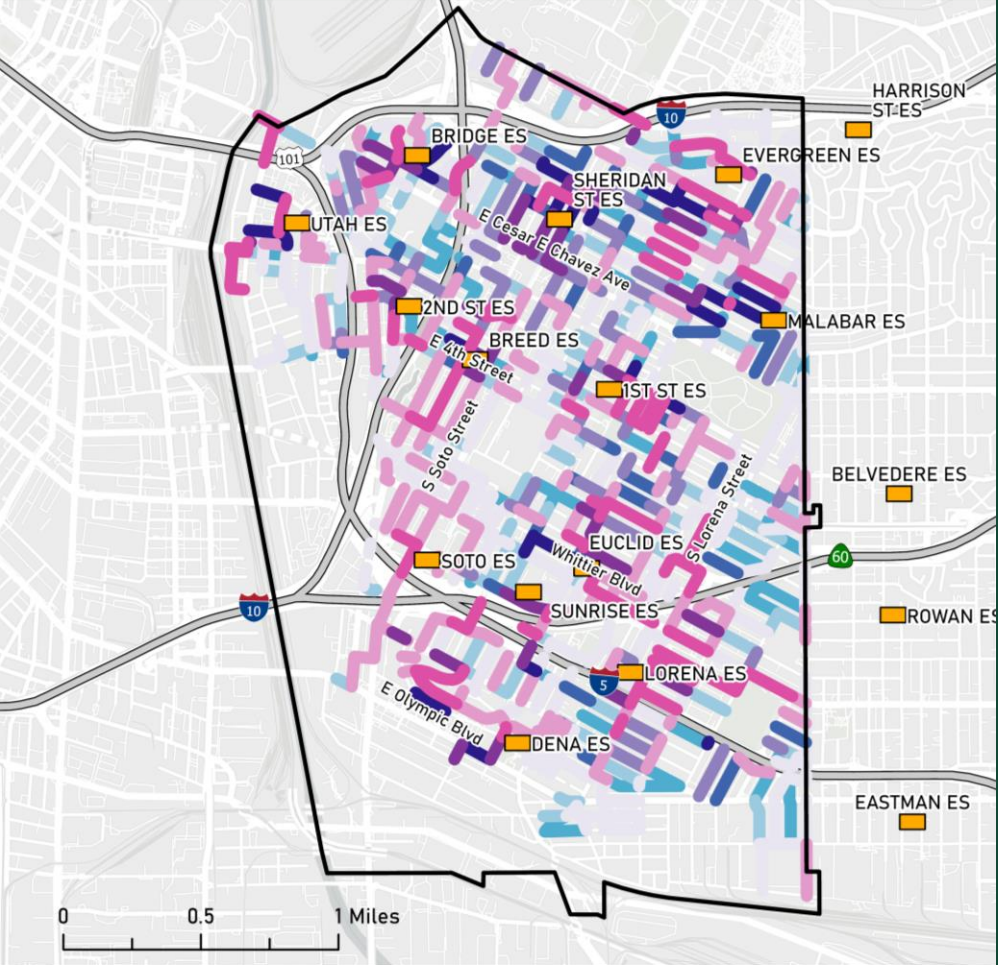
- |                         |                          |
|-------------------------|--------------------------|
| ● 7+ ft, No Utilities   | ● 7+ ft, Yes Utilities   |
| ● 5-6 ft, No Utilities  | ● 5-6 ft, Yes Utilities  |
| ● <3-4 ft, No Utilities | ● <3-4 ft, Yes Utilities |

# Equity Based Strategy

- City of Los Angeles Inventory data provides information on tree species and dbh, size of planting area and presence or absence of overhead utilities.
- Every planting location is evaluated to assess suitability for planting small, medium or large trees.

# Tools to Predict Walking Routes to Elementary Schools

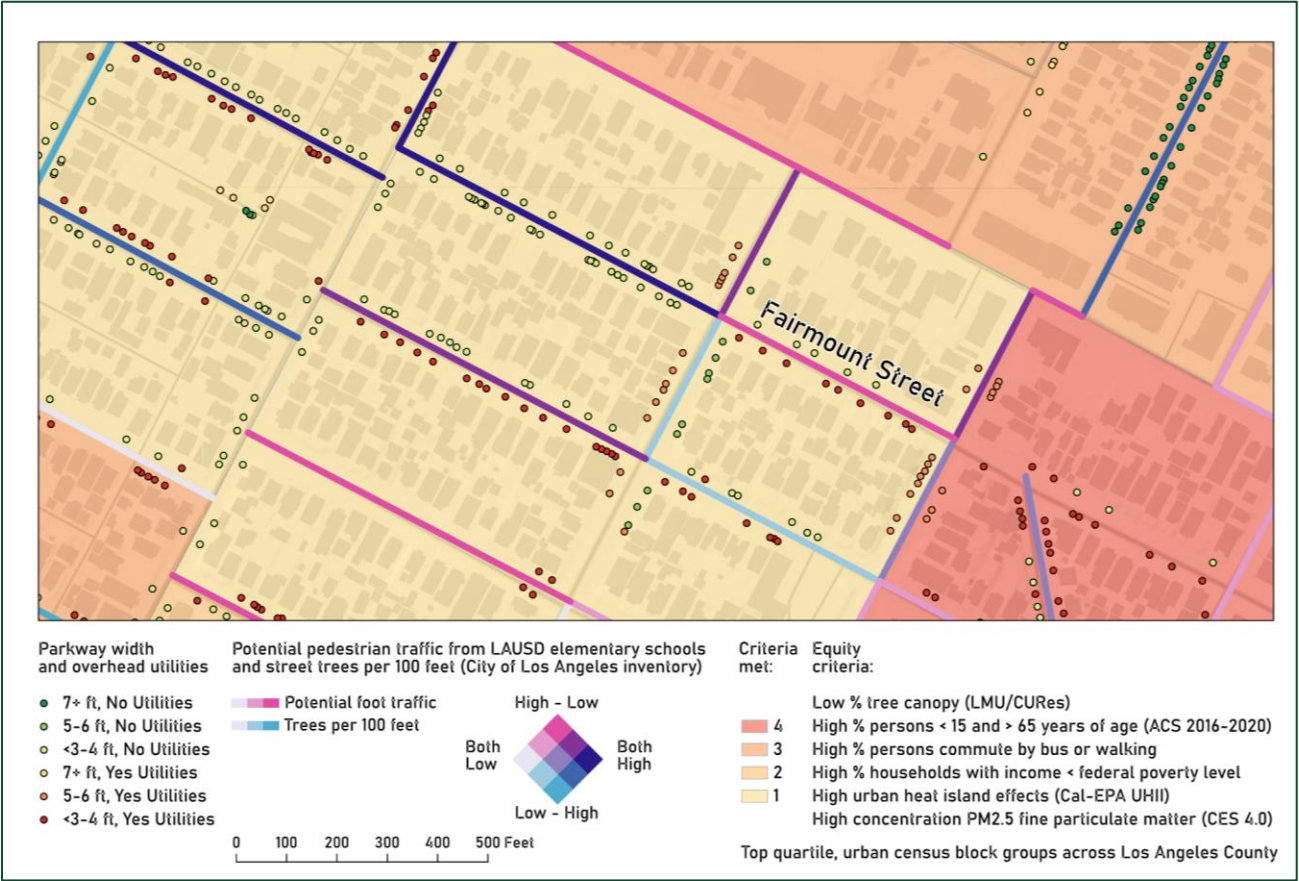
- USC Spatial Sciences faculty and student researchers are documenting geospatial methods and exploring new data sources to create Python Notebooks for routes estimated to have the highest levels of pedestrian traffic that include routes to schools and transit.
- The goal is to develop repeatable methods which could be deployed by urban forestry and planning practitioners across urban areas with similar data in the U.S. to identify priority planting streets.





# Walking Routes to Elementary School

- The anticipated routes are reviewed and streets in high equity scoring areas with the highest predicted foot traffic and lowest canopy cover are investigated for potential tree planting.





# Analysis of Existing Conditions

- Existing canopy including street trees and trees on private property are mapped.
- Site visits are conducted to verify site conditions.

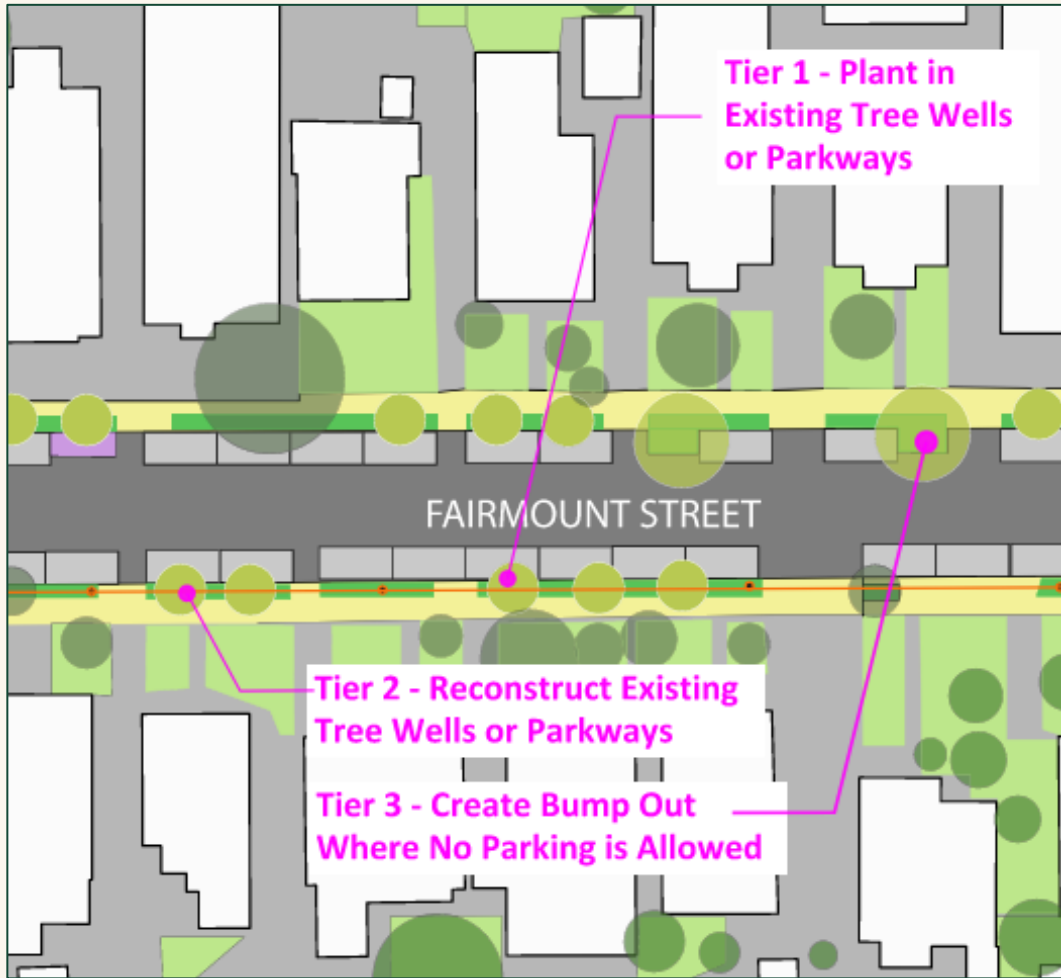






# Exploring Opportunities

- The categorization of the tree planting sites from the inventory informs the width of the tree planting areas whether they are individual tree wells or parkways.
- Opportunity sites from the GIS analysis identified locations of vacant tree wells and former planting sites.
- Locations of existing surface constraints such as driveways, street lights, signal boxes, water meters and required setbacks were identified to establish potential tree planting sites.
- On street parking locations were identified from aerial photography and site observations.
- General opportunities were identified for tree replacement and recovery of former tree planting locations.



# Exploring Opportunities

- Utilizing the UFEC three tier system street tree planting opportunities are classified
  - Tier 1 – Existing tree planting locations
  - Tier 2 – Locations require paving removal
  - Tier 3 – Potential locations that require substantial infrastructure work or changes in codes or implementation of regulations
    - **Bump Outs**
    - **Curb Extensions**
    - **Reduced Setbacks**
    - **Establishing Legal Parking Areas**
    - **Consolidating Water Meters**



# Exploring Opportunities

- **Considerations and Questions**

- Bump Outs
  - Stormwater Management
  - Street Sweeping
- Pedestrian and Vehicle Safety
  - Sight Lines
  - Are Trees More Hazardous Than Signal Boxes, Parked Cars or other visual obstructions in the same area?
  - What is the evidence of trees as risk factors in visibility with reasonable setbacks?



- **Urban Forest Equity Collective**  
[www.cityplants.org/urban-forest-equity-collective](http://www.cityplants.org/urban-forest-equity-collective)
- **USC Trees Initiative**  
[publicexchange.usc.edu/urban-trees-initiative](http://publicexchange.usc.edu/urban-trees-initiative)

# Thank you.

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**Esther Margulies – [emarguli@usc.edu](mailto:emarguli@usc.edu)**



# CEUs

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Post conference, you can submit all Your CEU codes within the Conference app.

Sign-in sheets for Society of American Foresters (SAF) CFE credits are available at the registration desk post conference.

## Planning an Equitable Urban Forest

Speakers:

Clarissa Boyajian & Esther Marguiles



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