Denver’s Urban Forest

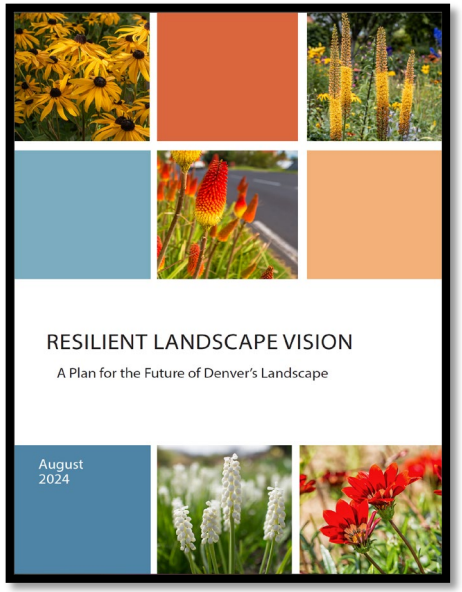
Presented to City Council's BIZ Committee

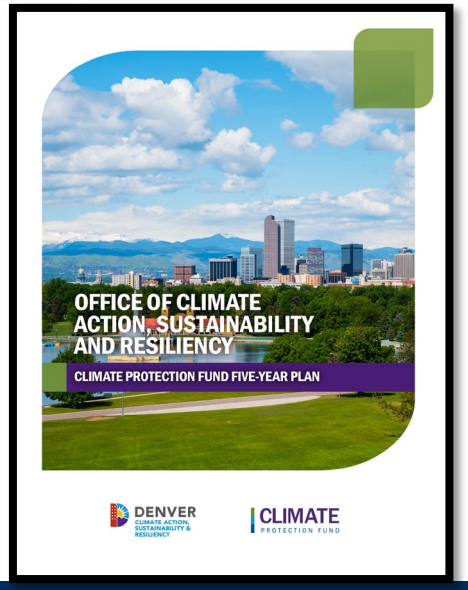
by: Denver Parks and Recreation,
Office of Climate Action, Sustainability & Resiliency, and
Department of Transportation and Infrastructure

December 4, 2024

Agenda:

- Overview of the Urban Forest
- Goals and Roles
- Projects & Looking to the Future
  - ❑ Denver Parks and Recreation - Forestry (DPR)
  - ❑ Climate Action, Sustainability & Resiliency (CASR)
  - ❑ Department of Transportation and Infrastructure (DOTI); Division of Green Infrastructure (DGI)

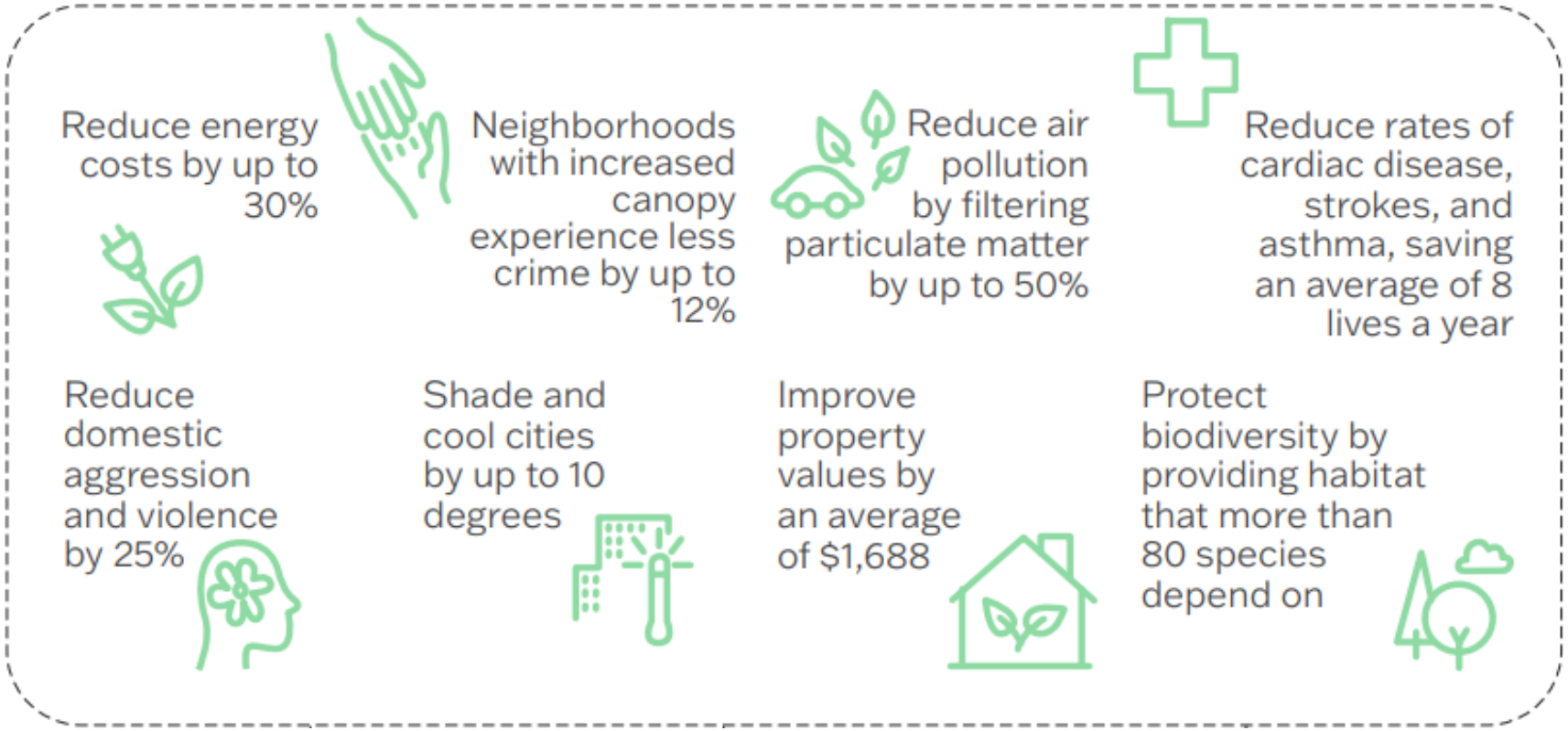




Denver Parks and Recreation

Elizabeth Judd, Urban Forestry Planner

Benefits of Urban Trees



"Denver's urban forest serves as **critical infrastructure** for the city's social, economic, and environmental health, and all current and future Denver residents, employees, and visitors will live, work, and play beneath a robust and resilient urban tree canopy."

Tree Canopy

Total Canopy: 15% total
(11% with DIA)

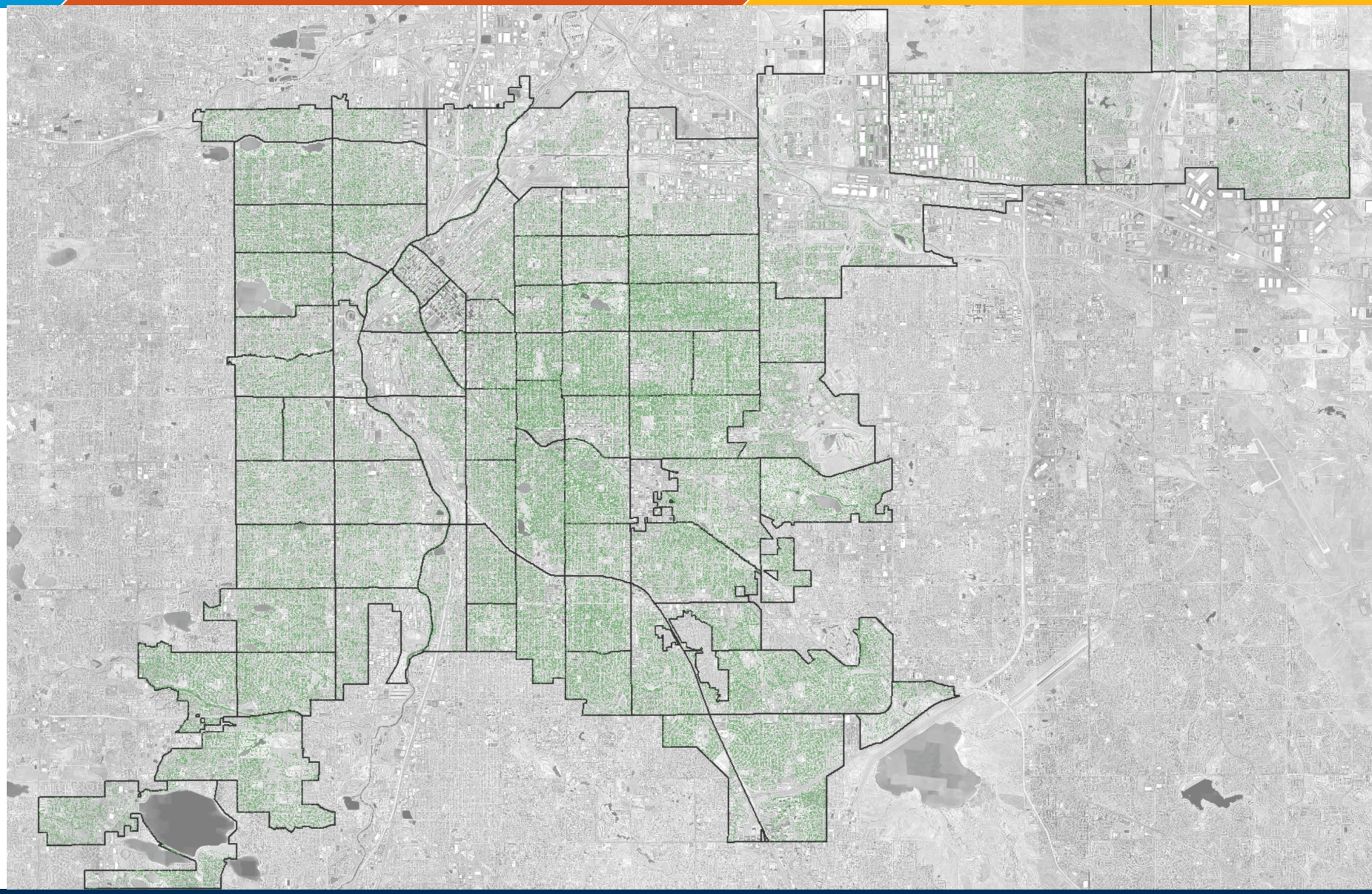
Public Trees: 315,000
Estimated Citywide: 2.2 Mil

<u>Resources:</u>

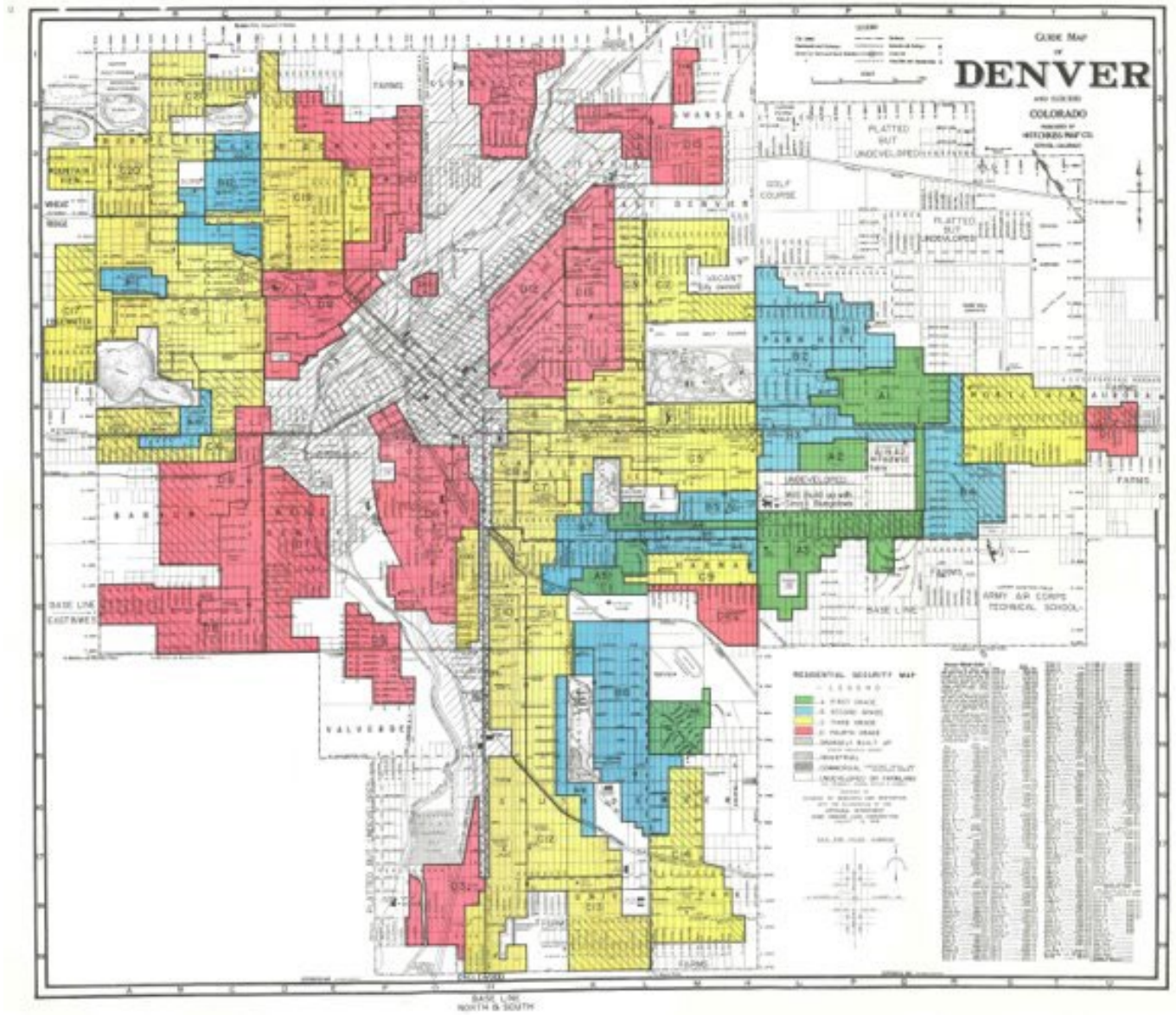
Annual Reports

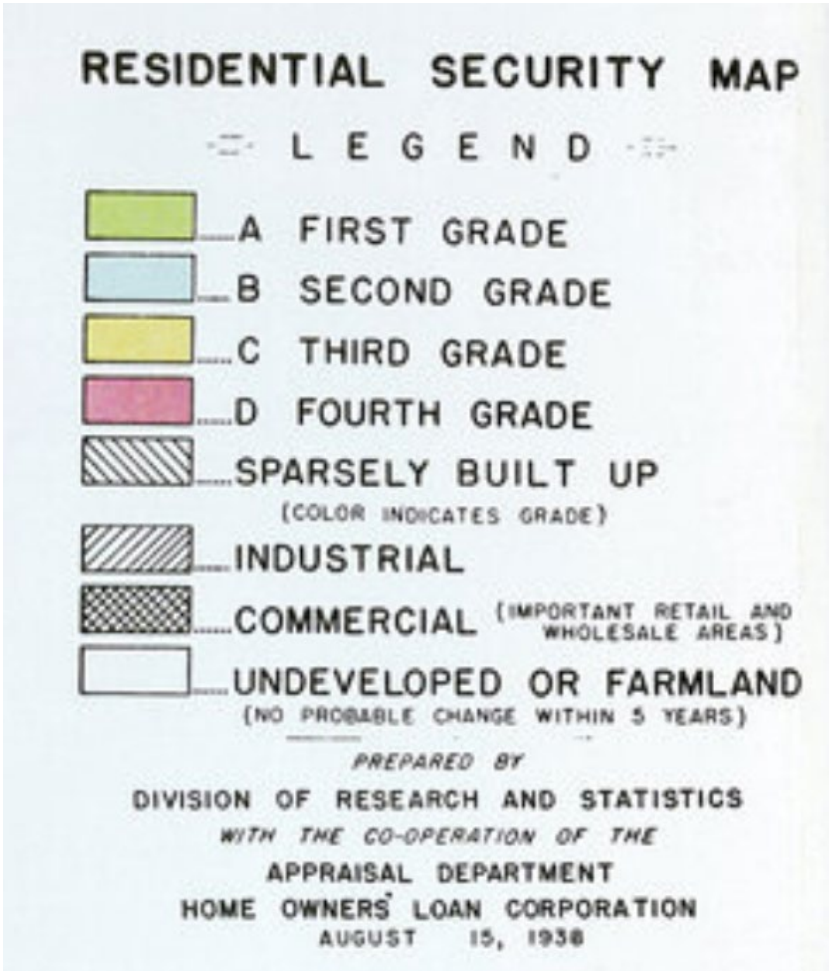
TreeKeeper

Open Data



Denver Equity & Canopy

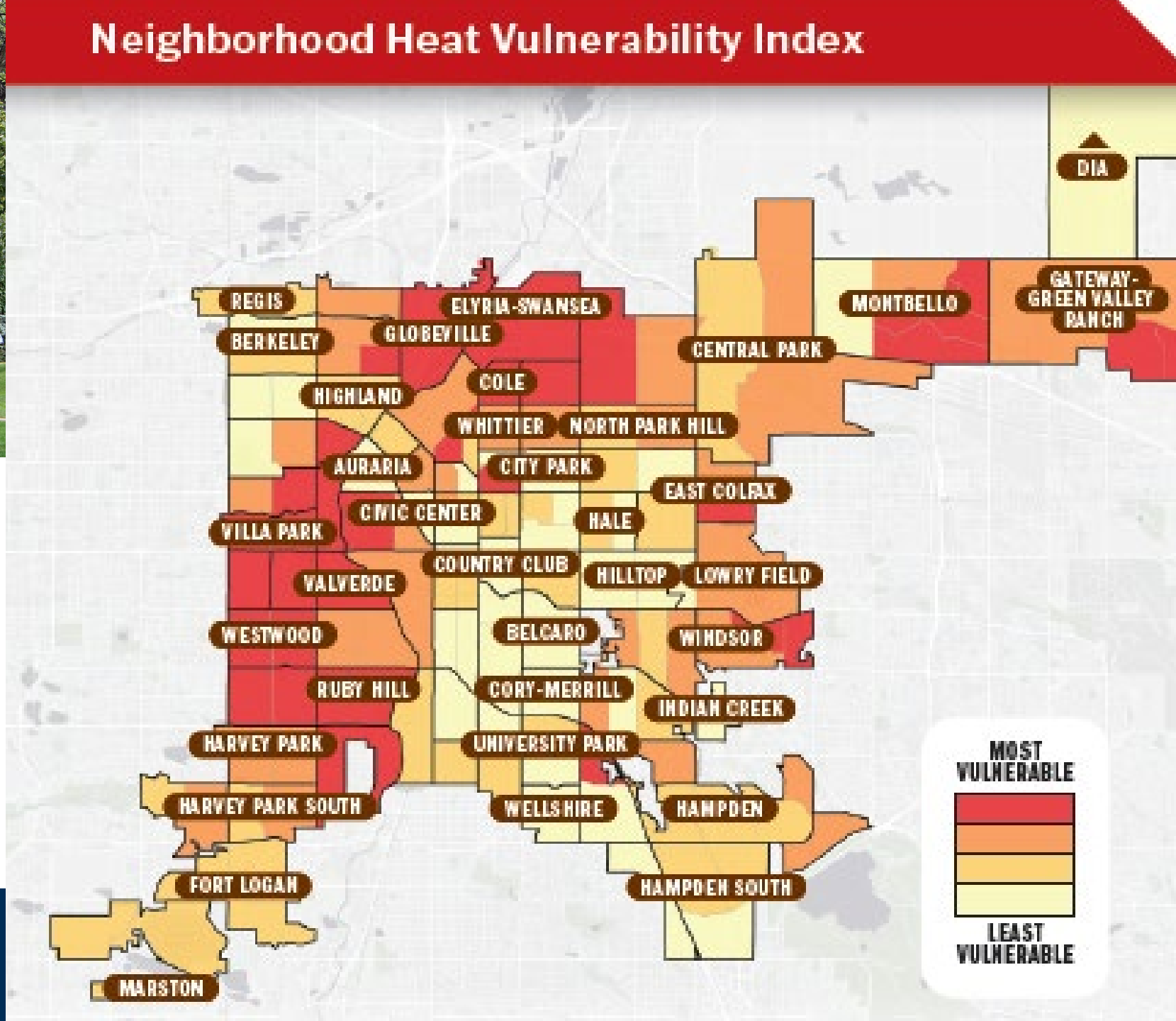




East 6th Avenue Parkway

Some neighborhoods are more vulnerable to heat based on:

- Socioeconomics
- Health
- Environmental conditions



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Denver's Goals

- Increase Canopy Citywide
- Promote and Invest in the Community Stewardship of the Urban Forest
- Recalibrate Denver's Urban Forestry Practices

Our Roles

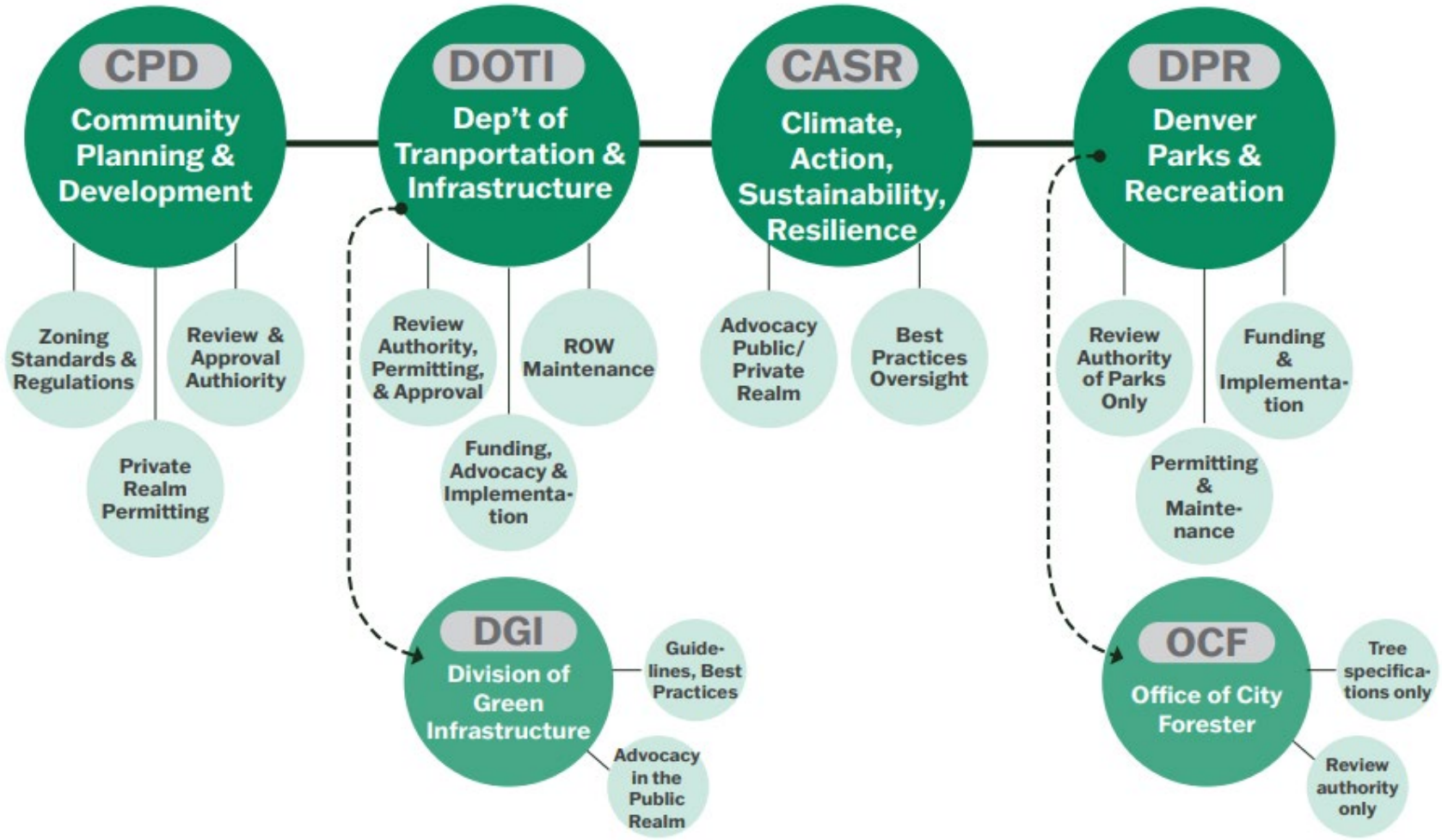

Figure 13: Existing City and County of Denver Organizational Relationships

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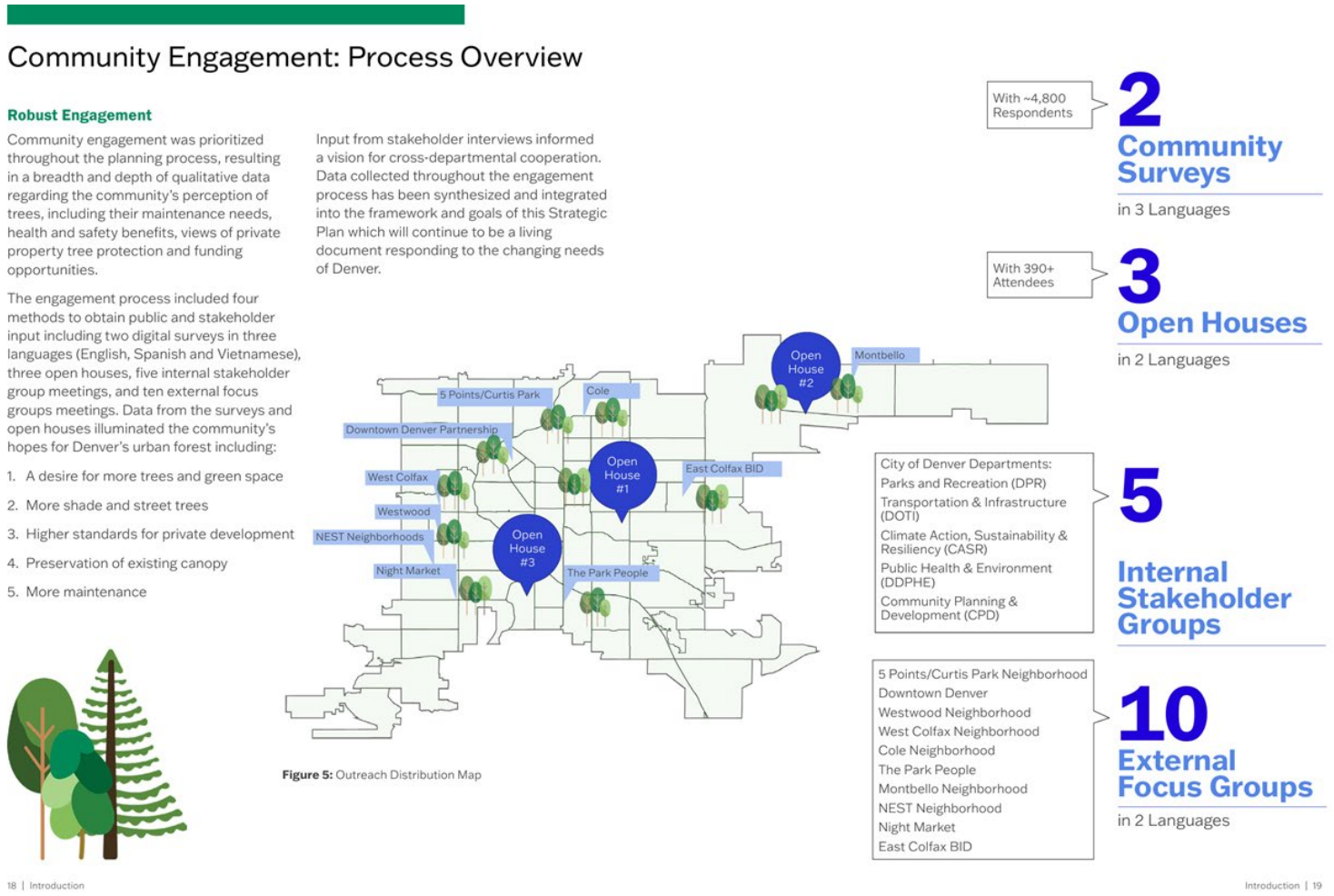
Urban Forest Strategic Plan

Who we heard from:

- Steering Committee (4)
- Surveys (2) + Full Draft Public Comment
- Focus Groups (10)
- Open House (3 - 390)
- Internal Stakeholder Interviews (5)
- Technical Advisory Committee (11)
- Internal meetings (PMT, MDAT, ELT)



Community Engagement: Process Overview

Robust Engagement

Community engagement was prioritized throughout the planning process, resulting in a breadth and depth of qualitative data regarding the community's perception of trees, including their maintenance needs, health and safety benefits, views of private property tree protection and funding opportunities.

The engagement process included four methods to obtain public and stakeholder input including two digital surveys in three languages (English, Spanish and Vietnamese), three open houses, five internal stakeholder group meetings, and ten external focus groups meetings. Data from the surveys and open houses illuminated the community's hopes for Denver's urban forest including:

1. A desire for more trees and green space
2. More shade and street trees
3. Higher standards for private development
4. Preservation of existing canopy
5. More maintenance

Input from stakeholder interviews informed a vision for cross-departmental cooperation. Data collected throughout the engagement process has been synthesized and integrated into the framework and goals of this Strategic Plan which will continue to be a living document responding to the changing needs of Denver.

Figure 5: Outreach Distribution Map

With ~4,800 Respondents

2 Community Surveys in 3 Languages

With 390+ Attendees

3 Open Houses in 2 Languages

City of Denver Departments:
- Parks and Recreation (DPR)
- Transportation & Infrastructure (DOTI)
- Climate Action, Sustainability & Resiliency (CASR)
- Public Health & Environment (DDPHE)
- Community Planning & Development (CPD)

5 Internal Stakeholder Groups

- 5 Points/Curtis Park Neighborhood
- Downtown Denver
- Westwood Neighborhood
- West Colfax Neighborhood
- Cole Neighborhood
- The Park People
- Montbello Neighborhood
- NEST Neighborhood
- Night Market
- East Colfax BID

10 External Focus Groups in 2 Languages

18 | Introduction

Introduction | 19

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Urban Forest Strategic Plan

Urban Forest Priorities Map

This index is a visual representation of the Denver Priority Planting Areas. The represented layers are based off of socioeconomic, built environment, health, and transportation data.

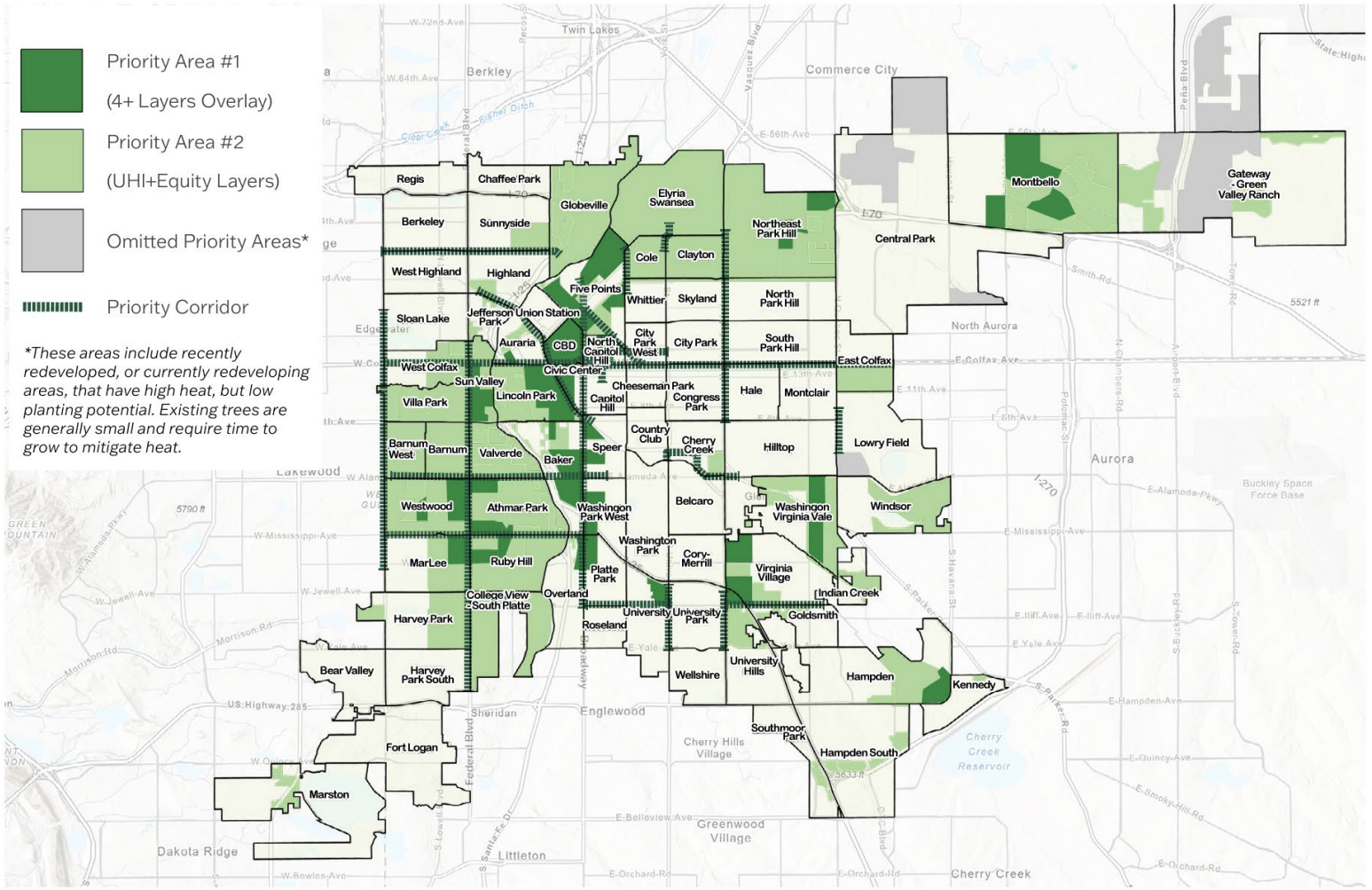

Figure 18: Tree Priority Overlay Network

What determines a priority area?

The Tree Priority Network considers existing factors as well as future networks aligned with other Denver planning documents. The following factors were considered:

- Disadvantaged Communities - Climate and Economic Justice Screening Tool*from geoplatform.gov (Low score)
- Pedestrian Demand Index (High Score)
- Safe Routes to School (High score)
- Tree Canopy (Low Canopy Score)
- Heat Risk Priority Zones from the ParkServe Database (High Score)
- DOTI Sidewalk Priority (Tier 1)
- Blueprint Future Streets: Bike Network Priority (High Score)
- Blueprint Future Streets (Downtown Arterials, Main Street Arterials, Mixed Use Arterials, with high scores)

Highest Priority Areas are regions within the City that had 4+ overlapping factors.

High Priority Streets are networks that had 3+ overlapping factors.

Major corridors that contain multiple intersections are noted as a priority in the entirety of the street in an effort to create more connected networks.

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DPR Forestry Programs & Projects:

- Public safety
- Tree maintenance
- Be A Smart Ash (BASA)
  - ❑ Planting & watering
  - ❑ Ash removal & replacement
  - ❑ Ash treatment
- Education & outreach
- Forestry Neighborhood Initiative (FNI)
- Financial assistance
- Annual Reports – canopy maps
- Urban Forest Strategic Plan (UFSP)

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Office of Climate Action, Sustainability & Resiliency (CASR)

Elisabeth (Lis) Cohen, MS, MPA
Adaptation and Resiliency Manager

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CLIMATE ACTION, SUSTAINABILITY & RESILIENCY

Community tree planting initiative

CASR Programs and Funding Support the Urban Forest Strategic Plan Goals

Goal #1 Increase Canopy Citywide	Goal #2 Promote and Invest in the Community Stewardship of the Urban Forest	Goal #3 Recalibrate Denver's Urban Forest Practices
• Funding equitable private property tree planting and establishment care • Choosing to plant and care for trees in high-heat, low canopy neighborhoods supports	• Funded community education around tree planting and care best practices supports • Private property tree planting and care involves a high level of collaboration and partnership building	• CASR tree planting programs keep current with changing best practices and urban forestry principles

Office of Climate Action, Sustainability & Resiliency

Community Tree Planting Initiative

- Planting trees on Private Property (including schools)
- Planting in low-canopy, high-heat neighborhoods
- Since July 2022, over 1600 trees have been planted and maintained
- Thousands of residents reached through canvassing and educational workshops

Community Tree Planting Initiative Plantings by Neighborhood and Council District

City Council District 3	Total Trees Planted (2022-2024)	Total Homes Canvassed	Total Community Connector Hours
Barnum/Barnum West	439	8396	290
Villa Park	268	11,000	214
Valverde	215	3340	84
West Colfax	139	8390	290

Council District 1	Total Trees Planted (2022-2024)	Total Household and School Engagement	Replacement Trees Planted
Sunnyside	131	66	2
Chaffee Park	151	51 (1 DPS School)	7
Highland	106	46 (2 DPS Schools)	4

Council District 9	Total Trees Planted (2022-2024)	Total Household and School Engagement	Replacement Trees Planted
Globeville	154	78 (1 DPS School)	8
Elyria/Swansea	187	89 (1 DPS School)	4

Office of Climate Action, Sustainability & Resiliency

Developing our Workforce

- Newly hired CASR Natural Resource Workforce Liaison
- CASR funding supports Tree Force – pre-apprenticeship program

- Natural Resource Management Workforce Ecosystem Analysis
  - Purpose: Explain the workforce ecosystem, specific jobs, and job growth in each industry including barriers and gaps in workforce pathways, and career advancement opportunities.
  - Analysis work to kick off in early 2025

Office of Climate Action, Sustainability & Resiliency

Future Urban Forestry Work

Inflation Reduction Act (IRA) Urban Community Forestry $5 million grant:

- Planting 3000 trees on private property over 5 years
- Engaging and planting at 10 heat-vulnerable DPS schools
- Three-year establishment care and free replacement
- Coordinating closely with DPR (Forestry) for tree care and planting

Heat Summit and Urban Forestry:

- Community solutions included
  - Tree Preservation, Maintenance, Hazardous Removal

Department of Transportation and Infrastructure

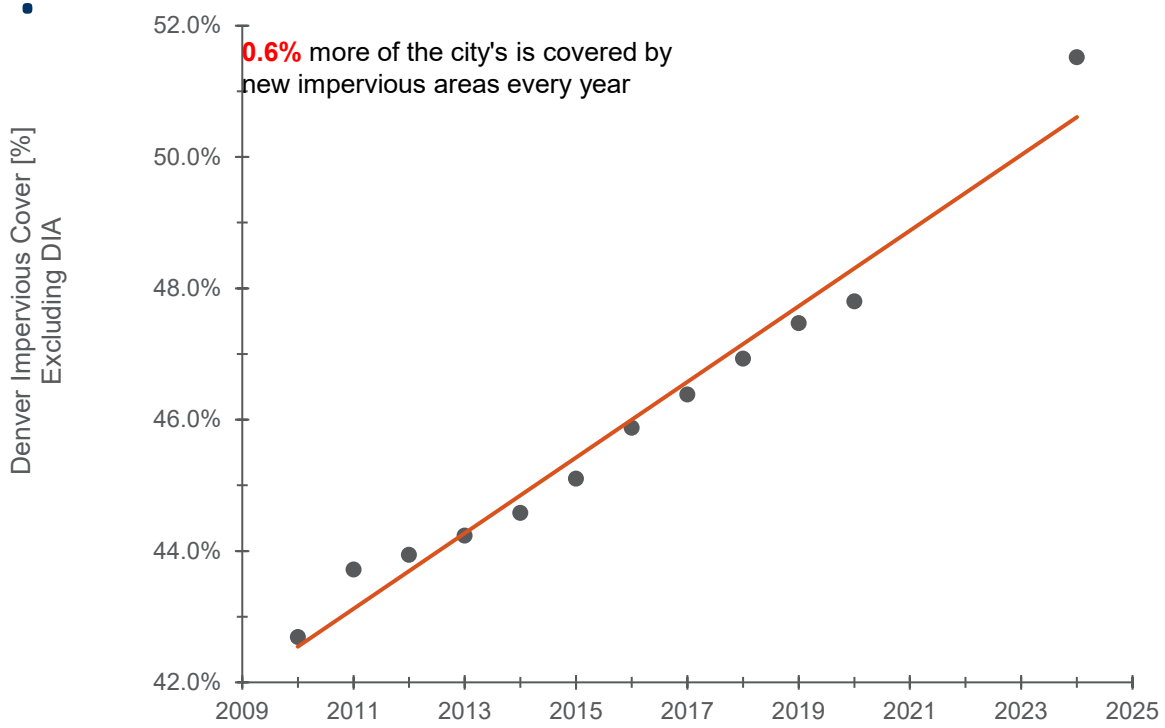
Sarah Anderson, Division of Green Infrastructure Manager

DGI Video

What Is Green Infrastructure (GI)?

Living infrastructure that uses trees, native vegetation, soils, and natural processes to **manage stormwater** and create healthier, cooler urban environments.

Incudes site scale applications such as **stormwater planters** or **rain gardens**---regional approaches including **constructed wetlands**, detention basins, and protection of **floodplains.**



What is Impervious Cover (IC)?

Impermeable surfaces like roads, buildings, and sidewalks that prohibit the absorption of rain and snow.

Add .6% IC every year
Currently 51.5% IC in Denver
60-67% IC projected by 2040

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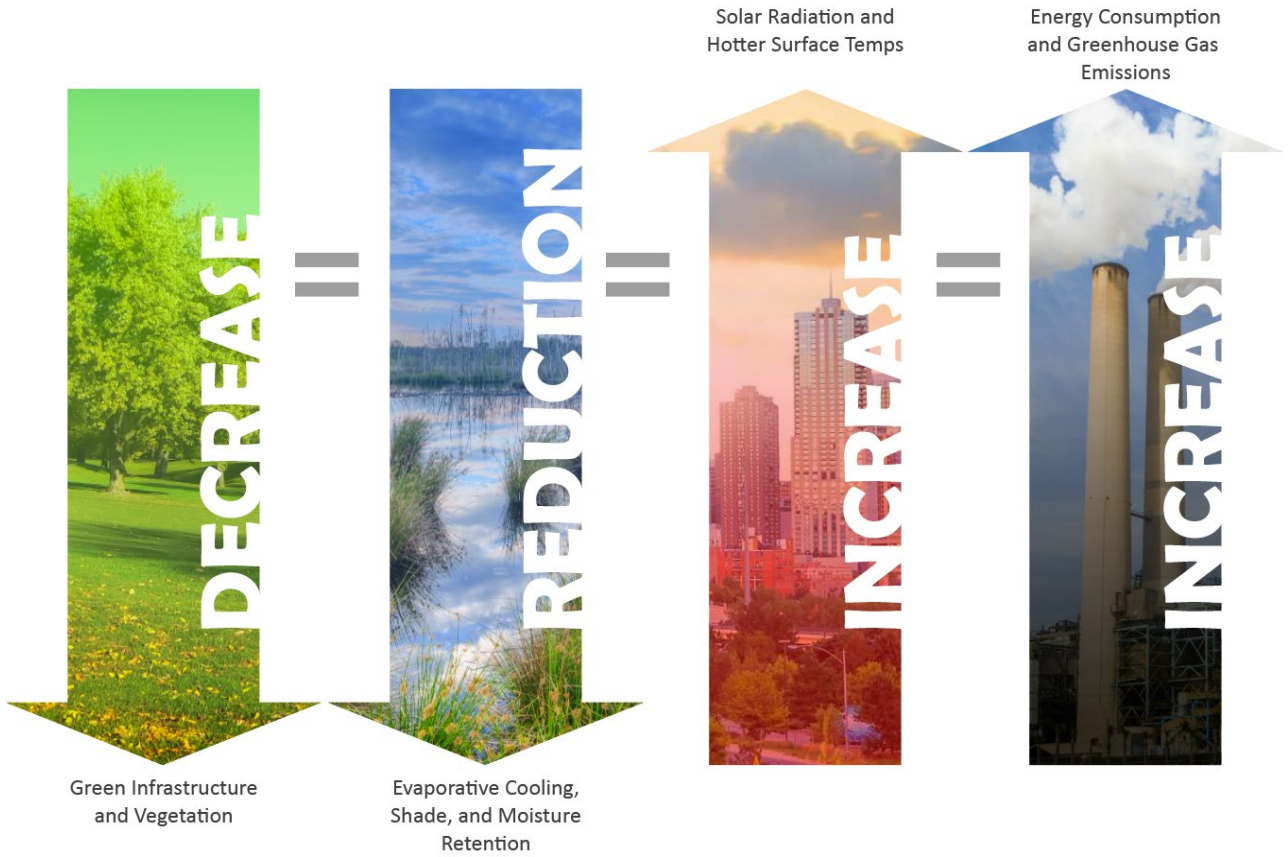


Loss of Green/Canopy

- Reduction in evaporative cooling, shade
- Loss of moisture retention

Replacing with Impervious Cover (IC)

- Increased solar radiation & hotter surface temps
- Greater energy consumption

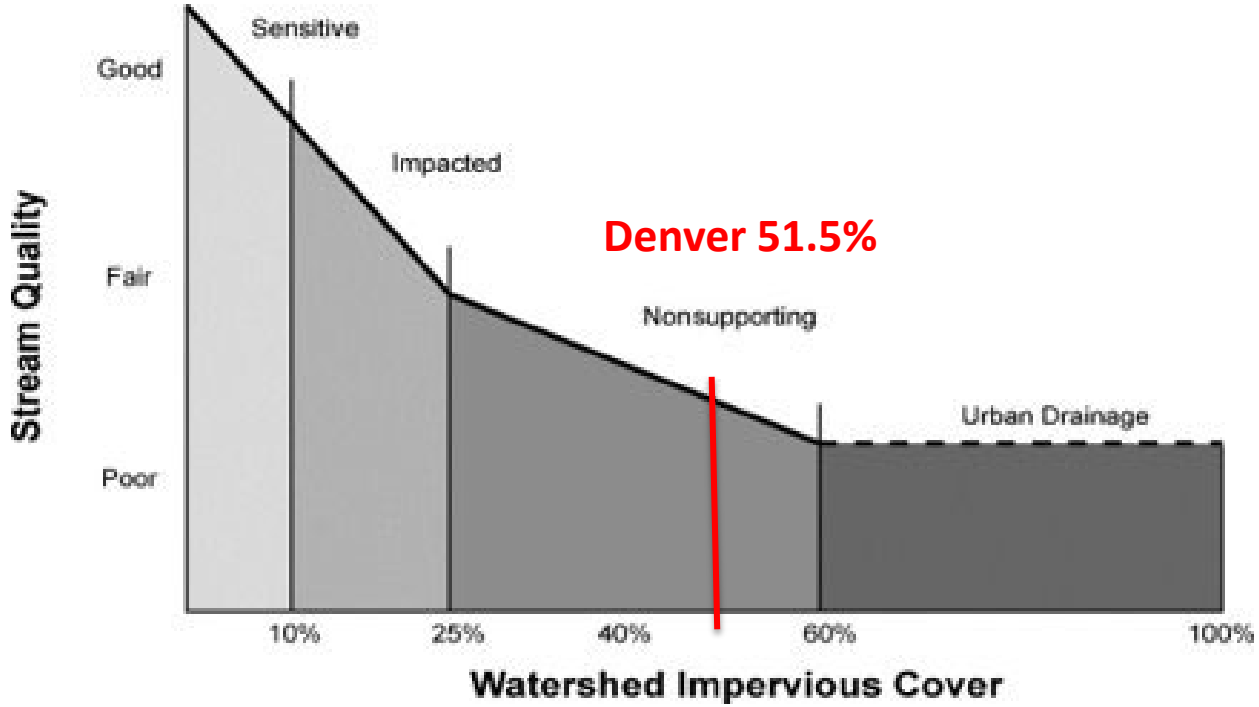
+ Local Impacts from the Changing Climate

URBAN HEAT ISLANDS- +2 degree warmer for every 10% IC increase

Watershed Health & Increased Impervious Cover (IC)

- Impacts natural hydrologic cycle
- More severe and frequent flooding
- Poor water quality
- Waterbodies support little aquatic life

- Become urban drainages over 60%



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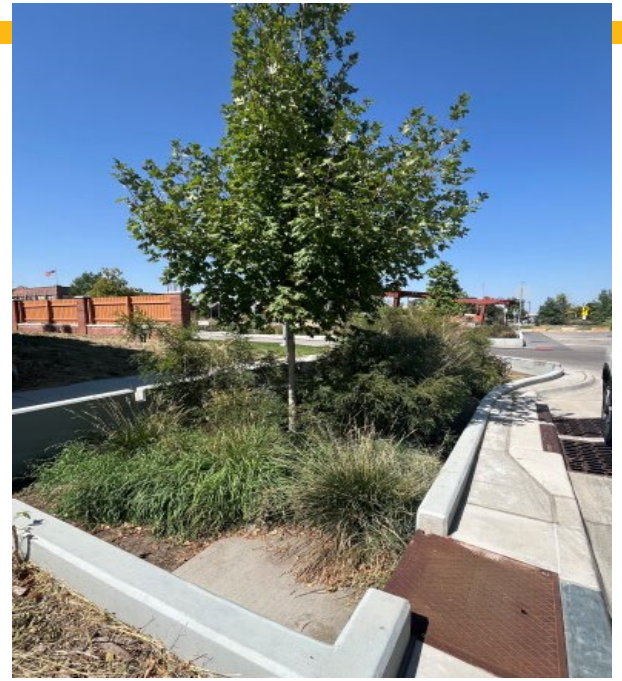
DOTI and DGI Capital Programs

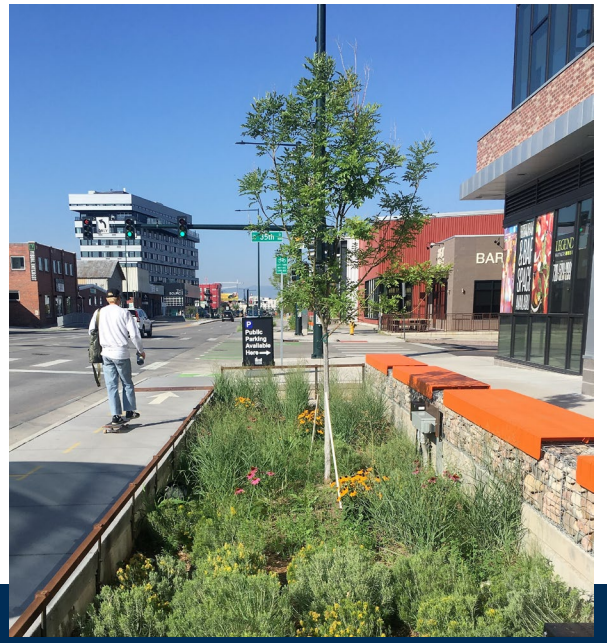
- Prioritize trees & GI on DOTI projects
- DGI standalone projects
- Remove IC & replace with GI
- Treat stormwater & address heat
- Create safer connections for bikes & peds
- Enhance community livability & climate resiliency



Spend 80% in Priority Basins & Inverted L

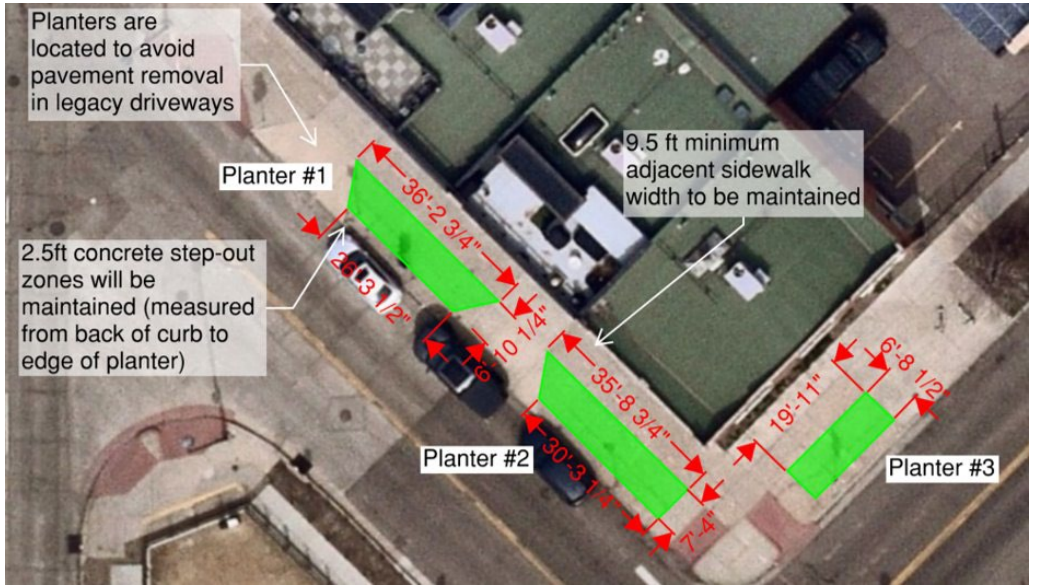
*Results: 8500 acres treatment, over 2300 trees planted (*2017-2024). Examples: Brighton Blvd, Platte to Park Hill, 39th Ave Shared Street, Sun Valley Green Streets*

Cons: time intensive, high costs, conflicts



Swift Implementation of GI (SIGI)

- High % of impervious cover
- High urban heat
- Space for trees
- In pedestrian areas, mobility corridors, or downtown
- Identified by the community
- With community as a partner
- 10-10-10 approach
- Neighborhood scale



24th & Broadway

Checks all the boxes

SEVEN Weeks!!

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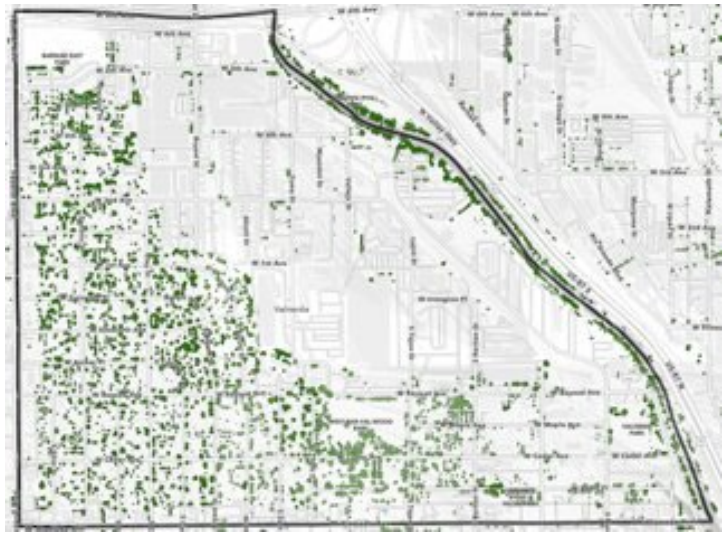
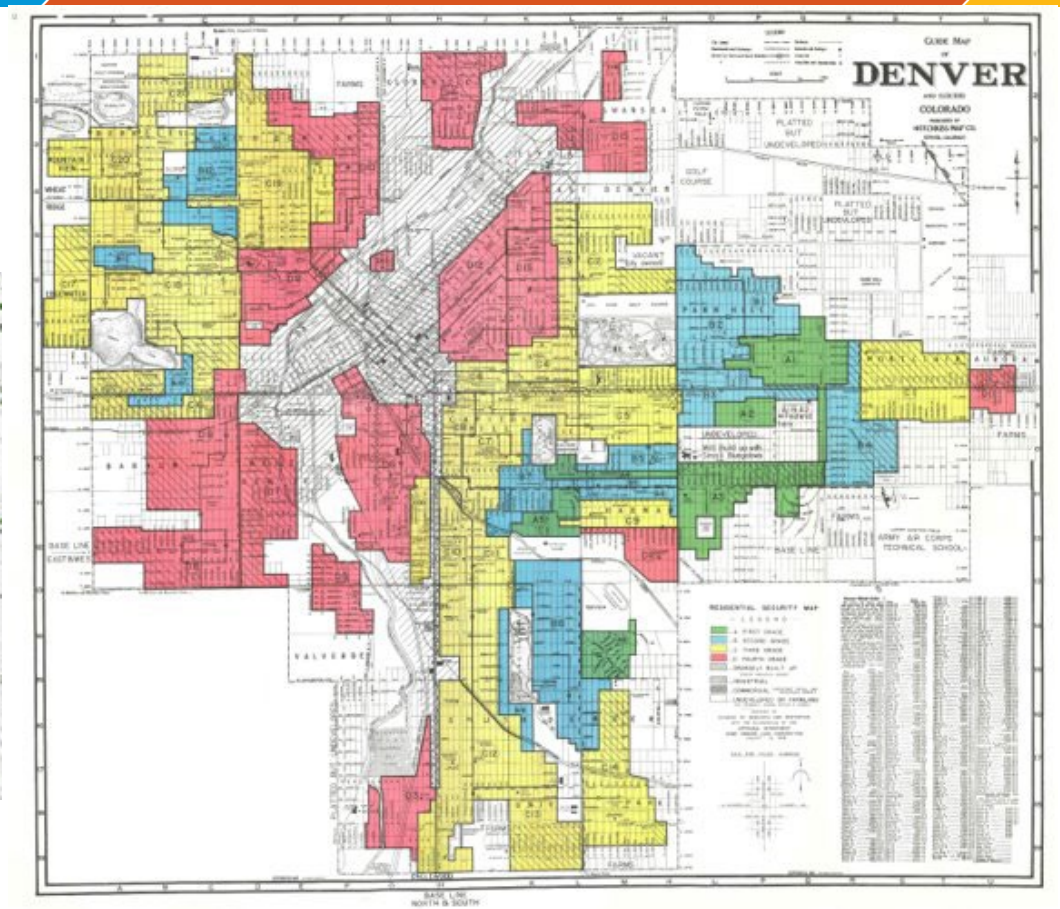
Questions?

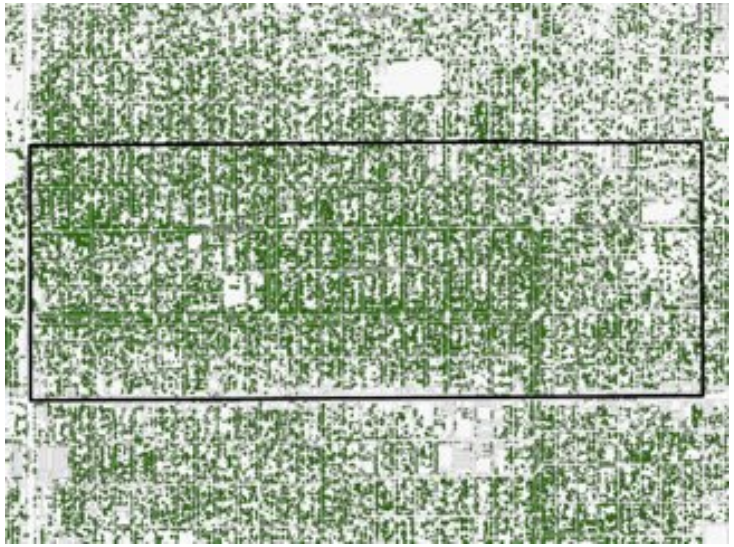
Extras

Valverde:
Average Household Income $46K





South Park Hill:
Average Household Income $184K



INEQUITABLE DISTRIBUTION of impacts

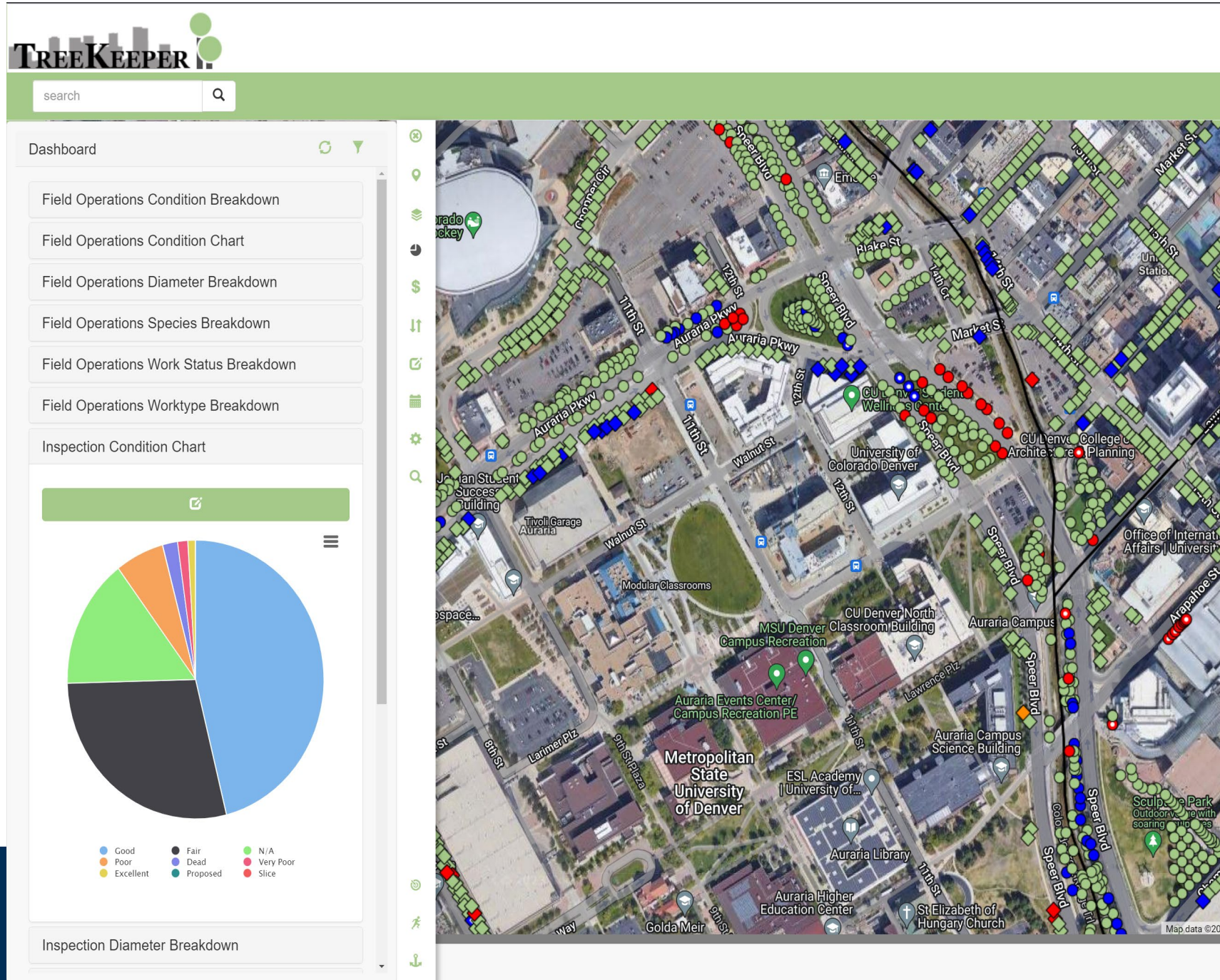
Tree canopy follows historic redlines.

Differences in impervious cover & tree canopy leaves Valverde 3.2 degrees hotter than South Park Hill.

350+ species!

Public Trees:

1. Maple	14%
2. Ash	10%
Vacant	10%
3. Oak	8%
4. Honeylocust	7%
5. Pine	6%
6. Elm	6%
7. Linden	6%
8. Apple/crabapple	3%
9. Hackberry	3%
10. Spruce	3%



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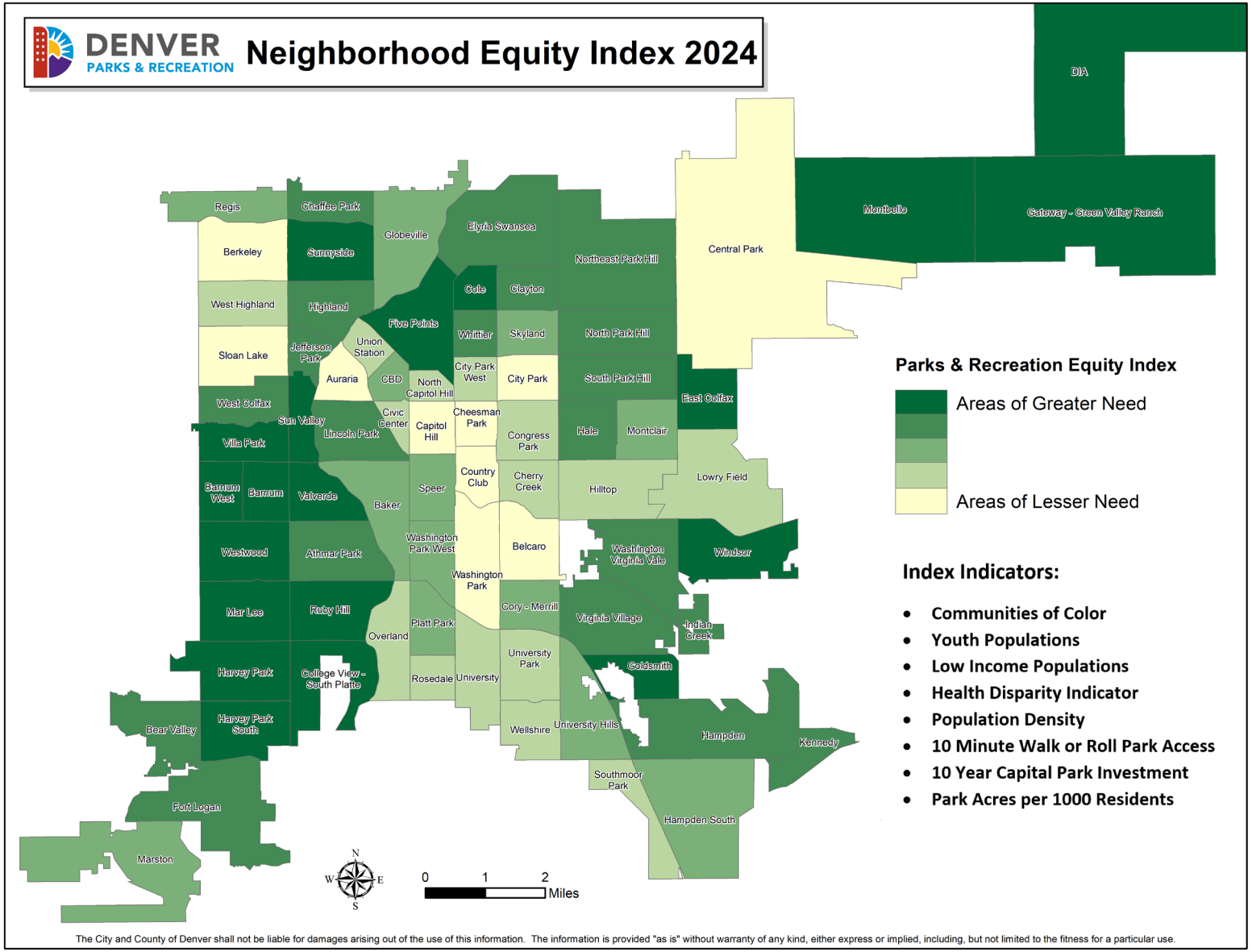

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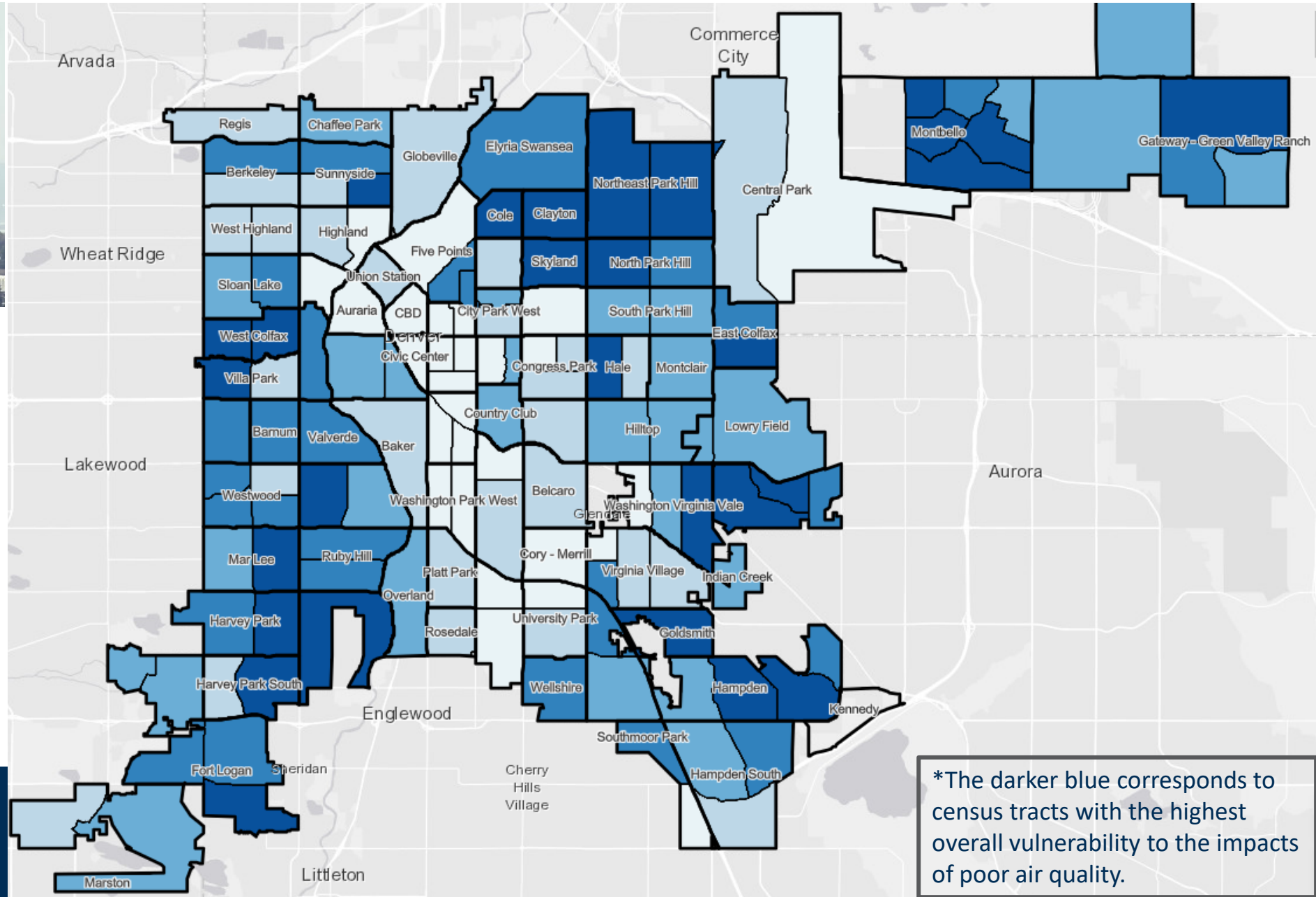
Denver Air Quality Vulnerability Index

- 11 key variables by neighborhood
- Composite measure of exposure, demographics and human health.



*The darker blue corresponds to census tracts with the highest overall vulnerability to the impacts of poor air quality.

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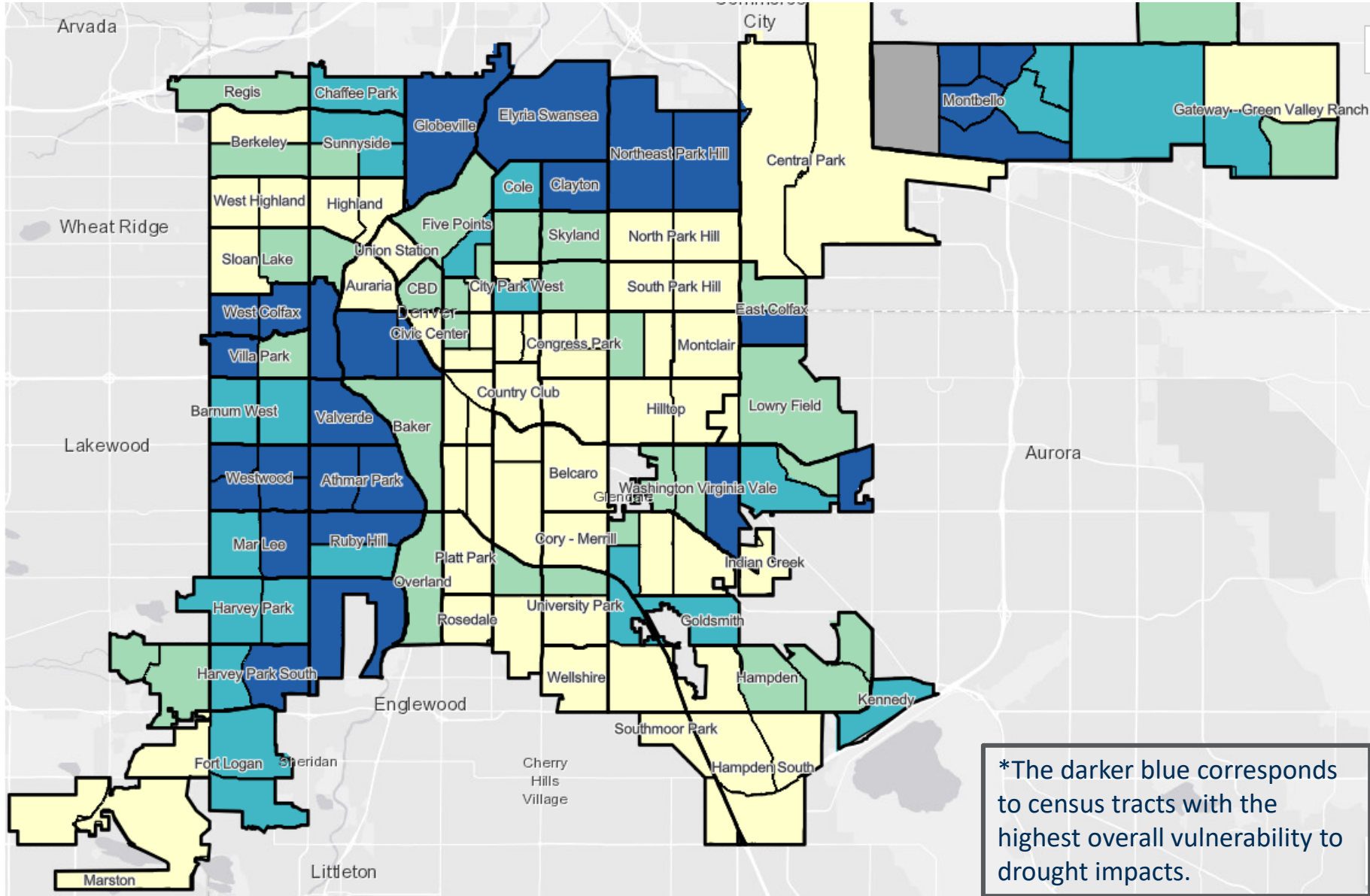
Denver Drought and Severe Weather Vulnerability Index

- 15 key indicators of social vulnerability to all hazards (including drought) by neighborhood.
- 15 indicators are organized into four themes: Socioeconomic Status, Household Composition and Disability, Minority Status and Language, and Housing Type and Transportation.



*The darker blue corresponds to census tracts with the highest overall vulnerability to drought impacts.

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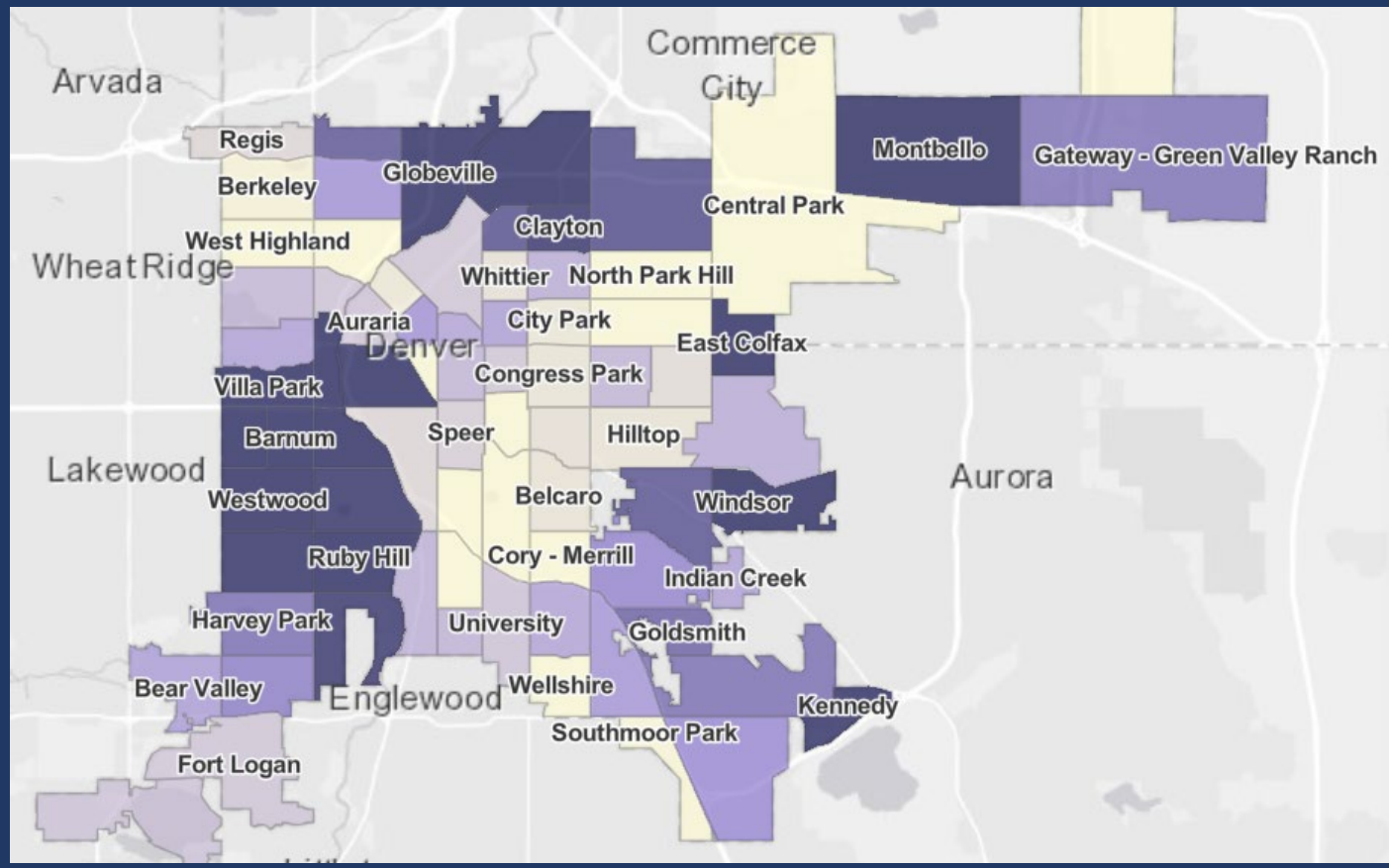
2022 NEST Neighborhood Cumulative Vulnerability

NEST neighborhood Rapid Assessments

More trees (fruit), Tree maintenance, green space and living soil was the **second most important priority overall.**

Rapid Assessments

1. East Colfax
2. Elyria-Swansea
3. Globeville
4. Montbello
5. Northeast Park Hill
6. Sun Valley
7. Valverde
8. Villa Park
9. West Colfax
10. Westwood



"We have lower tree cover than in the rest of the city. If that continues, that will hurt us." –*Villa Park Resident*

"We need to look at climate change in the sense that we need to have things in place so if it gets too cold or too hot people won't come out and participate. Climate affects everything we do; we don't want to end up with everyone stuck in their houses not interacting with each other." –*NE Parkhill Resident*

DGI CAPITAL PROGRAM

Remove Impervious Cover

Replace with GI

Treat Stormwater

Address Heat

Spend 80% in Priority Basins & Inverted L

Add 2024 pics

DGI Capital Projects

SITE SELECTION

1. Neighborhoods with high % of impervious cover

2. High urban heat

3. In pedestrian areas, mobility corridors, or downtown

4. Identified by the community

5. With community as a partner

SWIFT IMPLEMENTATION OF GI (SIGI)

CHECKS ALL THE BOXES

Highly impervious

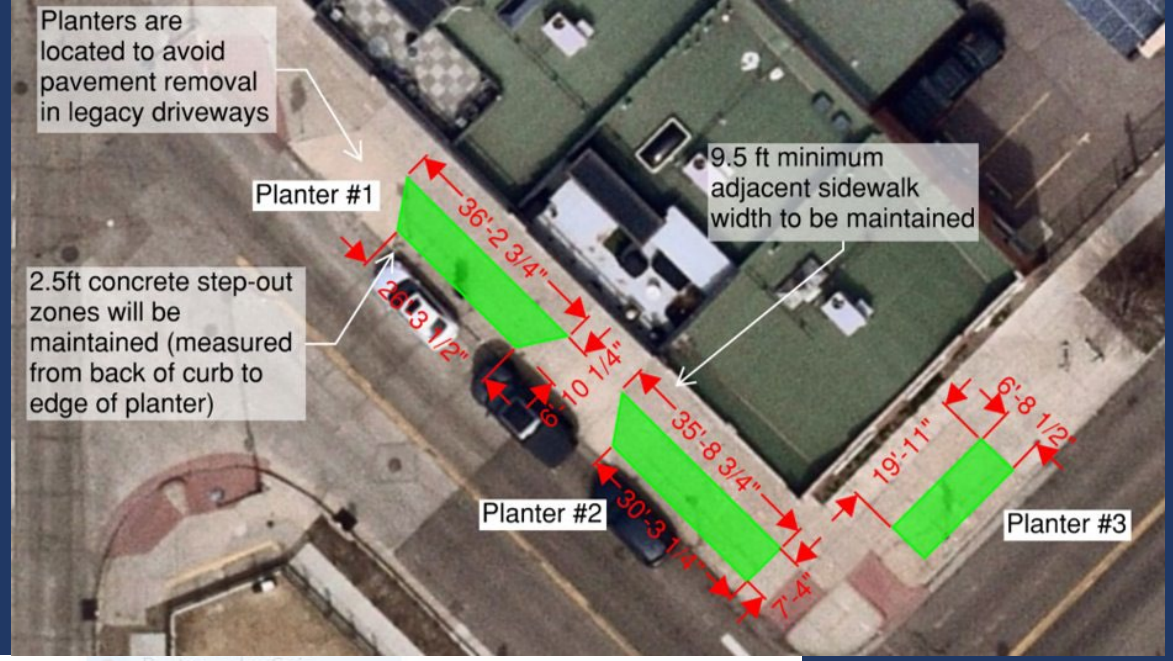
Priority for urban heat reduction

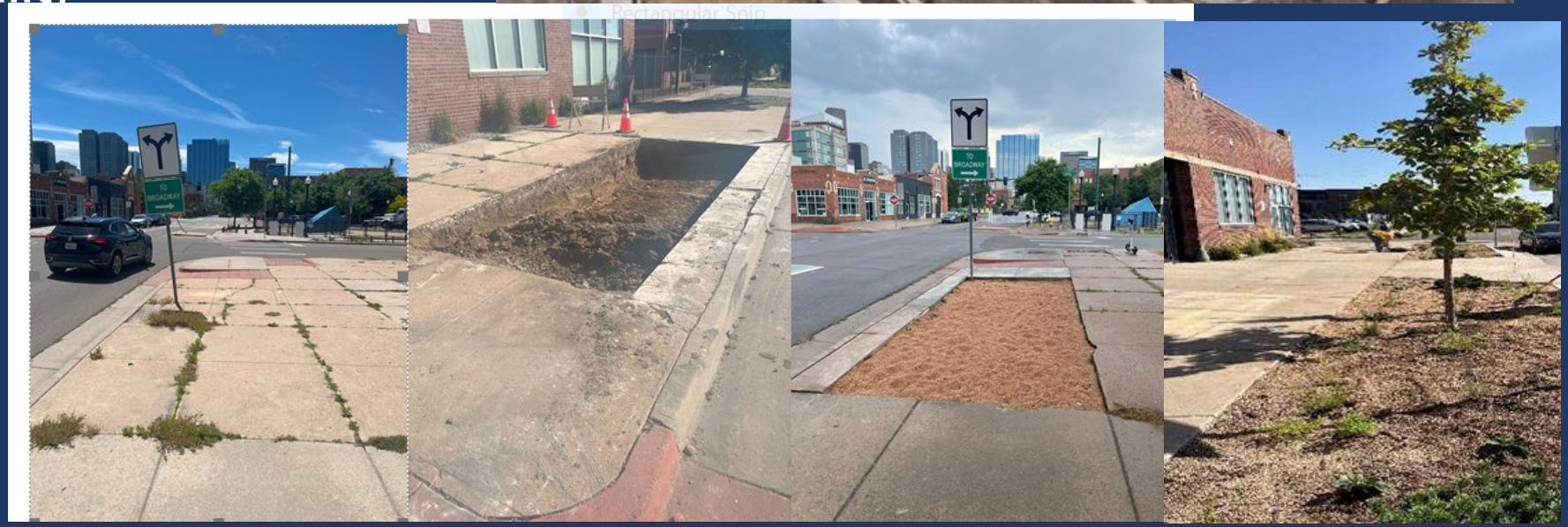
Priority for stormwater quality

Downtown

Identified by community member

SEVEN WEEKS!!!





24th & BROADWAY

Climate Office Community Engagement

- Tree Care Education and Resources
- Culturally Appropriate Outreach
- Remove Barriers to Information
- Establishment care

The Park People
Community Connector Model