

Commerce City, Colorado

Tree Canopy Assessment

July 27th, 2026



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Agenda

- 01** Project Overview
- 02** Canopy Results
- 03** Prioritization Results
- 04** Next Steps & Recommendations
- 05** Q&A

Project Team



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Woolf & others!**

Tree Canopy Assessment Support and Local
Expertise in C3

Why a Tree Canopy Assessment?



“An assessment of overall tree canopy in urban areas serves as a preliminary planning tool for communities embarking on an urban forestry program.”

MILLER ET AL.: URBAN FORESTRY: PLANNING AND MANAGING GREEN SPACES

Why a Tree Canopy Assessment (TCA)?



TREE CITY USA®

Building on Commerce City's Existing Efforts:

- ▶ **Arbor Day isn't just a holiday!** Annual city events and school partnerships (Monaco Elementary) promote tree plantings and benefits of trees.
- ▶ **Public Works:** Manages public landscaping; design standards are in Article IV, Division 4.4 of the Land Development Code. Tree requirement in Reunion and surrounding areas.
- ▶ **City Plans:** Comprehensive and Parks Master Plans call for more canopy in parks, corridors, and redevelopment areas.
- ▶ **Sustainability Action Plan:** Expanding green space and biodiversity of citywide canopy for air quality and cooling, **20% citywide canopy goal.**
- ▶ **Regional Collaboration:** DRCOG partnerships support broader sustainability and climate goals across Metro Denver.

What is a Tree Canopy Assessment?

TREE CANOPY ASSESSMENT: A 'TREE CENSUS' FROM ABOVE

A tree census using aerial imagery to assess how much of the city is shaded by leaves and branches when viewed from above.



URBAN TREE CANOPY (UTC)



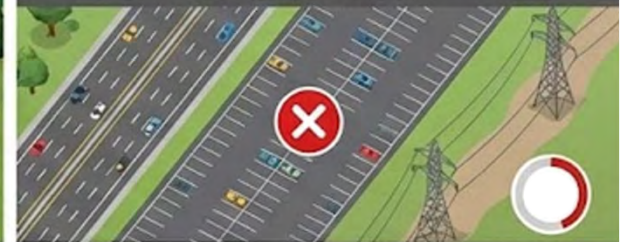
The "layer of leaves, branches and stems that cover the ground" (Raciti et al., 2006) when viewed from above.

POSSIBLE/POTENTIAL PLANTING AREA (PPA)



Areas of grass and open space where tree canopy does not exist but it is possible to plant trees.

UNSUITABLE AREAS



Areas that are not suitable for tree planting due to their land use (recreation fields, utility corridors, etc.) or land type (impervious or bare soil).

ASSESSMENT OUTCOMES: GUIDING PRIORITIES



LOCATIONS FOR
EXPANSION &
PRESERVATION



ECOSYSTEM
BENEFITS PROVIDED
BY TREES



UNDERSTANDING
RESOURCES &
PRIORITIZING
EFFORTS



STRATEGIC URBAN
FORESTRY
PLANNING

Project Overview - Project Methodology

The TCA “Recipe”

- ① Obtain Source Imagery
- ② Classify Land Cover
- ③ Convert to UTC / PPA
- ④ Summarize by Geographies
- ⑤ Report key findings



Project Overview – Source Data

Obtain source imagery

USDA's National Agriculture Imagery Program (NAIP) most recent available high-resolution imagery as of the assessment 2023

- ▶ Flown ever 2-3 years
- ▶ High resolution (60cm)
- ▶ Taken during “leaf on” conditions



TREE CANOPY
LEAVES, BRANCHES, AND
STEMS GENERALLY GREATER
THAN 10-15' TALL



SHRUBS
WOODY PLANTS WITH
MULTIPLE STEMS ARISING
FROM THE BASE, GENERALLY
LESS THAN 10' TALL



OTHER VEGETATION
HEALTHY GRASSES,
HERBACEOUS PLANTS, OPEN
PASTURES AND TURF GRASS



**BARE SOIL AND DRY
VEGETATION**
EXPOSED EARTH, SAND, OR
DEAD/DORMANT GRASSES



**IMPERVIOUS
SURFACES**
ROADS, SIDEWALKS, PARKING
LOTS, BUILDINGS, AND OTHER
PAVED AREAS



WATER
RIVERS, LAKES, PONDS,
RESERVOIRS, AND WETLANDS

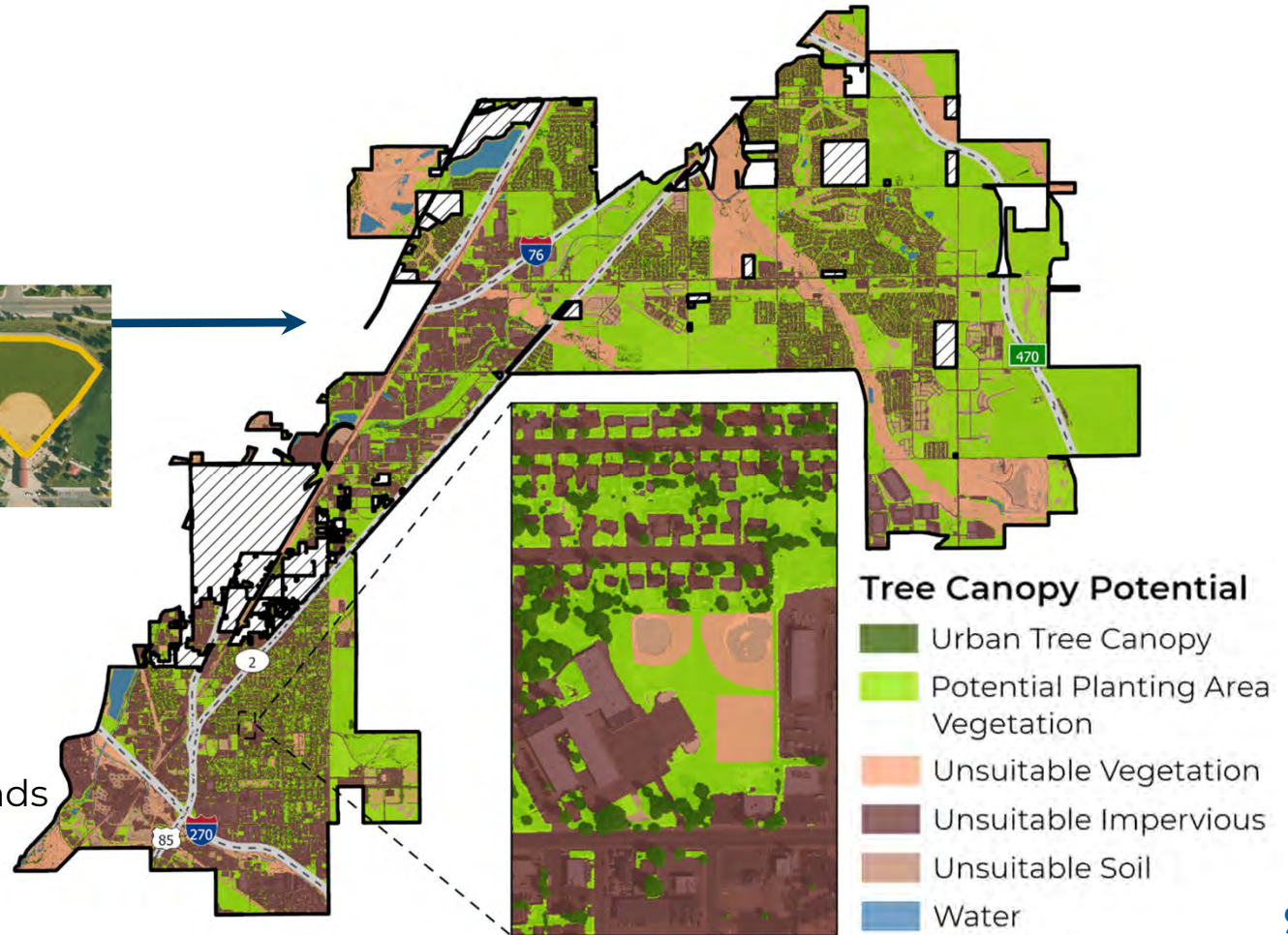
Project Overview – Data Interpreted

Convert to Urban Tree Canopy Potential



Delineating areas unsuitable for planting:

- ▶ Recreation fields
- ▶ Utility & railroad corridors
- ▶ Stormwater retention ponds
- ▶ Flood hazard zones

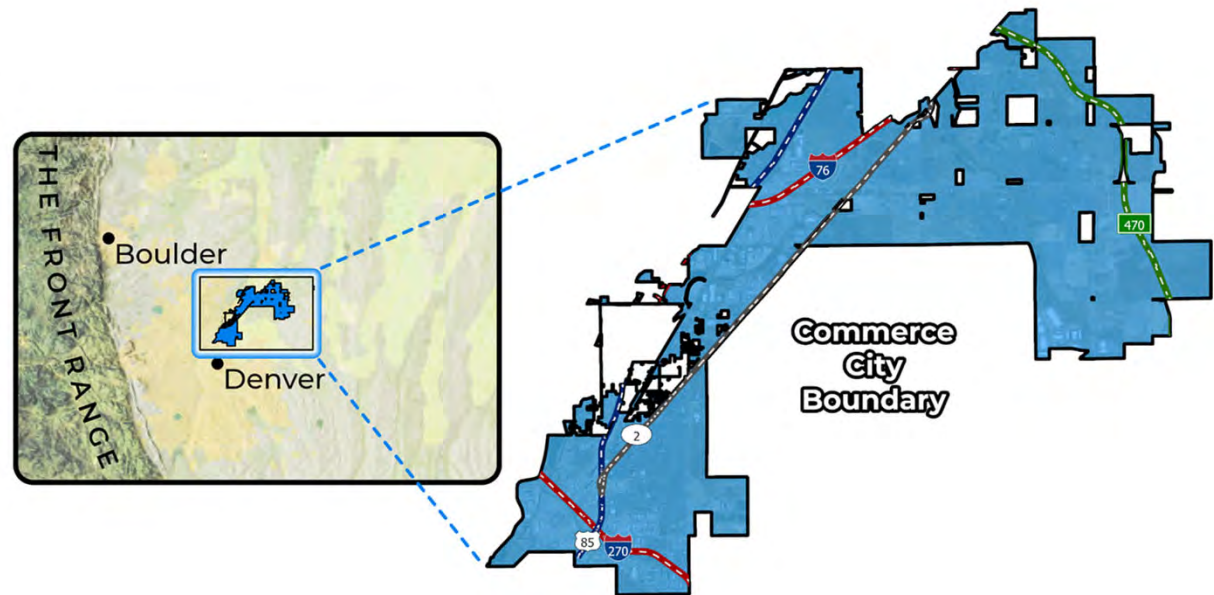


Project Overview – Assessment Boundaries

Main Boundary: C3 Full City Limits (Not Just “City Core”)

Additional Boundaries:

- ▶ Rights-of-Way (ROW)
- ▶ Public (Including Schools) vs. Private Property
- ▶ Neighborhoods
- ▶ Census Block Groups



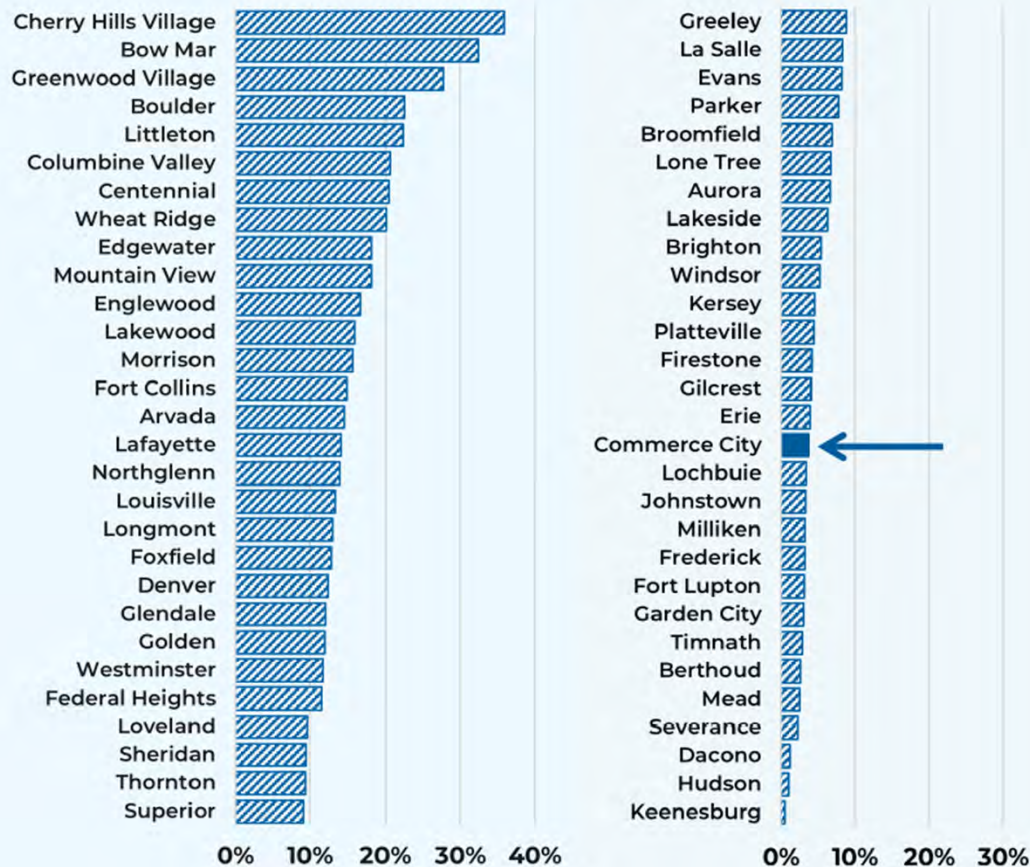
Key Findings

- ▶ TCA Results
- ▶ Ecosystem benefits



Key Findings - 1) City Boundary Results

Urban Tree Canopy Across Front Range Communities:



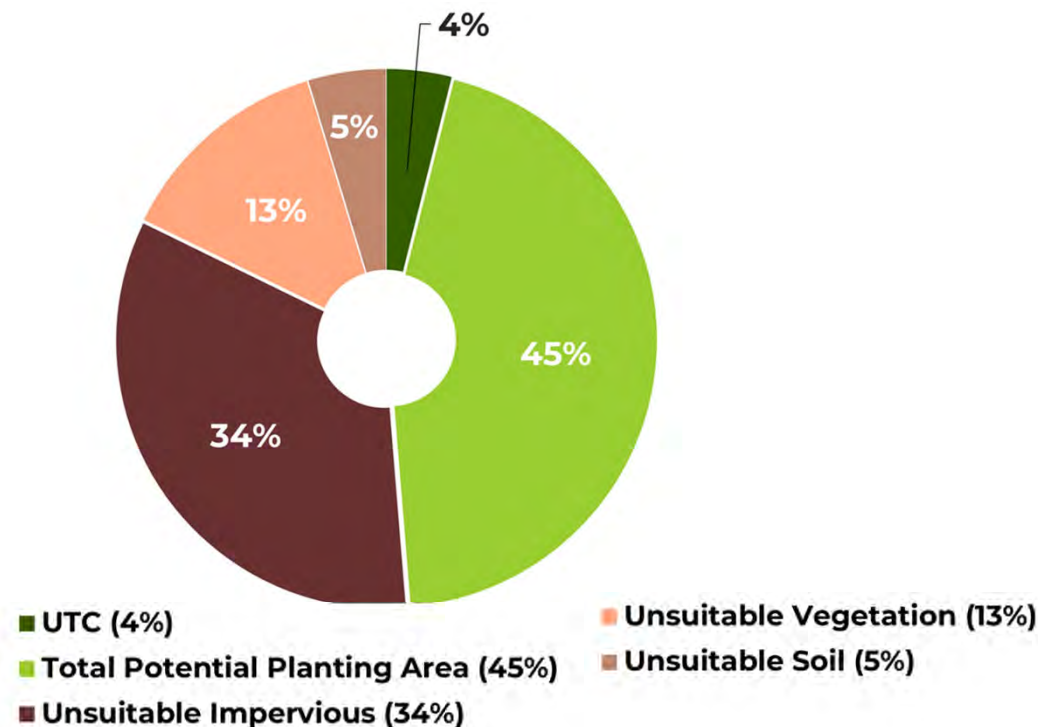
Commerce City has an overall tree canopy of 3.8% (919 acres).

Well below the regional average (~10%), meaning fewer residents benefit from shade, cooling, and cleaner air than in most neighboring communities

Key Findings - 1) City Boundary Results

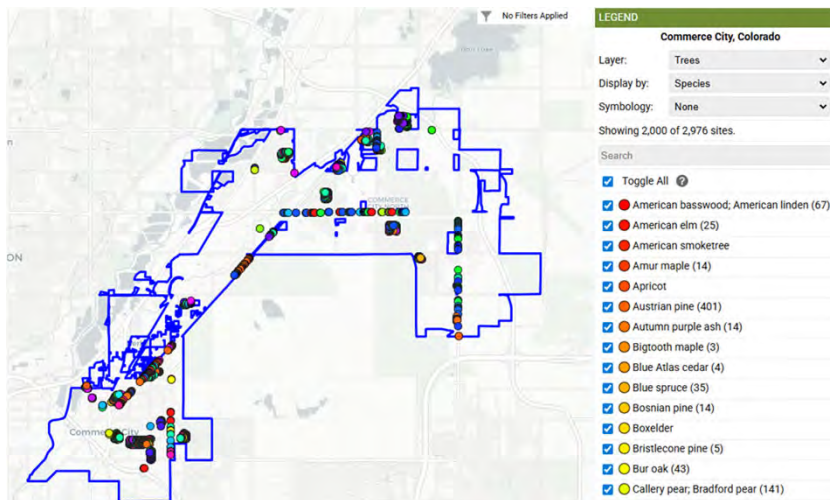
Findings of this Study

Urban Tree Canopy Potential (excluding water)



- ▶ There are more impervious surfaces than tree canopy.
- ▶ The opportunity is there. Nearly half the city (45%, +10k acres) can support new trees.
- ▶ Utilization is low. Commerce City currently plants far below what its land allows.

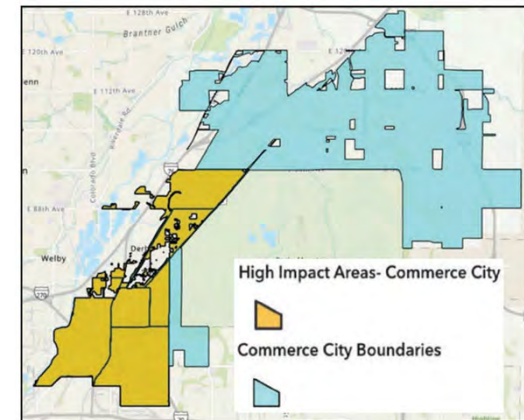
Key Findings - 1) Inventory Results



- ▶ A sample inventory was completed in 2026 of 4,000 public trees.
- ▶ Tree management of existing trees is successful.
- ▶ Condition: Over 80% of existing trees were in Fair, Good or Excellent condition.
- ▶ Diversity: The 4 most common species make up 65% of C3's tree canopy.
- ▶ Risk Rating: 99% rated as low risk.

Internal C3 Inventory

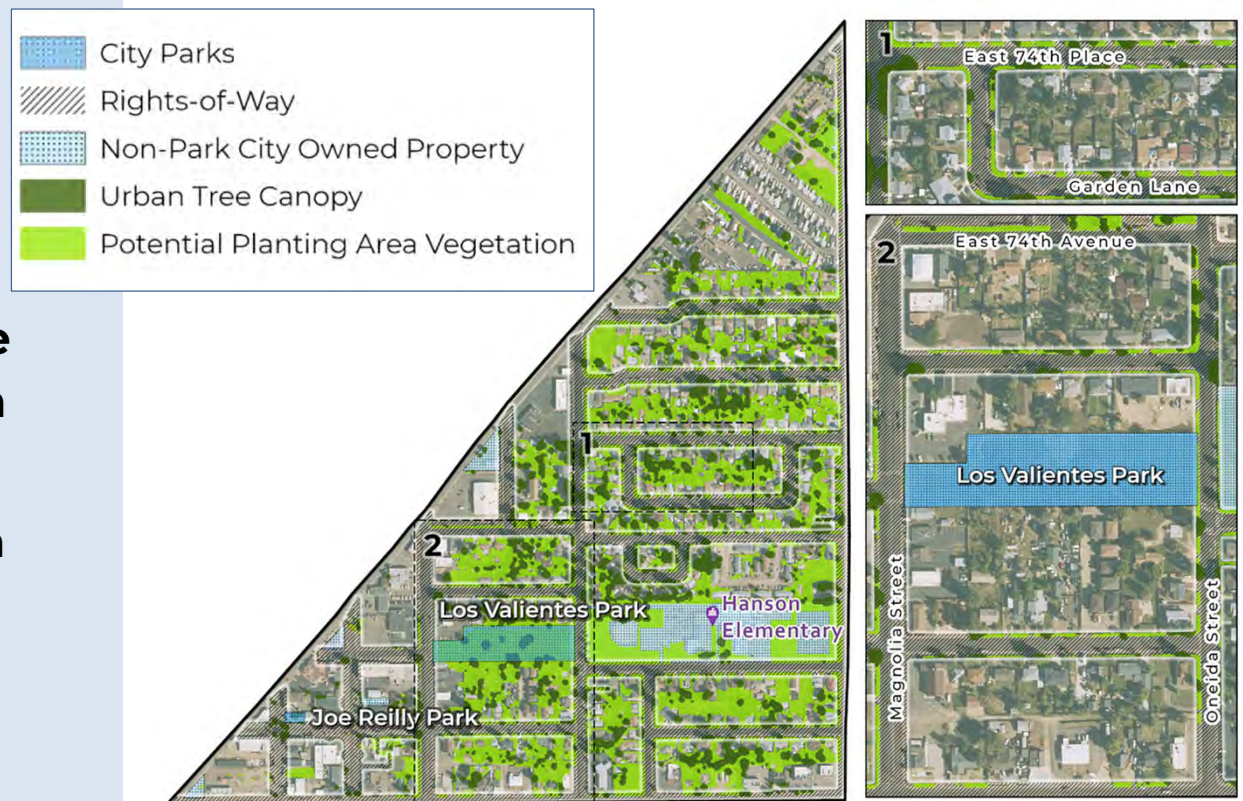
- ▶ Partnering with CU Boulder's Masters of the Environment program in 2025, the city **assessed nearly 950 existing trees** and identified 139 high-priority planting sites **in a disproportionately impacted neighborhood**.
- ▶ Together, these tree inventories give a great baseline of data to use for management and planning purposes.



Key Findings - 2) Rights-of-Way (ROW)

- ▶ Only **4% of the ROW is shaded by tree canopy.**
- ▶ Street trees calm traffic and improve public safety feeding into the new Safe Streets Initiative.
- ▶ **12% of the City's plantable space exists in these high traffic, public spaces.**
- ▶ The Derby area features an **above-average 6% canopy** in ROWs and two acres of plantable space along key pedestrian routes.

Urban Tree Canopy and Potential Planting Area in the Derby Neighborhood's Rights-of-Way:



Key Findings - 3) Public vs. Private Property

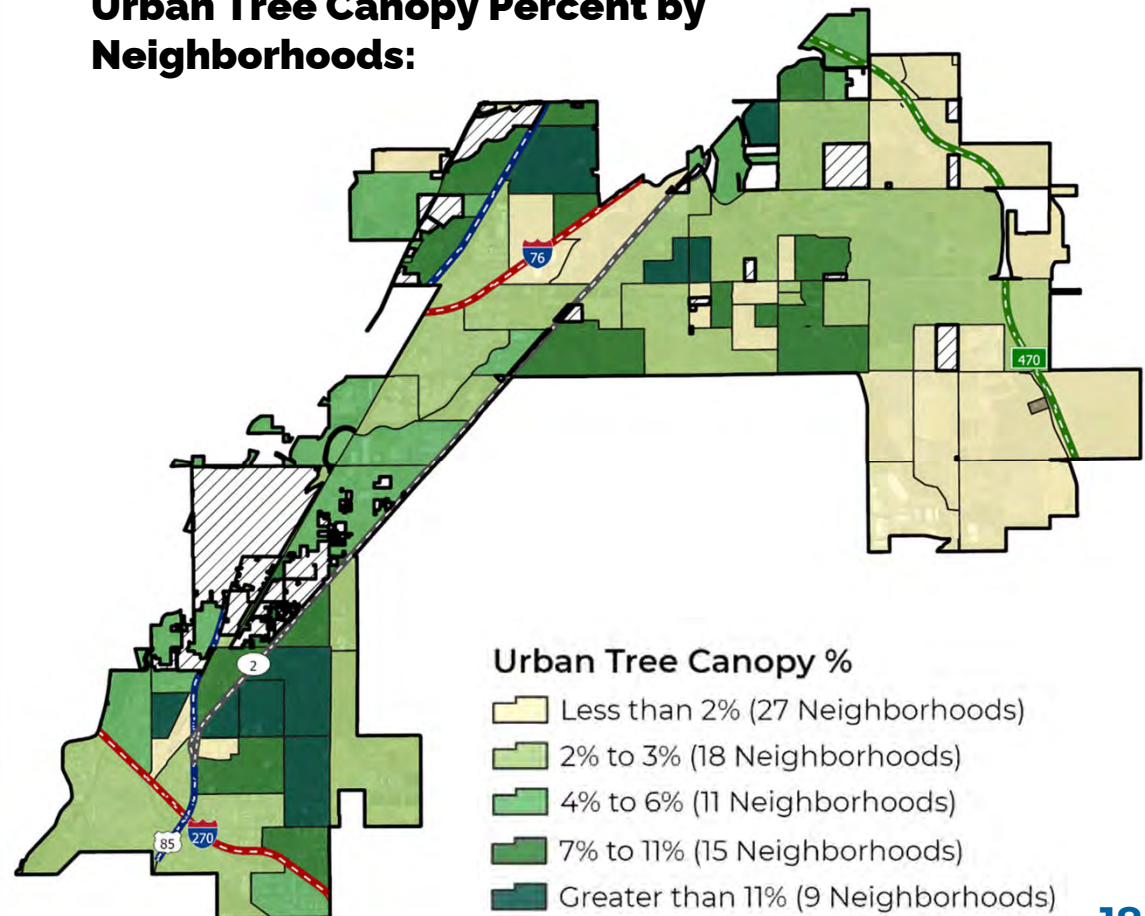
- ▶ **Public properties** (excluding rights-of-way), contribute 75 acres of canopy (**8% of the citywide total**) and offer 1,075 acres of possible planting area, making up 10% of the PPA across the city.
- ▶ **Private properties** support 668 acres of tree canopy, accounting for **73% of the city's total canopy & 88% of the city's plantable space**.
- ▶ This is why resident engagement matters!

Area	Land Area Distribution Percent	Land Area Acres	Urban Tree Canopy Percent	Possible Planting Area Percent	Impervious Surface Percent
Private	88%	16,612	4%	49%	31%
Public	12%	2,369	3%	45%	11%

Key Findings - 4) Canopy in Neighborhoods

- ▶ Coverage varies widely, ranging **from less than 2%** in 27 neighborhoods to **over 11%** in 9 neighborhoods.
- ▶ River Run and Memory Lane Gardens each exceed 17% UTC.
- ▶ The Historic Derby Neighborhood has 11% UTC.
- ▶ New developments on the eastern portion of the city have very low canopy cover (some **less than 1%**).

Urban Tree Canopy Percent by Neighborhoods:



Key Findings - 4) Neighborhoods

What's achievable and where are the biggest opportunities?

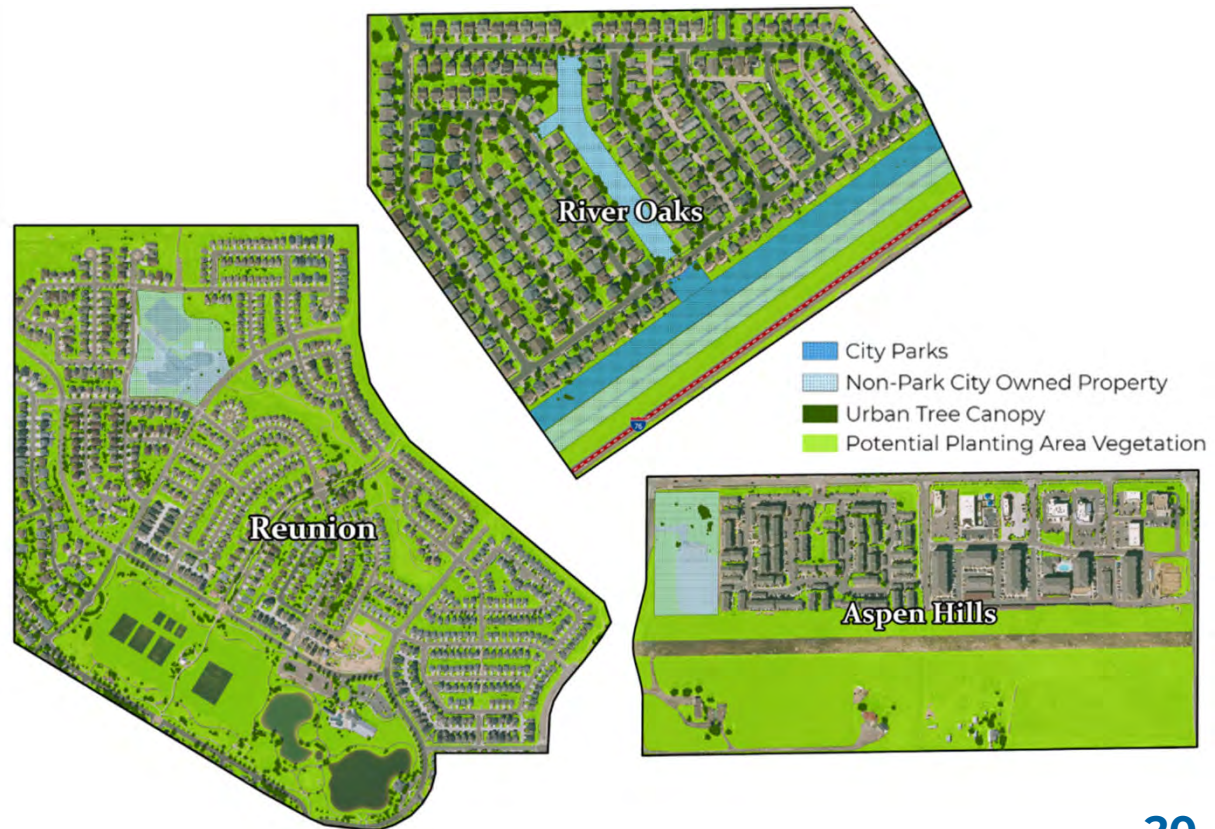
- **River Run** (17.1% UTC) — proof it's possible to grow canopy in Commerce City
- **Reunion** (2.5% UTC, but 62% PPA and 14.5% of the city) — the scale story, this is where the recommendations should point
- **Legato West or Prime Sites** (near-zero UTC, 88-94% PPA) — the cleanest opportunity example
- **Stapleton Industrial Park** (low UTC, low PPA, mostly unsuitable) — Not everywhere can hit high canopy



Key Findings - 4) Neighborhoods

- ▶ Tree canopy patterns reflect both current concentrations and the age of neighborhoods.
- ▶ Newer **northern and eastern areas have lower canopy cover due to young trees that will mature over time.**
- ▶ Older **southern and central neighborhoods have mature trees nearing the end of their life cycles.**
- ▶ Balanced investment is needed to grow canopy in new areas and sustain it in older ones.

Urban Tree Canopy and Possible Planting Area within Three Commerce City Neighborhoods:



Key Findings - Ecosystem Benefits



MENTAL HEALTH

People without views of nature from their desks claimed 23% more sick days than workers with views of nature.



CLEANER AIR

\$16,096

Each year, Commerce City's trees remove 27 tons of particulate matter from the air.



STORMWATER MANAGEMENT

\$32,627

Commerce City's trees intercept about 3.6 million gallons of runoff annually.

TOTAL ANNUAL BENEFITS

Commerce City's trees annually provide **\$421,188** in ecosystem benefits.

That equates to approximately \$458 per acre of canopy.

CARBON STORAGE

\$13,436,603

Commerce City's trees store 113,854 tons of CO₂.

CARBON SEQUESTRATION

\$372,466

In one year, Commerce City's trees absorb 3,156 tons of CO₂ from the atmosphere.

Closing even a portion of the canopy gap could meaningfully grow this number!

Values derived from the i-Tree Landscape tool and were refined using high-resolution 2023 canopy data. 21

Planting Prioritization

- ▶ Tree equity
- ▶ Socioeconomic, environmental, and climate driven factors



Planting Prioritization - Census Block Groups

UTC Findings for Census Block Groups (CBGs)

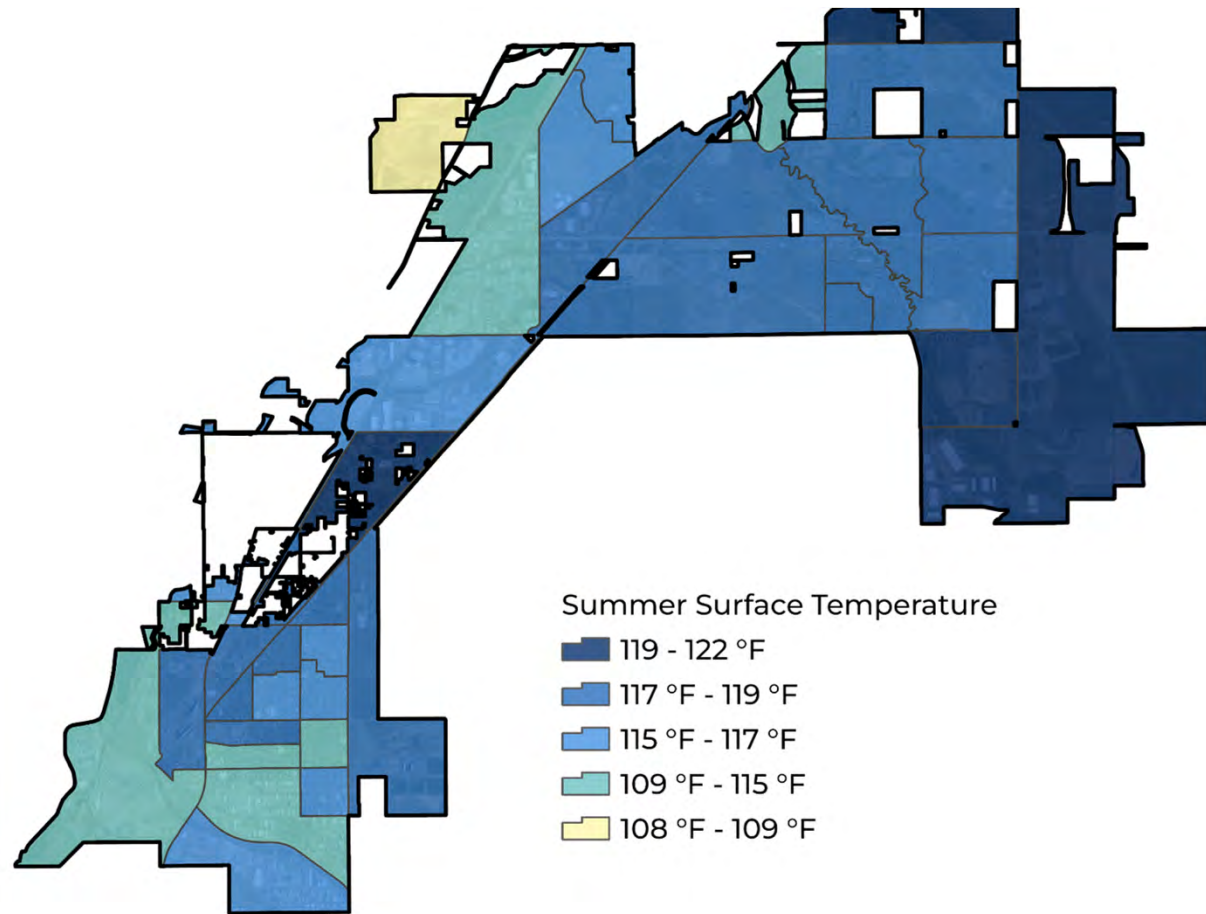
- ▶ Of the 38 CBGs, 27 had a tree canopy percentage above the citywide average of 3.8%.
- ▶ The remaining 11 block groups fell below this average. They make up 64% of the city-wide area, which pulls the overall canopy average down.
- ▶ Sixteen block groups had over 30% of their area designated as plantable space, accounting for 80% of the citywide total.
- ▶ Available space is not the only factor to weigh when planning where to expand the canopy....

Planting Prioritization by Census Block Groups

	Low Existing Tree Canopy		Urban Heat Island
	Possible Urban Tree Canopy		Stormwater Mitigation
	Poverty Rate		Colorado EnviroScreen Score: Indicates greater environmental and health burdens, are prioritized to advance environmental justice.
	Unemployment Rate		Soil Quality (K-Factor): CBGs with lower K-factor soils (less erosion-prone) are prioritized for better tree survival.
	Vulnerable Populations		Soil Quality (Hydrologic Soil Group): CBGs with well-draining soils (Groups A & B) are prioritized for healthy root growth.
	Median Household Income		
	Educational Attainment		

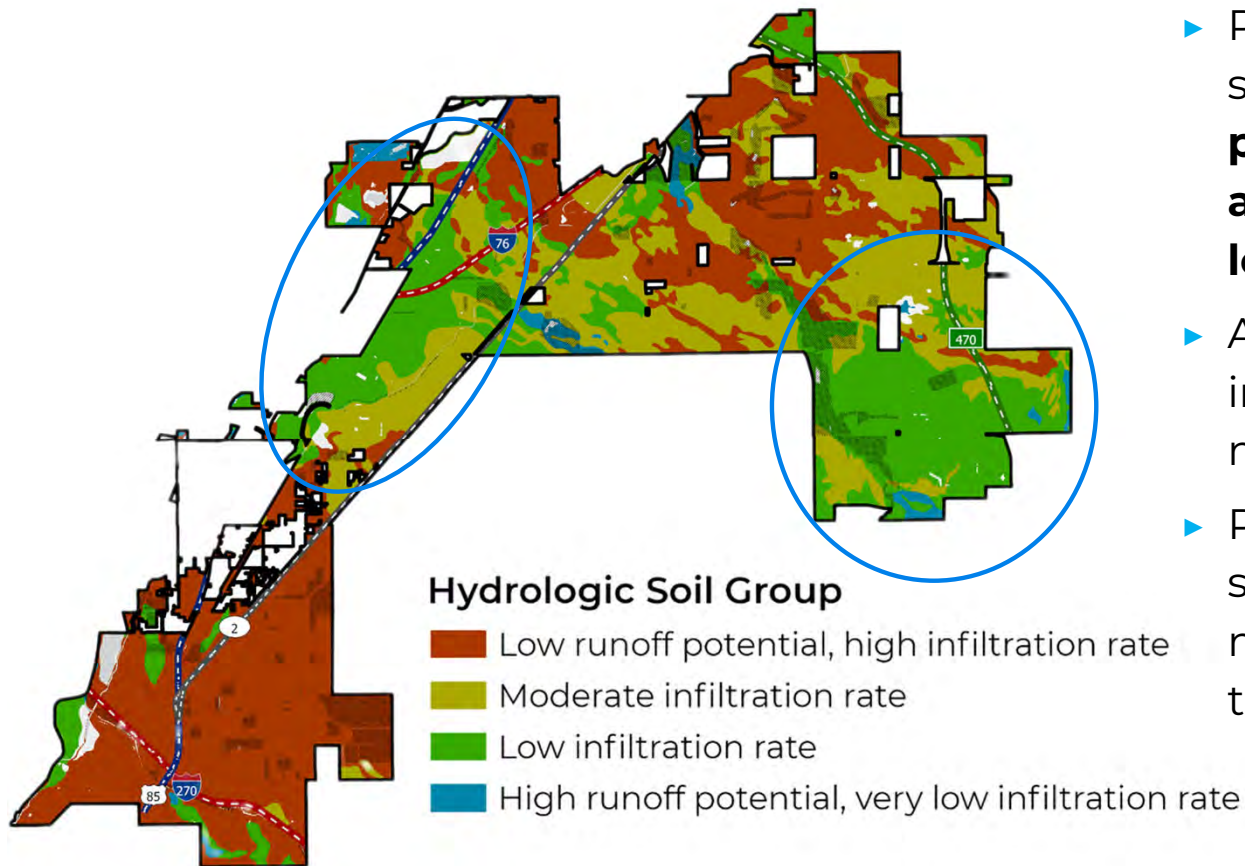
Planting Prioritization - Hottest Surface Areas

- ▶ **The coolest areas follow a diagonal green corridor running southwest to northeast,** tied to open space and the creek/vegetation belt, plus pockets in the southwest.
- ▶ Where trees are absent, pavement drives surface temperature. Targeted planting in the hottest areas could provide shade to residents



Planting - Setting Trees Up to Succeed

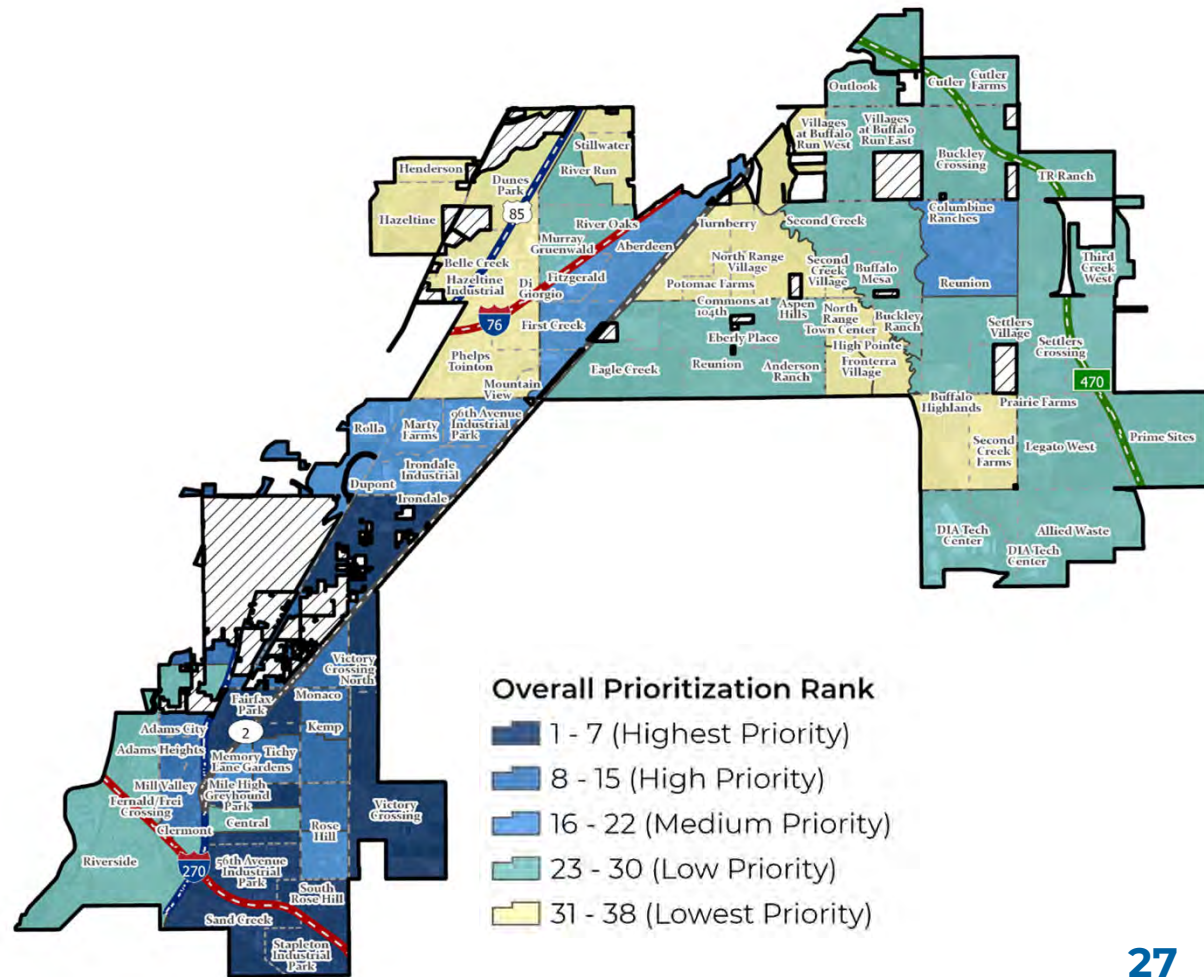
Soil Quality in Commerce City



- ▶ Roughly half of Commerce City's soils drain poorly, meaning tree **planting in these areas requires additional site prep to succeed long-term**
- ▶ Areas like Reunion and the city's industrial corridors sit in some of the more challenging soil zones
- ▶ Phased investment and careful species selection will matter as much as available planting space in these areas

Planting Prioritization - Overall score

- ▶ Commerce City's **highest-priority areas** for tree planting are concentrated in the **southern and central portions of the city**.
- ▶ Actual site selection should also weigh factors such as community readiness, utility conflicts, stewardship capacity, and alignment with wider city programs.



Recommendations

- ▶ Next steps for Commerce City's urban forest



Recommendations

- ▶ Through initiatives and staff growth, Commerce City has laid the groundwork to sustaining its urban forest.
- ▶ Two arborists on the team, summer interns, a new Landscape Architect – **a dedicated Urban Forester would be a great next step!**
- ▶ An Urban Forester could ensure that **trees continue to be tracked and inventoried** and that **tree canopy assessments are completed every ~5 years** to track changes.



Recommendations

► **Grow Shade Where It's Needed Most:**

- Prioritize tree planting in underserved southern and central neighborhoods
- Increasing canopy in new developments & redevelopments
- Focusing on high-traffic community spaces
- Plant in public corridors (like Hwy 2 or 104th Ave) to connect the historic southern city with the newer northern developments

► **Make Trees Part of City Policy and Planning:**

- Break overall city goal into small geographies and embed into planning documents
- Set annual planting targets and continue inventorying newly planted trees
- Evaluate and update codes to preserve and enhance tree canopy
- Launch pilot “early action” projects to demonstrate impact

Recommendations

► Engage the Community:

- Foster long-term urban forest health through community involvement and neighborhood stewardship
- Host Tree Canopy Workshops for city workers and residents
- Educate and create accessible bilingual resources that empower community members to plant, care for, and track trees on private property
- Enhance the canopy through public-private partnerships

► Enhance Irrigation & Water Efficiency:

- Improve and modernize irrigation systems especially in southern Commerce City
- Tree focused xeriscaping when possible
- Invest in soil amendments to treat sites before they're planted
- Plant native and climate adapted species

The ADA Accessible Tree Canopy Assessment Report with more data highlights and findings is now available on the city website!



Urban Tree Canopy **Assessment**



Commerce City, Colorado
January | 2026



Questions & Answers

Commerce City, Colorado | Tree Canopy Assessment | 2026

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