CITY OF SAINT PAUL

Tree Canopy Assessment and Urban Forest Management Plan

Kickoff Meeting

SAINT PAUL MINNESOTA

PlanIT Geo™ developers of TreePlotter

American Forests™

GOFF PUBLIC



October 8, 2026



Agenda

01 Intros

02 Tree Canopy Assessment

03 Urban Forest Management Plan

04 Discussion

05 Next Steps



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Introduction: The City's Project Team

SAINT PAUL
MINNESOTA



Introductions: PlanIT Geo

PlanIT Geo™
developers of TreePlotter

UFMP Project Manager

GIS Project Manager

UFMP Project Team



Alex Hancock

Director of Urban Forestry Consulting
#FL-9582A



Chris Peiffer

Director of Urban Forestry Strategy
#PD-2070AM



Alec Sabatini

Urban Forestry Specialist



Melissa Nelson

Urban Forestry Specialist

GIS Project Team



Morgan Garner

GIS Manager



Hannah Gregory

GIS Analyst
#IN-3691A



Gaby Durant

GIS Technician

Introduction: Supporting Consultants







"Urban trees and forests are considered integral to the sustainability of cities as a whole. Yet, sustainable urban forests are not born, they are made. They do not arise at random, but result from a community-wide commitment to their creation and management."

CLARK ET AL.: A MODEL OF URBAN FOREST SUSTAINABILITY



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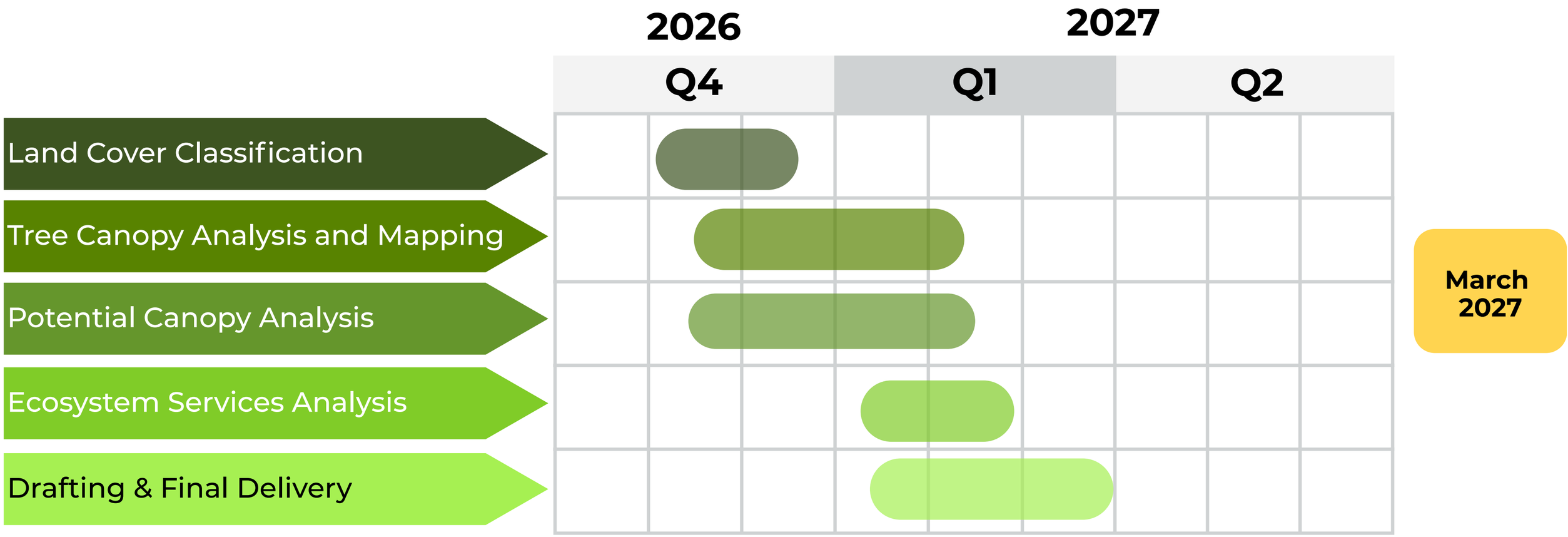
05 Next Steps

Project Approach: Part A

TREE CANOPY ASSESSMENT

TASK 1	Land Cover Classification
TASK 2	Tree Canopy Analysis and Mapping
TASK 3	Potential Canopy Analysis
TASK 4	Ecosystem Services Analysis
TASK 5	Drafting & Final Delivery

Project Timeline: Part A



Task 1: Land Cover Classification

- High-resolution (60 cm) multispectral imagery from the U.S. Department of Agriculture's (USDA) National Agriculture Imagery Program (NAIP)
- Imagery collected during leaf-on conditions in 2025
- EarthDefine uses a deep convolutional neural network (DCNN) combined with machine learning techniques to provide a six-class land cover dataset.
- Historic imagery from 2010 (or 2017/2015) to classify canopy change



URBAN TREE CANOPY



OTHER VEGETATION



SOIL AND DRY VEGETATION



SHRUB OR SCRUB



SURFACE WATER

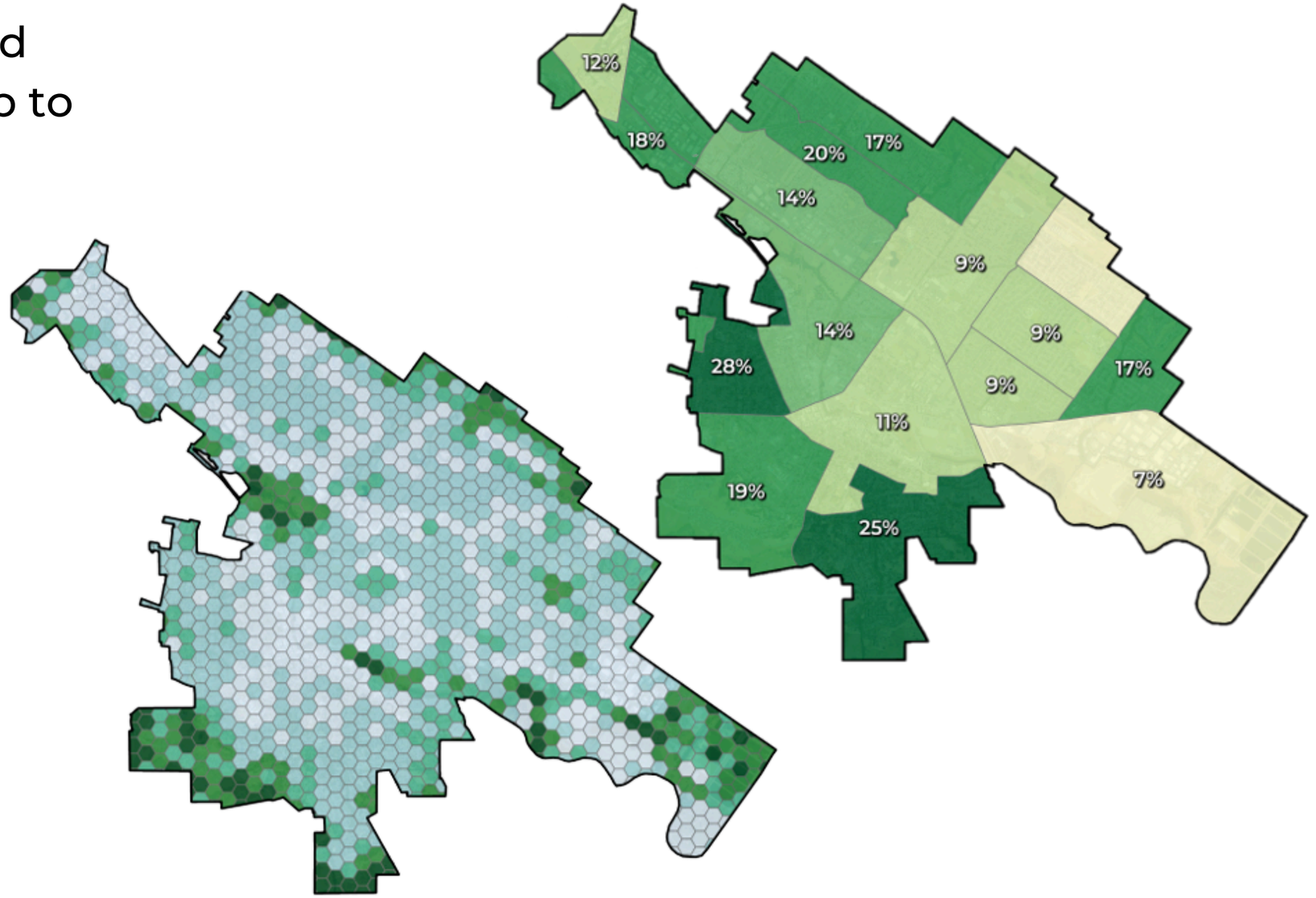


IMPERVIOUS SURFACES

Task 2: Tree Canopy Analysis and Mapping

Distribution of tree canopy and other land cover classes by (up to seven) different geographic (assessment) boundaries:

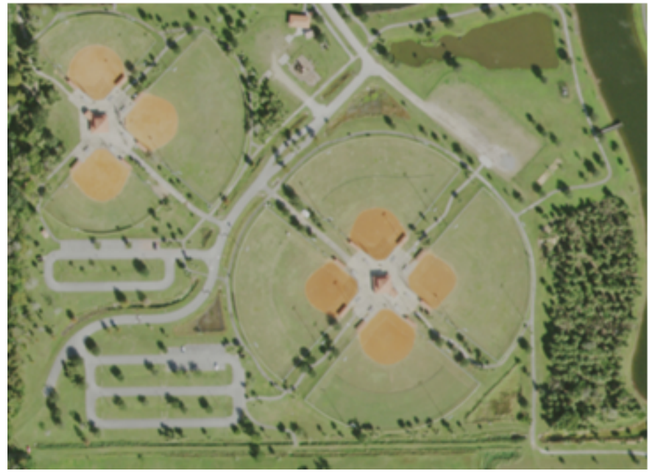
- **City Boundary
- Zoning/Land Use
- Neighborhoods
- Huc-12 Watersheds
- **Census Block Groups
- Ownership
- Right-of-way
- Parcels
- Council Districts
- etc..

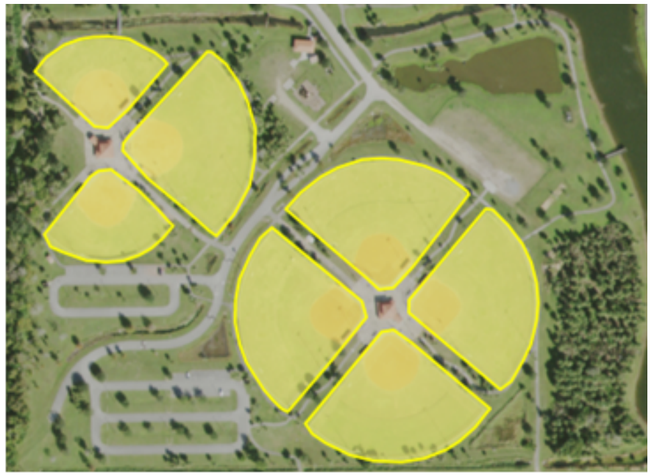


Task 2: Tree Canopy Analysis and Mapping

- Where could the tree canopy be expanded?
- All land area in Saint Paul will be classified as either urban tree canopy (UTC), possible planting area (PPA), or unsuitable for planting.
- Unsuitable areas will be manually delineated and overlaid with the existing land cover dataset
- Possible planting areas are derived from the remaining “other non-canopy vegetation” layer
- Impervious, Bare Earth/Soil, and Shrubs will be classified as unsuitable.

- Standard unsuitable areas:
  - Sports fields
  - Solar panels
  - Major utility corridors
  - Golf greens/driving ranges/fairways
  - Landfills/solar farms
  - Riparian areas?
  - Cemeteries?
  - Anything else?



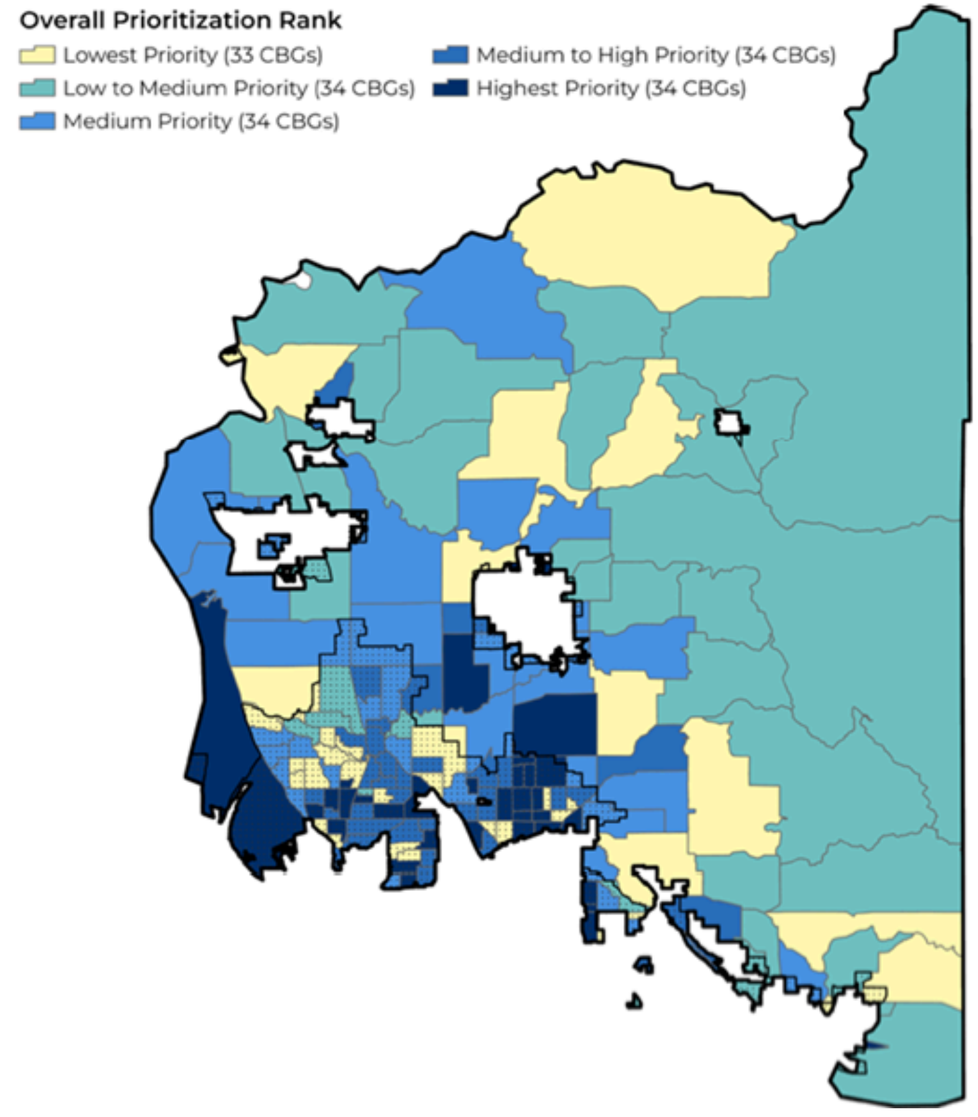


Task 3: Potential Planting Analysis

Where are trees needed most?

- Low canopy
- Underutilization of plantable space
- American Community Survey (Census)
  - Median household income
  - Population below poverty
  - Unemployment %
  - % without GED
  - Vulnerable Populations
- Landsat Surface Temperature
  - High Heat Areas
- CDC Places
  - Mental Health
  - Physical Heath
  - Asthma
  - Cardiovascular Health
  - Composite Health Score

Overall Prioritization Ranking by Census Block Groups (CBGs):



Task 4: Ecosystem Services Analysis

- Quantify ecosystem services trees on both public and private properties throughout Saint Paul
- Uses the latest scientific modeling tools from the U.S. Forest Service i-Tree suite





Benefit	Value		Dollar Amount
Atmospheric pollution removed (CO, NO2, O3, Particulate matter ≤ 10 Particulate matter ≤ 2.5 microns), SO2, and CO2)	459.33	tons of particulate	$1,556,616 total
Runoff avoided	92.3	million gallons/year	$826,158 $/year
Carbon dioxide (CO2) sequestered	9,231.49	tons/year	$1,574,441 $/year
Carbon dioxide (CO2) stored	368,760.08	tons/acre	$62,892,312 total

Task 5: Drafting & Final Delivery

- 7-class land cover raster (tree canopy, shrubs, other vegetation, bare soil, water, impervious, canopy over impervious and pervious surfaces)
- UTC-class raster (existing tree canopy, PPA, unsuitable areas for planting trees)
- Assessment boundaries with land cover metrics appended (Geodatabase)
- UTC Metrics (Excel format) →
- Report (PDF format)

UTC Metrics by Future Land Use

Description	Total Area (Acres)	Land Area (Acres)	Distribution of Land Area %	UTC (Acres)	UTC %	Distribution of UTC %
Central Regional Activity Center	347	347	17%	50	15%	15%
Commercial Recreational (Passive) District	99	84	4%	11	14%	3%
Employment Center	4	4	0%	0	1%	0%
General Commercial	185	185	9%	24	13%	7%
High Density Up To 25.0	124	121	6%	11	10%	3%
High Density-2 Up To 50.0	8	8	0%	2	28%	1%
Institutional	61	59	3%	9	16%	3%
Light Industrial	61	46	2%	6	13%	2%
Low Density Up To 7.0	320	316	15%	73	23%	22%
Low-Medium Density	301	288	14%	56	19%	17%
Medium Density Up To 18.0	293	273	13%	47	17%	14%
Neighborhood	2	2	0%	0	12%	0%
Public Parks	45	45	2%	11	25%	3%
Recreation	142	120	6%	4	3%	1%
Regional Activity Center	66	66	3%	11	17%	3%
Utilities	71	70	3%	12	17%	4%



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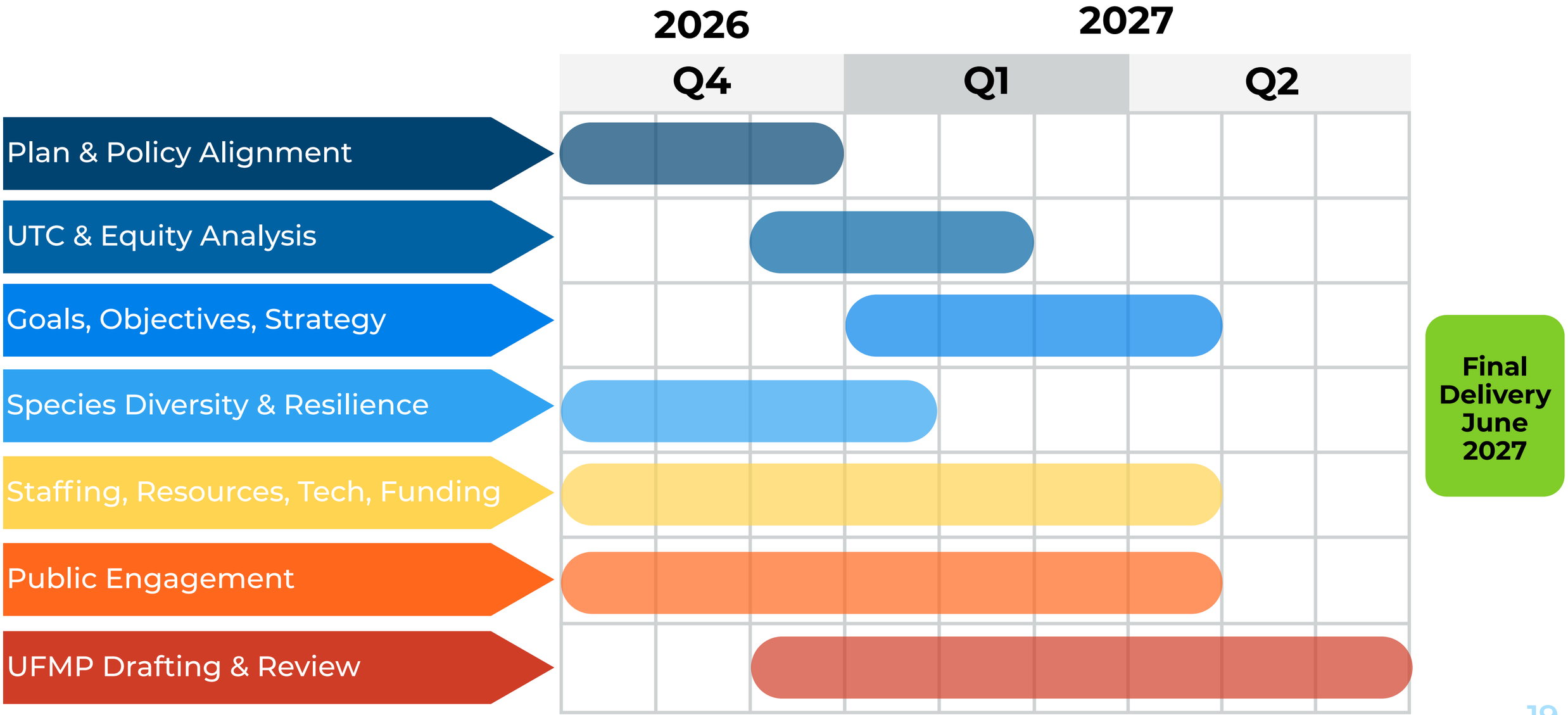
Project Approach: Part B

URBAN FOREST MANAGEMENT PLAN

PlanITGeo developers of TreePlotter | American Forests | GOFF PUBLIC

TASK 6	Plan Alignment & Policy Review	✓	✓	
TASK 7	UTC Assessment & Equity Analysis	✓	✓	
TASKS 8	Goals, Objectives, & Strategic Direction	✓	✓	
TASK 9	Diversity & Resilience Recommendations	✓		
TASK 10	Staffing, Resources, & Funding	✓	✓	
TASK 11	Public Engagement	✓	✓	✓
TASK 12	UFMP Drafting, Review, & Finalization	✓	✓	

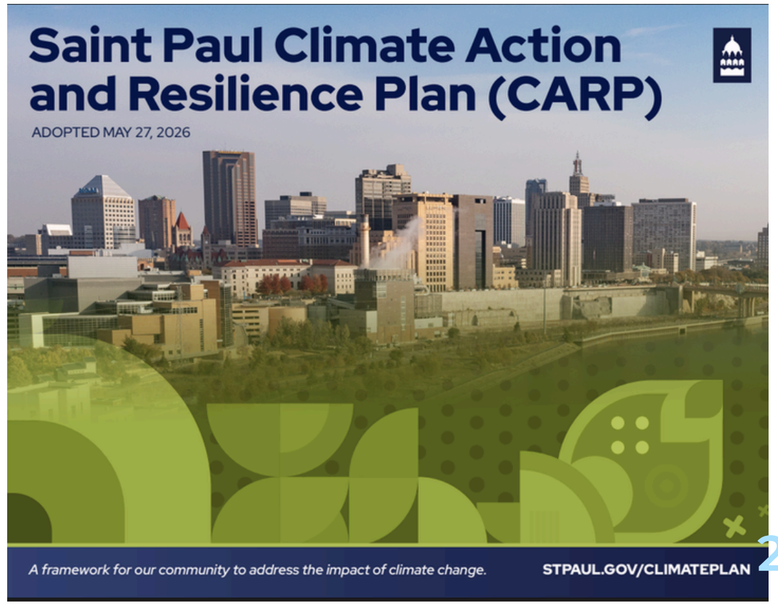
Project Timeline: Part B



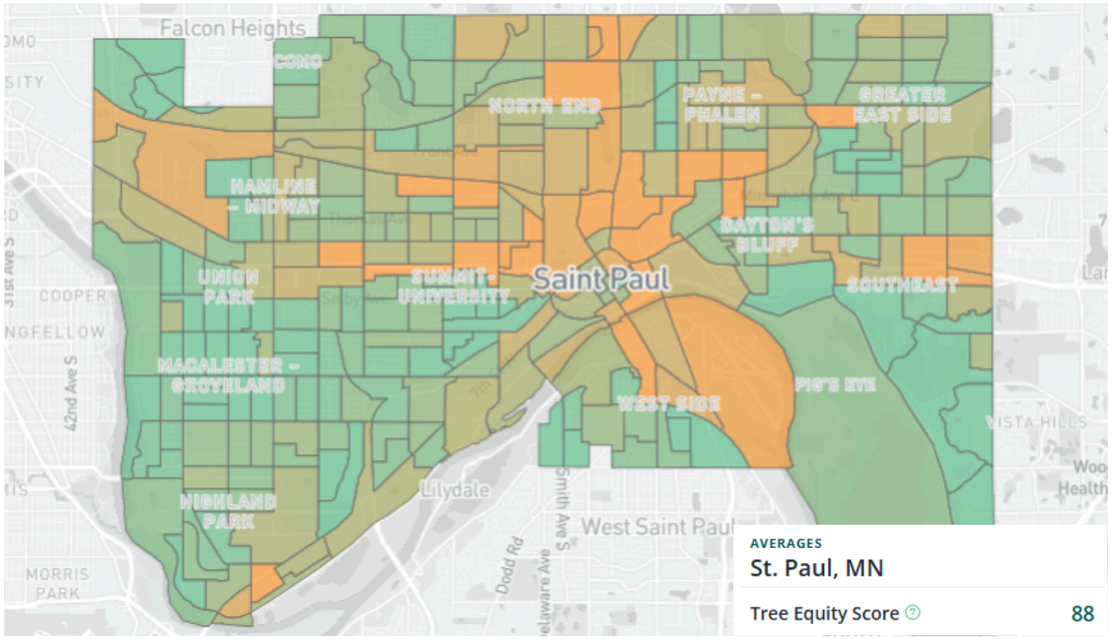
TASK 6: Plan Alignment & Policy Review

- Document analysis: Saint Paul's plans, ordinances, policies, and inter-departmental protocols are review against a matrix
- Request for Information (RFI) form
- Up to 4 remote staff meetings and a staff survey
- Review of the City's equity frameworks by applying a Tree Equity lens
    - Supports the ordinance, protocol, and recommendations subtasks.





TASK 7: UTC Assessment & Equity Analysis



TREE EQUITY SCORE | American Forests™



- PlanIT Geo GIS and Consulting staff lead the spatial analysis, mapping, and canopy goal development.
- American Forests advises on equity metrics and interprets Priority Areas in the context of Tree Equity, supporting the deficit and distribution analyses and canopy goal setting.

TASK 8: Goals, Objectives, & Strategic Direction

- PlanIT Geo leads development of:
  - Vision statement
  - Long-term goals
  - 5-year milestones
  - Annual targets and KPIs,
- Objectives are based on PG Urban Forest Audit / Indicators Framework
- American Forests supports goal, milestone, and target development and aligns Saint Paul's goals with Tree Equity benchmarks
- Goff Public applies the vision framework to ongoing engagement strategies (Task 11)



TASK 9: Species Diversity & Resilience Recommendations

- Technical analysis of inventory and Boulevard Tree List
  - Vulnerability assessment
  - Species diversity, goals, and recommendations using the Sister Climate City Analysis framework
  - Long-term canopy sustainability recommendations



TASK 10: Staffing, Resources, & Funding

- PlanIT Geo leads the operational analysis of Parks Forestry staffing, technology, and funding.
- American Forests supports the budget recommendations and shares funding and partnership lessons from cities that have leveraged Tree Equity frameworks and national funding.



TASK 11: Public Engagement

- Goff Public leads all public engagement subtasks
  - Public engagement plan and support
  - At least two public open houses
  - Outreach to District Councils
  - Community survey
  - Public-facing materials
  - Engagement summary
- PlanIT Geo and American Forests support by keeping engagement aligned with the planning work, messaging, and incorporating engagement feedback into the UFMP



TASK 12: UFMP Drafting, Review, & Finalization

- PlanIT Geo leads UFMP drafting, review, and finalization
  - St Paul staff review and meetings as needed between major drafts
  - Includes executive summary and presentation materials for Council or Commission meetings
- American Forests supports review of the Draft, Second Draft, and Final UFMP and messaging around equity and long-term impact.

