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Treasure Valley Urban Tree Canopy Assessment
Urban Forestry in Southwestern Idaho

Location: Treasure Valley, Idaho

Partners: Plan-It Geo, Idaho Department of Lands, USDA Forest Service, The Keystone Concept, Forty Solutions, Ada County Highway District, Boise State University, the Community Planning Association of Southwest Idaho (COMPASS), Idaho Power, Idaho Department of Environmental Quality (IDEQ), Southwest Idaho Resource Conservation and Development Council, and the cities of Boise, Caldwell, Garden City, Kuna, Meridian, and Nampa.
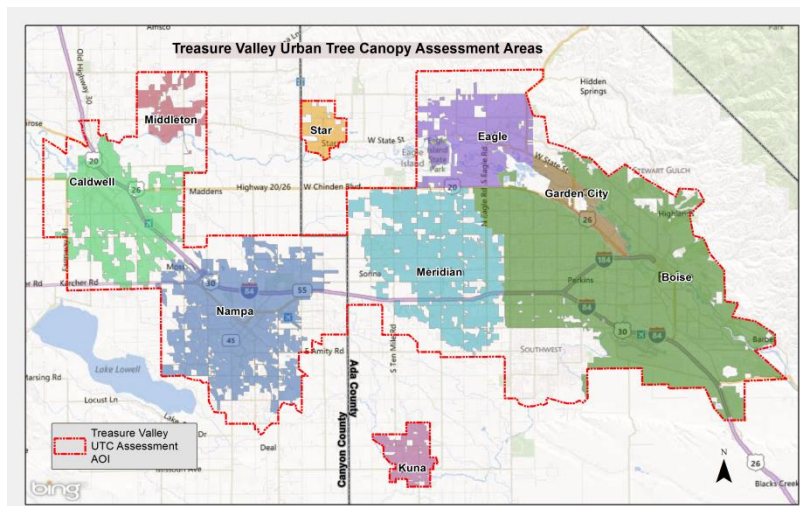

Context: Idaho's Treasure Valley spans two counties, includes the state's capitol, Boise, and is the most populous region in the state with over 600,000 people. For continued healthy and sustainable growth to occur, planners, resource managers and others must address air quality attainment standards, stormwater management, energy use, economic development and planned growth; issues also associated with ecosystem health and the region's tree canopy. To help tackle these challenges, the Idaho Department of Lands (IDL) Community Forestry (CF) program recently completed an Urban Tree Canopy (UTC) Assessment of the Treasure Valley. After the completion of a plot-based i-Tree Eco assessment—the first stage of the project—the Idaho CF Program requested proposals for the second stage: a GIS-based UTC assessment and ecosystem benefits analysis, including development of tools for strategic tree planting prioritization.

Project Description:

The Idaho CF program selected Plan-It Geo to complete the project's second stage, which incorporates data and information from the first stage to evaluate the extent, importance and value of the region's trees and analyze the benefits of future strategic increases in tree canopy.

Plan-It Geo first mapped ten land cover classes—including four vegetation, four impervious and two other classes— using land cover classification and mapping techniques, and by digitizing roughly 130,000 building footprints (in addition to 90,000 existing ones), parking lots and water features. From this information, they created and mapped four different tree canopy and planting categories—existing canopy, possible planting
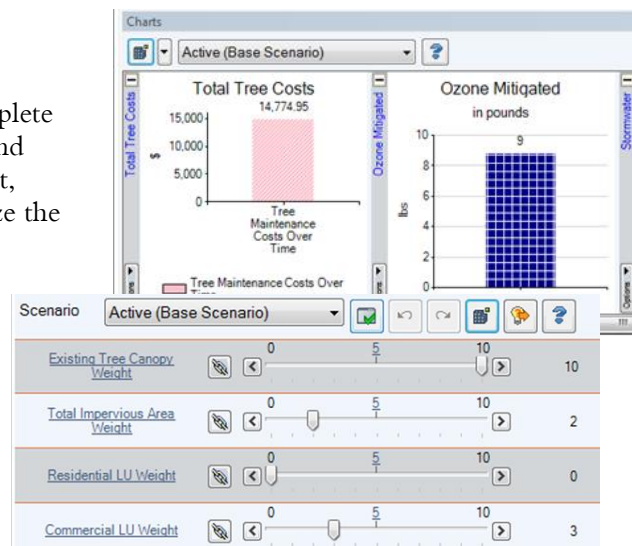
areas–vegetation, possible planting areas–impervious, and areas unsuitable for planting—across multiple different UTC assessment boundaries. Additionally, 1.04 million potential planting sites were mapped and prioritized using GIS routines within the "possible planting areas."

> *"CommunityViz handles complex data, formulas and user-identified and -weighted inputs (assumptions) to quickly locate planting areas that best achieve air quality, stormwater reduction and energy saving benefits, how many trees can be planted in those areas, and the cumulative value of a range of specific benefits they will provide over time. It's a powerful and dynamic tool for planning and analysis."*
>
> *—David Stephenson, Idaho Dept. of Lands*

The next step, an ecosystems services analysis, enables users to evaluate the value of trees beyond their aesthetic appeal. Using data from the i-Tree Eco assessment, Plan-It Geo estimated per-acre and per-tree values for four different ecosystem service types: air quality, energy, stormwater mitigation, and carbon sequestration and storage.

Using CommunityViz as their scenario planning software and incorporating the information noted above, Plan-It Geo created tools for strategic canopy development scenarios. These tools help resource managers and planners identify priority planting areas based on user desires and preferences, and then return the cumulative benefit values over time for specific air pollutants, summer and winter energy use and stormwater mitigated—in both resource units and dollars—should those areas be planted.

Finally, IDL, the Keystone Concept and Plan-It Geo facilitated a hands-on training session for Treasure Valley Tree Canopy Analysis project partners to ensure success during implementation and the achievement of desired outcomes. The use of CommunityViz tools was a special emphasis of the training.

Technology and Partners: CommunityViz Scenario 360, ArcGIS 10.

Outcomes: Project partners are using the CommunityViz scenario planning tools to prioritize tree-planting locations to optimize quantifiable benefits for energy, stormwater and air quality. For example:

- Idaho Power is using the tools to inform and assess a pilot "Energy Saving Trees" planting program to reduce demand-side energy use in residential areas.
- Ada County Highway District will use the scenario tools to inform strategies for managing street trees for maximum stormwater reduction.
- City foresters will use the CommunityViz tools to target planting efforts strategically on both public and private property to reduce ground-level ozone production, filter particulates and reduce stormwater flows, and for education/awareness of tree benefits in demonstrations and site design review.

KEY LINKS
Treasure Valley Canopy Website
www.TV.terrasummit.com
Inside Idaho
www.insideidaho.org
Plan-It Geo
www.planitgeo.com
Recording of the training session
http://cobe-video.boisestate.edu/Mediasite/Play/005ebde68d5d4180b59678a2436fc9981d?catalog=7404c700-8920-4de9-8c8c-94bb8f1d0573

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