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## Prioritization and Planning to Improve Urban Tree Health in the Chicago Region

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## Prioritization and Planning to Improve Urban Tree Health in the Chicago Region

The Chicago Region Trees Initiative (CRTI) has collected one of the largest data sets on urban forestry in the United States. This data informs where and how CRTI prioritizes its work and capacity building. This data has been incorporated into interactive online resources that communities and neighborhoods can access to help decision makers, landowners, and managers understand where and what to plant, the value of the urban forest, impacts of woody invasive species, heat island challenges, and where opportunities exist for oak ecosystem enhancement. This data helps CRTI and its partners to prioritize action.

### Keywords

urban forest plan, collation building, urban forested natural area, urban ecology, urban climate resilience, urban tree canopy

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## INTRODUCTION

The Chicago Region Trees Initiative (CRTI) has collected one of the largest data sets on urban forestry in the United States. This data informs where and how CRTI prioritizes its work and capacity building. This data has been incorporated into interactive online resources that communities and neighborhoods can access to help decision makers, landowners, and managers understand where and what to plant, the value of the urban forest, impacts of woody invasive species, heat island challenges, and where opportunities exist for oak ecosystem enhancement. This data helps CRTI and its partners to prioritize action.

## CONTEXT

The Urban Trees and Forest of the Chicago Region (Nowak et al. 2013) revealed that the region's forest is under threat. These results spurred The Morton Arboretum to found the CRTI, a regional coalition of organizations working together to address urban forestry challenges across the seven county Chicago metro region. While this report provided a general overview of the urban forest in the Chicago region, it did not provide site specific data which was needed to inform local decision makers, landowners, and managers and help them make sound decisions on behalf of the urban forest where they live and work.

The CRTI, U.S. Forest Service, and the University of Vermont completed LiDAR analysis for each of the seven counties, allowing analysis of canopy cover at the property scale. Then CRTI collected 80+ public property tree inventories, 500+ private property inventories, US Census data, heat maps, air quality data, flooding data, Medicaid claims data, remnant oak ecosystem mapping, and a survey of operational capacity for 174 municipalities to create a clear understanding of the Chicago region's canopy condition now and what it could be in the future. Additionally, Chicago Wilderness through the Oak Ecosystem Recovery Plan mapped remnant oak ecosystems, 1939 aerial, and 2010 aerial maps of oak ecosystems and developed a strategy to inform their care and protection (Fahey et al. 2015).

This data has been made available through an interactive map for partners and interested individuals and organizations to review.

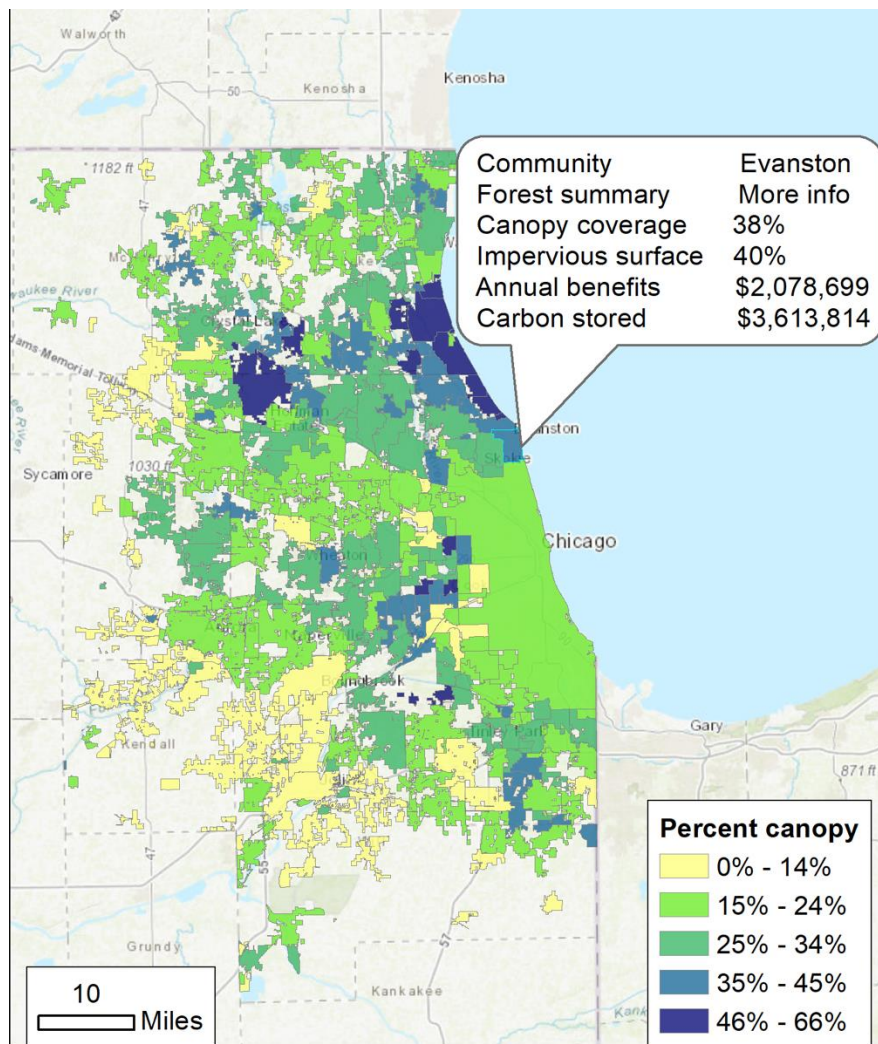


Image 1. Interactive Canopy Map. Together, all of this data provides a clear view of what the region’s canopy composition is, the capacity to manage it, and enables prioritization for where and how to improve that canopy.

## GOAL

The CRTI has identified four goals to improve the urban forest, resulting in improved quality of life. The first goal to *Inspire people to value trees* is the foundational goal upon which all of the other goals are based. The data that CRTI has collected, when coupled with benefits analysis, tells the story of the importance of the region’s canopy and the challenges it is experiencing. The CRTI can provide information on the value of the urban forest and customize this information for that individual organization. This is important because resource allocation is often determined based on perceived value and the knowledge of the individual making those decisions.

Our second goal to *Increase the Chicago region’s tree canopy* relies on the CRTI data to show what the urban forest is, where it is located, and what trajectory it is likely taking. This information and what actions are taken will impact the future. The CRTI knows what is needed

to increase the canopy (currently at 18%) and that there is significant potential to do so. The CRTI also knows that this requires working closely with the nursery industry and those who purchase and install trees so that trees are selected and planted correctly resulting in the greatest opportunity to thrive.

The third goal to *Reduce threats to trees* is also based on the CRTI data because CRTI has a clear understanding of the composition of the Chicago region's forest, where it is located, the capacity of people to care for it, and how this canopy is impacting the lives of people. The Chicago region's species diversity is low. There is a need to educate the public and nursery owners that broader species diversity is needed and why.

The fourth goal to *Enhance oak ecosystems* is informed by the Oak Ecosystem Recovery Plan (OERP) (Fahey et al. 2015), including maps for oak ecosystems from the 1830's, 1939, and 2010. This data identified where attention and resources are needed and how it can be directed to improve oak ecosystem preservation, protection, and enhancement for improved overall health and function.

## APPROACH

The CRTI has tools and methods for a multi-level approach to educate and engage landowners of built and naturalized properties. CRTI partners work to educate and engage individual citizens through training and volunteer events so they can become advocates in their community. Individual citizens (volunteers) are the largest and best resource for public decision makers and many decision makers do not take advantage of this resource. Park districts and forest preserve/conservation districts use volunteers to plant and care for trees in built and natural environments. The CRTI has developed a volunteer training program for municipalities so they can see how to use volunteers and have a structure in place to prevent liability. This information has also been integrated into individual volunteer training so volunteers know what questions to ask and how to get involved in their communities.

The CRTI is currently working to expand its outreach and resources to broader audiences. The CRTI understands these relationships take time and that change comes from within the organization based on their own interests and goals. If CRTI can begin by engaging with the individuals or groups where they are, and to understand what their needs and interests are, it is much more likely to succeed in sharing the messages and practices about the importance of urban trees.

The CRTI's data has allowed the CRTI to prioritize communities with the greatest needs. These communities have high impervious surfaces, increased flooding, poor air quality, few resources, high vulnerable population, heat, high Medicaid claims, and low canopy cover. The top ten priority communities (out of 284) are located in Cook County, typically in communities that were industrial hubs. The CRTI has also identified the top five (out of 79) priority neighborhoods in the City of Chicago.

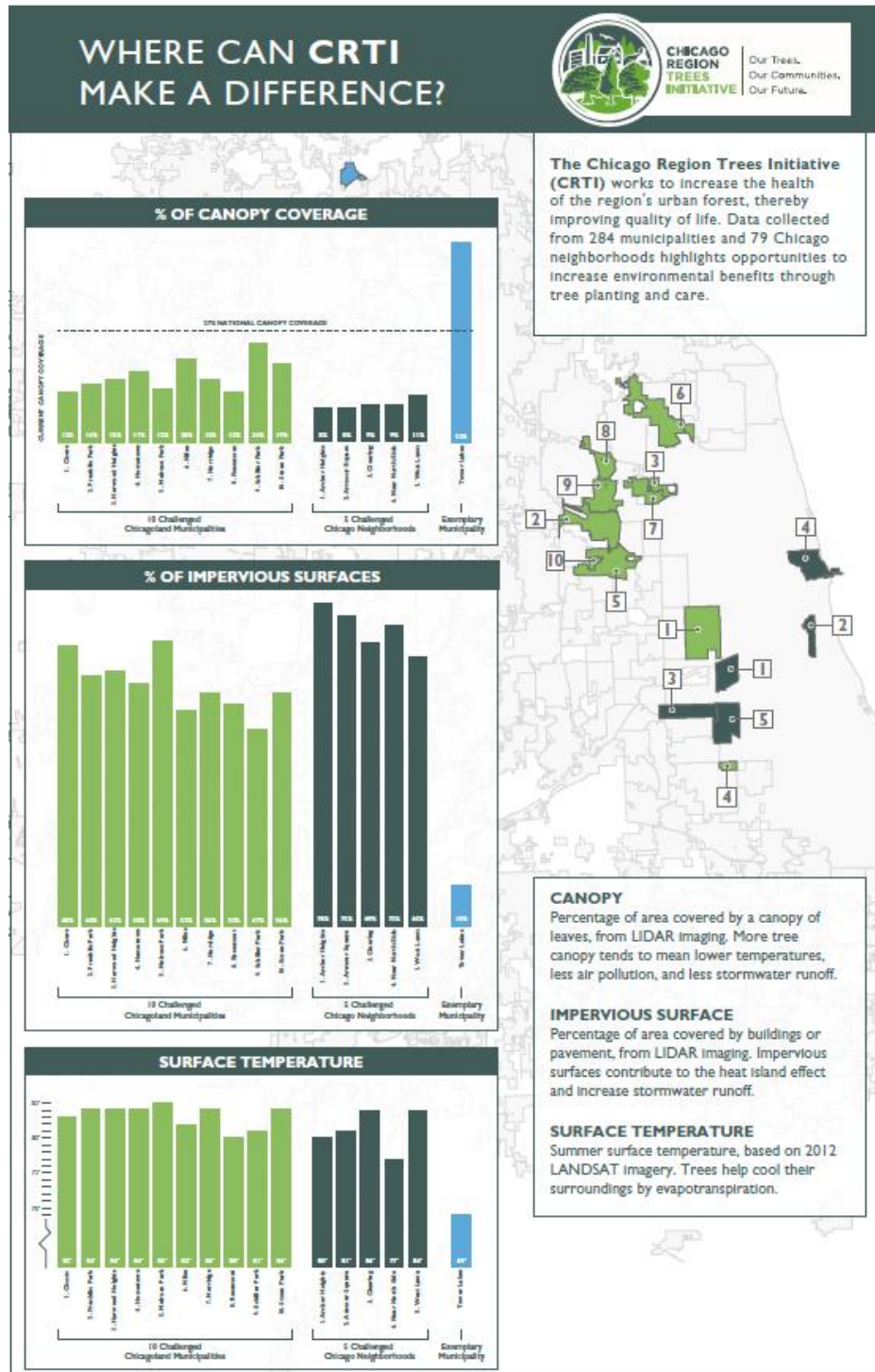


Image 2. Community and neighborhood prioritization.

An example of this approach is the City of Chicago. Historically, the City of Chicago has been removing 15,000 trees per year and only replanting 3,000. This has been exacerbated by a gray infrastructure problem (lead in water lines) and a lack of cooperation and communication

between the Forestry Department and the Water Department. Residents in the city are speaking up and asking for better solutions to improve the tree canopy in the city. They recognize that these trees are reducing their energy bills and flooding, improving air and water quality, and helping their property values. CRTI has been supplying the new administration and aldermen with the data to show why the city should be investing in trees. The new mayor is also very interested in equity issues, and the CRTI has been able to provide data on how equity is a clear problem with respect to tree canopy and how improved tree canopy can help to address some of these equity issues.

The CRTI has provided canopy summary information to the new mayor and her team and also provided data for each of the wards and neighborhoods in the city so that the new mayor and aldermen can see how they stack-up against other communities and neighborhoods. The CRTI has also shared a Priority Story Map that allows quick visual comparison across the region for a wide range of concerns, e.g. air quality, heat, flooding, canopy cover, vulnerable population, and operational capacity issues. And finally, the interactive oak ecosystem recovery map allows individual landowners to zoom into their community/property and see how they are tied to remnant oak ecosystem areas, how they can connect to core oak ecosystem complexes, and where they can find resources to help them.



## INTERACTIVE PRIORITY STORY MAP



Image 3: Priority Story Map at ChicagoRTI.org.

## LITERATURE CITED

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