

# URBAN FOREST INVENTORY AND ANALYSIS COMMUNICATIONS AND OUTREACH MESSAGING GUIDE

## Purpose

This messaging guide outlines how the Urban Forest Inventory and Analysis Program (Urban FIA) should be communicated, ensuring consistency and clarity in all messaging across different channels and from different sources. It includes recommended target audiences, benefits, and the value of the data and platforms, and key messages. This guide is to be used as the foundation for all communication – including presentations, articles, and social media posts.

The primary audiences are non-forestry audiences. Messages are written and delivered in clear, common language, relatively free of jargon and acronyms.

For this type of audience, the primary data platform promoted in the following messages is the My City's Trees platform. Urban Forest Stats is introduced as a complementary tool.

References to the program are as follows:

First reference: Urban Forest Inventory and Analysis

Second reference: Urban FIA

If needed, and used sparingly: UFIA

Messages will:

Reinforce the positive perception and support of urban forest management

Provide a means to find solutions and mitigate issues

Instill a sense of authority, trust, and service from our agencies and cities

Instill a sense of environmental responsibility

## Goals

Raise awareness of Urban FIA, the program, and data products

Elevate the importance of data-driven decision-making

Support the user network for tree advocacy and stakeholder engagement

Provide consistent, collaborative messages, tools, resources, and training

Garner and support partners and stakeholders for Urban FIA data education and promotion

Use multiple communication channels

## Audiences

Communities and municipalities

Homeowners and residents

Environmentally engaged community members

Stewardship and natural resource organizations

Governmental agencies  
Researchers and academia  
USDA Forest Service

## Talking points and messages

### General overview

There's a census for trees — and it is making it more effective than ever to grow and protect our urban forests.

Urban Forest Inventory and Analysis provides data on the health, quality, and composition of urban trees and forests. This helps when our planners and foresters are making decisions on public and private trees in our community. Knowing tree species, size, and location helps our communities to weather the storms and optimize our health.

### Strength of partnerships

Partnerships are essential for effective urban forest management because they facilitate resource sharing, knowledge exchange, community engagement, and long-term sustainability.

### Communicating is key

Communications, education, and awareness campaigns fill crucial roles in urban forest management and in community and environmental sustainability. Since Urban FIA transcends the one-time snapshot of inventory data on the ground, it requires an ongoing communications and education process to continuously apply data to decision-making when our planners and foresters are monitoring and managing public and private trees in our community.

Cities and communities inform the public and empower individuals to:

- make informed decisions about resource management practices and personal responsibility in protecting their urban forests and communities
- adopt and accept more sustainable forest management practices
- support and advocate for policies that protect communities and the environment
- influence policymakers to implement and enforce practices that also benefit and protect the environment

Urban FIA enables us to communicate and translate the value of the urban forest to non-forestry-based audiences and decision-makers.

## About Urban FIA

Urban Forestry Inventory and Analysis is a strategic-level inventory and monitoring program that helps communities and their stakeholders understand the structure, function, and value of the urban forest. The program establishes permanent research plots that are remeasured on a recurring cycle in perpetuity. Because Urban FIA plots are continuously measured, effects of stewardship practices, weather patterns, and other events on the resource can be identified, leading to more effective urban forest management and better decision-making.

The USDA Forest Service's traditional Forest Inventory and Analysis (FIA) Program provides critical information needed to assess the status, trends, and sustainability of the Nation's forests through its National Forest Inventory. A system of forest measurement field plots across the United States serves as the program's foundation.

The FIA program primarily focuses on rural, undeveloped, and wildland forests. The data it gathers is used for broad-scale assessments, such as:

- Timber resources: estimating the volume of wood and timber available.
- Forest health: tracking things like disease, insects, and wildfire risk.
- Carbon storage: calculating the role of forests in sequestering carbon.

The sampling for traditional FIA is designed to provide statistically reliable data for large geographic areas, like states or regions, but it's not well-suited for the unique characteristics of specific urban environments.

In 2014, the Forest Service extended its annual forest data collection, analysis, and reporting to urban areas creating the Urban FIA Program.

Urban FIA methods and protocols were developed based on the National Forest Inventory and i-Tree Eco and are now in use to produce estimates of the quality, health, composition, and benefits of urban trees and forests. The Urban FIA program complements existing regional and local efforts to provide a cohesive picture of urban forest conditions in the U.S.

Urban FIA captures data, including:

- Individual tree data: including species, size, health, and location. This allows for fine-scale analysis of the urban tree canopy.
- Ecosystem services: directly measuring the ecosystem services provided by urban trees, such as stormwater runoff reduction, air pollution removal, and energy savings. This data helps cities quantify the value of their urban forest.
- Social and community metrics: incorporating data on the distribution of trees in relation to demographics, which is crucial for addressing access to and benefits of the urban forest to people.

While traditional FIA looks at the forest as a whole, mainly for large-scale ecological and economic purposes, Urban FIA can focus on the direct impacts of trees within urban settings on the day-to-day lives of city residents. It's a more granular and comprehensive tool tailored to the specific needs and challenges of managing a forest within a built environment.

Active urban forest management is an ongoing and ever-evolving process. Urban FIA transcends the one-time snapshot of inventory data on the ground. It requires an ongoing communications and education process to continuously apply data to decision-making when our planners and foresters are monitoring and managing public and private trees in our communities.

Urban FIA results are delivered through traditional reports and four innovative digital platforms: My City's Trees, Urban Forest Stats, Urban FIADB-API, and Urban DataMart. They provide varying levels of information, including geospatial tools applied nationally to improve, guide, and advocate for the importance of urban forest management in our communities.

Currently, there are more than 40 cities collecting this data in over 20 states, with most of those states collecting data statewide in urban areas. The long-term goal is to have all 50 states and over 100 cities collecting this data.

## Platforms that use Urban FIA

### My City's Trees

My City's Trees is a simple application to use and the most engaging for broader audiences. It's an application that enables anyone to access summarized Urban FIA data and produce custom analyses and reports of urban forests — public and private trees where people live, work, and play — in cities across the country.

A key feature of My City's Trees is the map themes, which allow exploration of the inventory by smaller geographic areas within the city. Themes vary between cities to reflect local resource issues, but include such things as land cover, population density, and heat island effect.

As additional data from the growing program becomes available, it will be added to My City's Trees.

My City's Trees is available through a partnership between the USDA Forest Service and Texas A&M Forest Service.

<https://mct.tfs.tamu.edu>

### Urban Forest Stats

Urban Forest Stats provides access to estimates produced by Urban FIA data, with nearly endless possibilities for customization. Using live connections to the USDA Forest Service

Urban FIA database, it always serves the latest data available. Urban Forest Stats was designed to meet the needs of a wide range of users, so it has progressive levels of complexity that can be ignored or revealed as needed.

Through Urban Forest Stats, users have access to many more types of estimates than the subset displayed in My City's Trees and can choose how to summarize those estimates. Filtering capability, sampling errors, and data export options add to the value of Urban Forest Stats, as well as a two-page pdf summary report that pulls together key estimates.

Urban Forest Stats is available through a partnership between the USDA Forest Service and Texas A&M Forest Service.

<https://texasforestinfo.tamu.edu/urbanforeststats>

## Urban FIADB-API

Urban FIADB-API, an application programming interface to pull data from the USDA Forest Service Urban FIA database, is what powers Urban Forest Stats. It is designed to meet the needs of technical users by allowing them to directly programmatically query the live Urban FIA database. While it requires more technical expertise than My City's Trees or Urban Forest Stats, it is a powerful tool for accessing Urban FIA data.

Urban FIADB-API is available through the USDA Forest Service.

<https://apps.fs.usda.gov/fiadb-api/urban>

## Urban DataMart

Urban DataMart is available to individuals interested in conducting their own analyses using Urban FIA data, giving access to the full database in csv and SQLite format. It is the most complex option for accessing Urban FIA data but provides full flexibility. A detailed user guide is available to help users navigate the database structure.

Urban DataMart is available through the USDA Forest Service.

<https://research.fs.usda.gov/products/dataandtools/urban-datamart>

## Integrity and depth of the strategic data

Urban FIA provides data that is both reliable and comprehensive, making it a valuable resource for urban forest management, research, and policy decisions.

Urban FIA uses standardized methods and trained professionals to collect data, minimizing bias and ensuring objectivity in scientifically credible data. The program follows similar certification and quality control protocols as the National Forest Inventory implemented on rural lands, ensuring data accuracy and consistency.

Ecosystem service values are calculated using published i-Tree Eco methods, which are rooted in peer-reviewed science.

The strength in the data comes from long-term monitoring and repeated measurements over time allowing for in-depth analysis.

## Public access, ease of use

The suite of Urban FIA data delivery platforms provides the right access for every kind of user. The My City's Trees and Urban Forest Stats websites provide user-friendly access to Urban FIA data, appealing to a wide audience, including researchers, urban planners, and the general public. For those interested in more technical uses, Urban FIADB-API provides a good entry point and the Urban DataMart directly gives them the full database.

## Reasons and benefits for using Urban FIA data

### Planning

Urban FIA provides city-wide strategic data on public and private trees that helps city planners and urban foresters make informed decisions. Addressing challenges requires a comprehensive and strategic approach to urban forest management planning. This includes translating the value of urban forests to decision-makers and the public, increasing partnerships between mission-compatible organizations, and supporting tree species and age diversity to enhance the resilience and benefits of the community's urban forest, all of which is made possible by the development of data-based prioritization tools for practical and policy decisions.

### Inventory

The Urban FIA inventory brings unique value that complements other sources of community tree data. With the permanent establishment of plots and annualized field data collection across all lands — public and private — Urban FIA is able to provide information on the status and trends of urban trees and forests over time, including services they provide, their health, and future risk from insects and disease.

How is Urban FIA data different from other community tree data?

#### *Tree inventories*

Many municipalities survey trees that they manage, often along streets and in parks. While a community's tree inventory is an important tool in municipal management, this kind of inventory is limited in attributes, geographic reach, land type, and continuity. They do not suffice for a continuous assessment of the entire community urban forest resource, nor do they typically give the value of the services that trees provide to residents.

### *Tree canopy*

Aerial images and other remotely sensed data are analyzed, and the land is classified into different types, such as tree canopy, grass cover, and impervious surface. This top-down perspective is important in assessing the urban forest extent and identifying potential planting locations. But a canopy analysis offers little in terms of species composition, health status, tree size, or pest risk; it is an overhead snapshot of tree location.

There is a difference between an urban forest inventory of trees done at the local level and an Urban FIA inventory.

- A local urban forestry tree inventory is a detailed census or health check of the public trees in a neighborhood or city, designed to help with their care and planning.
- Urban FIA inventory is more than a snapshot of the urban forest across a city. It is designed to understand the overall status and trends, which are analyzed over time to give an assumed canopy value that can be compared with other cities and contribute to a national picture.

All of these types of information can be valuable, but they serve different primary purposes and operate at different scales. Urban FIA can complement local urban forestry inventories by providing a broader context, standardized data, and continuity.

## Trends and patterns

Urban FIA provides statistically sound data for assessing the status, trends, and health of urban trees and forests at a broader, strategic level, often focusing on city-wide or metropolitan-area scales, contributing to national-level understanding, and allows for comparisons and regional/national assessments.

By consistently collecting and analyzing Urban FIA data over time, communities and researchers can gain a deeper understanding of the complex dynamics of urban forests, identify key trends and patterns, and make more informed decisions for their sustainable management and conservation.

Trends and patterns that can be identified using Urban FIA include the structure and composition of urban forests, health and condition, ecosystem services and benefits, dynamics and change over time, and some social and economic aspects.

## Stewardship

While Urban FIA's primary goal is data collection and analysis for strategic-level understanding of urban forests, the information it provides, and the process of its collection, can directly and indirectly promote various stewardship opportunities. It can provide data to inform local action such as identifying areas of need, justifying resource

allocation, and engaging the public in raising awareness and increasing partnerships and collaboration.

## Resiliency of the forest

Urban FIA plays a crucial role in enhancing the resiliency of the urban forest. It helps track trends over time in forest health, species decline or increase, and the impact of environmental changes and management practices on the urban forest. Urban FIA can inform species selection for future resilience, providing context for promoting diversity and understanding native vs. non-native species impacts. Using Urban FIA can help track progress towards building a more resilient urban forest that can withstand current and future environmental challenges.

## Identifying where trees can do the most good

Urban FIA data can be a powerful tool for identifying areas where trees can do the most social good. My City's Trees demonstrates this capability by overlaying indicators of things like urban heat island effect and population density with Urban FIA inventory data. By understanding the intersection of environmental need and human elements, urban forestry efforts can be strategically directed to improve public health and enhance the quality of life for all residents.

## Telling the story of ecosystem services

Urban FIA provides the factual basis for understanding the current contributions and monetary value of a community's urban forest to air quality, human health, flood mitigation, energy conservation, and more. Working with tools like My City's Trees and Urban Forest Stats and visualizing the spatial distribution of these values, the story of these vital ecosystem services can be effectively told, informing decisions and inspiring action to enhance the community's green infrastructure and the well-being of its residents.

## Knowledge of biomass levels

Biomass is the weight of tree parts like trunks, branches, leaves, and roots. In cities, knowing how much biomass is in the urban forest helps us estimate how much carbon trees store, how much shade they provide, and how they affect things like air quality and cooling. This information is useful for planning, managing tree care, and setting urban forestry goals. The Urban FIA program uses scientific formulas called allometric equations to estimate biomass, along with carbon and volume.

## Natural Hazard Mitigation

Urban FIA data is valuable for understanding and promoting urban trees and forests' role in natural hazard mitigation. Urban FIA data includes estimates of the amount of rainfall intercepted by trees and the corresponding volume of stormwater runoff avoided, so changes in this capacity can be tracked as the forest structure changes. Urban FIA also records tree species and dimensions (height, DBH). This information can be used to assess the potential for wind damage during severe storms.

Long-term Urban FIA data collection can track the health and survival of different tree species under changing conditions, including increased temperatures and drought stress, which can exacerbate wildfire risk and weaken trees making them more prone to storm damage. Identifying resilient species is necessary for long-term hazard mitigation.

By strategically using Urban FIA data, communities can better understand, plan for, and mitigate the impacts of various natural hazards, enhancing the safety and resilience of the community.

## Biodiversity Conservation

By providing a systematic and statistically sound understanding of the urban forest's composition and condition, Urban FIA serves as a vital tool for informing and monitoring biodiversity conservation in urban ecosystems.

Using Urban FIA, communities can identify the prevalence of native and non-native trees, understand the general distribution of trees throughout the community, evaluate the presence of different tree sizes and canopy cover, monitor tree health and the presence of invasive species, and use this information to guide tree planting and management practices that prioritize native species, enhance habitat complexity, and mitigate threats to biodiversity.

## Benefits of urban forests

### Value of urban forests

The Urban FIA program uses robust, repeatable data collection protocols and sound science-based analysis and modeling techniques to quantify the economic and ecological value of urban forests. My City's Trees provides a simple interface to access this data and generate reports that summarize the value of these benefits for specific cities or areas. Additional information can be retrieved from Urban Forest Stats, with the ability to produce custom configurations of estimates and easily export the results for further analysis if desired. An application programming interface and the raw data are also available.

## Energy savings

Using established i-Tree Eco methods, Urban FIA calculates residential energy savings by assessing how trees reduce the need for air conditioning and heating. Trees provide shade, which cools buildings and lessens the demand for air conditioning, thus lowering energy consumption. In winter, trees provide breaks from the wind, which reduces heating needs. These reductions are offset somewhat by increased heating needs when trees shade homes in winter. The program assigns a monetary value to these effects as part of its overall valuation of the benefits of urban trees.

## Health benefits of air purification

The Urban FIA program quantifies many of the benefits of urban forests, including air purification and resulting health effects. The health benefits are calculated by quantifying the positive impact of trees on air quality through pollution removal and then translating those improvements into economic terms by assessing the reduction in health-related costs, such as cases of acute respiratory symptoms.

## Public and private trees

The Urban FIA program's assessment of both private and public trees provides a more complete and accurate valuation of an urban forest's total economic and ecological benefits. By including trees on all lands, Urban FIA can more accurately calculate the overall impact of urban trees than a public tree inventory on air quality, water runoff, and other factors. Understanding the distribution and composition of trees across public and private lands helps in developing more effective urban forest management strategies.