Sanborn Green Infrastructure Maps are developed specifically for American Forests’ CITYgreen program. CITYgreen is a powerful GIS software application designed to assist in land use planning and policy making. The software conducts complex statistical analyses of ecosystem services and creates easy-to-understand maps and reports, while calculating dollar benefits based on specific site conditions.

**Land Use Planning Maps for Citygreen® Programming**

**CITYgreen analyzes:**
- Stormwater runoff
- Carbon storage
- Air quality
- Tree growth
- Energy savings
- Water quality

With CITYgreen, a community can take advantage of natural systems to produce the maximum economic benefits for a growing area. CITYgreen uses the most up-to-date scientific research to calculate the dollar value of trees and vegetation.

**CITYgreen creates:**
- Broad regional studies or detailed small site assessments
- Ecological maps revealing resources value
- Models for future growth
- Colorful, easy-to-understand presentations
- Automatic reports that summarize key findings

**Who uses CITYgreen?**
- Planners modeling development scenarios and landscape ordinances
- Engineers to evaluate tree loss and stormwater impacts
- Urban foresters maintaining planting and preservation
- Developers for erosion control and stormwater management
- Regulatory agencies measuring air quality benefits

**Applications**
Sanborn’s Green Infrastructure products are designed specifically for American Forests’ CITYgreen program. The datasets are built for the classes that are input into the CITYgreen models that can be used for planning and land management applications, such as:
- Pervious/Impervious for stormwater and drainage management
- Green Infrastructure planning and inputs into CITYgreen for American Forests
- Canopy analysis for environmental assessments

To get started, you need only a green infrastructure layer, and American Forests’ CITYgreen software. Sanborn can collect high resolution multispectral imagery over an area of interest, or use existing imagery to create land cover datasets for a community. Using proven, semi-automated classification techniques, we produce precise, accurate, and detailed green infrastructure maps to meet all needs. This provides the comprehensive land cover inventory that is required for the CITYgreen software, as well as data for effective land use planning and management. With this information, changes in the landscape can be monitored over time through change detection analysis.
How Can Your Community’s Urban Forest Work for You?

A city’s urban forest is an indispensable tool that can provide many ecosystem and cost benefits for the community. It is a crucial asset in helping your community reduce infrastructure and stormwater management costs and is valuable in helping to meet federal, state, and local air and water quality regulations. Sanborn’s land cover data and American Forests’ software CITYgreen help communities quantify the benefits of existing and/or planned green infrastructure by calculating and demonstrating:

**Ecosystem Benefits**
- Reduce stormwater runoff
- Improve water & air quality
- Store and sequester carbon

**Cost Savings**
- Reduce waste water mgt. costs
- Reduce built infrastructure costs
- Increase real estate values

Let us show you how your community’s urban forest can be a valuable asset in:
- Helping to meet air and water quality regulations
- Implementing best management practices
- Saving money using green infrastructure
- Providing air and water benefits

**Selected Projects**
- Palm Beach County, FL
- Flower Mound, TX
- Miami-Dade, FL
- City of Bellevue, WA
- US Gulf Coast
- Prince William County, VA
- Wayne County
- City of Detroit, MI
- City of San Antonio, TX
- City of Ann Arbor, MI

**CASE STUDY**

**Palm Beach County, Florida**

Palm Beach County, Florida, uses Sanborn data and American Forests’ software to build hurricane resiliency strategies the community’s urban forest infrastructure. The sample below (from a 2004-2006 post-hurricane study) shows county-wide tree canopy loss in red.

**Issue**
Prompted by significant tree canopy loss from recent hurricanes, Palm Beach County wanted to create a baseline of urban forestry restoration and more broadly, connect future land-planning decisions to green infrastructure.

**The Analysis showed**
- 17% loss of tree canopy due to hurricanes
- 6% loss due to urban development
- Canopy loss resulted in a loss of:
  - Stormwater management/mitigation ($292 million)
  - Annual air quality benefits ($11.9 million)
- Native trees in undisturbed soils are much more resilient to hurricanes than exotic species planted in irrigated lawns.

**Implementation**
With this study completed Palm Beach County Department of Environmental Services (ERM) can now measure and tie its urban forest ecosystem benefits to regulatory mandates.
CASE STUDY

Bellevue, Washington

The City of Bellevue, Washington, uses Sanborn data and American Forests’ software to identify and quantify the ecological and dollar return on investment in the city’s urban forest. The sample imagery below shows the city’s urban forestry map as modeled using 2007 high-resolution multispectral landcover classification data.

Issue
The City of Bellevue, Washington, has lost 9% of its tree canopy over the last 10 years.

Analysis
The analysis quantified loss over time, measured existing tree canopy as a baseline, quantified ecosystem benefits, and recommended goals per land use.

Modeling with CITYgreen software showed that a 5% increase in ROW tree canopy provides an additional 1.9 million cu. ft in stormwater runoff mitigation—valued at $3.7 million.

Implementation
Bellevue will incorporate canopy goals into their green infrastructure master plan to mesh policy with existing city codes. This provides basis of the city’s action plan and priority expenditures to increase citywide canopy cover.

Bellevue’s Urban Forest Ecosystem Cost Savings/Benefits:

- Air Quality/yr. $1.5 million
- Storm Water Savings $123 million
- Carbon Stored 332,000 tons
- Carbon Sequestered/yr. 2,582 tons
American Forests’ mission is to grow a healthier world with trees. Our community-based initiatives help people plan and implement local actions that restore and maintain healthy ecosystems and communities. Our Urban Ecosystem Center offers individuals, organizations, and agencies Ecosystem Analyses and CITYgreen® software, a powerful GIS tool, to evaluate impacts on urban ecosystems. The Center also offers regional training, teacher workshops and technical support for CITYgreen. American Forests is a certified ESRI developer and reseller of ArcGIS products.

www.americanforests.org

Sanborn is a 21st century industry leader in geospatial solutions and technology, offering superior services, program management, and customer support. For our clients we provide a national presence, extensive resources, quick responses, and exceptional value. For over a century, we have been a leader in the rapidly growing geospatial industry, with successful projects delivered worldwide. For more information, visit us online at www.sanborn.com, or call 1.866.726.2676 to speak with a representative.

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