

Assessing and Addressing Indiana Urban Tree Canopy Madison, Indiana

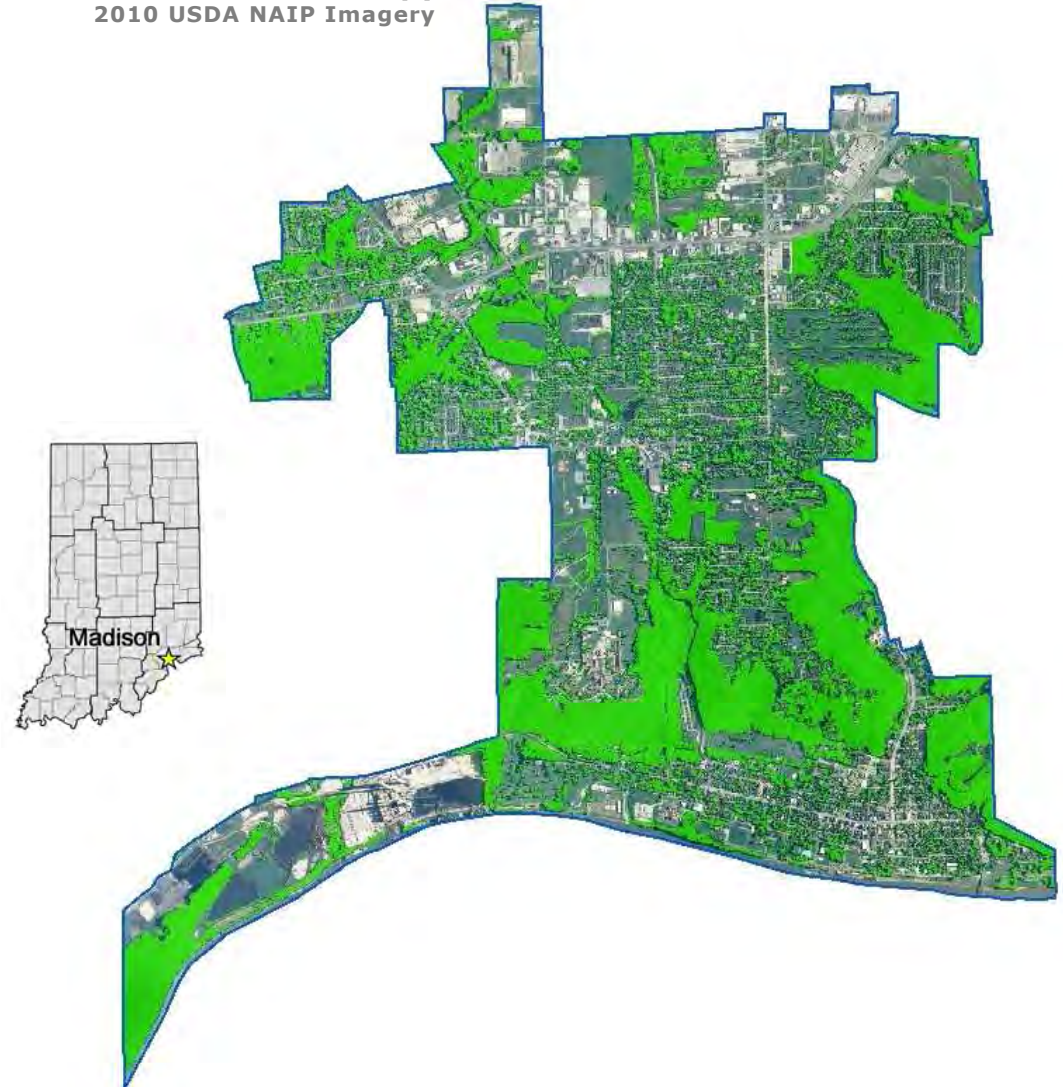
Madison's urban tree canopy (UTC) is composed of the leaves, stems, and branches of all public and private trees as viewed from above. Using remote sensing equipment and geographic information system (GIS) land cover data, the tree canopy and other types of land cover are layered over satellite images or aerial photographs to create a representation of canopy distribution and land cover within the municipal boundaries.

Mapping and quantifying UTC allows Madison to establish baseline conditions for current use and future monitoring, benchmark against similar communities, set goals for improving the tree canopy, and create plans for planting and protecting trees. Communities like Madison that maintain GIS data for land use or public and private parcel data have the additional ability to determine the existing canopy for each of these classifications.

One of the most widespread uses of UTC technology is to set community canopy coverage goals. American Forests, a recognized leader in conservation and urban forestry, has established an average canopy goal of 40 percent for metropolitan areas. The State encourages this standard as a general guideline or target for Indiana communities to achieve.

This factsheet is part of a larger project that included an urban tree canopy analysis of 108 communities throughout the State and identified statewide threats and environmental pressures that affect Indiana's urban tree canopy. For more information, please contact Pamela Louks, Indiana DNR-Community and Urban Forestry, at 317-591-1170.

Madison Urban Tree Canopy Cover
2010 USDA NAIP Imagery





Madison, Indiana Land Cover

Results

Trees provide a host of benefits to the City of Madison. They conserve energy, reduce carbon dioxide levels, improve air quality, and mitigate stormwater runoff. In addition, trees provide numerous economic, psychological, and social benefits.

Canopy covers 1,982.21 acres or 34.8 percent of the City of Madison. The City's canopy cover is above average when compared to similar class communities within the southeast region of Indiana.

Pervious areas cover 2,009.98 acres or 35.2 percent of the City. These areas include parks, open areas, agriculture, bare soils, or golf courses and are places with the most potential for increasing the City's overall canopy. If only one quarter of these areas were planted with trees, Madison's UTC would be 44 percent and over the recommended average of 40 percent.

Impervious areas cover 1,544.00 acres or 27.1 percent of the City. These areas are roads, buildings, parking lots, and other paved surfaces that would benefit the most from additional trees and canopy cover. If designed or retrofitted, some impervious areas could support more trees and add to the overall tree canopy.

Open Water areas cover 166.46 acres or 2.9 percent of the City. Trees planted in the riparian areas help to increase water quality by partially protecting streams, wetlands, rivers, and lakes from the impact of adjacent land uses.

Urban Tree Canopy Goal Setting

Madison has an overall canopy of 34.8 percent which is nearing the 40 percent urban tree canopy recommended by American Forests for cities east of the Mississippi River.

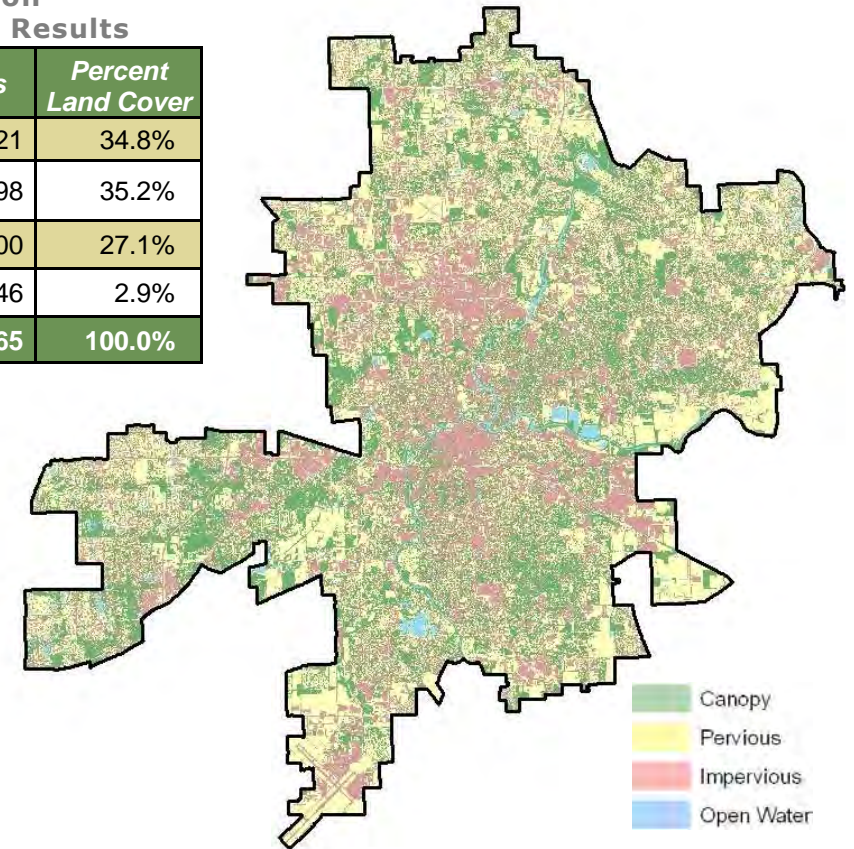
Potential tree canopy for any community can be measured by the total UTC and all other viable areas. The UTC analysis revealed that Madison's potential canopy cover is 70.0 percent (canopy plus pervious land cover).

It is recommended that the City increase their canopy by reviewing the pervious areas closely for possible planting sites. Potential sites can be impacted by land use constraints, social and cultural preferences, and by whether or not the land is physically conducive to planting sites. Some impervious areas can also become part of the tree canopy if redesigned or retrofitted. Priority should also be placed on preserving and maintaining Madison's existing canopy.

Canopy includes both public and private trees; therefore, emphasis should be placed on educating residents, developers, and other public groups on the benefits that trees provide Madison.

Madison
Land Cover Results

Land Cover	Acres	Percent Land Cover
Canopy	1,982.21	34.8%
Pervious	2,009.98	35.2%
Impervious	1,544.00	27.1%
Open Water	166.46	2.9%
Total	5,702.65	100.0%



UTC Comparisons	Percent UTC
Madison's Maximum Potential UTC (includes pervious land cover)	70.00
American Forests Recommended Goal	40.00
Madison's Existing Average	34.80
Third Class Community Average within the Southeast Region	31.19
Southeast Regional Average	30.71
Jefferson County Average	30.18
Statewide Average	24.58

