OKLAHOMA CITY METROPOLITAN AREA
TREE CANOPY ASSESSMENT

The 2019 Oklahoma City Metropolitan Area Tree Canopy Assessment is the first of its kind conducted within a 536 square mile study area in Central Oklahoma. This comprehensive assessment identified and quantified the area's land cover, structure, and numerous environmental benefits. Trees contribute to energy savings, air and water quality improvements, stormwater interception, quality of living, and other socioeconomic enhancements. Trees also provide additional aesthetics and beautification back to neighborhoods and the community at large.
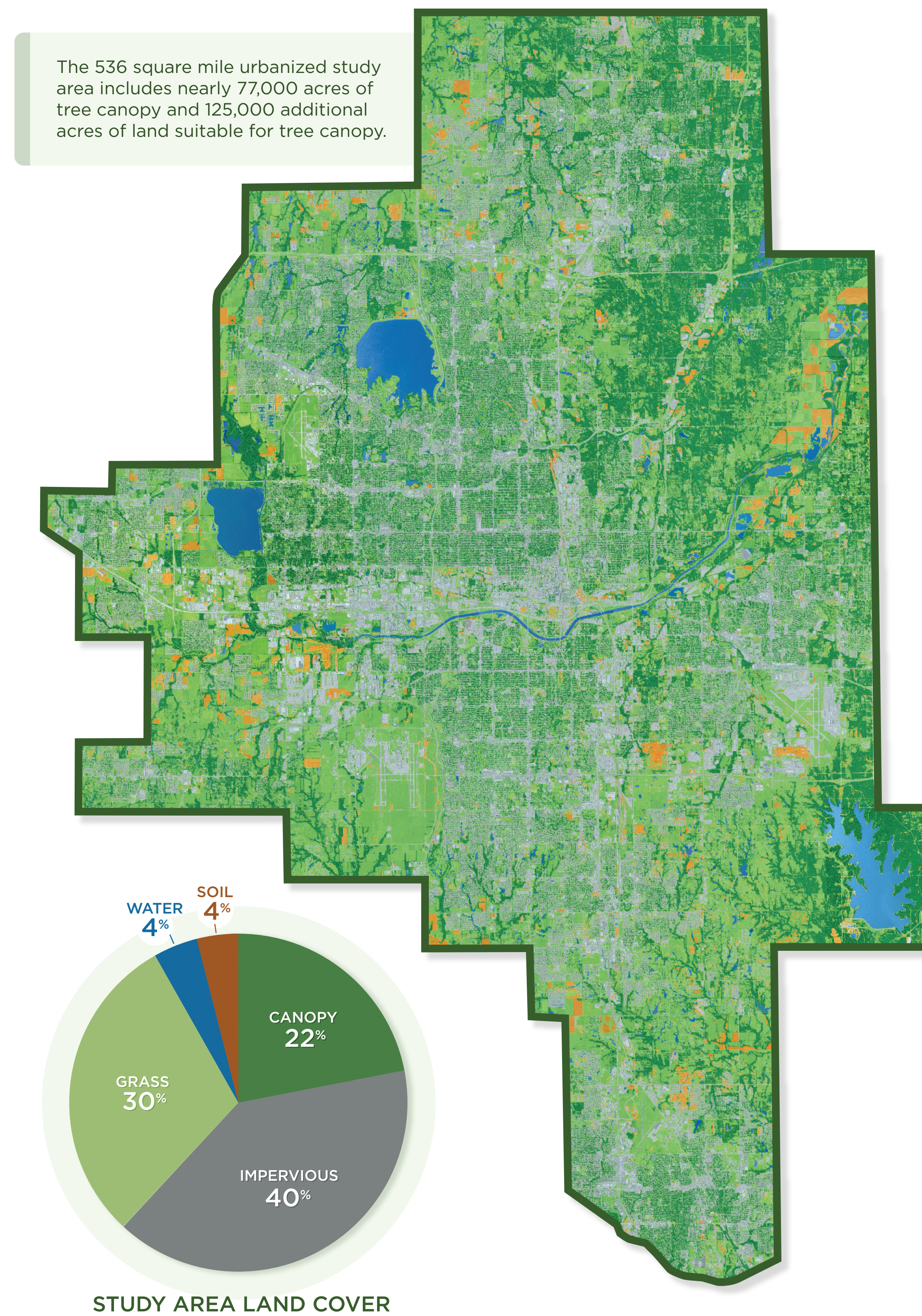
LAND COVER

Part of the assessment included using high resolution satellite imagery to provide a birds-eye view of the entire forest within the study area, showing the land cover types and distribution of existing tree canopy.
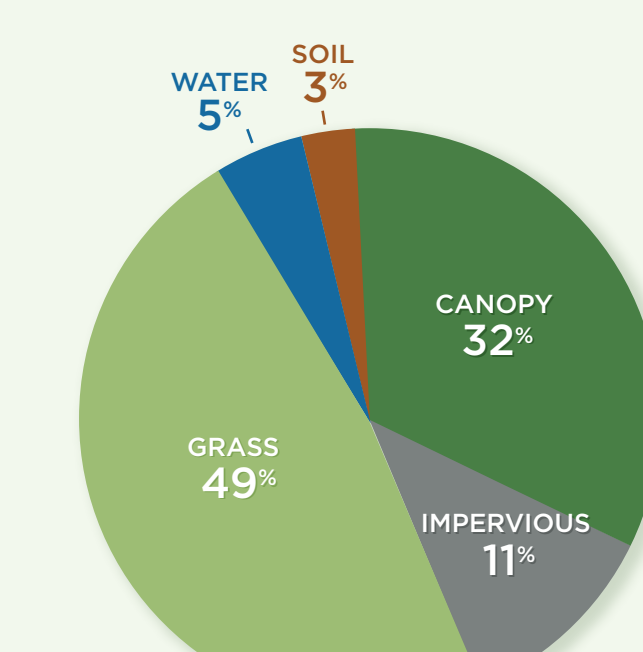
Through this analysis, it was determined that the study area has an average of **22.4% tree canopy coverage** and an estimated 65 million trees. These trees annually provide as much as $150 million dollars in environmental benefits to the region.
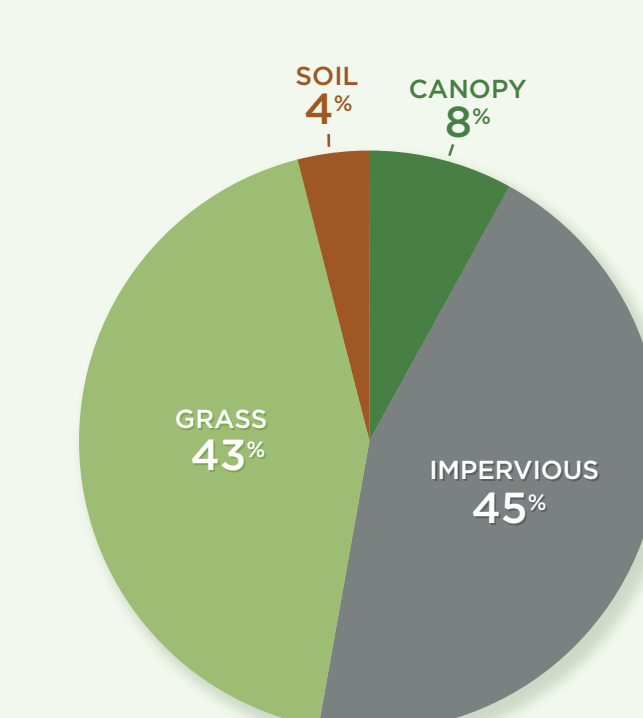
High-resolution aerial imagery (left) was used to remotely identify existing land cover. Infrared technology delineated living vegetation including tree canopy (middle). Remote sensing software identified and mapped tree canopy and other land cover (right).
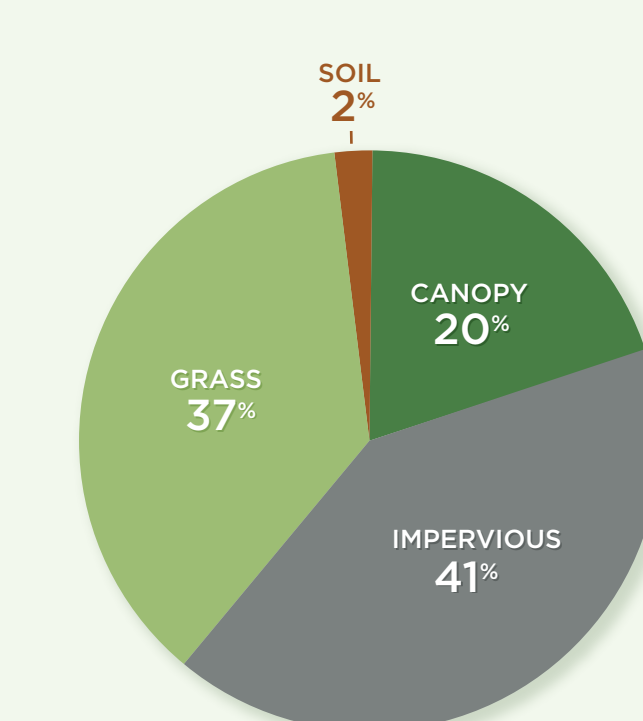
The 536 square mile urbanized study area includes nearly 77,000 acres of tree canopy and 125,000 additional acres of land suitable for tree canopy.

STUDY AREA LAND COVER
WATER 4% SOIL 4% CANOPY 22% GRASS 30% IMPERVIOUS 40%

LAND COVER COMPOSITION OF KEY COMMUNITY FEATURES

PARKS LAND COVER
WATER 5% SOIL 3% CANOPY 32% GRASS 49% IMPERVIOUS 11%

SCHOOL GROUNDS LAND COVER
SOIL 4% CANOPY 8% GRASS 43% IMPERVIOUS 45%

TRAILS LAND COVER*
SOIL 2% CANOPY 20% GRASS 37% IMPERVIOUS 41%

SIDEWALKS LAND COVER*
SOIL 1% CANOPY 12% GRASS 21% IMPERVIOUS 66%
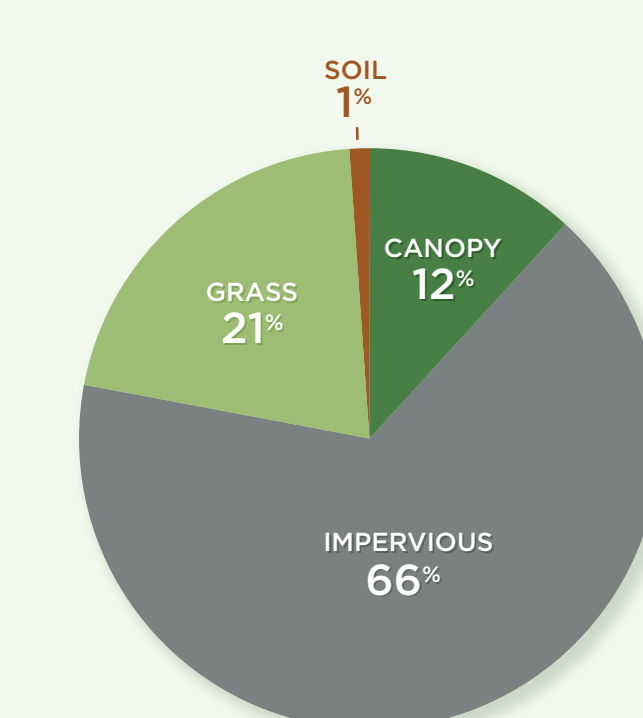
*analysis conducted on a 20-foot buffer from center of trail/sidewalk

Existing land cover in Oklahoma City (left), areas of planting potential for Urban Heat Island impact (middle), and the region if all priority areas were planted on (right). Planting in areas with high percentages of impervious surfaces may alleviate the urban heat island effect.

URBAN HEAT ISLAND EFFECT

The heat island effect describes the increase in temperatures of urban areas in relation to surrounding suburban and rural areas. Heat islands are associated with an increase in impervious surfaces.

On a larger citywide scale, temperature differences of more than **9°F** have been observed between city centers without adequate canopy coverage and more vegetated suburban areas.

Tree canopy coverage is **10% lower** in the urbanized area while the impervious surface coverage is **30% higher**, therefore increasing tree canopy in the OKC metro area may limit the urban heat island effect.

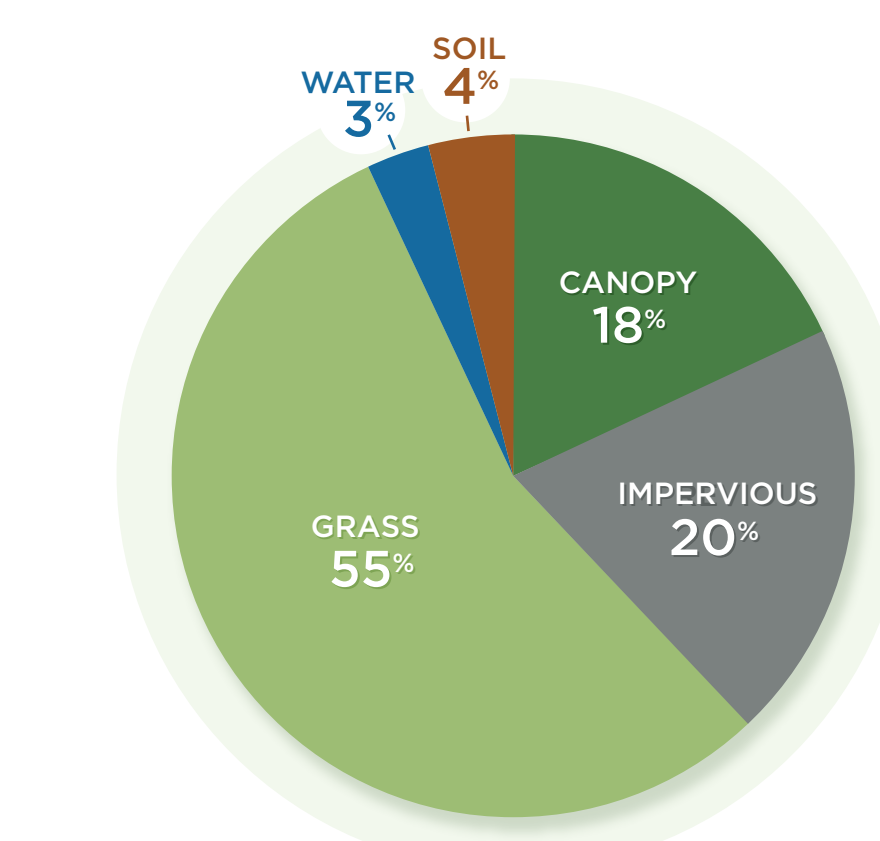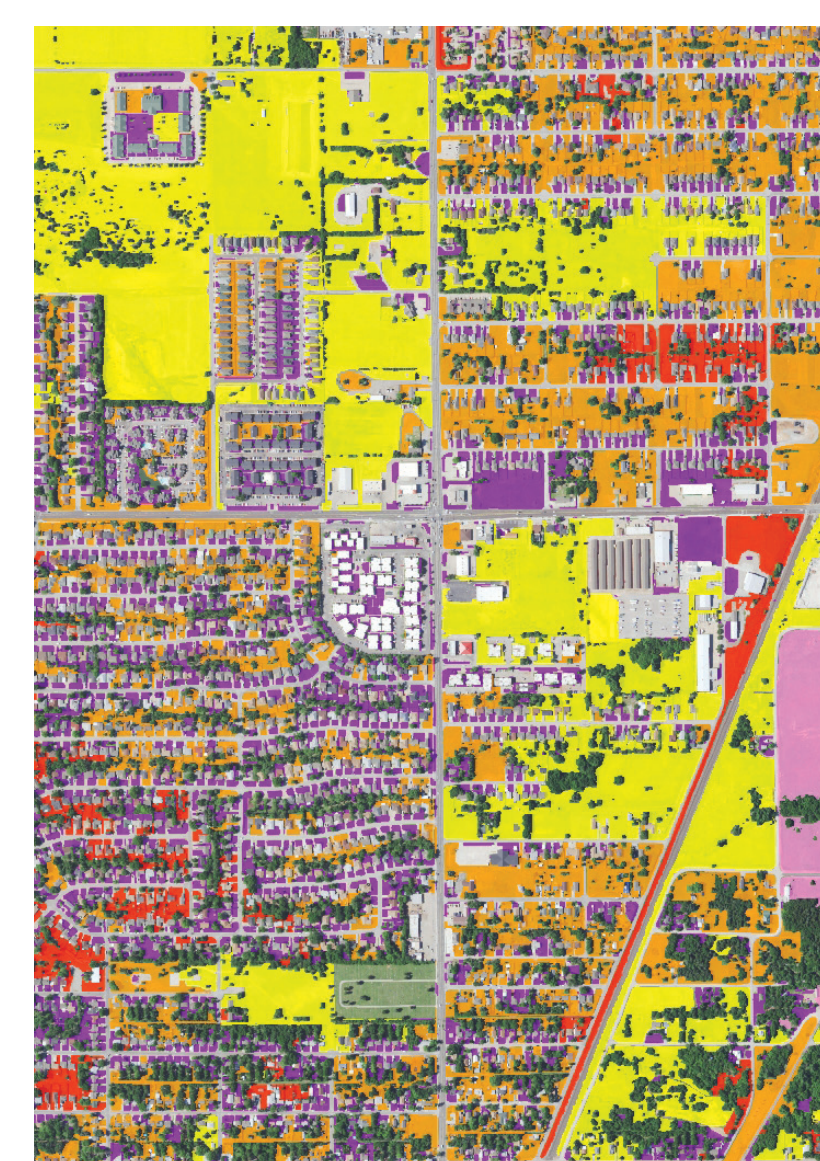|	URBANIZED AREA	NON-URBANIZED AREA
TREE CANOPY	20%	30%
POTENTIAL TREE CANOPY	53%	75%
GRASS/LOW-LYING VEGETATION	36%	50%
IMPERVIOUS SURFACES	38%	8%
BARE SOIL AND OPEN WATER	6%	12%

PLANTING PRIORITY

Along with the land cover assessment, a planting priority analysis was conducted to provide guidance and recommendations for future plantings to help mitigate the impacts of urban heat islands and stormwater runoff. Areas with an existing land cover type of grass or low-lying vegetation make up the majority of the recommended priority planting sites.

If every planting priority site were to be planted on, the study area could reach its maximum tree canopy potential of 59%.
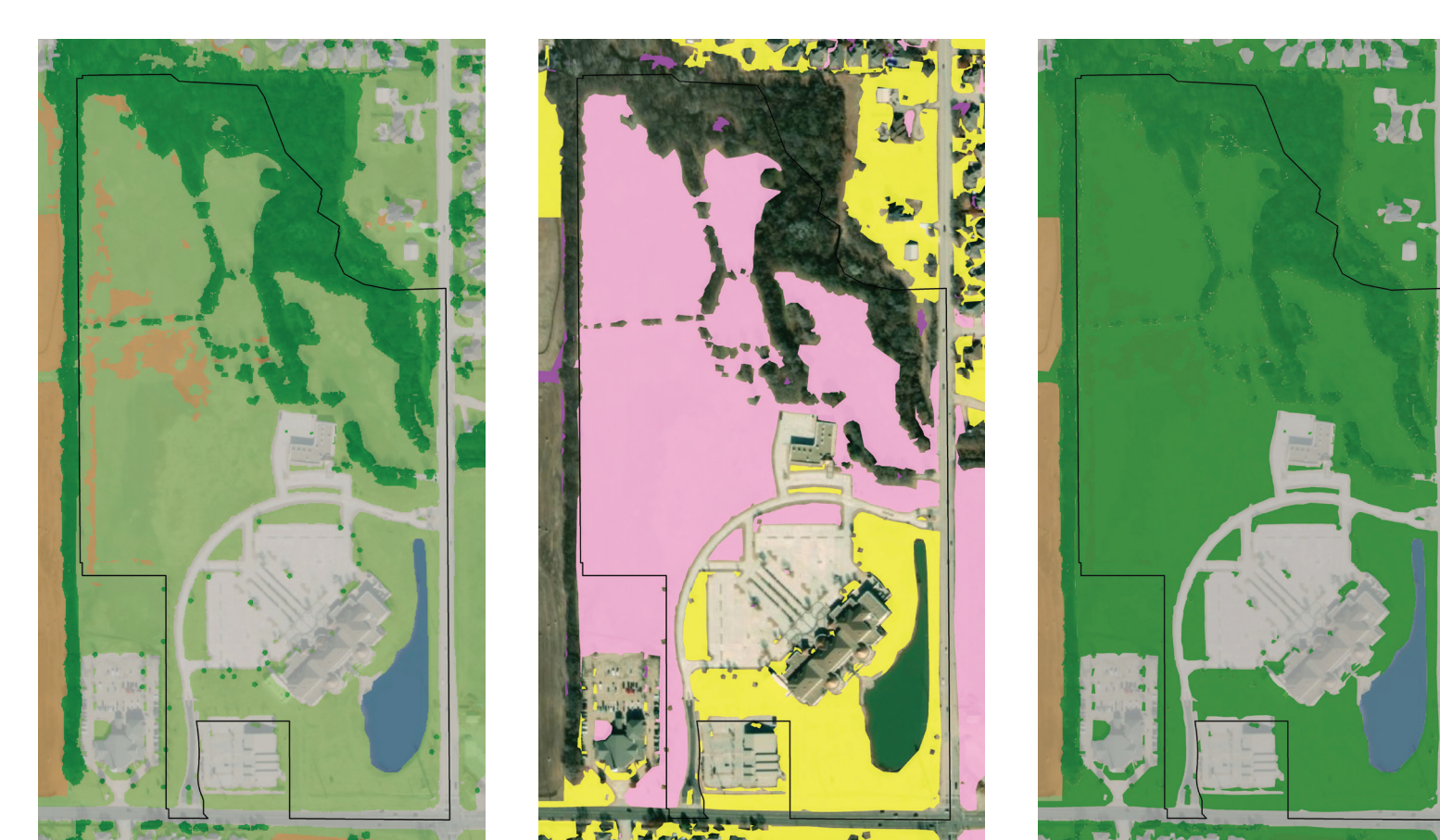
PRIORITY PLANTING LEVELS
VERY HIGH | HIGH | MODERATE | LOW | VERY LOW

MOORE NORMAN TECH CENTER LAND COVER
WATER 3% SOIL 4% CANOPY 18% GRASS 55% IMPERVIOUS 20%

The Moore Norman Tech Center - Penn Campus existing land cover makeup consists of 18% tree canopy coverage.

The Moore Norman Tech Center - Penn Campus existing land cover with 18% tree canopy (left), areas of planting priority for stormwater mitigation (middle), and the campus if all priority areas were planted on to achieve a canopy potential of 77% (right).

CONTACT:

Hannah Nolen
Projects Coordinator II – Transit & Environmental
Transportation Planning Services
hnolen@acogok.org

Jennifer Sebesta
TPS Manager
Transportation Planning Services
jsebesta@acogok.org

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