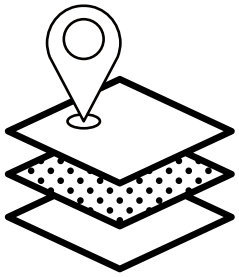
Washtenaw County Conservation District

# COMMUNITY TREES MAP SET: SHARON TOWNSHIP

2022

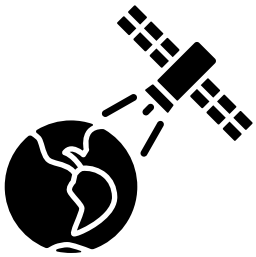
# A GUIDE TO THE MAP SET

## WHAT IS GIS?



GIS is the abbreviation for geographic information systems, computer software that allows the user to overlay multiple layers of information, such as streets, buildings, and vegetation, on the earth's surface. GIS can help to better understand the distribution of these elements and discover relationships and patterns.

## TERMS



**LiDAR** is the abbreviation for light detection and ranging, a remote (i.e. satellites or planes) sensing technology that can calculate the height of an object, such as buildings or vegetation, on the earth's surface.

**Aerial photographs** and **satellite imagery** are both remotely sensed images distinguished by the altitude and characteristics of the sensors, namely cameras or electronic scanners. In general, data taken at low-altitude captures more detail, but covers a smaller area. Some sensors can capture energy from portions of the electromagnetic spectrum, such as infrared, that the human eye cannot see! These additional wavelengths, or bands, provide more data to help distinguish between features on the ground.

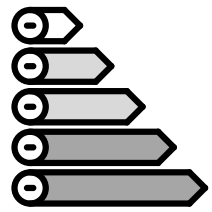
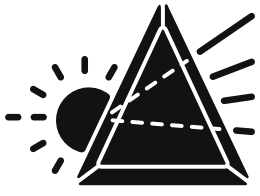


**Image classification** is the task of categorizing pixels based on their spectral characteristics in a raw image. **Supervised** classification means the analyst teaches the software to classify the pixels, while **unsupervised** means the classes are assigned based on the distribution of values. The final result might be a map of land cover classes (agriculture, urban, forest, etc.), impervious surfaces, or tree canopy cover.



**NAIP** is the abbreviation for USDA's National Agriculture Imagery Program which, every three years, collects four-band "leaf-on" data (i.e. during the growing season) at a 1-meter (about 3.2 feet) resolution. The four-bands are red, green, blue, and near infrared, which can help distinguish healthy and diseased vegetation.

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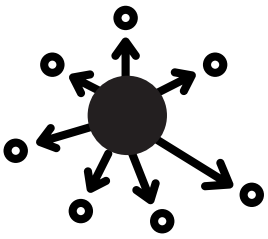
## TERMS CONTINUED

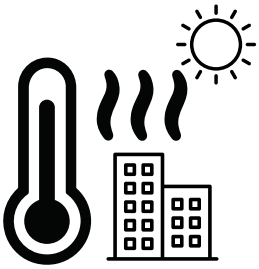
**Stormwater runoff** is snow melt or rainfall that, instead of soaking into the soil, flows over the ground and into stormdrains or waterbodies. Runoff doesn't receive any treatment, so anything it picks up (trash, chemicals, bacteria, sediment, etc.) can be flushed into our streams, rivers, and lakes and cause impairments for wildlife and human use. The large volume of runoff can also cause flooding, streambank erosion, and wash away habitat for wildlife.

**Impervious surfaces** prohibit the infiltration of water and are generally man-made structures, such as roads, sidewalks, buildings, parking lots, etc. Higher percentages of impervious surfaces in an area correspond to lower infiltration rates (ability of water to absorb into the soil) and increases in stormwater runoff.

**Habitat connectivity** is concerned with wildlife's ability to migrate between suitable environments necessary for survival, reproduction, and life cycle. As landscapes are increasingly developed, habitats, such as forests, may be fragmented into smaller areas which may not be suitable for a particular species or may not provide all elements necessary for a creature's life cycle.



**Urban heat islands** (UHI) are metropolitan areas that are a lot warmer than neighboring rural areas due to a higher percentage of materials that absorb and trap heat from the sun, such as buildings and roadways. UHIs often have higher energy costs, air pollution levels, and heat-related illness and mortality. Trees and other vegetation help to counteract this effect by shading surfaces, deflecting radiation, and releasing moisture.



**Census tracts** are small, semi-permanent subdivisions of a county used in statistical analyses to determine trends in an area over time and managed by the US Census Bureau.

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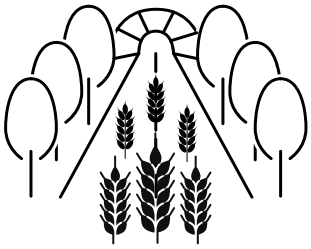
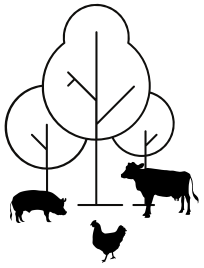
# TERMS CONTINUED

**Agroforestry** is the intentional inclusion of trees and shrubs in crop and livestock farming systems for environmental, economic, and social benefits. Examples of agroforestry practices and some of its benefits include:

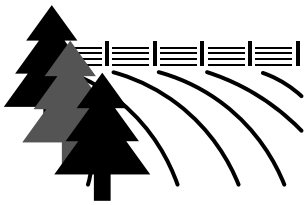


**Alley cropping** - Growing crops in alleys between regularly spaced rows of trees and shrubs intended to: diversify revenue streams, protect crops, and reduce soil erosion, nutrient leaching, and water runoff from fields.

**Riparian buffers** - Strips of permanent vegetation alongside a stream, wetland or lake planted or retained to protect crops by buffering floods, produce income in marginal farmland prone to flooding, diversify income, provide wildlife habitat and corridors, stabilize soils, and filter nutrients, pesticides, and sediment from farm runoff.

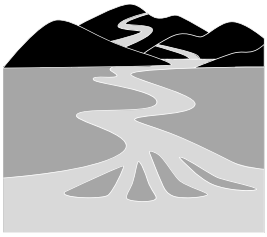


**Silvopasture** - Managing a wooded pasture through rotational grazing to support livestock and fodder trees or timber stand production to diversify income, improve livestock health, provide shade and wind protection, and support wildlife habitat.



**Windbreaks** - Strips of trees or shrubs strategically planted to protect crops, reduce soil loss, diversify income, provide wildlife corridors, and block views and odors. Also called shelterbelts, hedgerows, or living snow fences.

**Watershed** is all the land area that captures rainfall and snowmelt or other water runoff, like irrigation, and funnels it to a particular waterbody, such as a creek or river and eventually to an outflow point, such as a bay or ocean.



**Headwaters** are the start of the channel system and therefore close to a main source of water, such as a mountain stream or a groundwater aquifer seep. Downstream network health starts with nutrients, sediment, temperature, organic matter, and habitat quality in the headwaters.

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