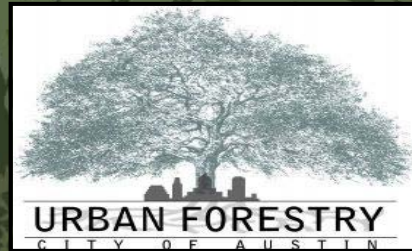


Urban Tree Shade Analysis



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Final Report Outline

- Introduction
- Purpose
- Scope
- Data
- Methodology
- Results
- Discussion
- Conclusion



Introduction

The Urban Forestry Program & Board (UFP) is the driving force behind the maintenance and protection of the city's urban tree canopy. The UFP is interested in identifying the areas of Austin where the urban tree canopy is most prominent and where it may be lacking coverage.



Purpose

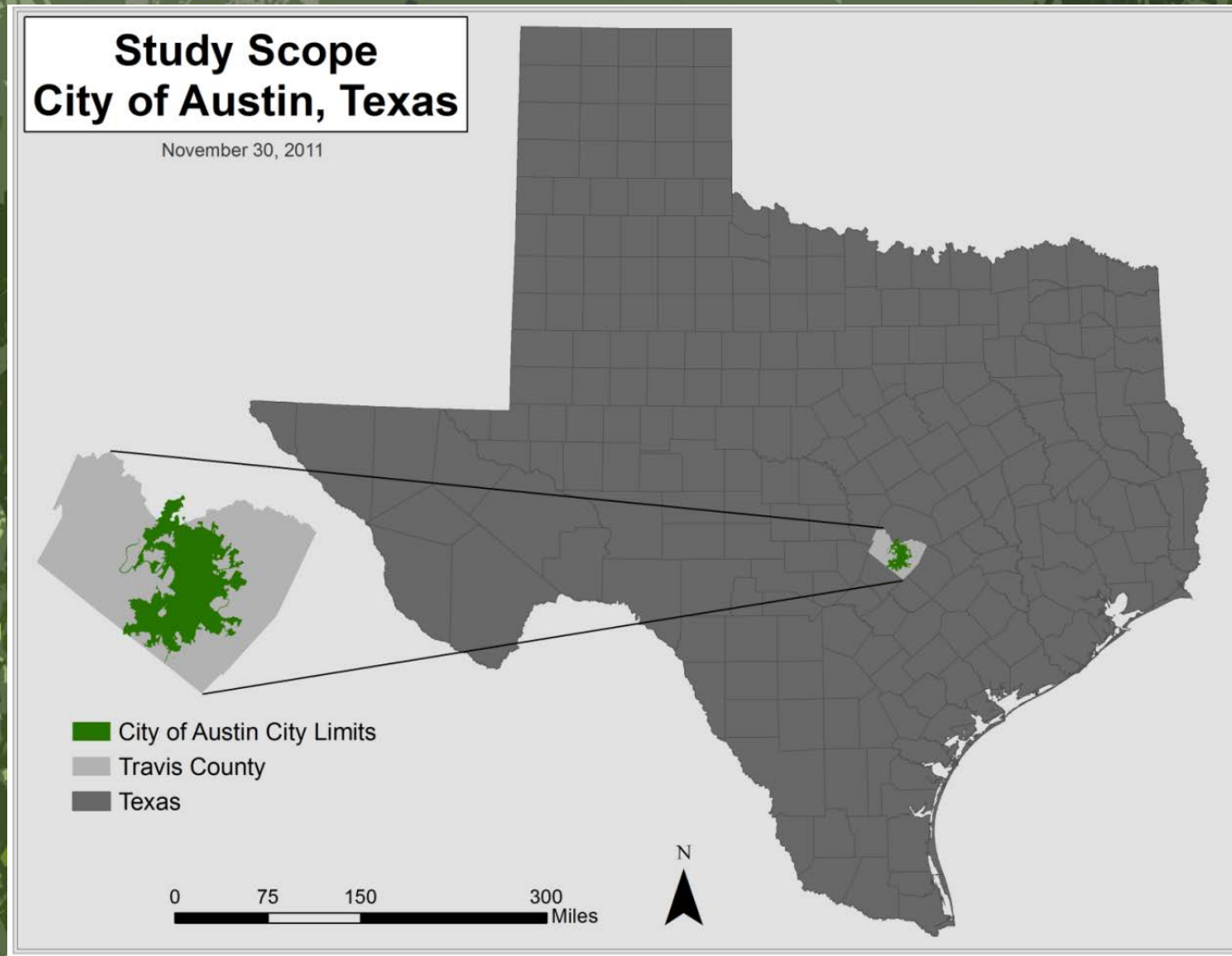
The overall purpose of the study is to identify the percentage of shade that the urban tree canopy provides to the streets and trails of the entire city, neighborhoods and watershed districts.

The percentages will provide the UFP with information that can be used to protect and maintain the Austin tree canopy. The information provided can be used to identify areas where new trees should be planted and coordinate projects. In addition, the streets have been segmented by city blocks and the multi-use trails are divided by the average trail length of one-eighth of a mile.



Scope

The scope of the project is limited to the city limit of Austin and includes the data from streets and trails, along with the neighborhoods and watershed districts.



Data

Coordinate System: The City of Austin uses the NAD 1983 Texas Central FIPS 4203 State Plane.



Data Layer	Source
Streets	City of Austin
Trails	City of Austin
Tree Canopy	City of Austin
Watersheds	City of Austin
Planning Neighborhoods	City of Austin
City Limits	City of Austin

Methodology

Trails and Streets

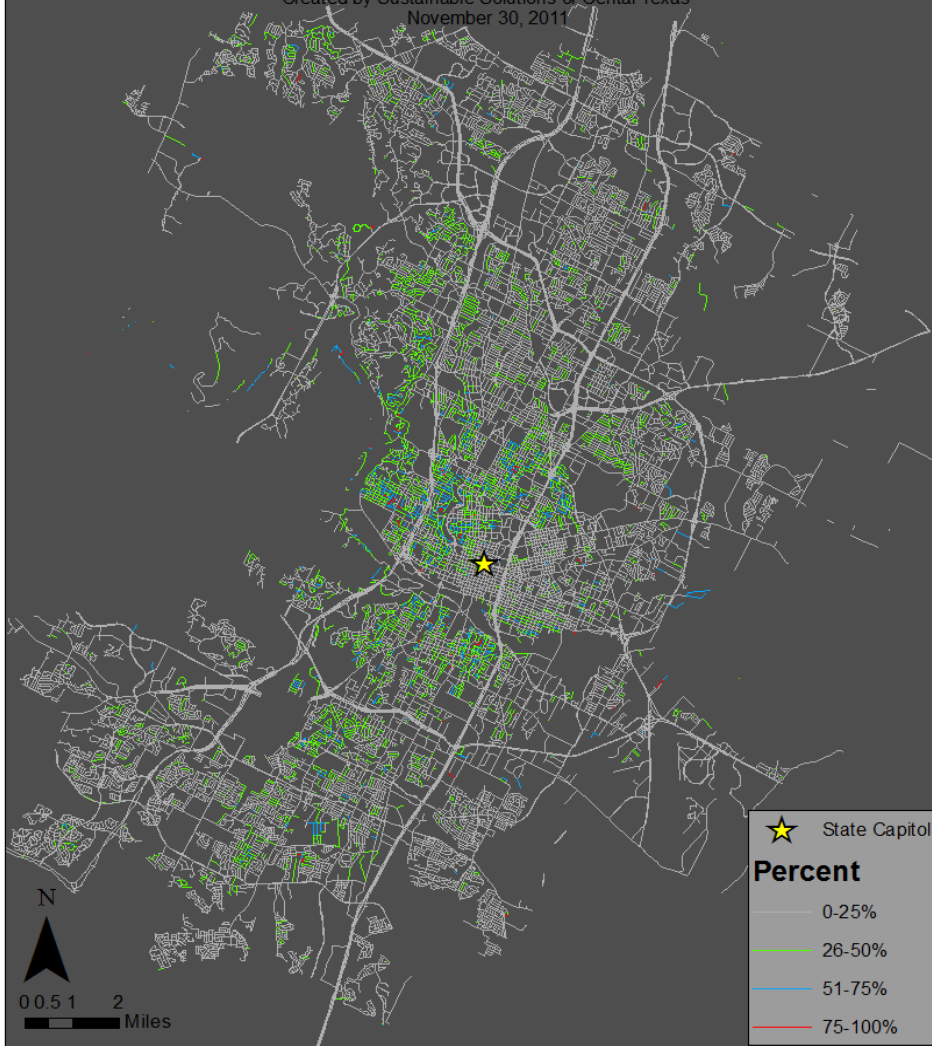
- Clipped all data to City Limits of Austin
- Buffered the transportation network
- Clipped the tree canopy to the buffered transportation network
- Calculated the area for all the transportation network segments
- Calculated the area for the canopy laying within each network segment
- Used calculated areas to determine tree shade percent

$$\text{(Shaded Area / Network Area) X 100 = Percent Shade}$$

Streets Results

Street Shade Percentages by Block City of Austin, Texas

Created by Sustainable Solutions of Central Texas
November 30, 2011



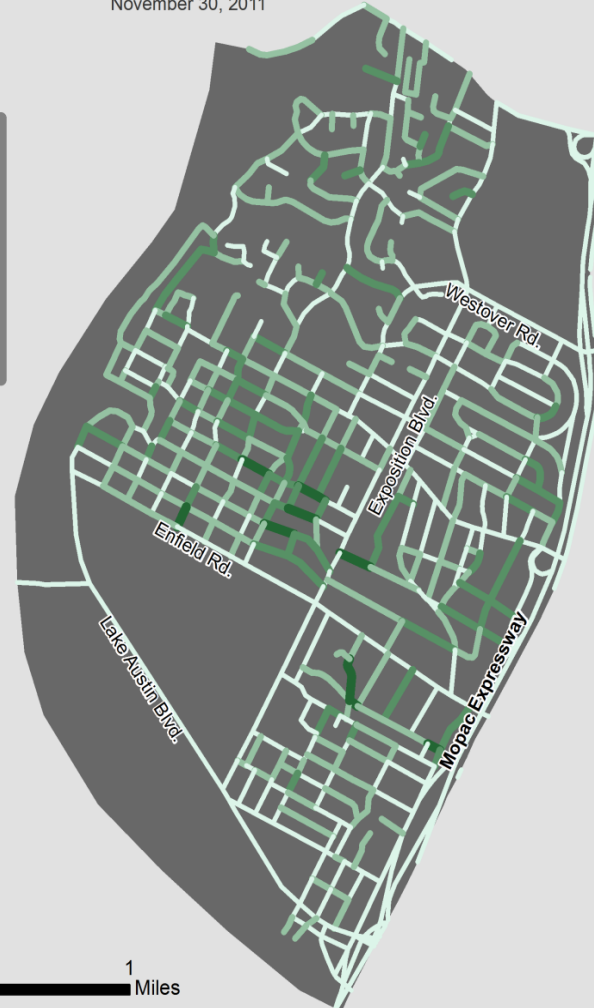
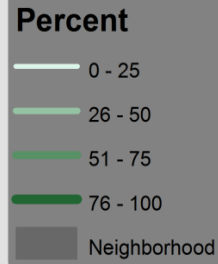
Percent Ranges for Streets Coverage

- **0-25%**
(2,4138 of 27,977) = 86.3%
- **26-50%**
(3,139 of 27,977) = 11.2%
- **51-75%**
(629 out of 27,977) = 2.2%
- **76-100%**
(70 out of 27,977) = 0.25%

Streets Results

Street Shade West Austin Neighborhood Group City of Austin, Texas

Created by Sustainable Solutions of Central Texas
November 30, 2011

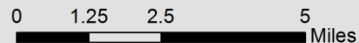
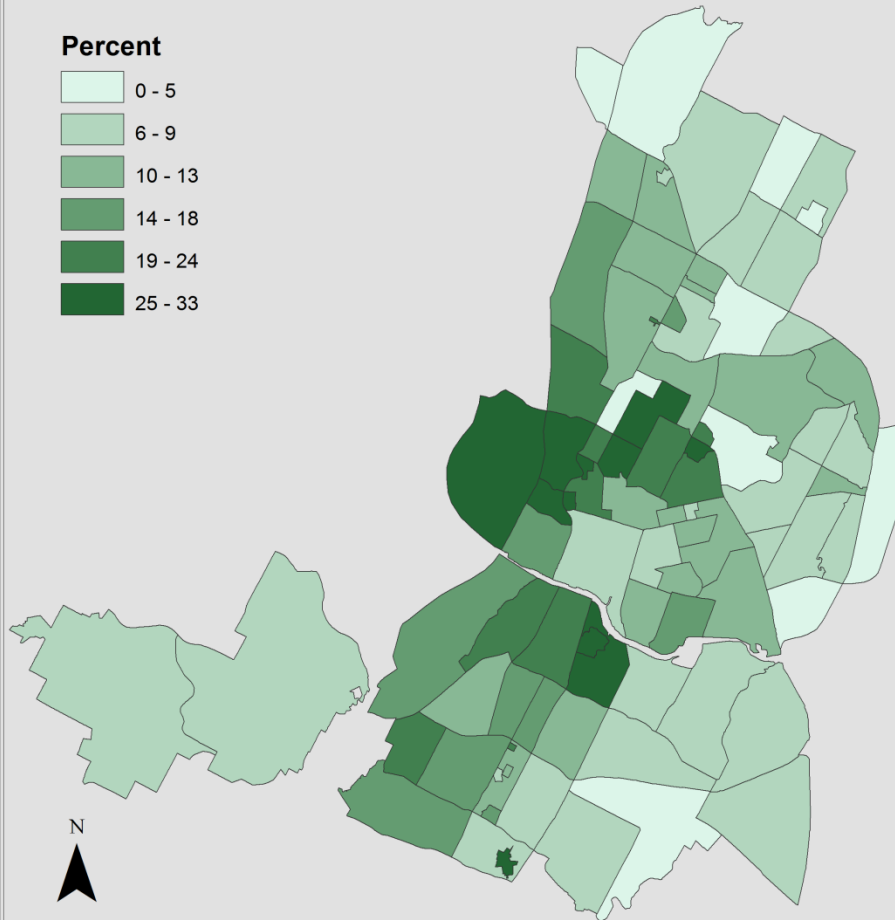
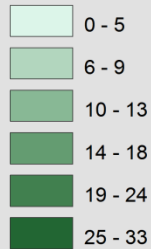


Streets Results

Street Shade Percent by Neighborhood City of Austin, Texas

Created by Sustainable Solutions of Central Texas
November 30, 2011

Percent

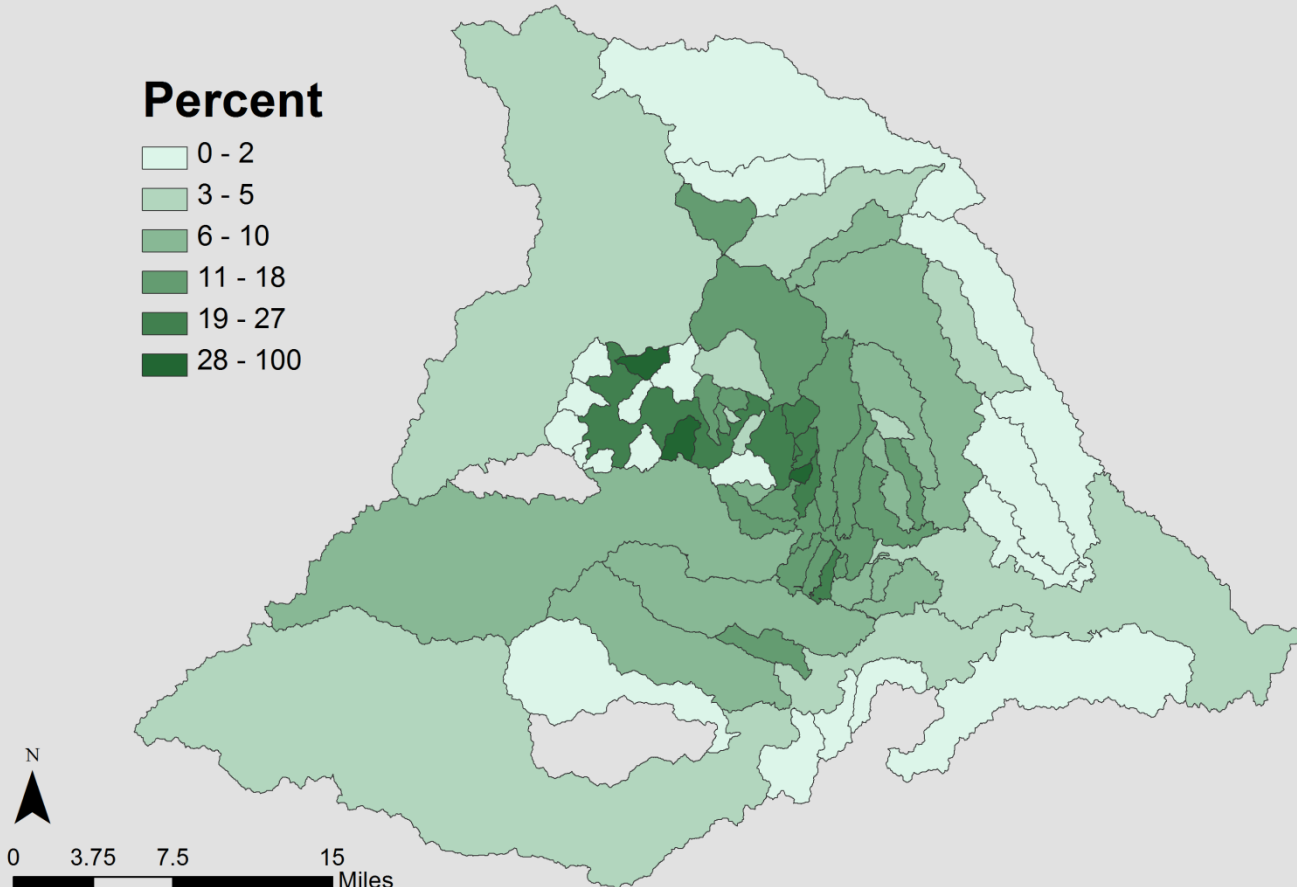
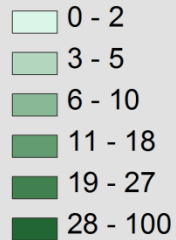


Streets Results

Street Shade Percent by Watershed City of Austin, Texas

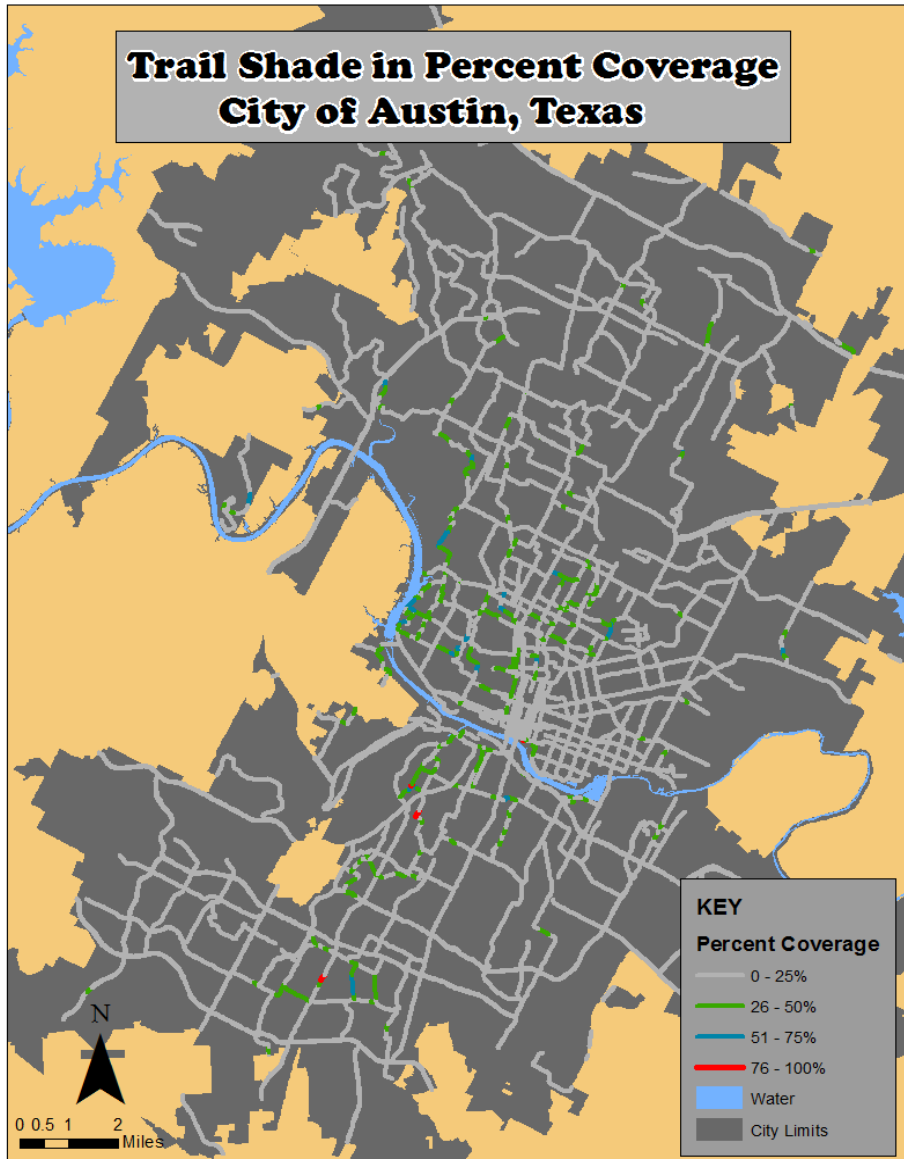
Created by Sustainable Solutions of Central Texas
November 30, 2011

Percent



Trails Results

**Trail Shade in Percent Coverage
City of Austin, Texas**



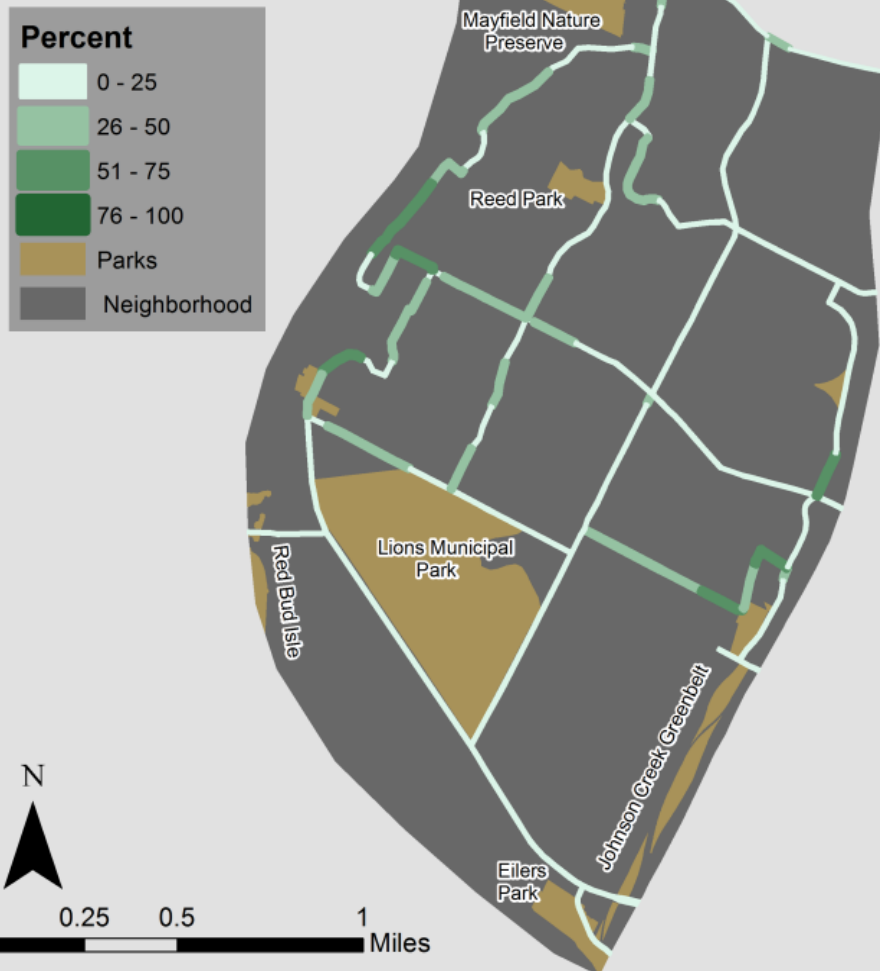
Percent Ranges for Trails Coverage

- **0-25%**
(5,857 of 6,149) = 95.2%
- **26-50%**
(254 of 6,149) = 4.1%
- **51-75%**
(33 of 6,149) = 0.54%
- **76-100%**
(5 of 6,149) = 0.08%

Trails Results

Trails Shade West Austin Neighborhood Group City of Austin, Texas

Created by Austin Urban Trails
November 30, 2011

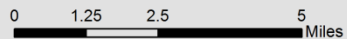
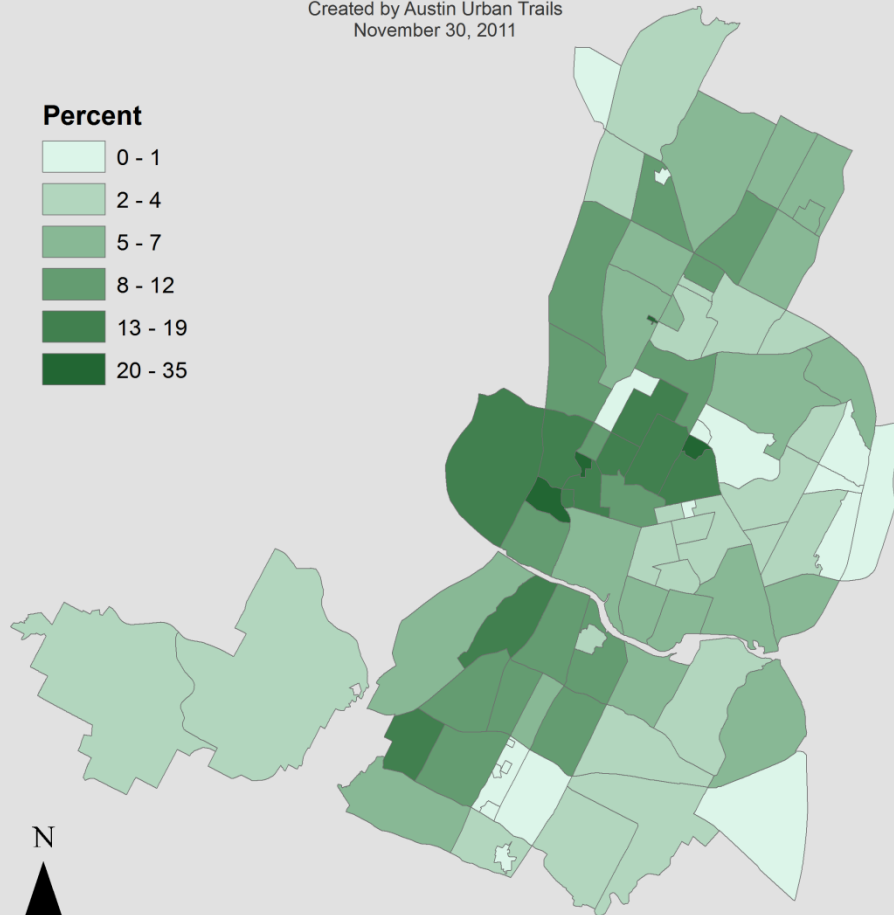
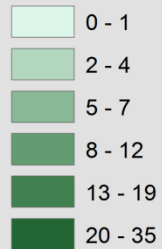


Trails Results

Trails Shade Percent by Neighborhood City of Austin, Texas

Created by Austin Urban Trails
November 30, 2011

Percent

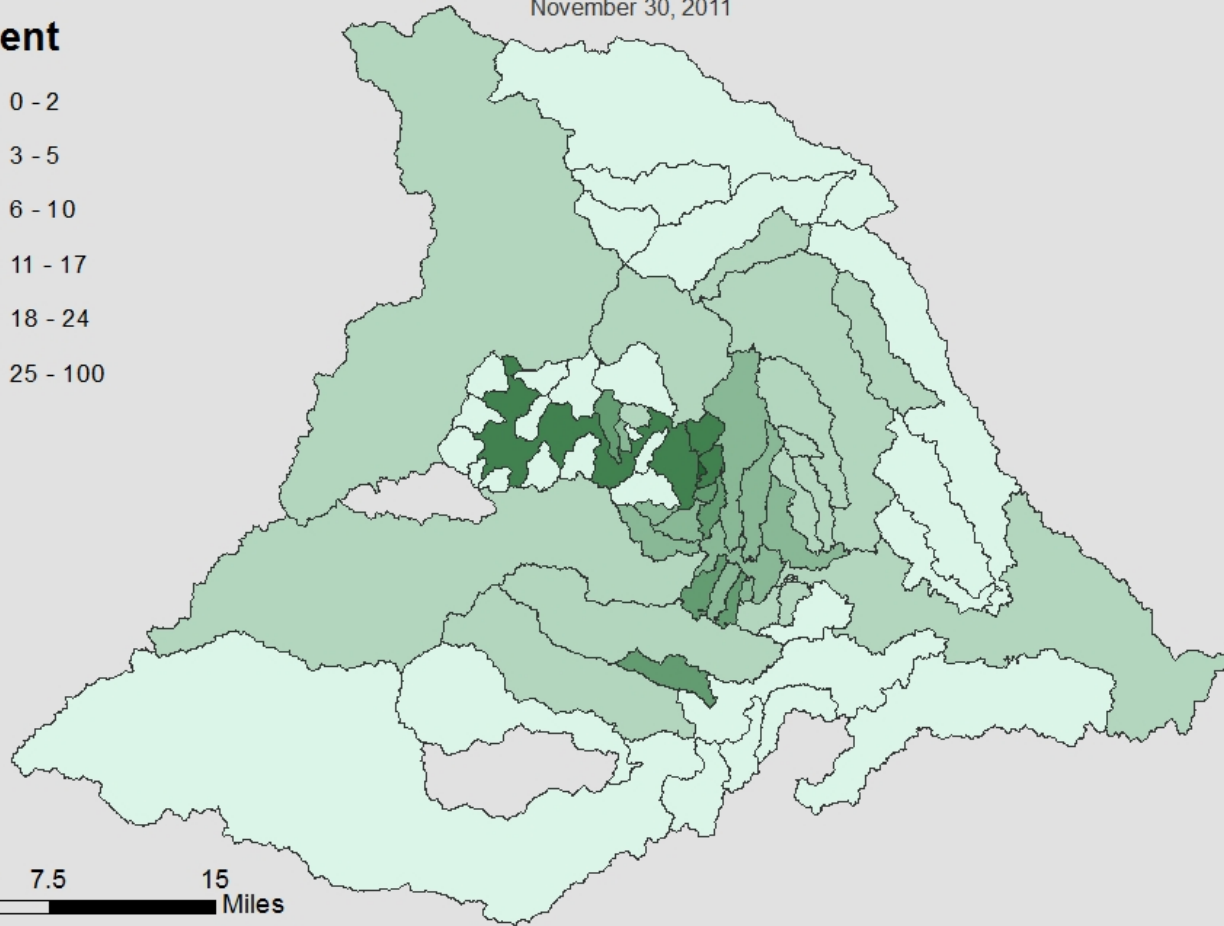
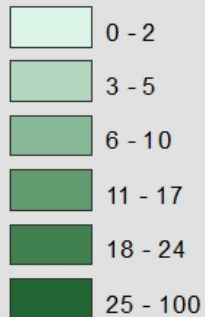


Trails Results

Trails Shade Percent by Watershed City of Austin, Texas

Created by Austin Urban Trails
November 30, 2011

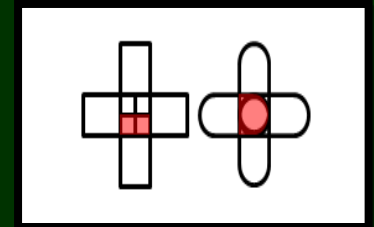
Percent



Discussion

Limitations

- The Canopy Coverage data used for analysis is from 2006
- Canopy included in the buffer creates an overlap which can slightly increase percent coverage. To reduce the amount of overlap, flat end buffers were used
- The final analysis for the watersheds excludes data laying outside the city limits and therefore can possibly be misinterpreted as including data for the entire watershed especially those that extend outside the city limits



Discussion

Implications - The newly created data can be used to identify possible correlations with:

- Energy Consumption
- Crime Rate
- Bike-ability & Walkability
- Tree Planting Projects
- City Wide Analysis for Canopy Coverage

- Heat Island
- Tree Benefits in districts
- Air Quality
- Water Quality
- Aesthetics & Home Values (Real Estate)



Conclusion

The final analysis displays the canopy coverage distribution for the streets and trails of Austin with a percent index.



Questions?

Thank you all for your time and feel free to ask any questions you might have.

