Changes in Portland Recreational Greenway Accessibility 2000-2010

Ian Lambie, Tina Schroyer, and Alexandra Santora

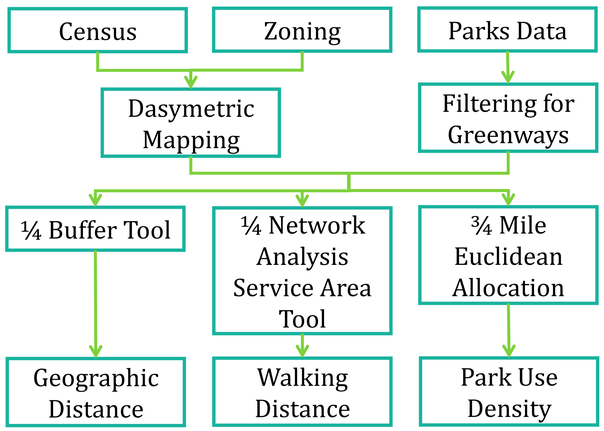
Introduction

Greenways are open or natural areas in a developed environment(1). Access to greenways is important for resident health and wellness (2). As cities grow, greenway accessibility can decline due to development of the areas or poor planning. Portland, Oregon has experienced huge population growth over the last 15 years. We asked:

Has greenway access decreased with Portland's development?

Have greenways become overcrowded?

Methods



Filtering: Cleaning the Metro '00 and '10 park layers, keeping only features classified as recreational.

Dasymetric Mapping: First, we converted the vector zoning data to raster and reclassified it, assigning relative densities based on Portland zoning codes in '00 and '10. We combined this zoning raster with Census Tract population data to create dasymetrically mapped population density rasters, and verified our outputs using the Zonal Statistics as table tool.

Geographic Distance: We generated a ¼ mi buffer around greenways using the Buffer tool. We overlaid this buffer with the population density raster and used the extract by mask tool to find density within the 1/4 mile raster.

Walking Distance: We generated point locations as entry points for each greenway. We then created polygons for areas within ¼ mi of entry points using the Service Area toolkit. We overlaid the service area polygon population density raster., and found density using the extract by mask tool.

Park Use Density: To find park usage density, we ran a Euclidean Allocation with maximum distance of ¾ mi.; population within was found using Zonal Statistics.

Results

Geographic Distance

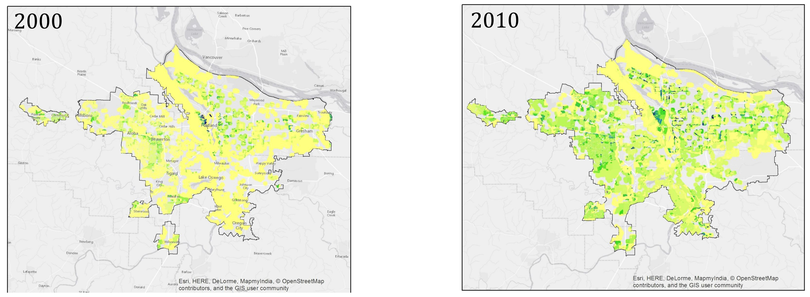


Figure 1. The population within ¼ mile geographic distance from a greenway. In 2000 65.8% of the population lived near greenways; in 2010 this number had increased to 68.8%.

Walking Distance

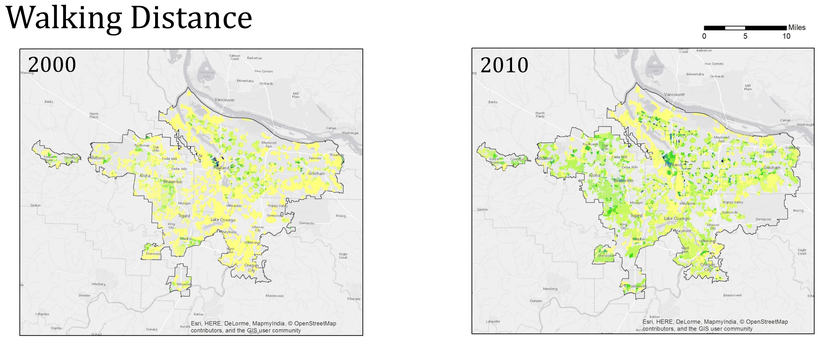


Figure 2. Population within a quarter mile walk along roads from a greenway. In 2000 47.3% of the population were within easy walking distance of a greenway; this increased to 50% in 2010.

Park Use Density

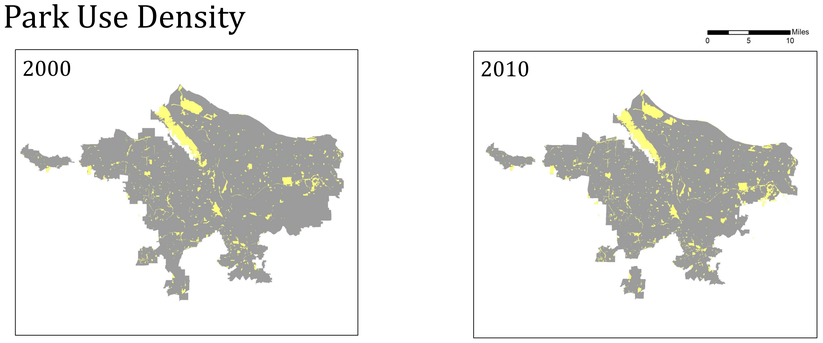
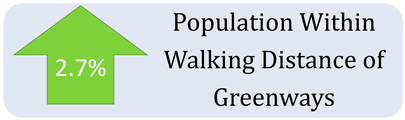


Figure 3. Greenway use visualized as park density if the entire population were to use their closest greenway at the same time. Only very small parks were over our crowding density (7 people per 30x30 ft area), and this did not change from 2000 to 2010.

Conclusions

Recreational greenway access improved.

The proportion of the population with access to greenways actually increased as Portland's population grew. The number of greenways did not change significantly, so this is likely due to people preferentially moving to neighborhoods near greenways.



Greenways did not become over crowded.

Very few greenways exceeded our 7 people per 30x30 ft area density threshold, and this did not change from 2000-2010. Only very small parks ever exceeded the threshold; it is likely that residents instead travel to the closest larger park.

References

1. Cole, David N. 1993. *Ecology of Greenways: Design and Function of Linear Conservation Areas* (242): 105–22.
2. Shafer, C. Scott, Bong Koo Lee, and Shawn Turner. 2000. *Landscape and Urban Planning* 49(3-4): 163–78.

Census Data: Census 2000 and 2010, US Census Bureau
Zoning Data: Zoning Boundaries 2000 and 2010, Metro RLIS
Parks Data: Park layer 2000 and 2010, Metro RLIS
Roads Network: PSU Geography Department