

Throughout the late 2000s and early 2010s, the City of Mercer Island, WA experienced a building boom exemplified by the construction of large houses that included high roofs, tall walls, and the removal of most trees on development sites. As a result, the City of Mercer Island adopted a new set of development regulations for its single-family residential zones in 2017 intended to limit the impact of development on nearby trees and property owners. There is little research on whether property- or neighborhood-level changes can be identified using remote sensing; research has largely focused on large-scale, region wide analyses to demonstrate broad changes in land use and land coverage (for instance, from agricultural to urban uses) in response to changing demographics and governmental policies. Using the City of Mercer Island as a test case, this paper endeavors to show how remote sensing technology can be used to identify small-scale changes in land cover and, in contrast to the existing research, to analyze land use changes within a region to determine if the changes can predict changes to local land use regulations.