

## **Abstract**

Geographic information systems (GIS) professionals have an impressive and powerful array of software tools and services at their disposal, yet Web GIS applications do not consistently meet the expectations of end-user business requirements. This thesis examines an integrated User-Centered Agile Software Development (UCASD) framework, as a vehicle for Web GIS application developers to deliver solutions that meet end-user requirements. Methods employed for this research include consultation of both academic and business literature, case studies, the design of a UCASD, and the creation of a web application to test the implementation of the UCASD framework. The goal of this thesis is to create an integrated UCASD framework for Web GIS design and development that is based on the adaptation of existing Agile-based methodologies such as Scrum and User Stories. The framework includes GIS-specific design considerations, an extended planning iteration, and an additional testing period to ensure that the application satisfies user specifications. The framework is tested through the development of a GIS web application, the Property Information Application (PIA) for Snohomish County. The PIA is an educational tool that provides permitting and property development explanations to citizens in regards to what they can do with their properties. Implementing the UCASD by means of testing the proposed Web GIS application proved to render a better product tailored to the specifications of end users.