

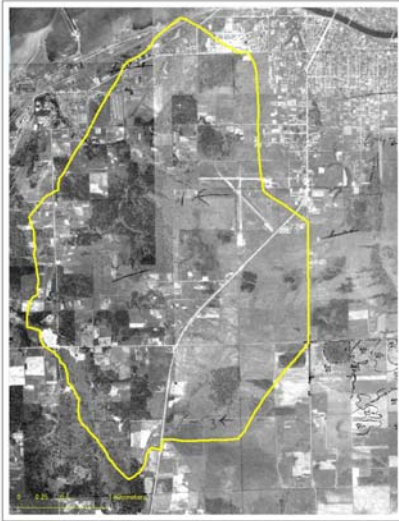
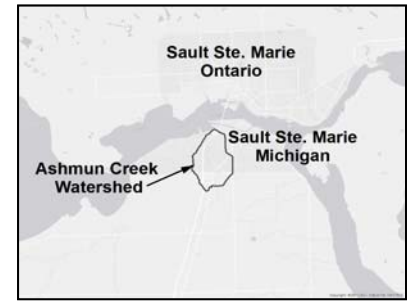


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Ashmun Creek Watershed Historical Land Development

Introduction

This project was fulfilling a need of the Sault Watershed Association in their efforts to restore some of the ecological values to Ashmun Creek, located in Sault Ste. Marie, Michigan. The goal was to provide info on the increase in impervious surfaces over time which leads to stream flashiness. The information provided will help the group plan mitigations and restoration for the watershed.



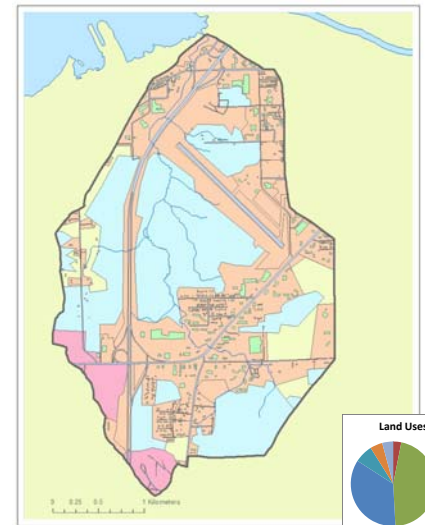
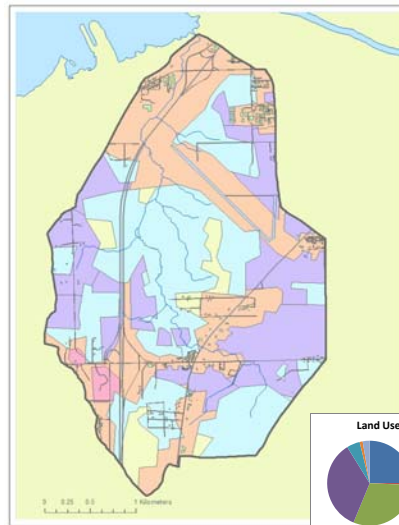
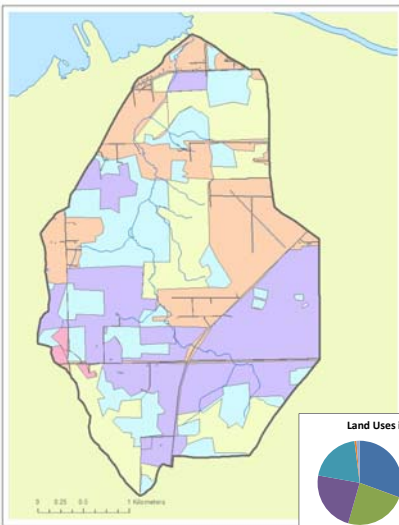
1939 Data



1964 Data



2010 Data



Methods

- Road centerlines were digitized
- Centerlines were buffered by width to create polygons
- Building feature class created by outlining building structures
- Rest of watershed delineated using the following definitions:
 - Forest: at least 50% tree cover or more
 - Open: less than 50% tree cover, no structures or development within
 - Quarry: gravel and sand pits
 - Agriculture: same definition as open, except agricultural areas have furrows running through them
 - Developed: any areas left not already classified by previous definitions
- All classes were clipped so only what was in the watershed existed
- All classes were merged into one layer

Summary

Development can be bad for watersheds because with development comes impervious surfaces, (surfaces that don't let rain permeate through them to the soil as fast as natural unaltered land; buildings, developed areas and roads). When water cannot soak into the ground, it runs across the surface, picking up pollutants and trash. When it finally does enter a body of water, it not only adds these toxic things to the water body, thus lowering the water quality initially, but the water has picked up speed so it also causes flooding and erosion to the already negatively impacted water body. The information provided to the Sault Watershed Association on land uses and impervious surface changes is allowing them to plan mitigations and restoration for the creek and watershed.

Legend

Symbol	Land Use	Color
Black outline	Watershed Boundary	Light Blue
Blue line	Water	Light Green
Light Blue	forest	Light Green
Light Green	agriculture	Light Green
Light Green	buildings	Light Green
Light Green	developed	Light Green
Light Green	quarry	Light Green
Light Green	open	Light Green
Light Green	roads	Light Green

Acknowledgements

A huge thank you to Chuck McCready for all his encouragement, help with the specific designing of the project and all the GIS work it entailed. Thanks to my mentor Dr. Zimmerman for his help finding a project that would benefit others.

Data Sources

Watershed Boundary and Base Hydrographic Data
Michigan Center for Geographic Information Geographic Data Library, Geographic Framework v. 13a
Photo Data
1939 and 1964 Photos: Chippewa Luce Mackinac Conservation District photo archives.
2010 Photos: Esri Basemap - Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community