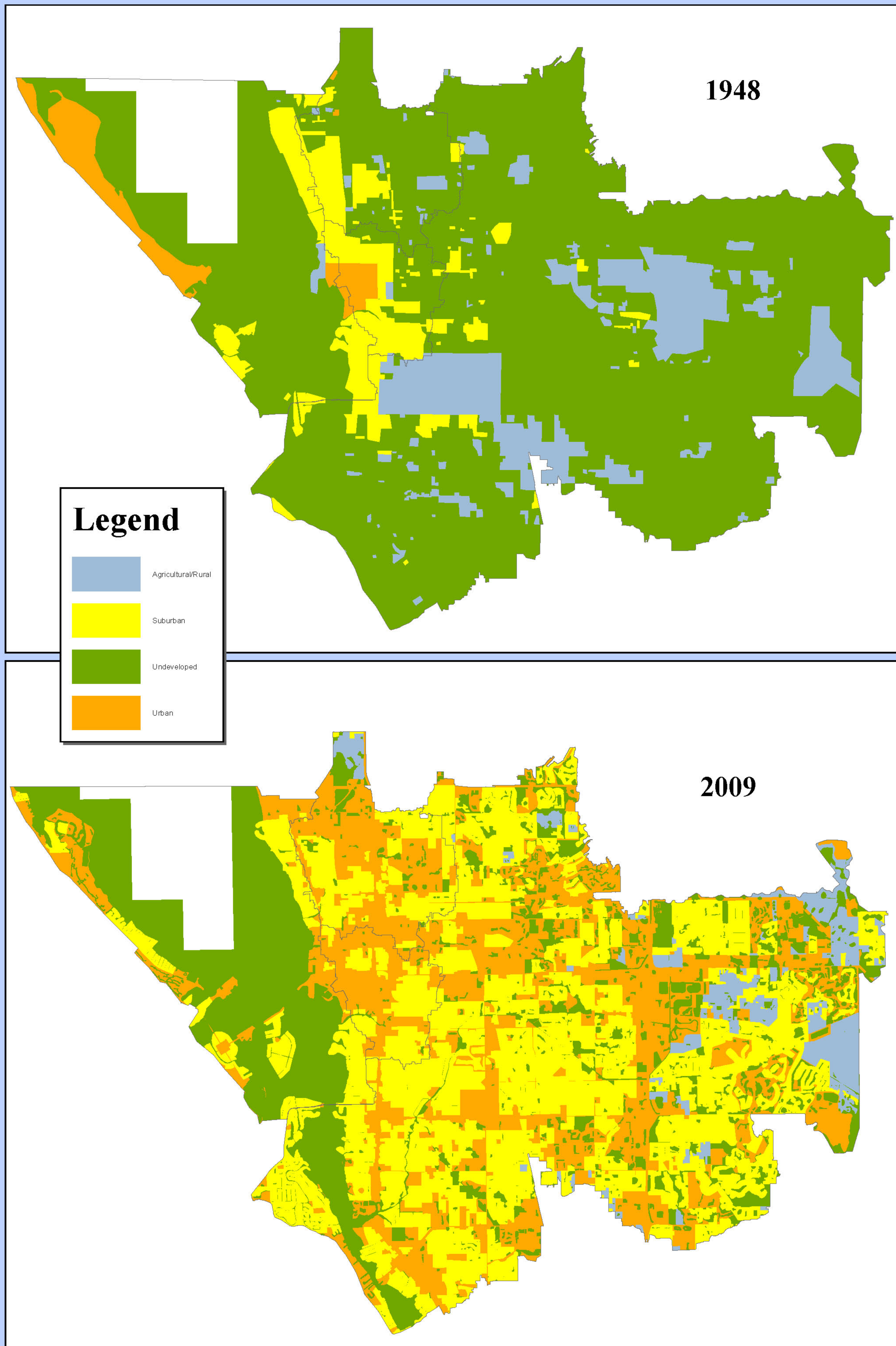


# Historical Land Use Analysis: Sarasota Bay and Roberts Bay Watersheds, 1948-2009

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## Summary

Since 1948, significant changes have taken place in the Sarasota Bay and Roberts Bay watersheds of northern Sarasota County. Agricultural lands have transitioned to suburbs and industry, resulting in significant changes in the land use patterns of the watersheds. Our project attempted to quantify the changes in land use within the boundaries of the Sarasota and Roberts Bay watersheds between 1948 and 2009 using aerial imagery and ArcGIS software.



Municipal Auditorium, downtown Sarasota (facing east) - ca 1940

## Methods

Digitized and orthorectified 1948 imagery of Sarasota County was obtained from Sarasota County and clipped to the boundaries of the Sarasota and Roberts Bay watersheds. Land use was digitized from the aeriels at a map resolution of 1:10,000, with a minimum mapping unit (MMU) of one acre. The land use types were delineated as urban, suburban, rural/agricultural and undeveloped. We distinguished between urban and suburban by lot size with urban areas characterized by zero lot lines and limited open space. Suburban land uses were determined to be those properties that aligned into a discernible 'grid-like' pattern (indicating a developed, intentional community). Agricultural lands were delineated by identifying discernible geometric patterns such as linear rows of crops, orchards or land clearing. Lacking necessary expertise in imagery analysis, we did not distinguish between agricultural and grazing land; for similar reasons, various habitat types of undeveloped land were not distinguished. Land use data for 2009 was obtained from the Southwest Florida Watershed Management District (SWFWMD) and clipped to the Sarasota Bay and Roberts Bay watershed boundaries. Land use FLUCCS code categories for the 2009 data were collated to conform to the 1948 classifications. 'Undeveloped' land uses included FLUCCS codes 300-700 & 900; 'rural and agricultural' lands included FLUCCS code 200; the FLUCCS codes for the 'suburban' land use were 110 and 120; and finally, the 'urban' land use designation comprised FLUCCS codes 130-290 and 800. The area of each land use type in 1948 and 2009 were summed for each watershed and percent change calculated and compared.



Lido Key (facing east), downtown Sarasota in background - ca 1940s

## Conclusions

The historical land use change analysis conducted for this project showed substantial changes to the Sarasota Bay and Roberts Bay watersheds from 1948 to 2009. Overall, agricultural land use have decreased 81%, while undeveloped lands have decreased 34%. Urban land use has increased 20% with an 817% increase in suburban land use. Differences in patterns of change between the two watersheds are evident. Whereas Roberts Bay watershed was largely undeveloped in 1948, the Sarasota Bay watershed already had thousands of acres of urban and suburban development centered around the downtown bayfront. Today, both watersheds are dominated by urban and suburban land use.



Foot of Main Street, Downtown Sarasota Bayfront - 1952



Downtown Sarasota (facing north, to Indian Beach) - ca 1950

	Land Use/Cover	1948	2009	Percent Change
Sarasota	Agricultural/Rural	312	181	-42%
	Suburban	3400	4258	25%
	Undeveloped	12649	8262	-35%
	Urban	1782	5440	205%
Roberts	Agricultural/Rural	6200	2355	-62%
	Suburban	1072	18993	1672%
	Undeveloped	34238	7122	-79%
	Urban	0	13037	n/a
Total	Agricultural/Rural	6512	2536	-81%
	Suburban	4472	23251	817%
	Undeveloped	46887	15384	-34%
	Urban	1782	18477	20%