

White Oak Bayou: Benefits of a Restored Urban Stream



Ben Jones

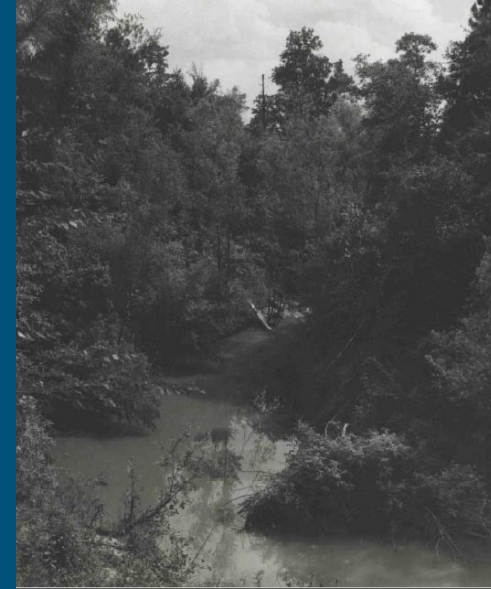
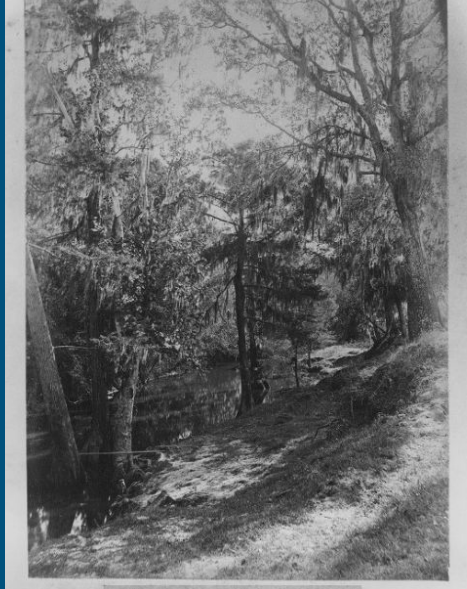


Internship Objectives

- Explore restoration possibilities
- Understand economic consequences
- Prepare for HCFCD Channel Restoration Study



White Oak Bayou: History of a Houston Waterway



1903: Highland Park

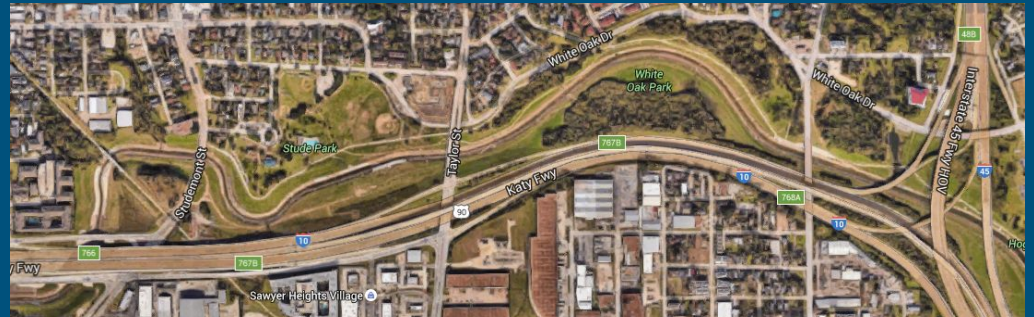


HOUSTON, TEXAS. Lake Highland Park.

*Dear friend: - went driving in this park yesterday
down to the theater and had a long fine day. We
are here in the morn. Hope you are all well. M.*

“An artesian well 478 feet deep, which has a flow of 75,000 gallons daily, furnishes patrons of the park with pure crystal mineral water [...] The pleasure boats with their gay occupants and the shadows of the great pine trees lend a touch of mystic enchantment to the scene.”

1930-1970: Channelization and Development



Countercurrents:

Environmentalism, Low Impact and Sustainable Development



Bayou Greenways and Houston's Future

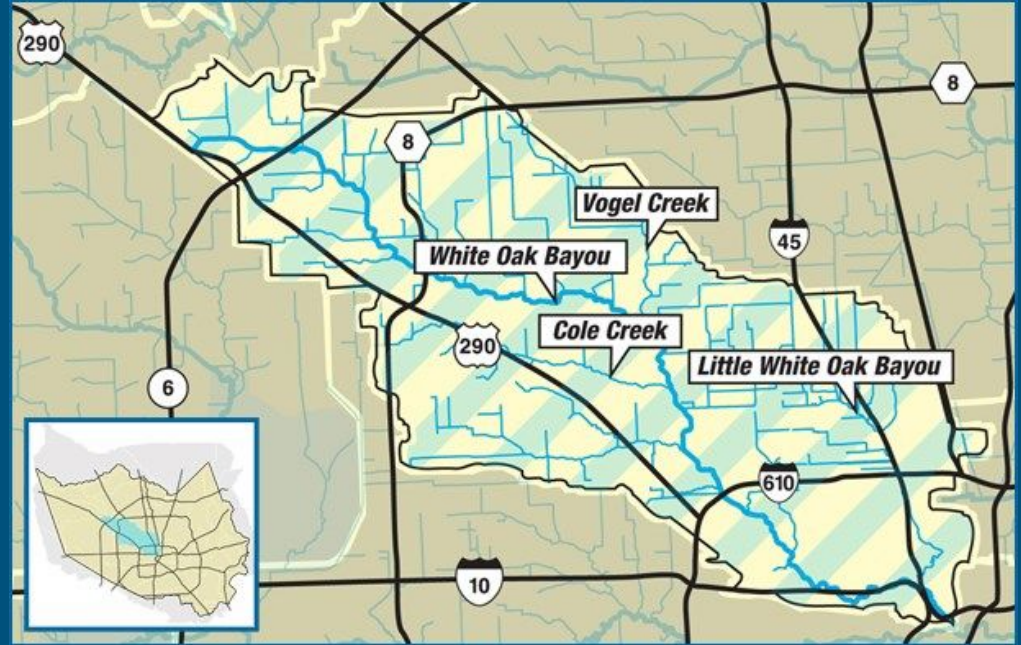


Total Measurable Annual Benefits

Physical and Mental Health	\$77,100,00
Environmental Health	\$22,500,000
Economic Health	\$17,500,000
Total Benefits	\$117,100,000

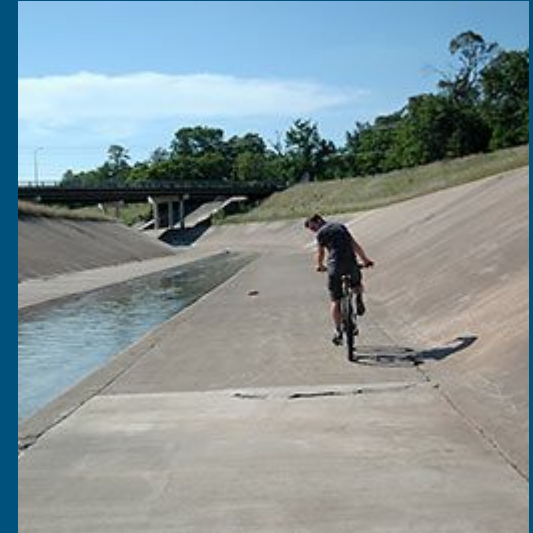
WOBA Study: Methods and Approaches

- Maintenance
- Property Value
- Recreation
- Other Ecosystem Services

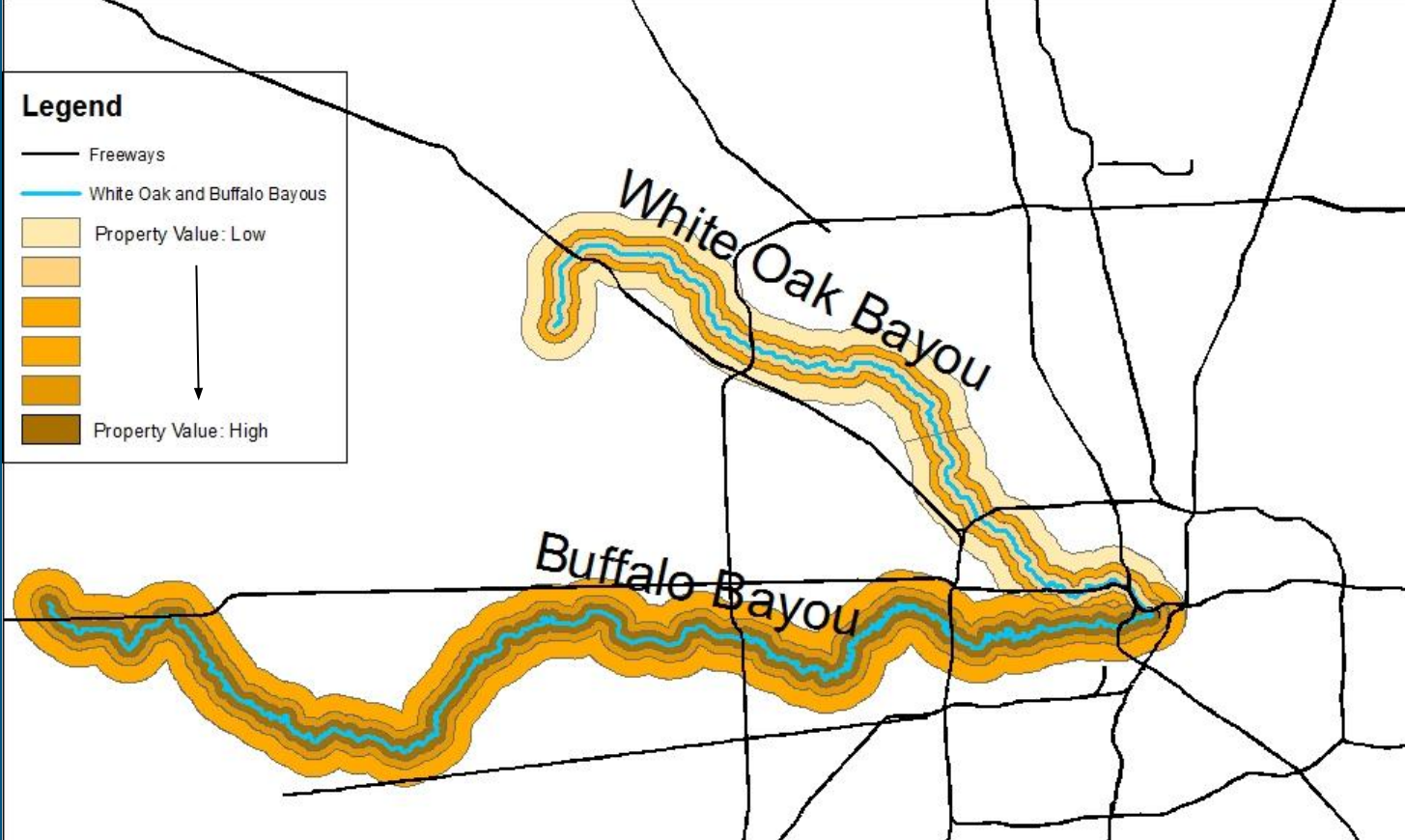


Maintenance

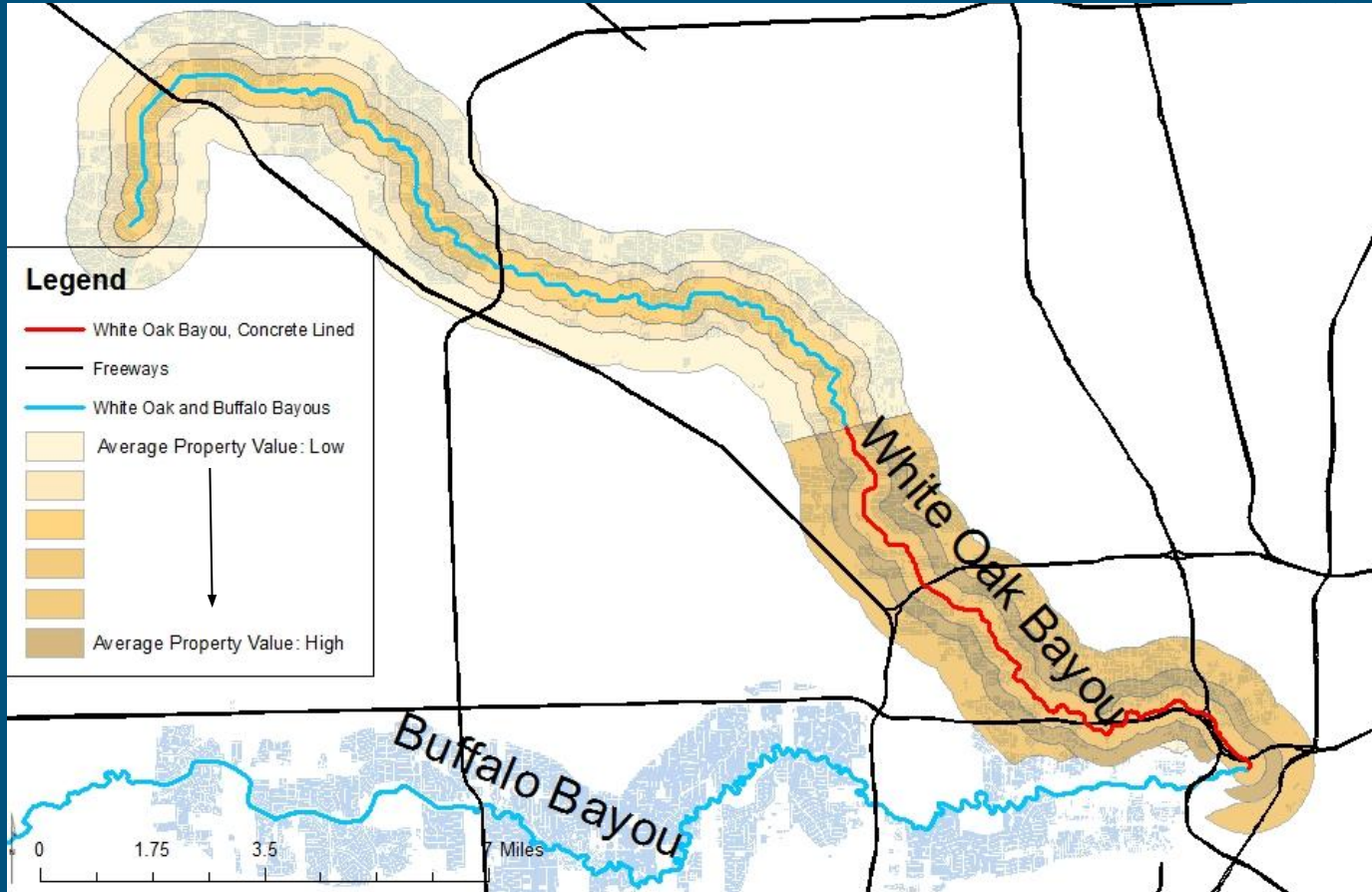
Year of Project	Length (Feet)	Construction Cost
2006	1400	\$891,000
2011	1100	\$673,000
2012	2200	\$1,500,000
2012	784	\$1,575,968
2013	562	\$1,449,536
Grand Total	6046	\$6,099,054



Relative Property Value: Buffalo vs WOB



Relative Property Value: North vs South WOB



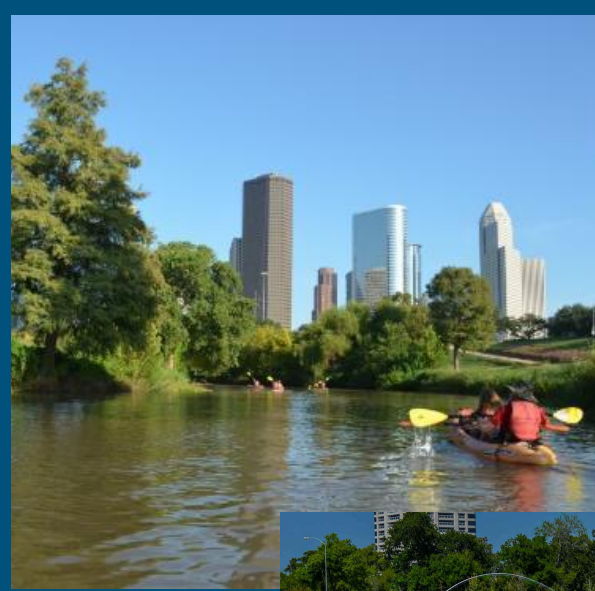
Property Value

	Number of Homes	Average Value Added	Annual Revenue Increase
5% Increase Within 600 ft	8,000	\$11,800	\$1,900,000
1% Increase Within 1 mile	101,000	\$2,600	\$5,400,000



Recreation

	Estimated WTP	Total Use Value
Fishing	\$57	\$1,054,000
Boating	\$31	\$566,000
Average		\$810,000



Other Ecosystem Services

Service	Low Estimate	Only Estimate	High Estimate
Gas and Climate Regulation	\$26,000		\$32,000
Sediment Retention		\$1,000	
Soil Formation		\$3,000	
Nutrient Cycling		\$20,000	
Waste Treatment	\$1,500		\$26,000
Biological Control	\$1,200		\$50,000
Total	\$52,700		\$132,000



Conclusion

Total Measurable Annual Benefits

Ecosystem Service	Low Estimate	Only Estimate	High Estimate
Maintenance		\$610,000	
Recreation	\$399,000		\$1,054,000
Property Values		\$1,912,000	
Other Ecosystem Services	\$53,000		\$132,000
Total	\$2,974,000		\$3,708,000



Questions?

HCFCF Study:

<https://www.hcfcf.org/projects-studies/white-oak-bayou/lower-white-oak-bayou-channel-restoration-study>

WOBA:

www.whiteoakbayou.org