

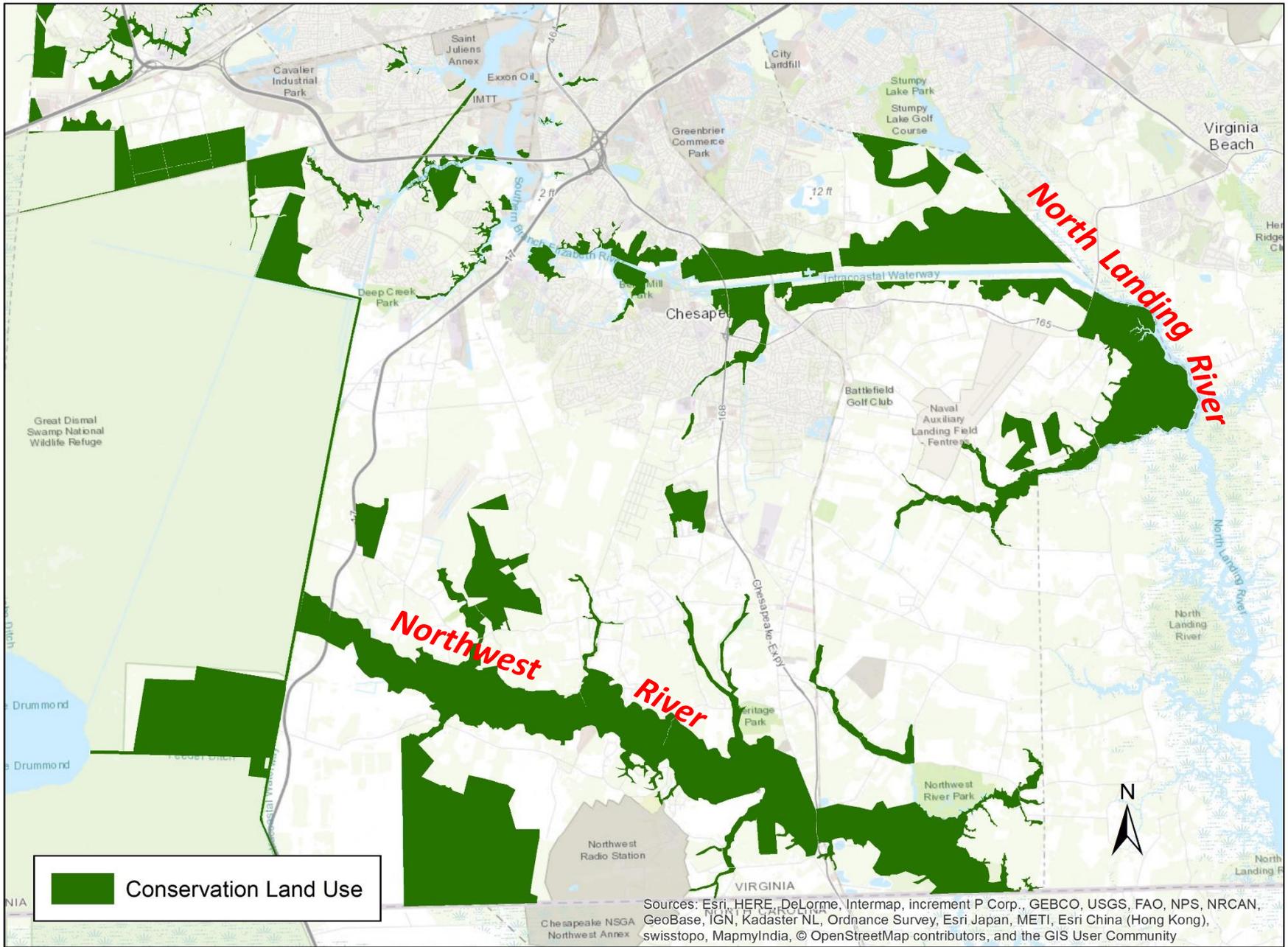
# *Forest Conservation in the City of Chesapeake's Conservation Corridors*

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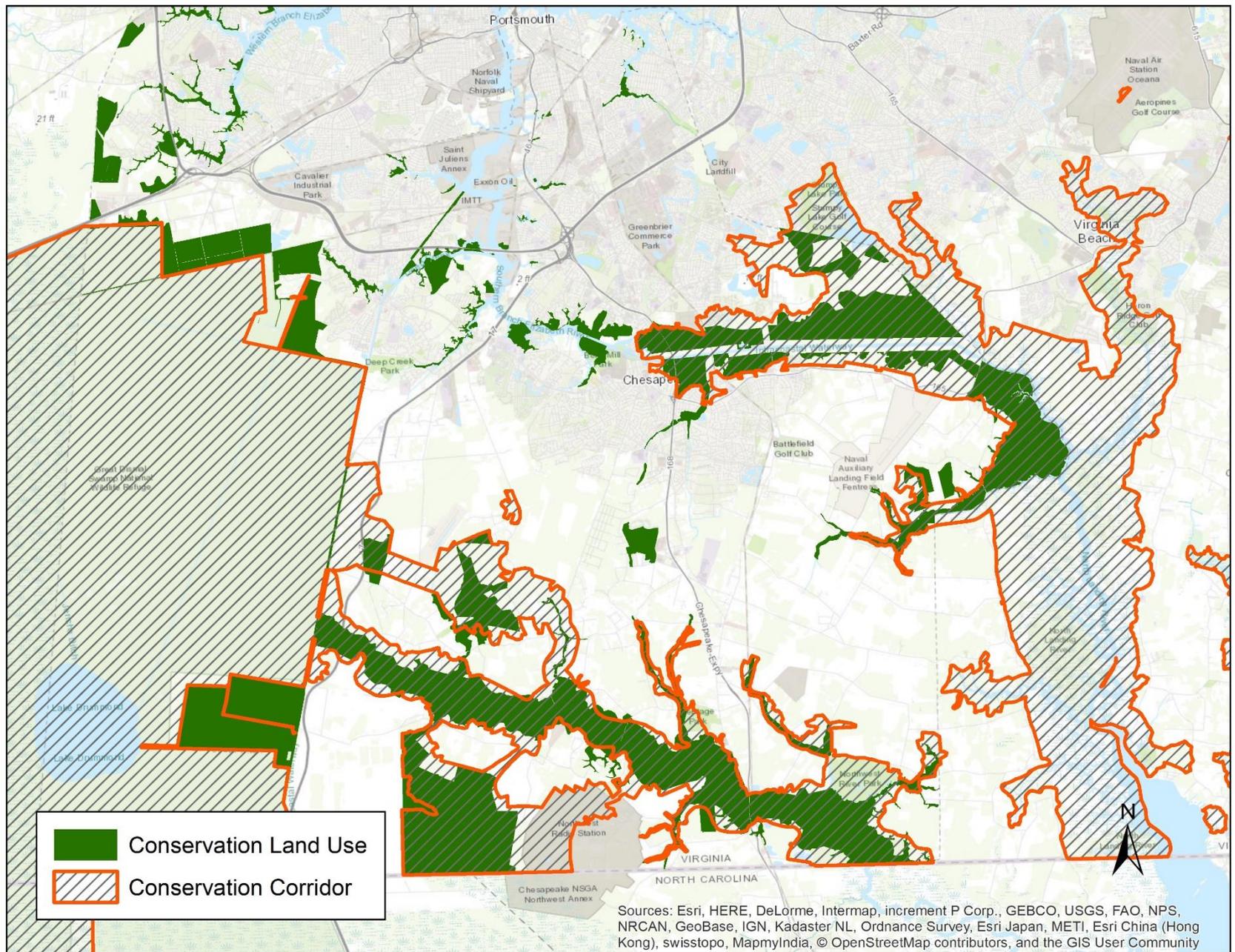


# Conservation Land (City of Chesapeake 2035 Land Use Plan)

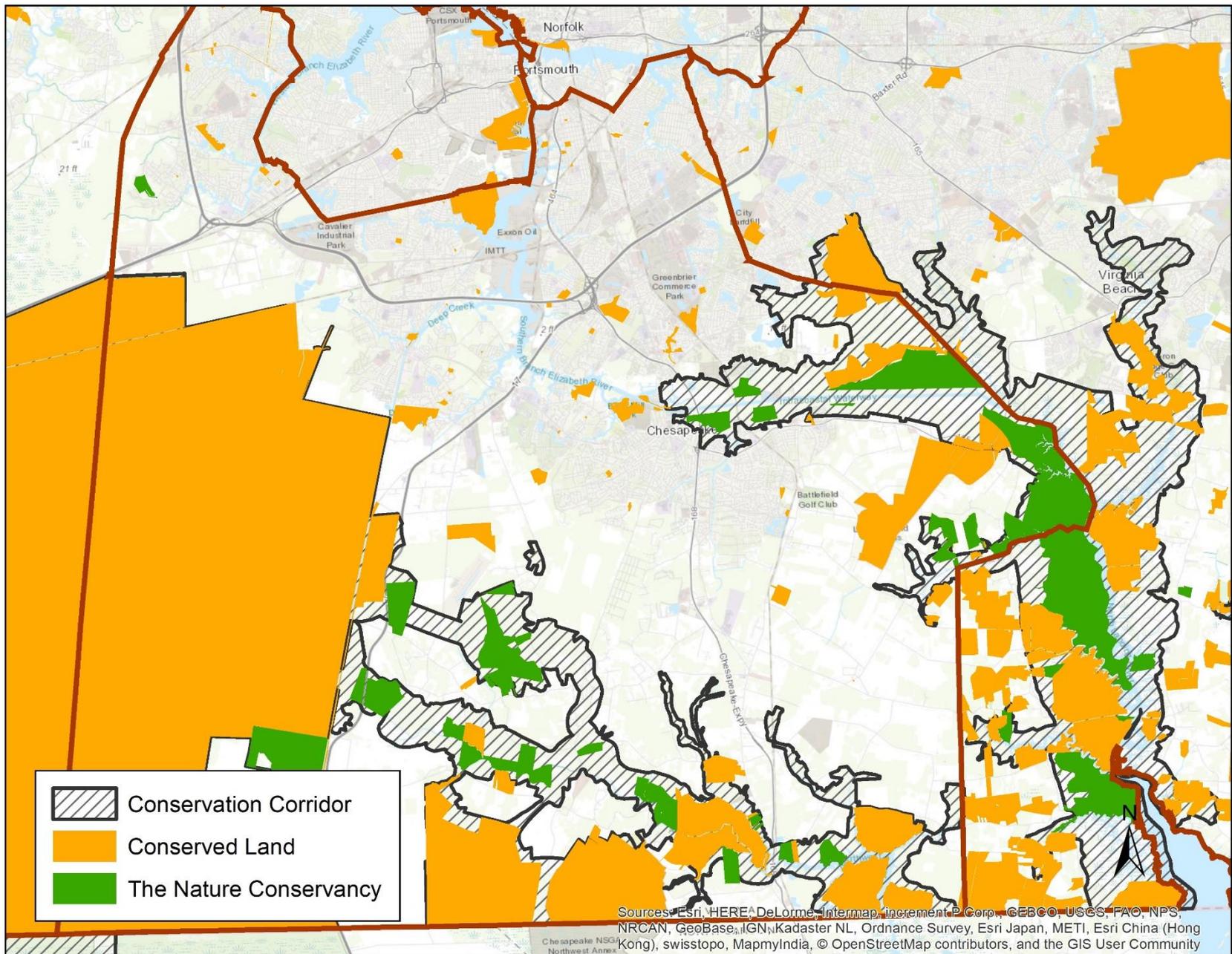




# Albemarle Sound Estuary



# Conservation Corridors (HRPDC, 2006)



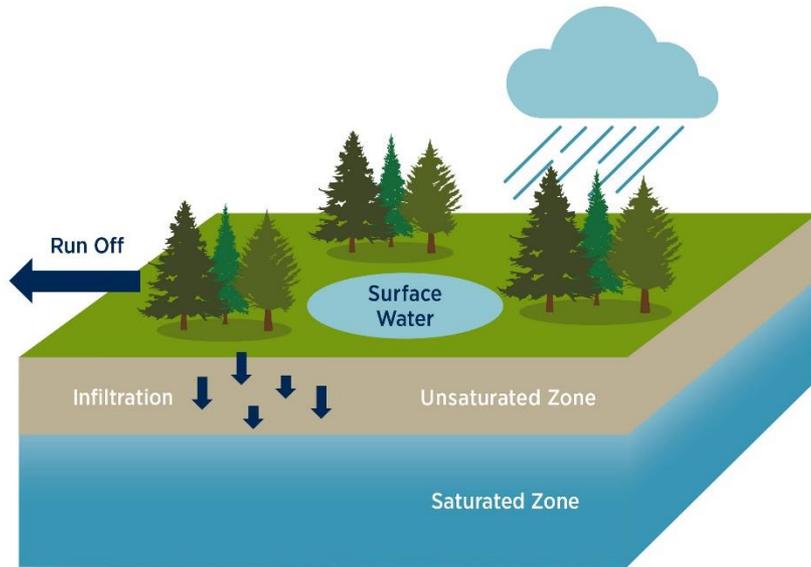
# Conserved Land in Conservation Corridors (VA DCR)

TABLE 2. THE VALUE OF CHESAPEAKE'S URBAN FOREST 1995-2005  
(EXCLUDING THE GREAT DISMAL SWAMP NATIONAL WILDLIFE REFUGE)

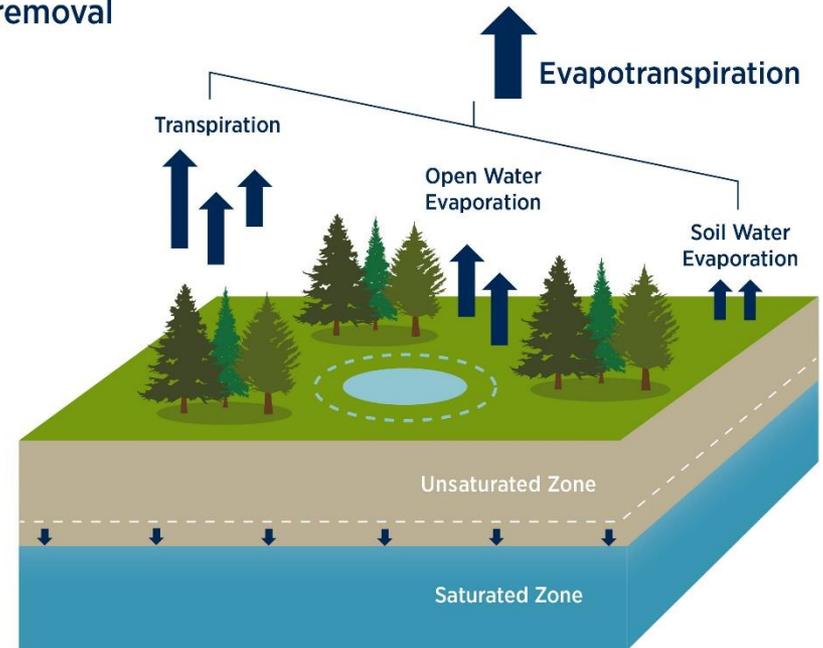
<i>Ecological Benefits</i>	<i>1995 value at 38% canopy</i>	<i>2005 value at 36% canopy</i>
Stormwater mgmt. (one time)	\$872.7 million	\$826.8 million
Stormwater mgmt. (annual)	\$ 42.4 million	\$ 40.2 million
Air Pollution Stored (annual)	\$ 15.7 million	\$ 14.9 million
Energy Conserved (annual)	\$ 1.52 million	\$ 1.52 million
Totals: (one time)	\$872.7 million	\$826.8 million
(annual)	\$ 59.6 million	\$ 55.9 million
GRAND TOTALS:	\$932.3 million	\$882.7 million

Source: Based on data from American Forest Urban Ecosystem Analysis, August 2001 (Ref. 3)

Figure 1. Runoff reduction through forest water storage and removal

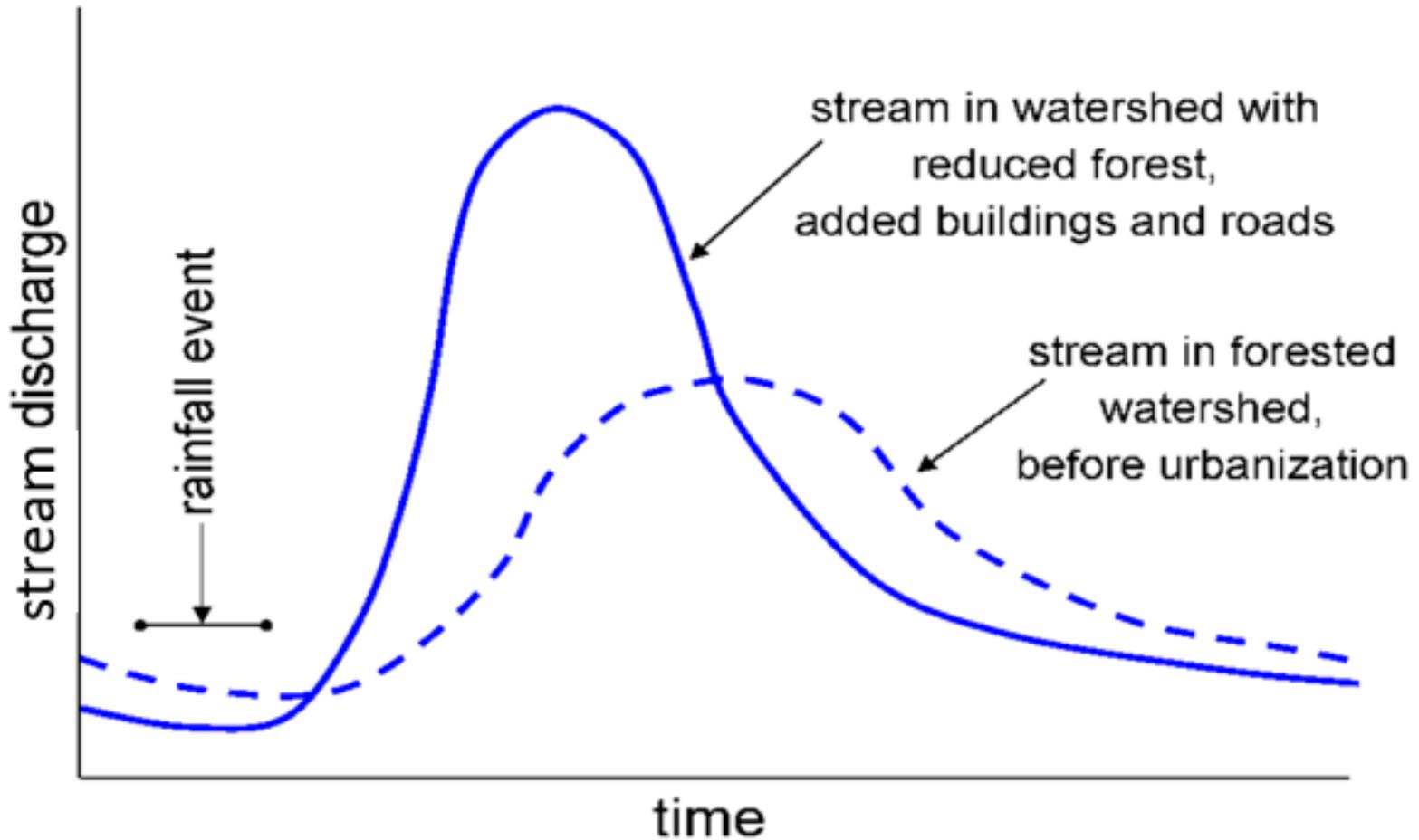


**A)** Water storage services during precipitation events, where depressions accumulate and store surface water (i.e., depressional surface water storage) and soils infiltrate and store water in soil pores (i.e., soil water storage).

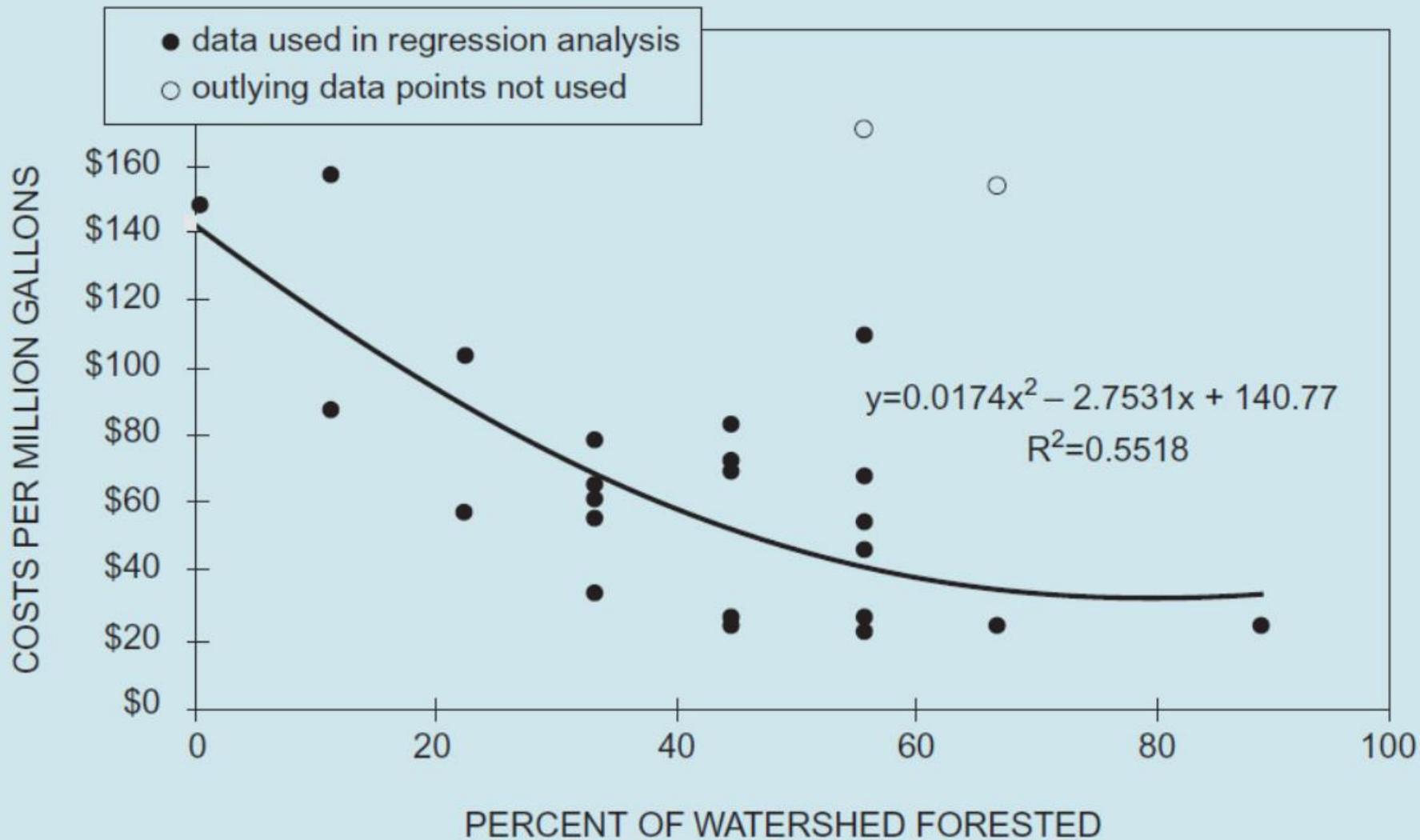


**B)** Evapotranspiration (ET), which includes plant water uptake (transpiration), soil water evaporation and open water evaporation, provides water removal services and reduces standing water, depletes soil moisture, and lowers the water table (i.e., top of the saturated zone).

# Hydrograph of streamflooding before and after urbanization of a watershed

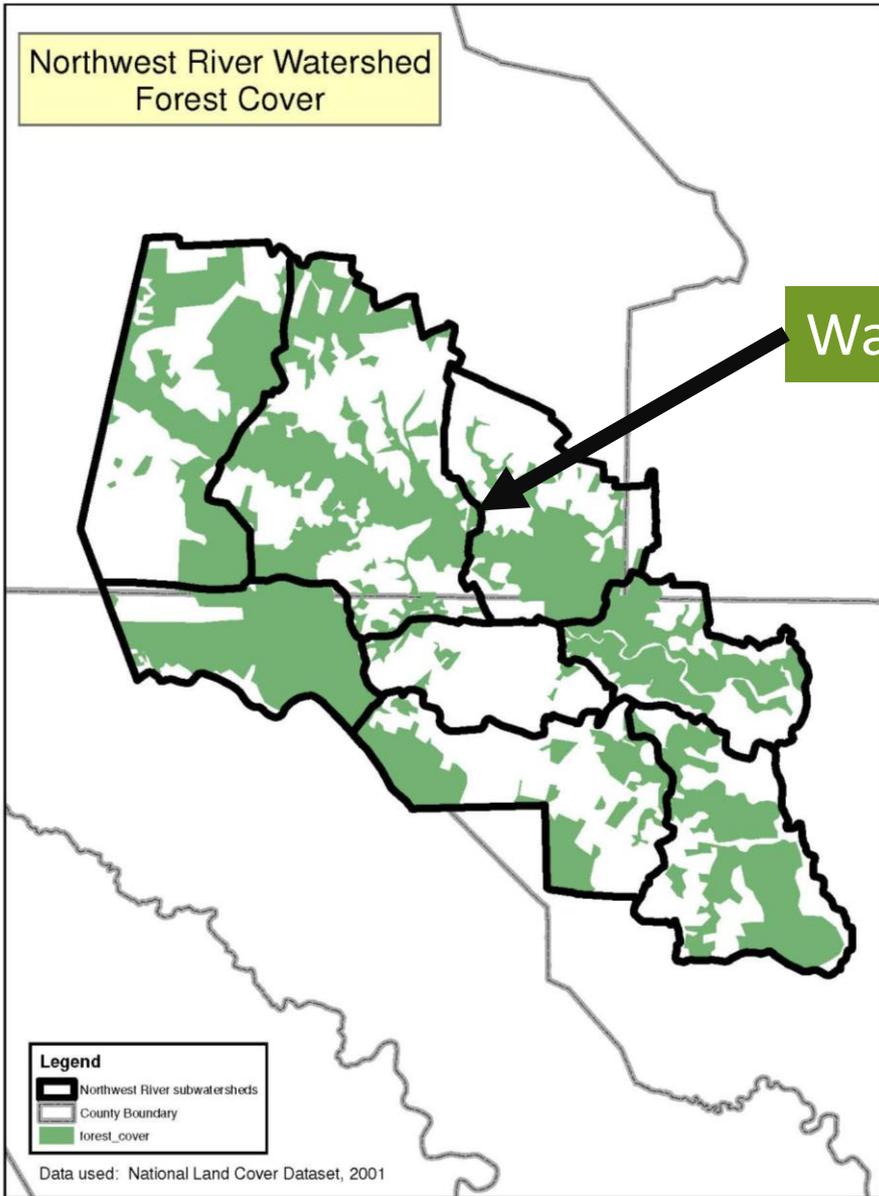


Effect of forest cover on water runoff



Relationship between watershed forest cover and water treatment costs (Ernst, 2004)

# Relationship between forest cover and water treatment costs

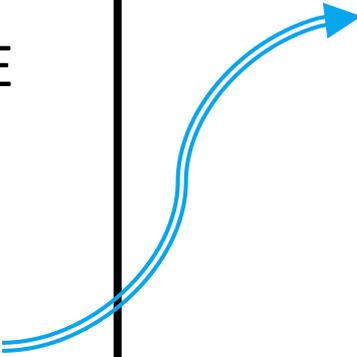


49% of the watershed area upstream of the water intake point is forested.

# GREEN + GREY INFRASTRUCTURE PLANNING

Nature-based  
Services

Engineered  
Solutions

- 
- 1) Complete inventory of green infrastructure services
  - 2) Evaluate consequences if green infrastructure is compromised
  - 3) Prioritize what/how green infrastructure should be conserved
  - 4) Finance and implement green infrastructure conservation projects

# Advancing Forest Conservation

- Support science to inform return on investment of forest conservation projects
- Include forestland in City infrastructure planning
- Incentivize landowners to protect forest