

# LAND USE AND WATERSHED IMPACTS

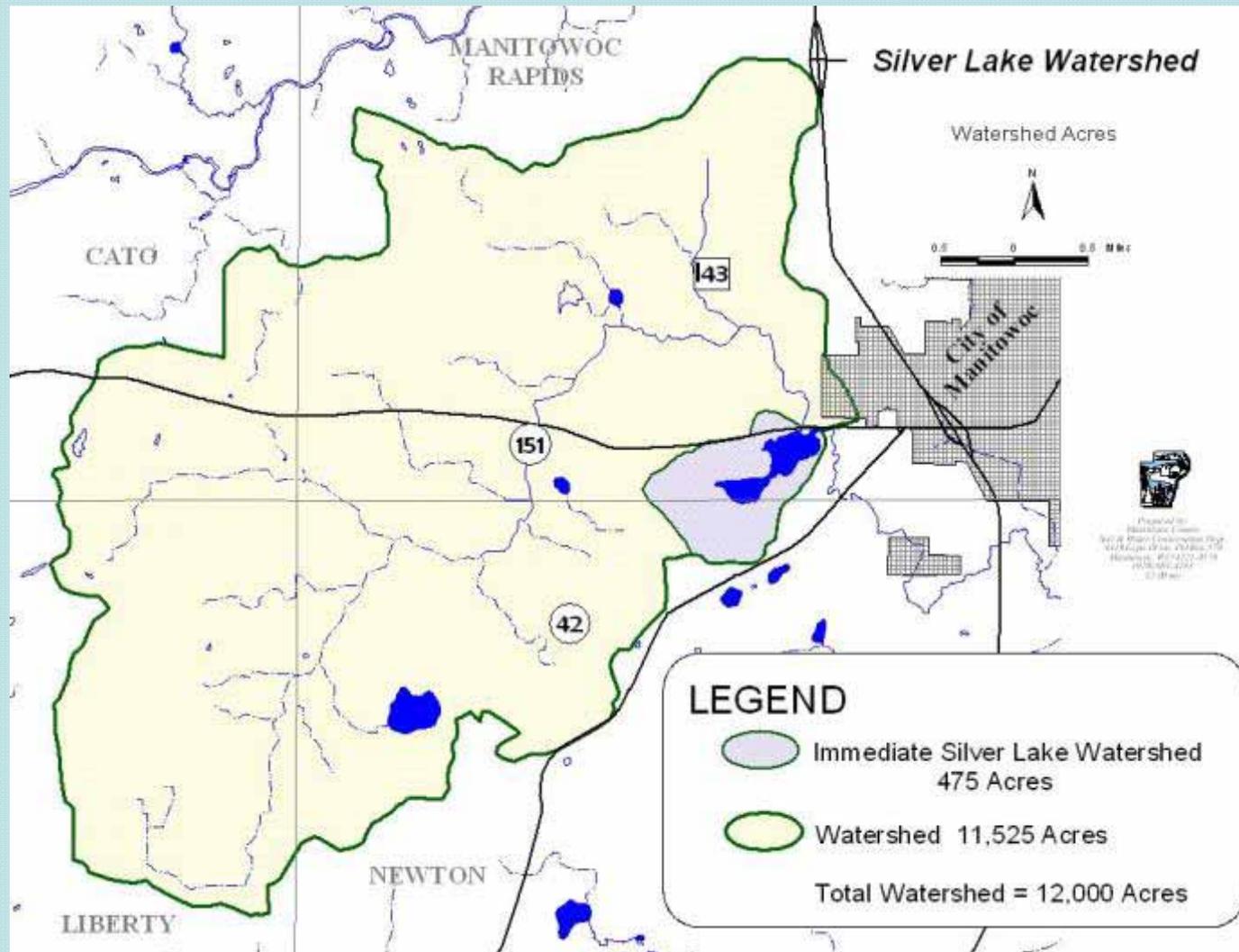


**Round Lake Drainage Area**



0.2 0 0.2 Miles



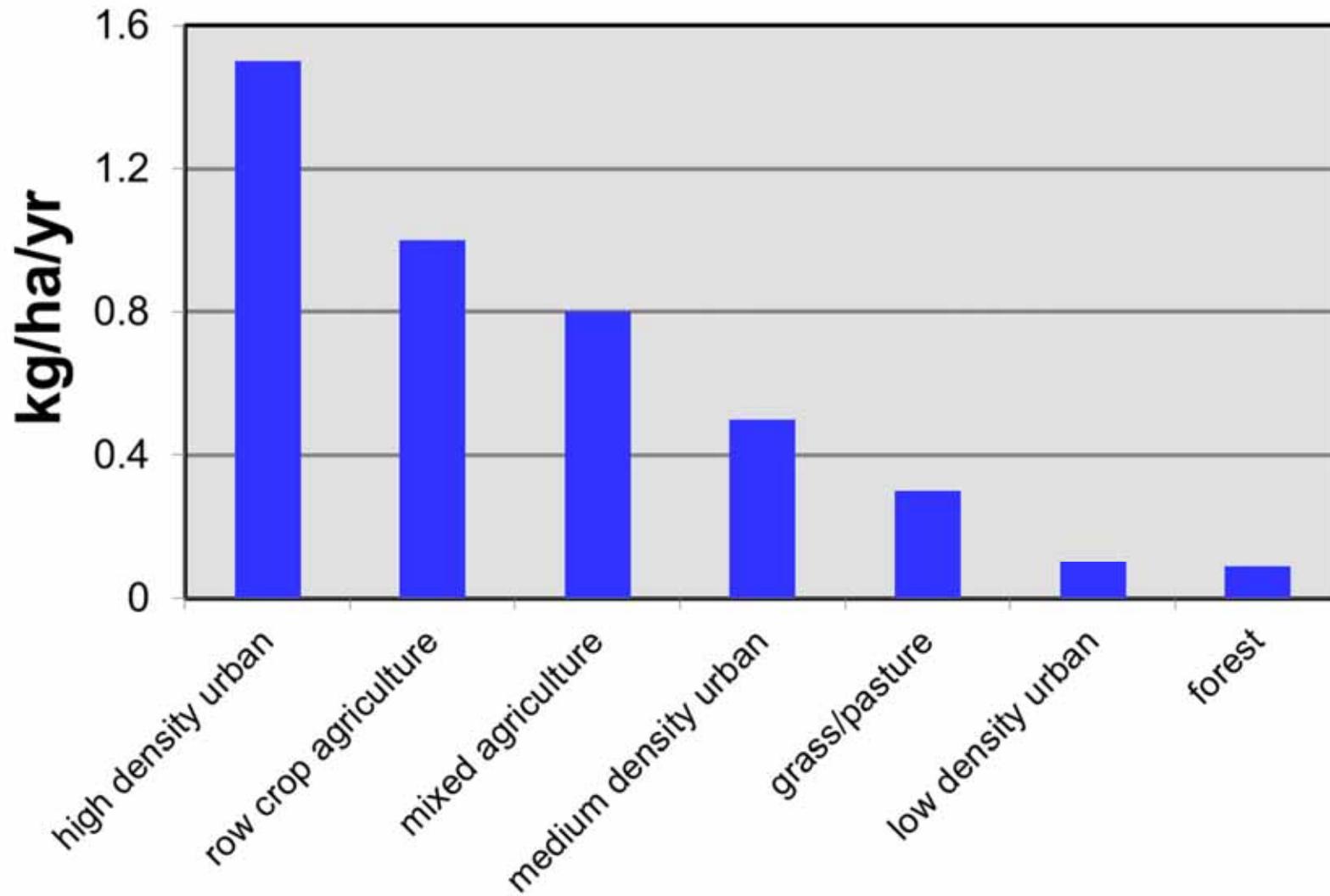


# NUISANCE ALGAL BLOOMS



# Phosphorus Export Coefficients

## Wisconsin Values



# AGRICULTURE IMPACTS



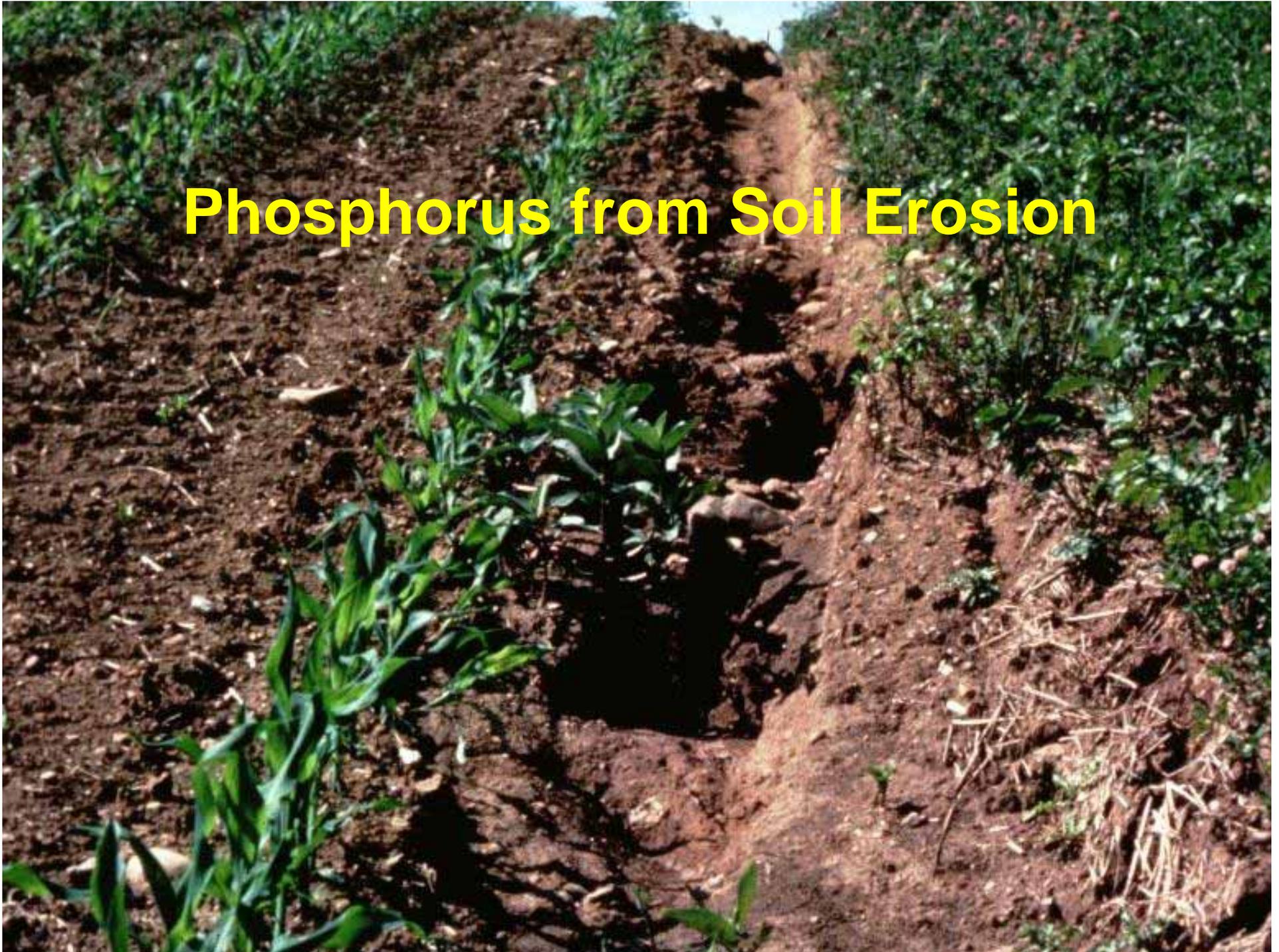


**Early Spring Runoff from Barnyards:  
A Major Source of Phosphorus Pollution**

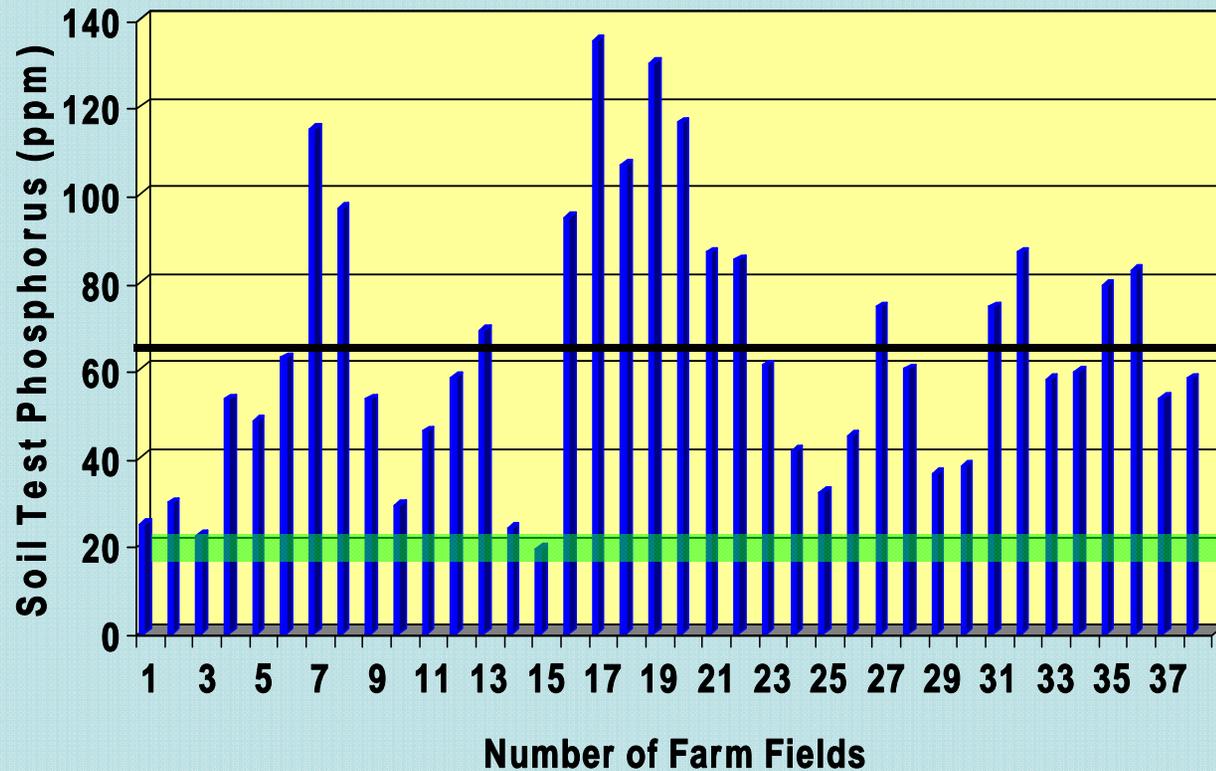
# No Vegetative Buffer along Drainage Ditch



# Phosphorus from Soil Erosion

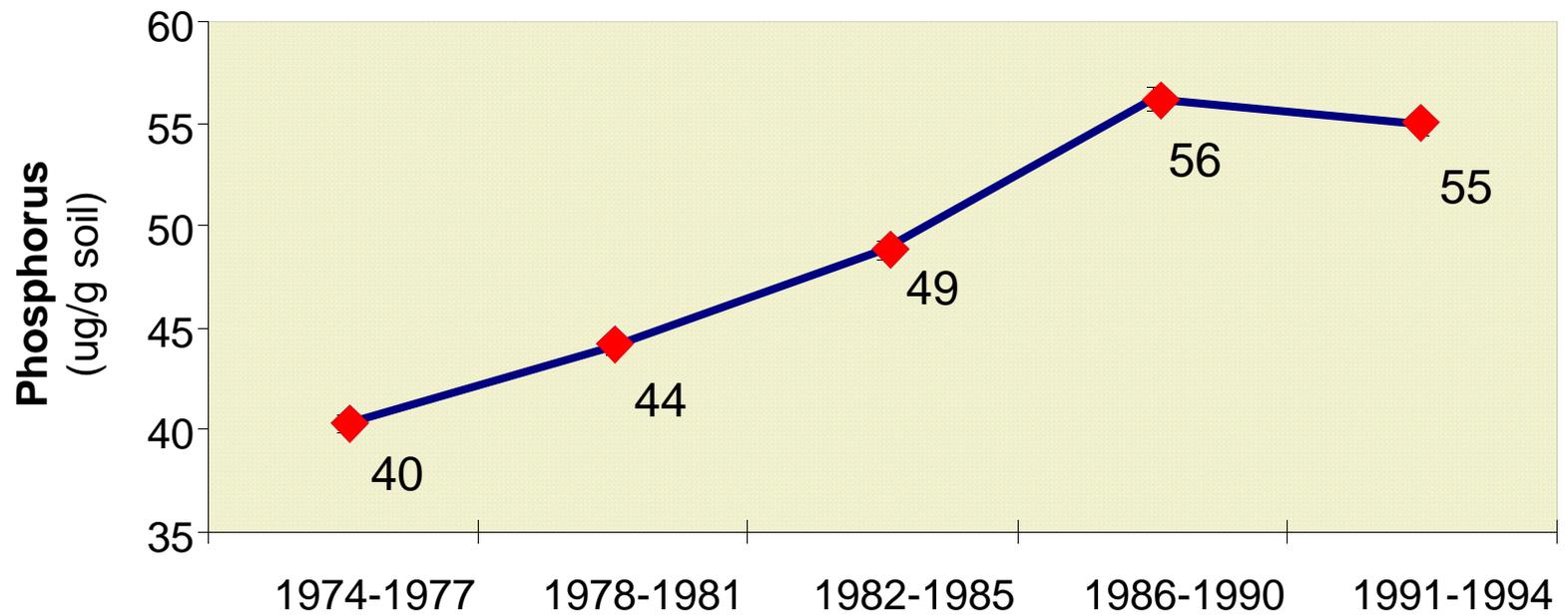


# Phosphorus Distribution Dane County - Farm 1



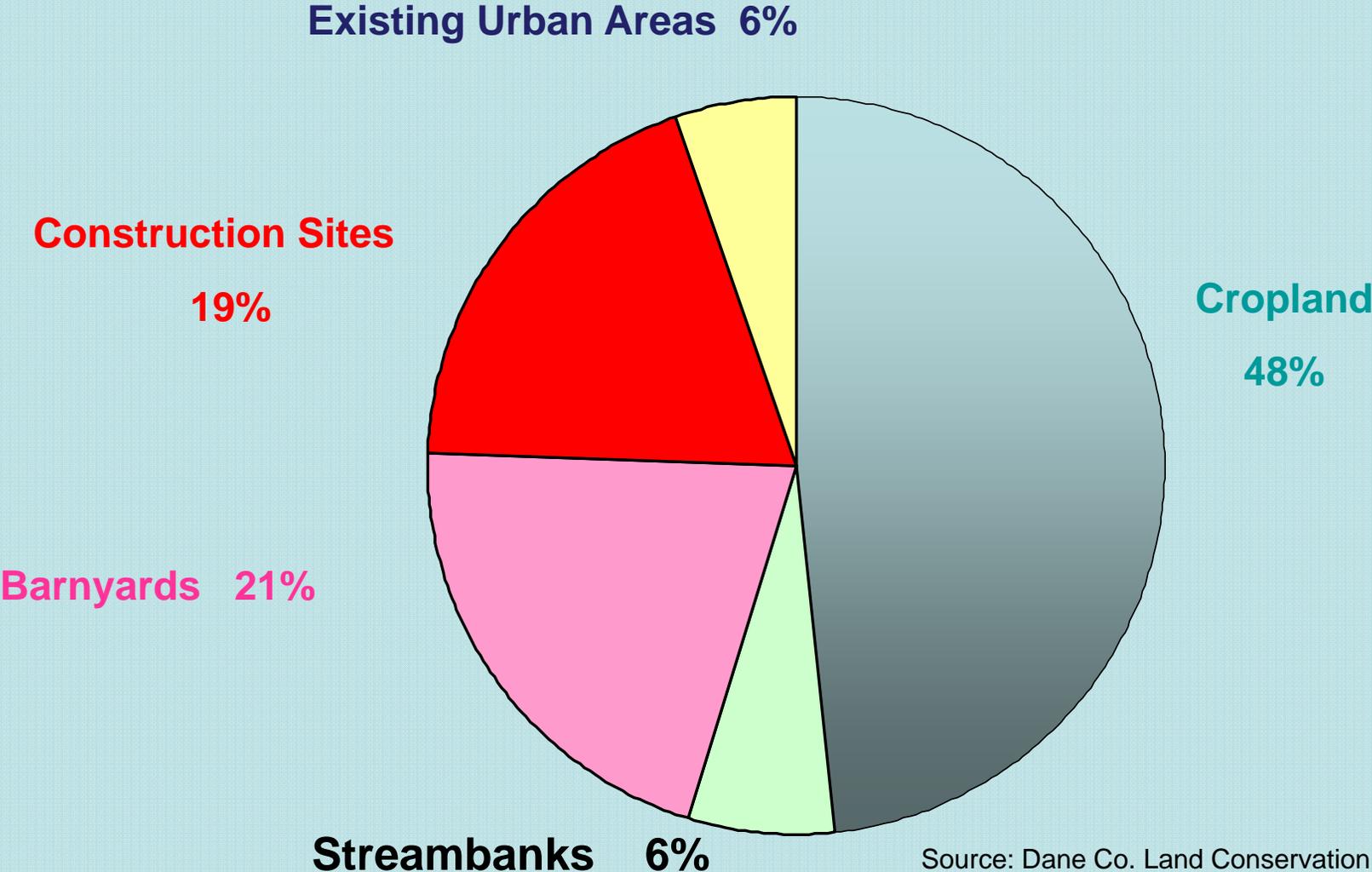
*University of Wisconsin Nutrient  
and Pest Management Program*

# Dane Co. Soil Test P Data 1974-1994



(after Combs et al. 1996 as reported in Bennett et al. 1999)

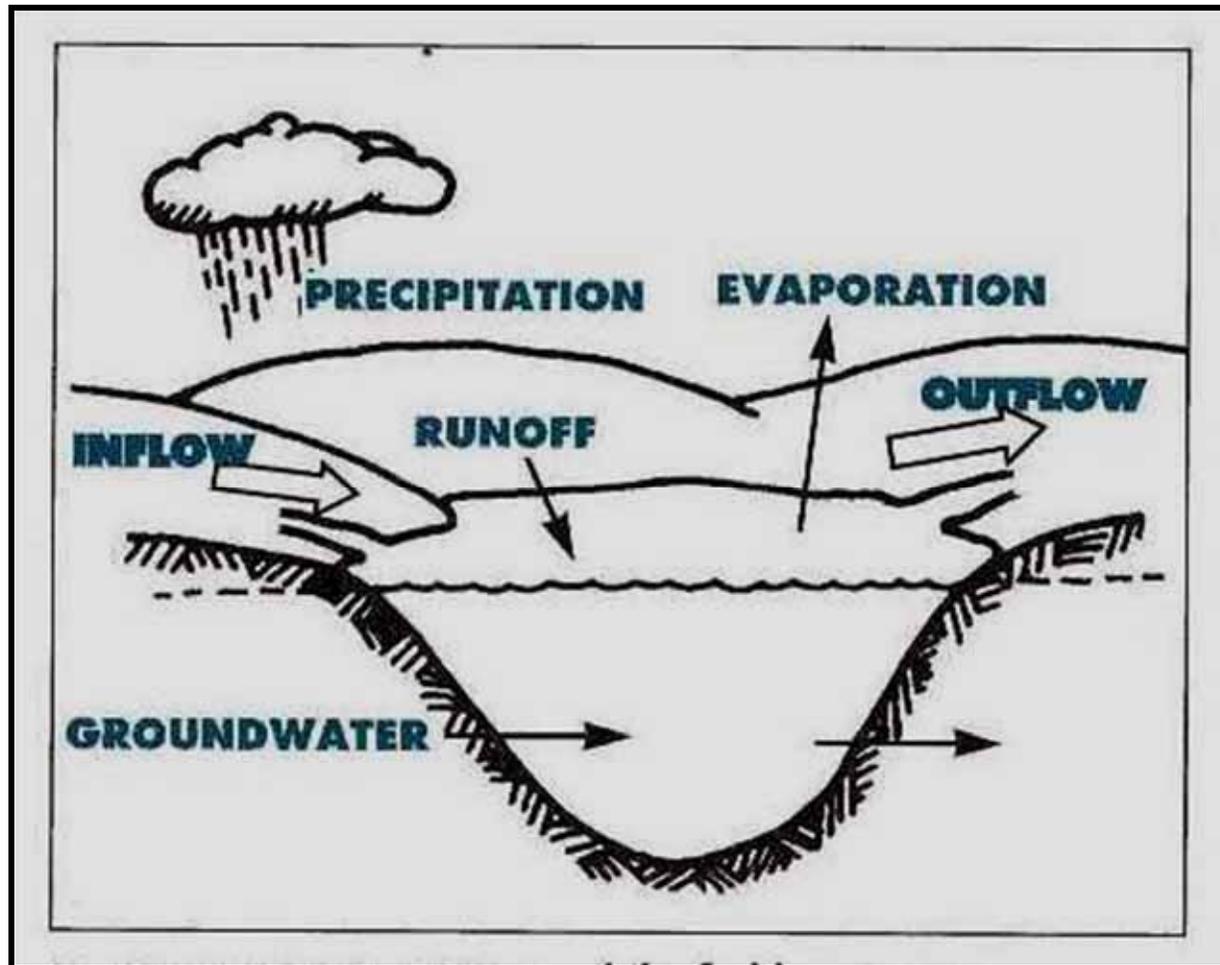
# P Loading Sources to Lake Mendota



Source: Dane Co. Land Conservation Dept.

# WATER AND NUTRIENT BUDGETS

## HYDROLOGY



# WATER BUDGET

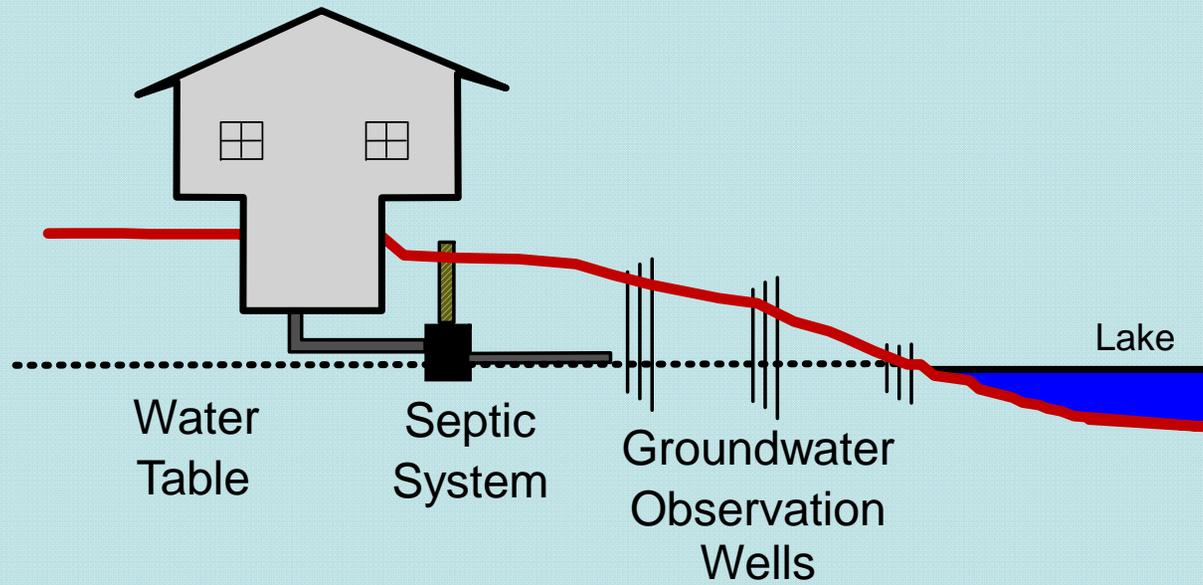
## SURFACE WATER



Photo by Paul Garrison

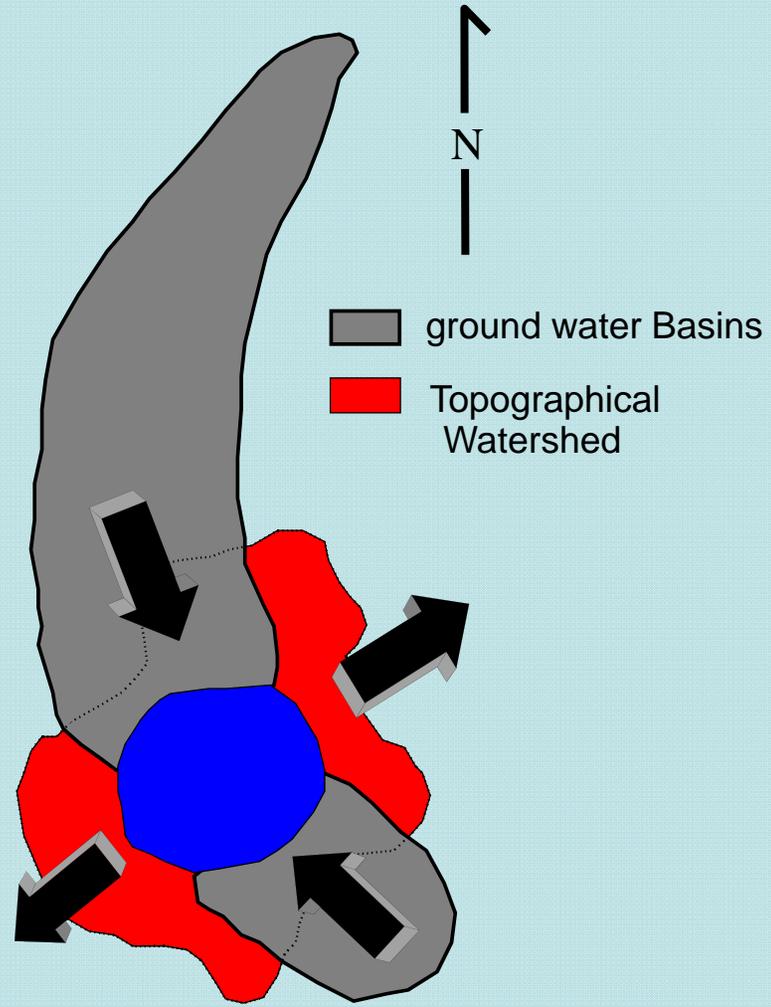
# WATER BUDGET

## Ground Water



# WATER BUDGET

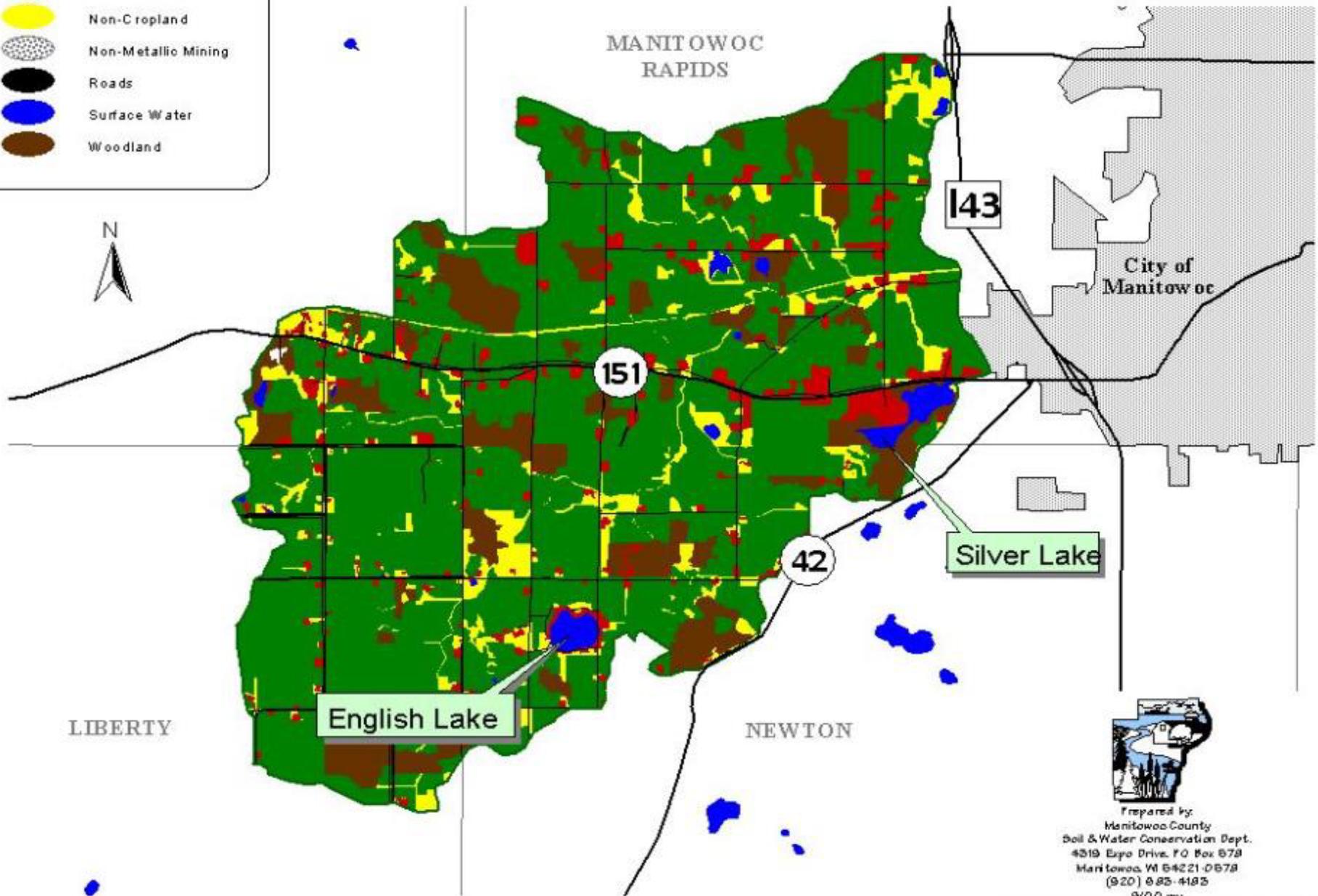
## Ground water



# Silver Lake Landuse

## LEGEND

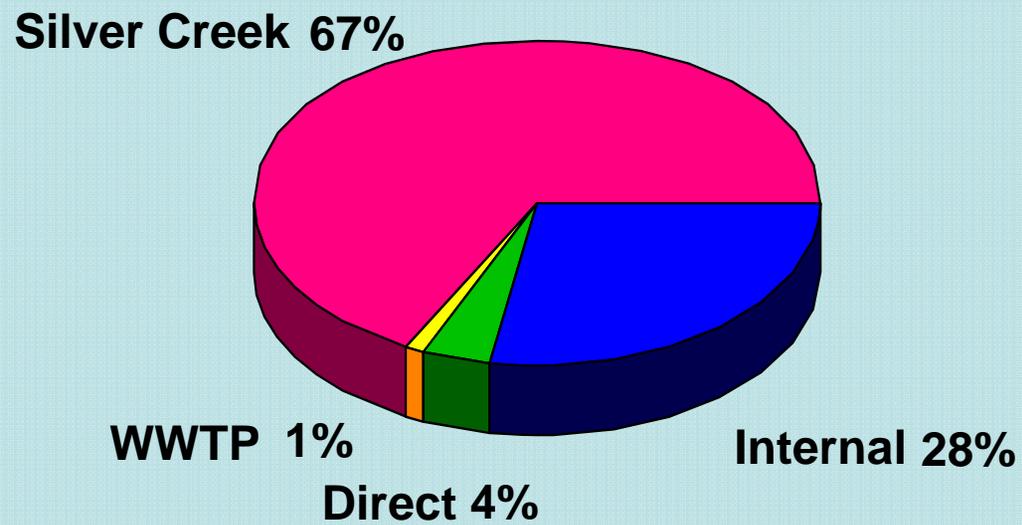
-  Agriculture
-  Building Sites
-  Non-Cropland
-  Non-Metallic Mining
-  Roads
-  Surface Water
-  Woodland



Prepared by  
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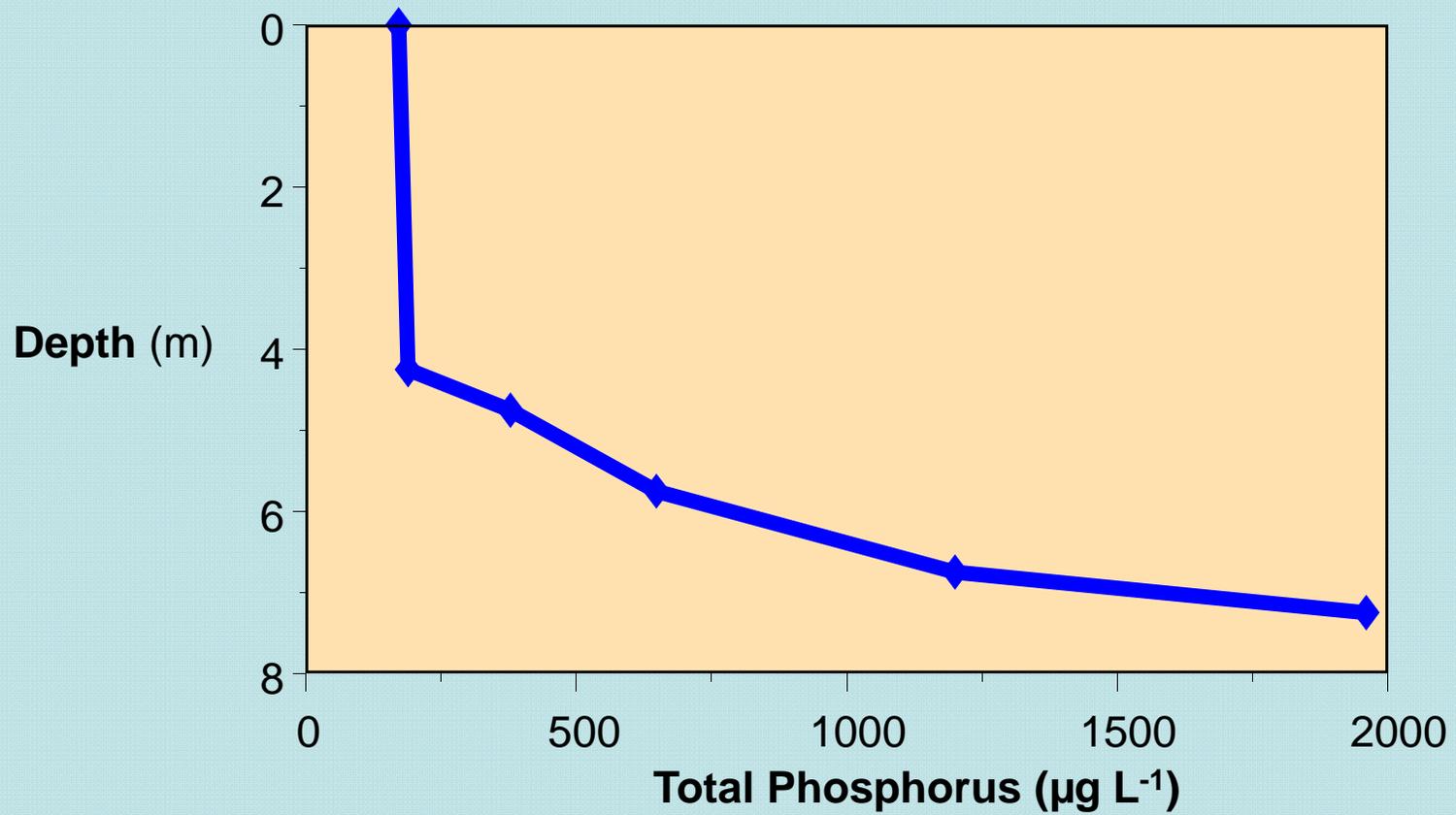
# WATER AND NUTRIENT BUDGETS

## NUTRIENT BUDGETS



# WATER AND NUTRIENT BUDGETS

## INTERNAL LOADING



# BENTHIVOROUS FISH

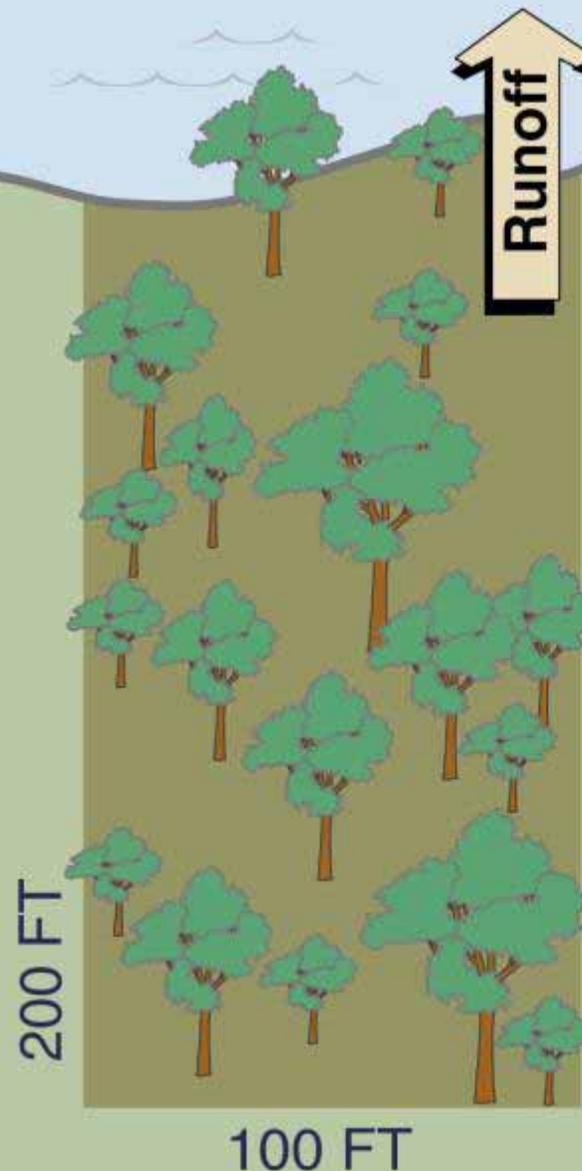


# SHORELAND DEVELOPMENT



## Undeveloped – Apr.-Oct. phosphorus/sediment runoff model

- maple-beech forest
- 6% slope to lake
- sandy loam soil



### IMPACT ON LAKE (April - Oct.)

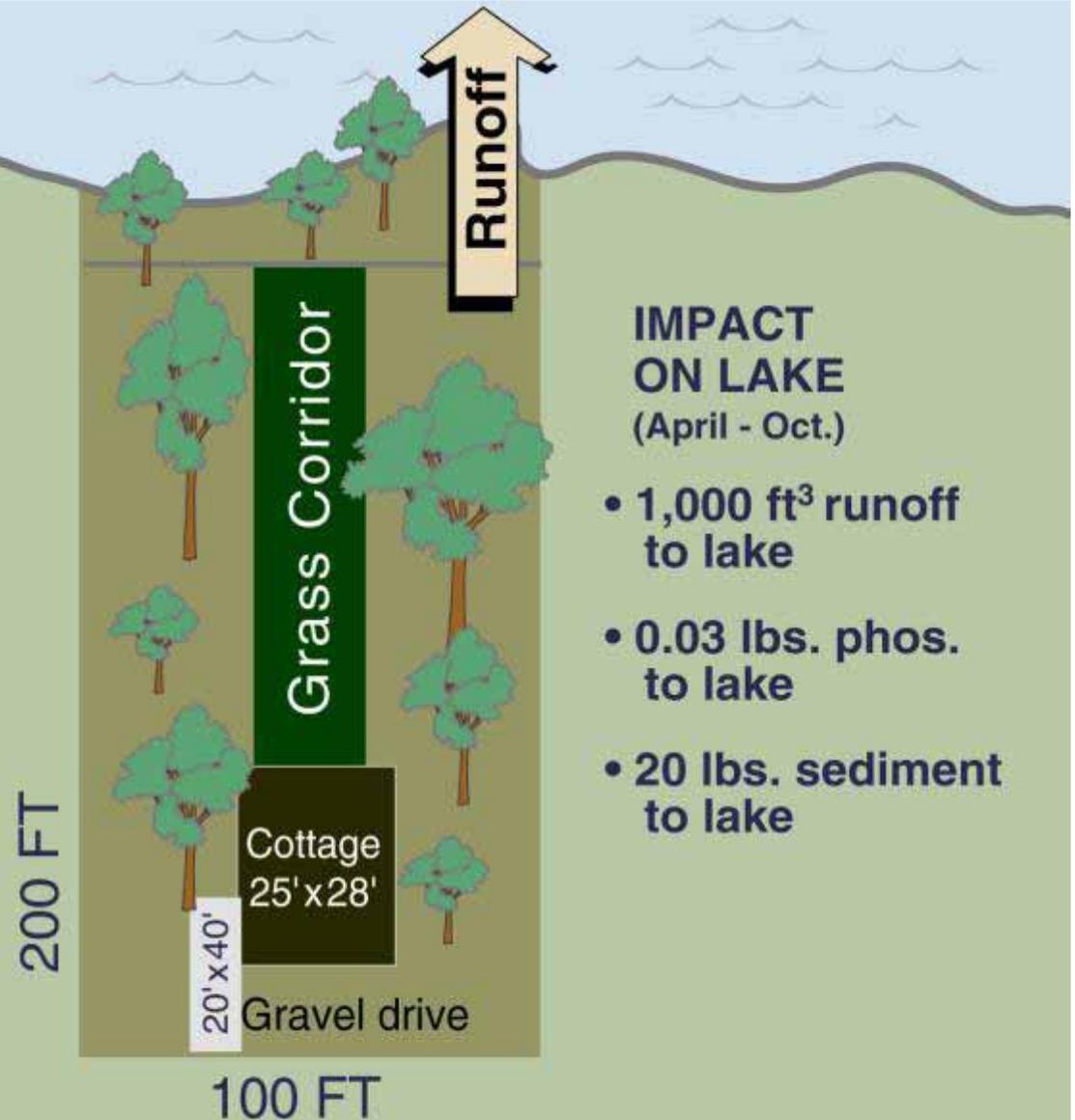
- 1,000 ft<sup>3</sup> runoff to lake
- 0.03 lbs. phos. to lake
- 5 lbs. sediment to lake



**1940's DEVELOPMENT**

## 1940s development – Apr.-Oct. phosphorus/sediment runoff model

- maple-beech forest
- 6% slope to lake
- grass corridor 20'-wide
- cottage 700 ft<sup>2</sup> perimeter
- gravel drive 800 ft<sup>2</sup>
- 35'-wide buffer strip

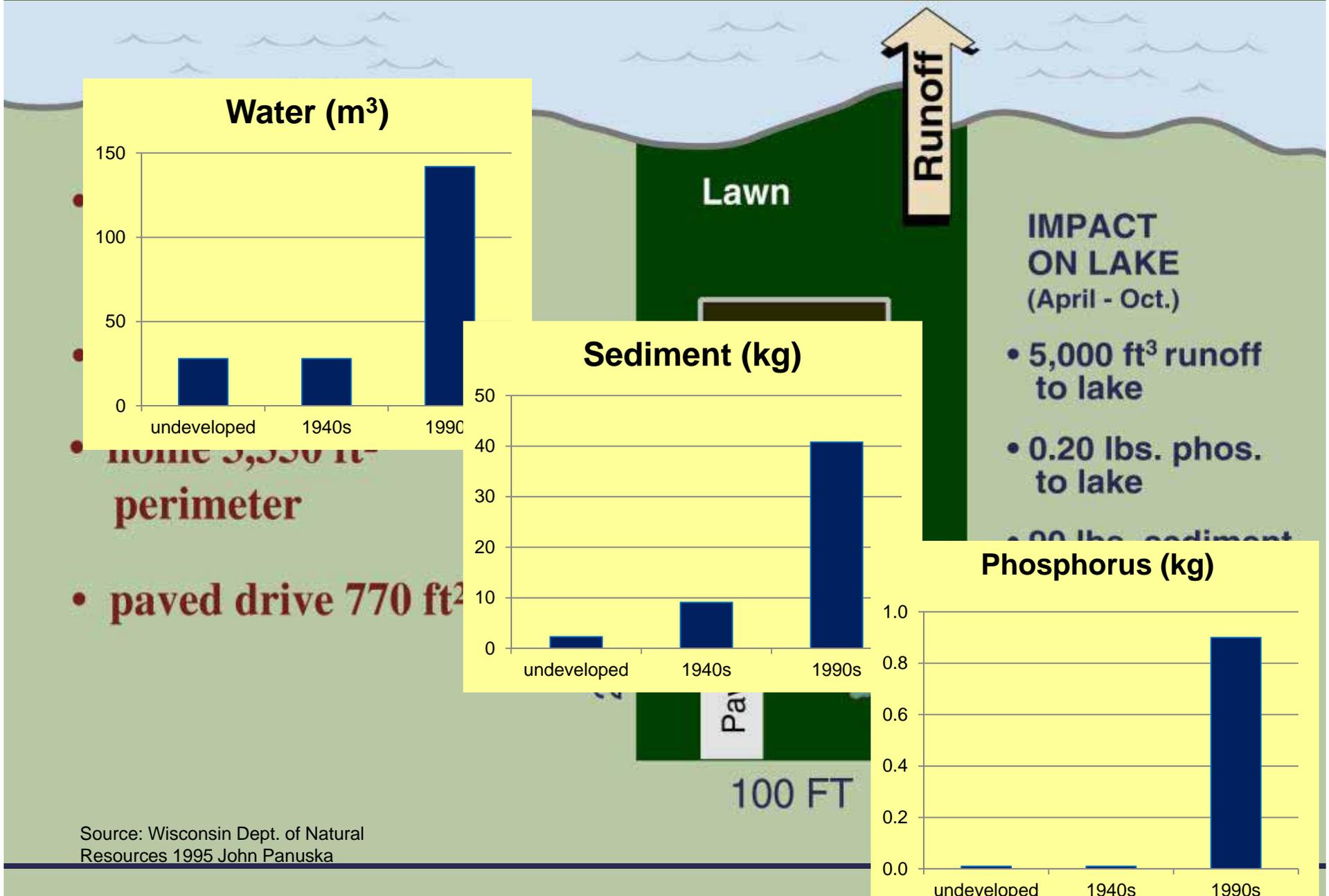




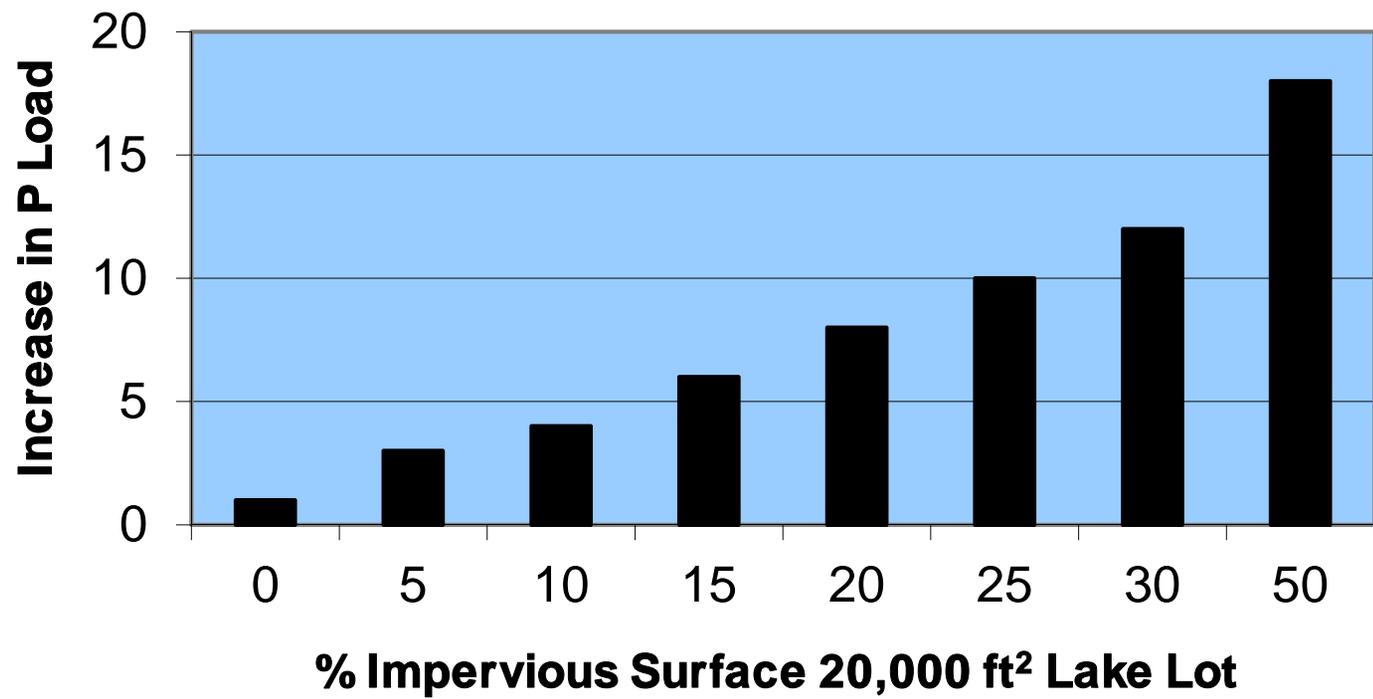
**1990's DEVELOPMENT**

4 26 '94

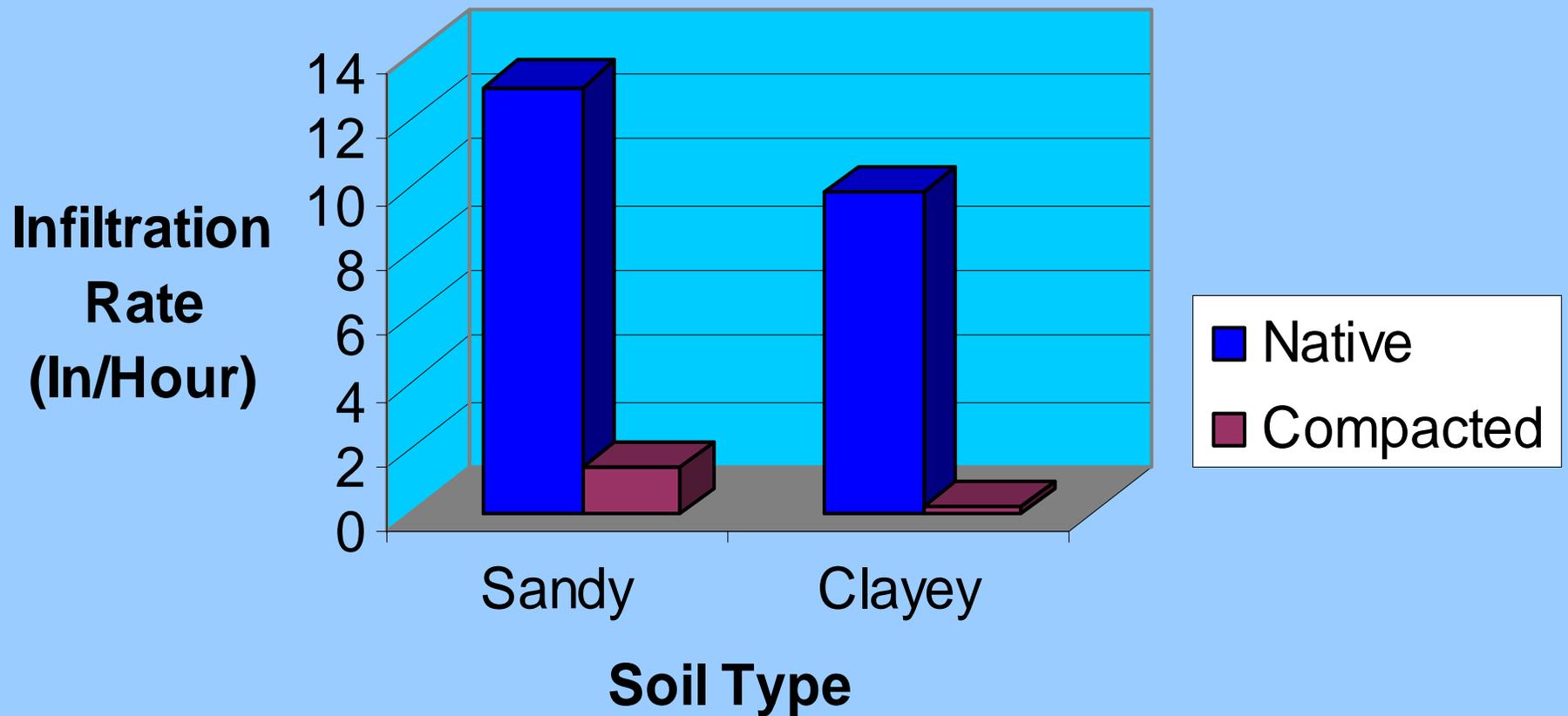
# 1990s development – Apr.-Oct. phosphorus/sediment runoff model



## Impacts from Impervious Surfaces on Phosphorous Loading



# Effect of Compaction on Infiltration Rate



Pitt, et. al., 1999

