

# Lake Sarah TMDL

TMDL – Total Maximum Daily Load =  
The total amount of phosphorus  
entering the lake / 365 days

# Total Maximum Daily Load

- $TMDL = AC = \Sigma WLA + \Sigma LA + MOS + RC$

Where: AC is the assimilative capacity,

WLA is the quantification of the waste load allocation from point sources,

LA is the quantification of pollutant loads from non-point sources, and

MOS is the margin of safety (uncertainty)

RC is the reserve capacity for future development

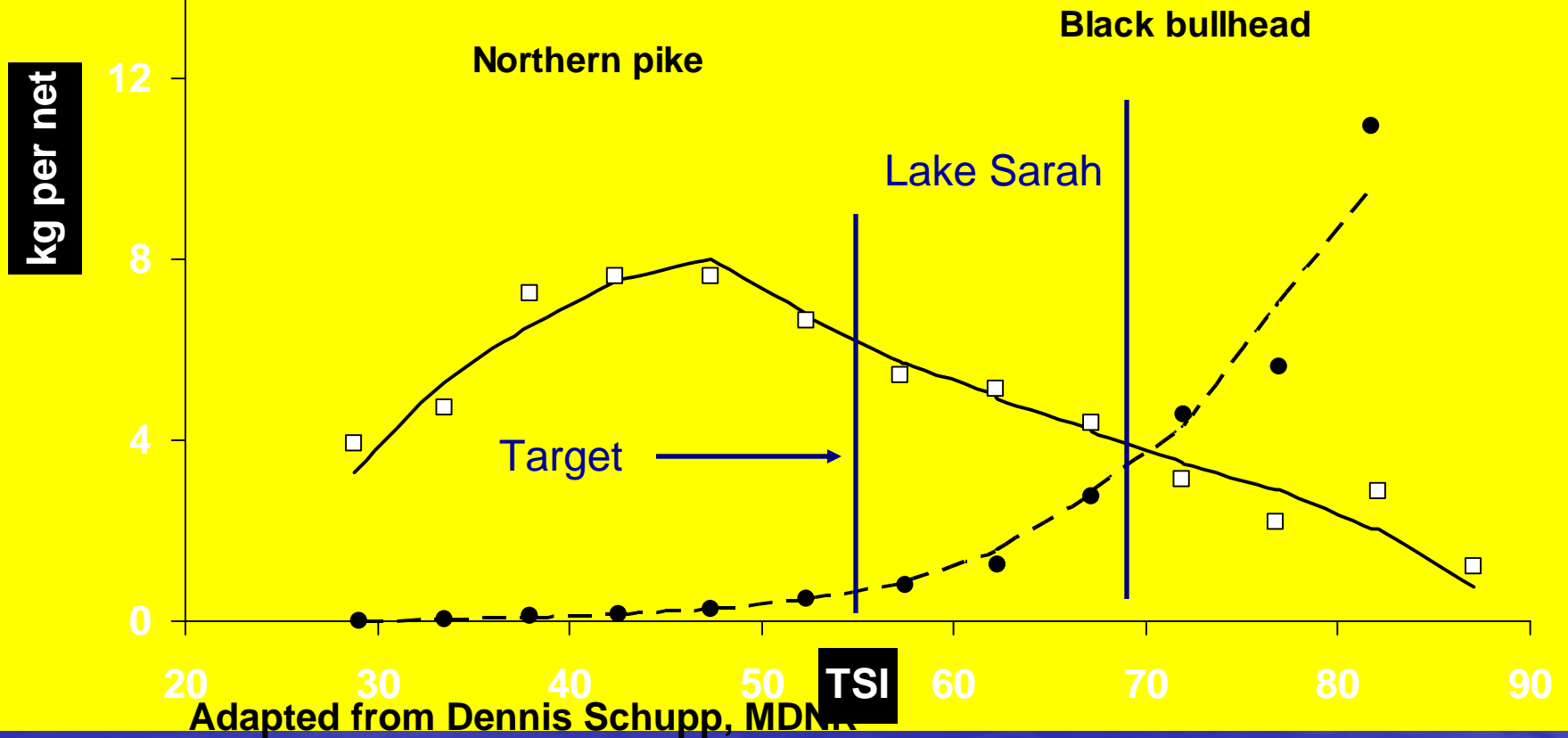
# Why are we doing a TMDL

- The Clean Waters Act requires a TMDL for "Impaired" Waters
- If not done locally, will be mandated by State and Federal Agencies



The Lake Quality  
Is very poor

C





# TMDL Decision Process

- Science
- Values

# TMDL Decision Process

- Science
  - TMDL Number = 1091
  - Sources of TP loading
  - Monitoring and modeling data
  - BMP effectiveness

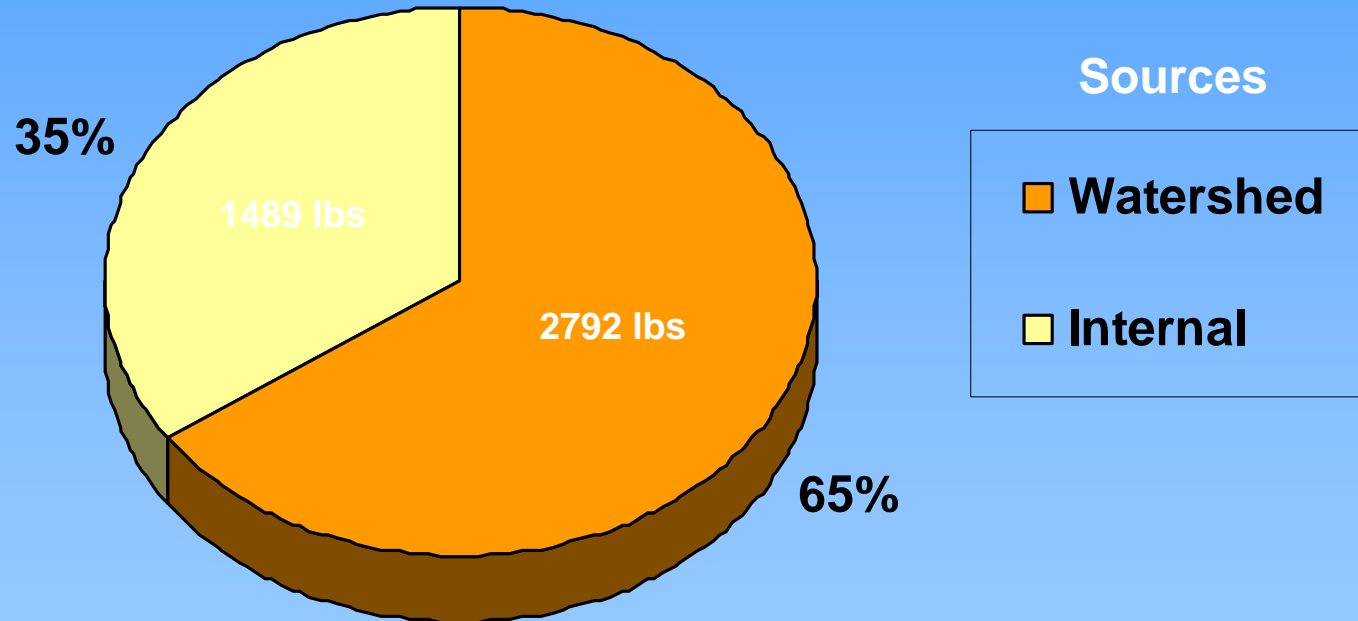
# TMDL Decision Process

- Values
  - How much TP reduction from each city
  - BMP selection
  - Source reduction or stormwater treatment
  - Regulation or voluntary cooperation
  - Cost based or social acceptability

# Lake Sarah

## Total Phosphorus Loading

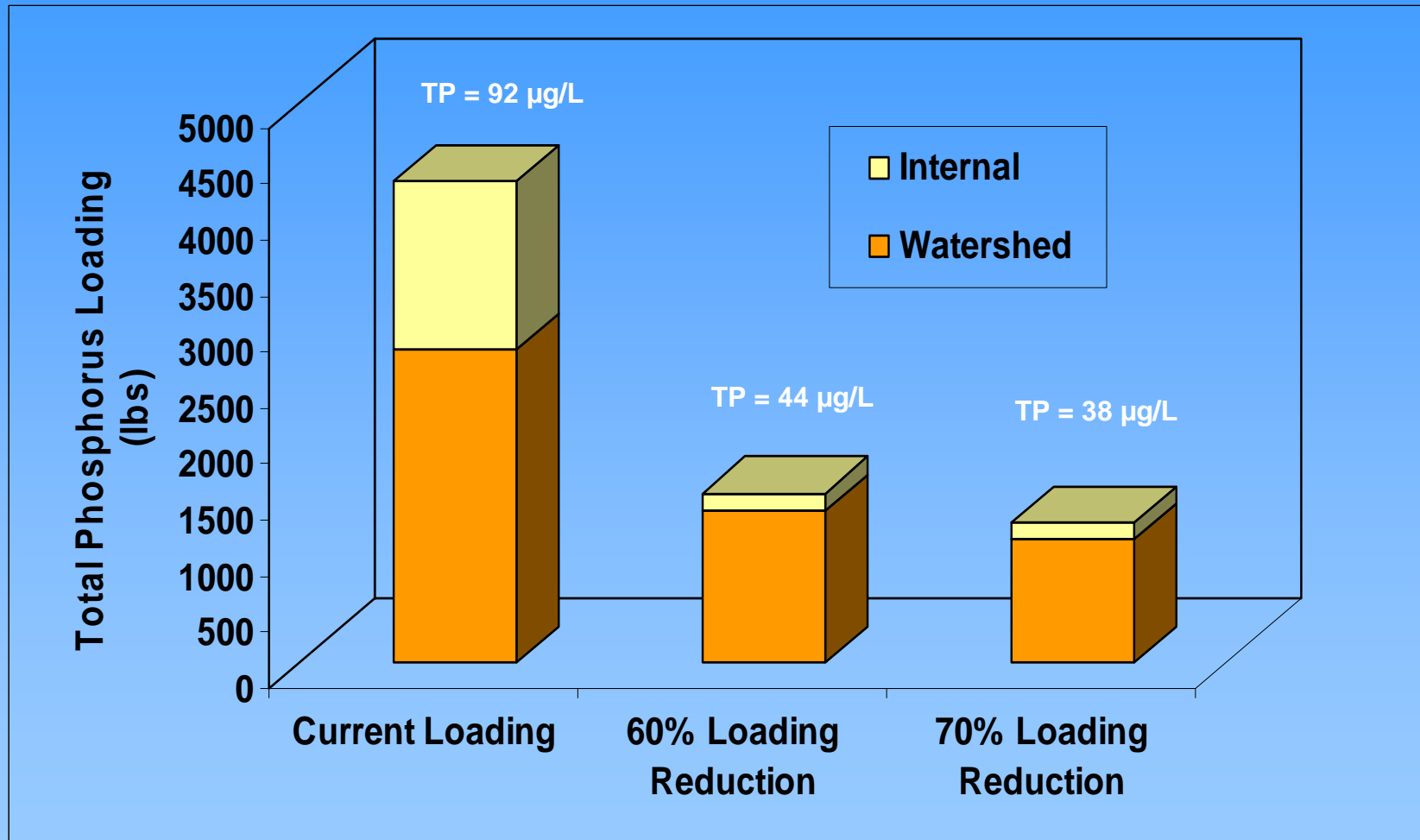
Total Phosphorus Loading = 4281 lbs





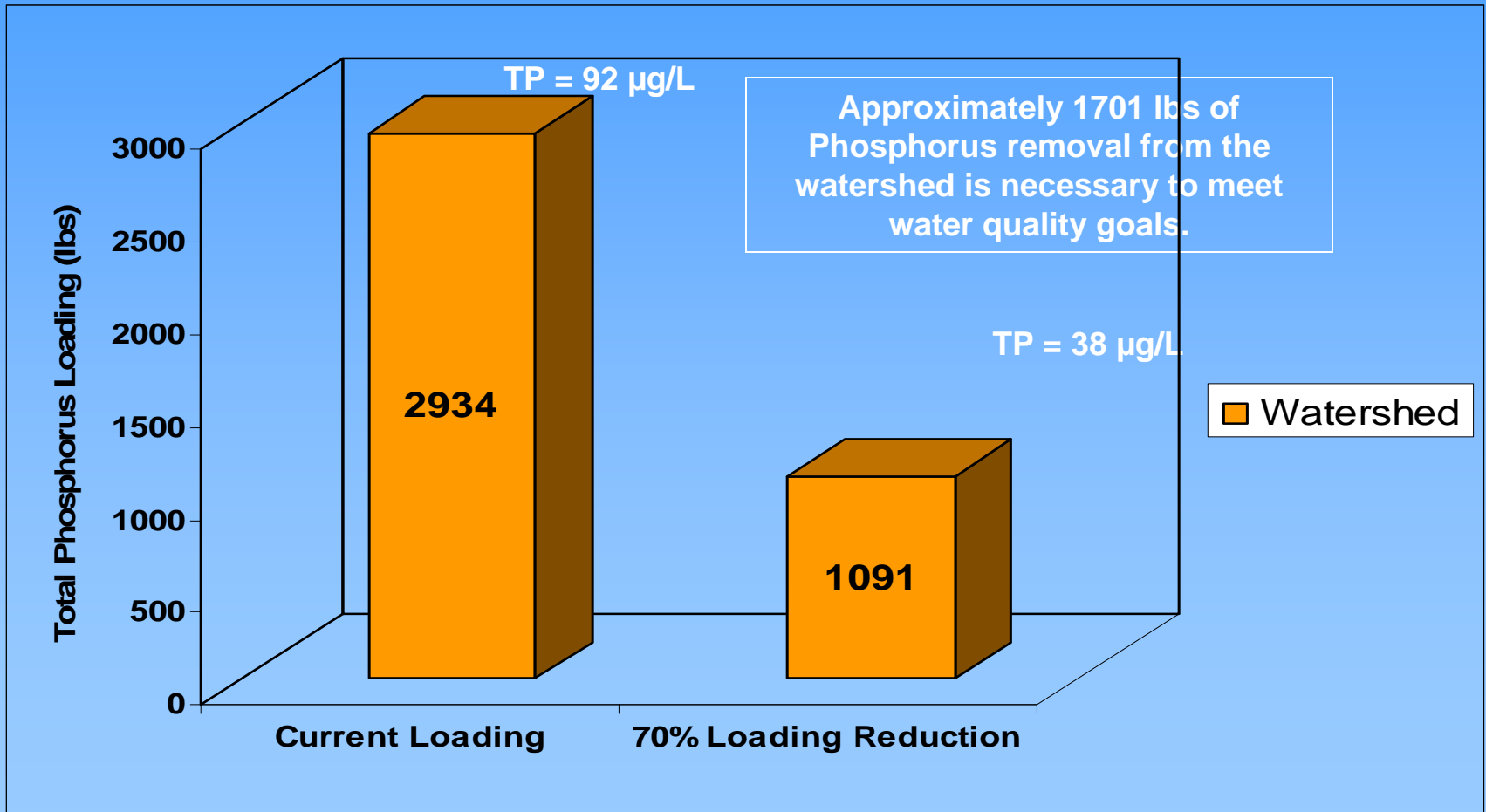
# Lake Sarah

## Total Phosphorus Loading




# Lake Sarah

## Watershed Total Phosphorus Removal



## Lake Sarah Watershed

 City Boundaries

 Lake Sarah

### Land Use

#### Land Use

 Cattle

 Horse

 Row Crop

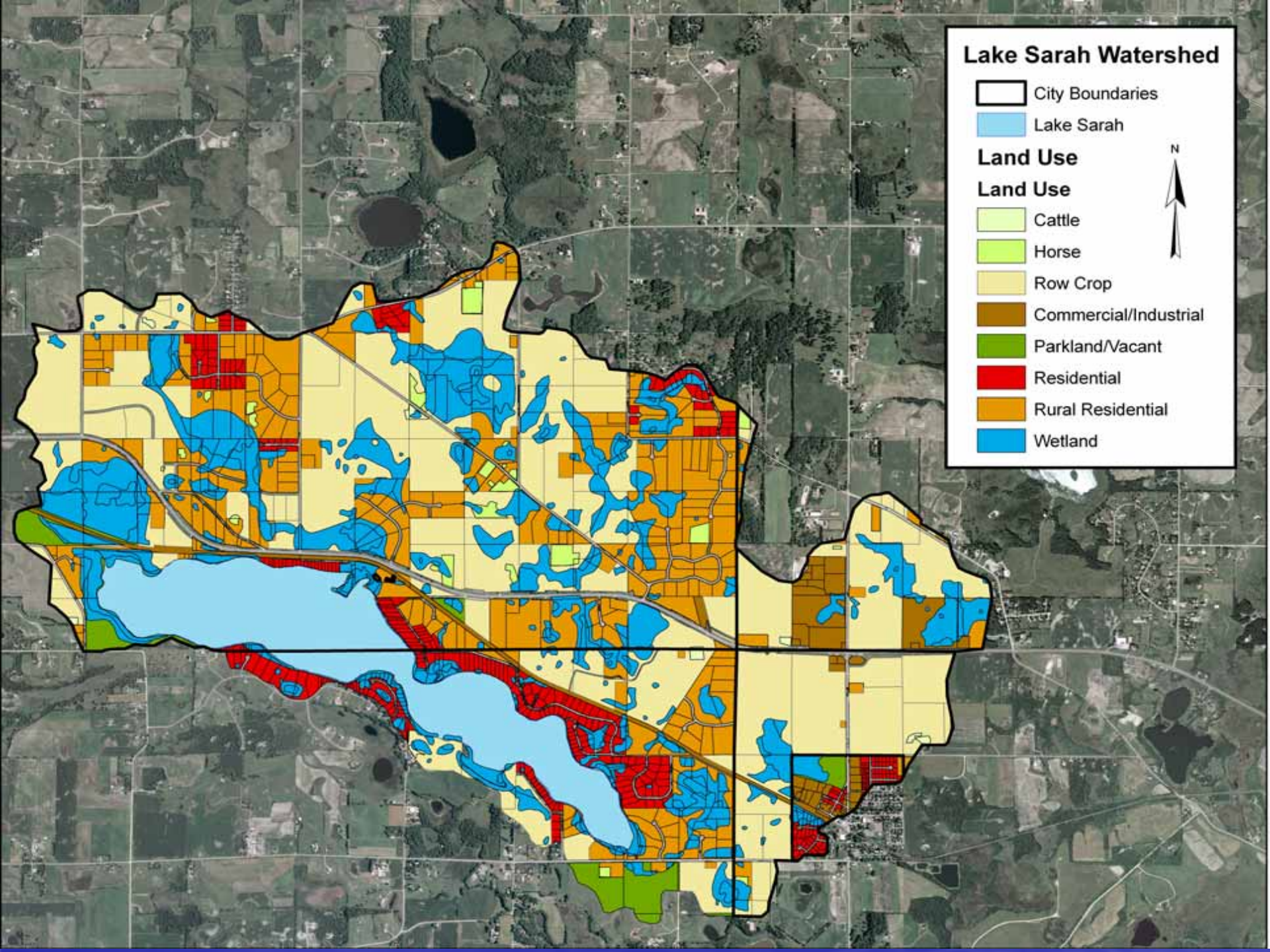
 Commercial/Industrial

 Parkland/Vacant

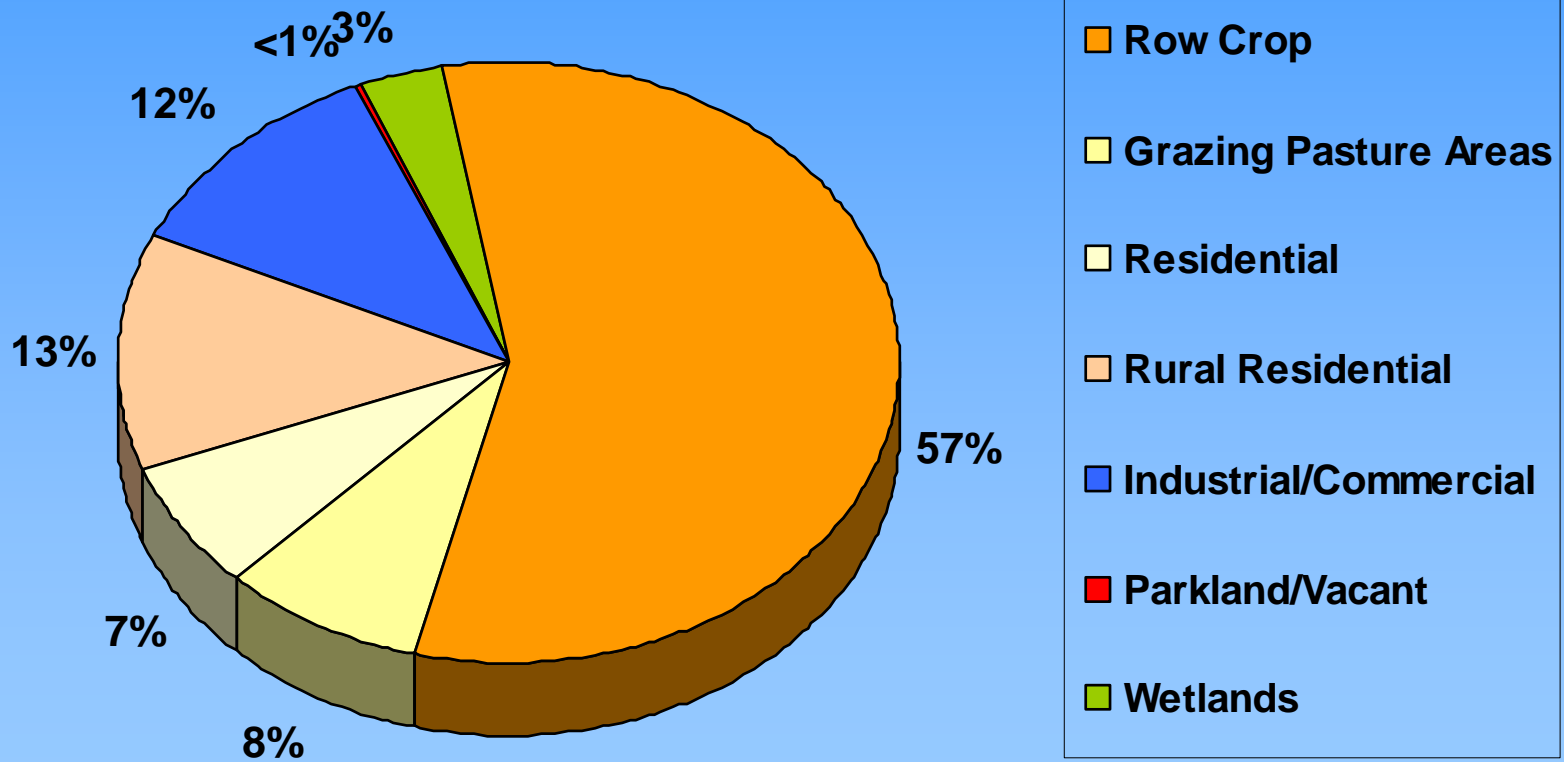
 Residential

 Rural Residential

 Wetland



# Lake Sarah Watershed Loading





# TMDL Decision Process

- *Stakeholders decide values*
- PSCWMC, MPCA, TRPD provide science