

# Iowa Department of Agriculture and Land Stewardship-Division of Soil Conservation

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# IDALS's Urban Conservationists



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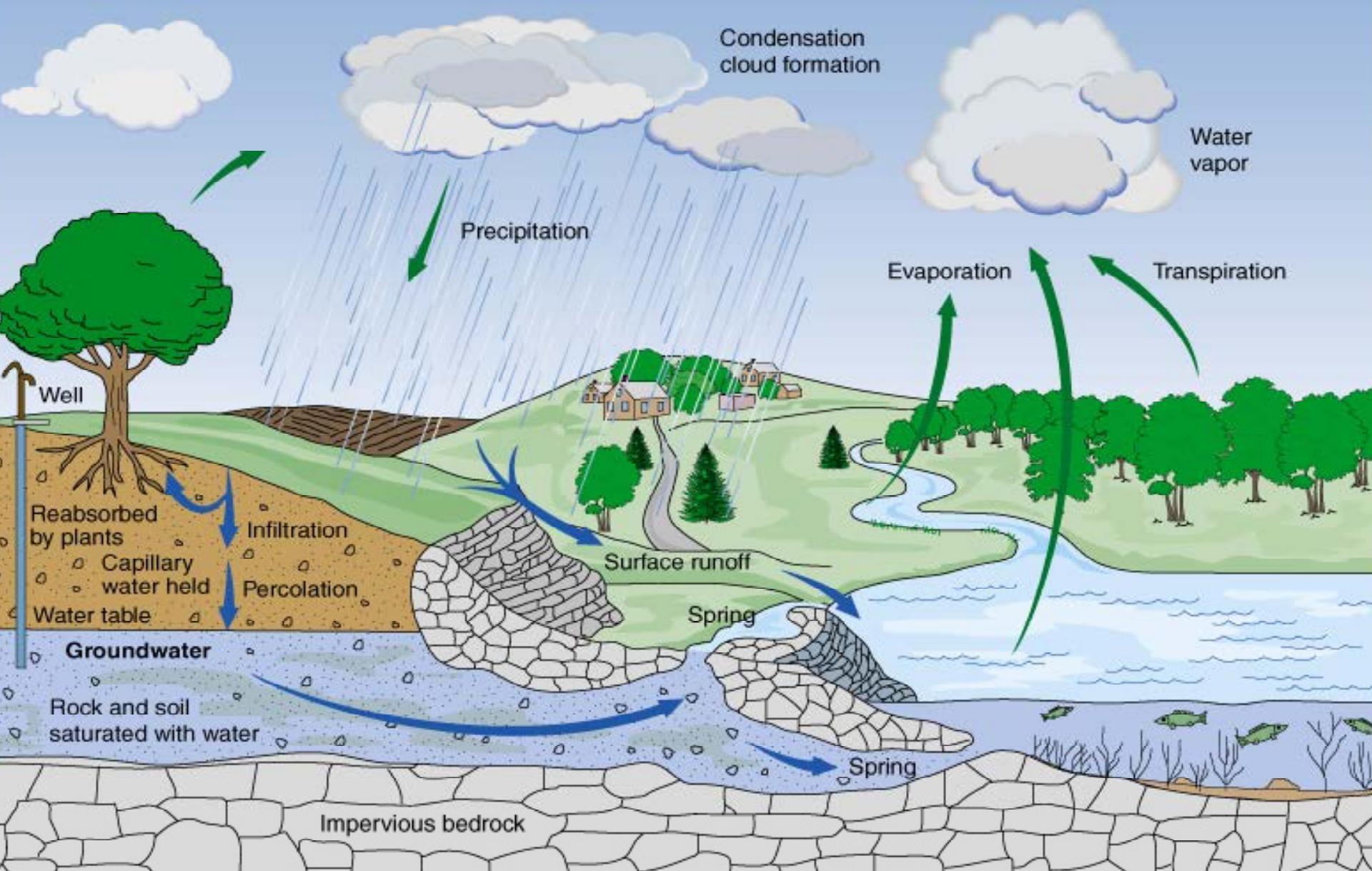
# **Storm Water Management**

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Ushering in a new paradigm

Adding water quality protection  
to flood control via infiltration-based BMP's

# The Water Cycle



# Adding Imperviousness

1990



2009

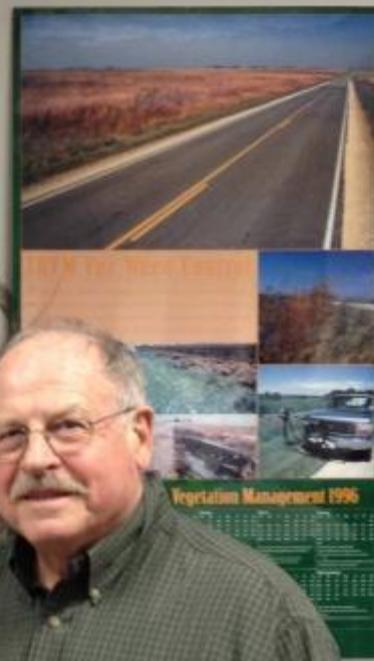
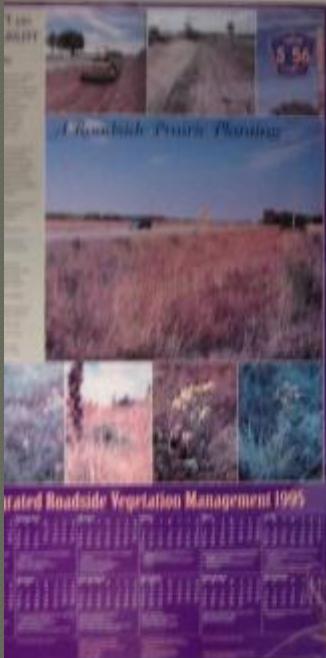


# A Changed Landscape



# The Tallgrass Prairie





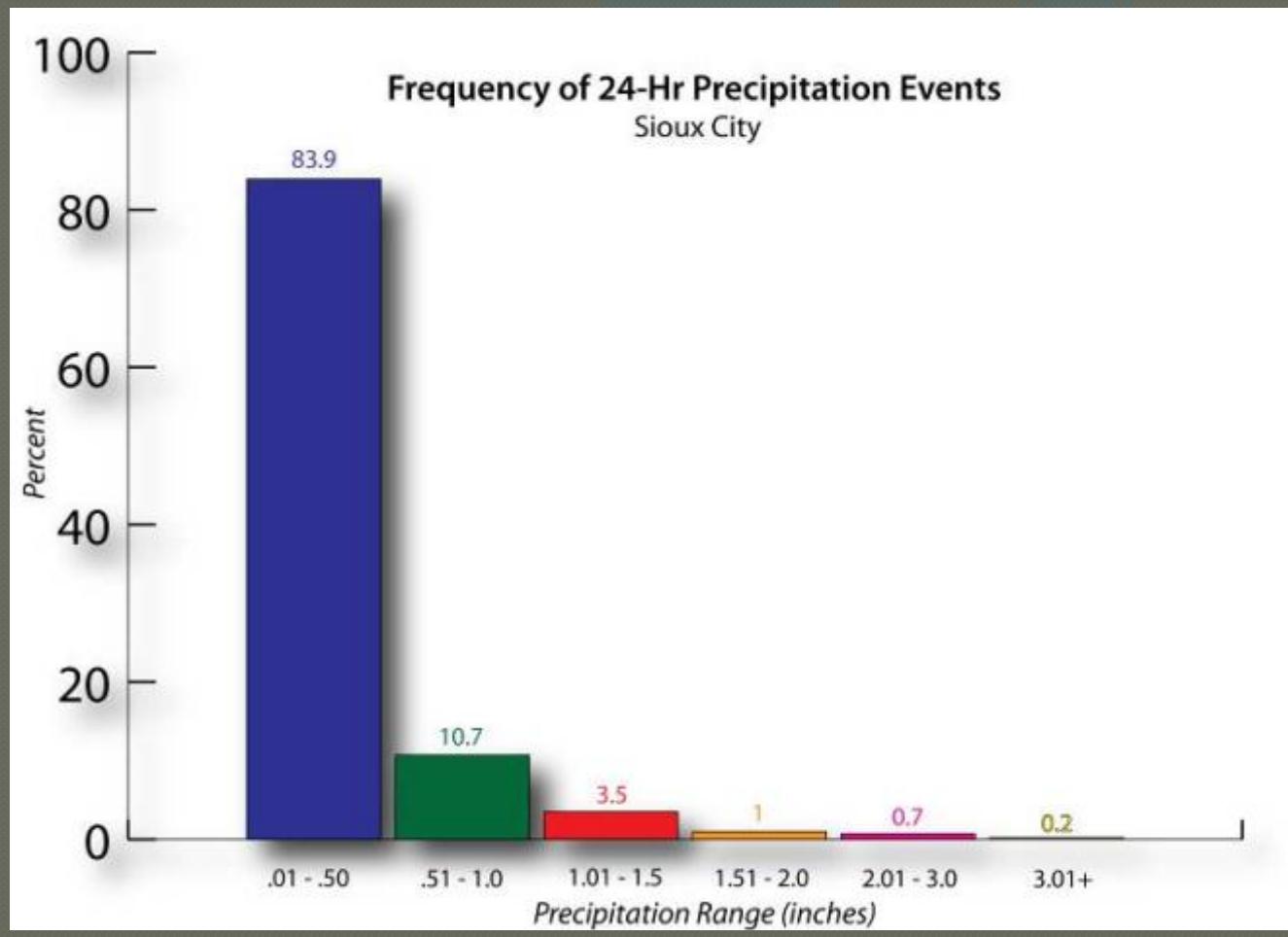


# Iowa's Changing Land Use Examples

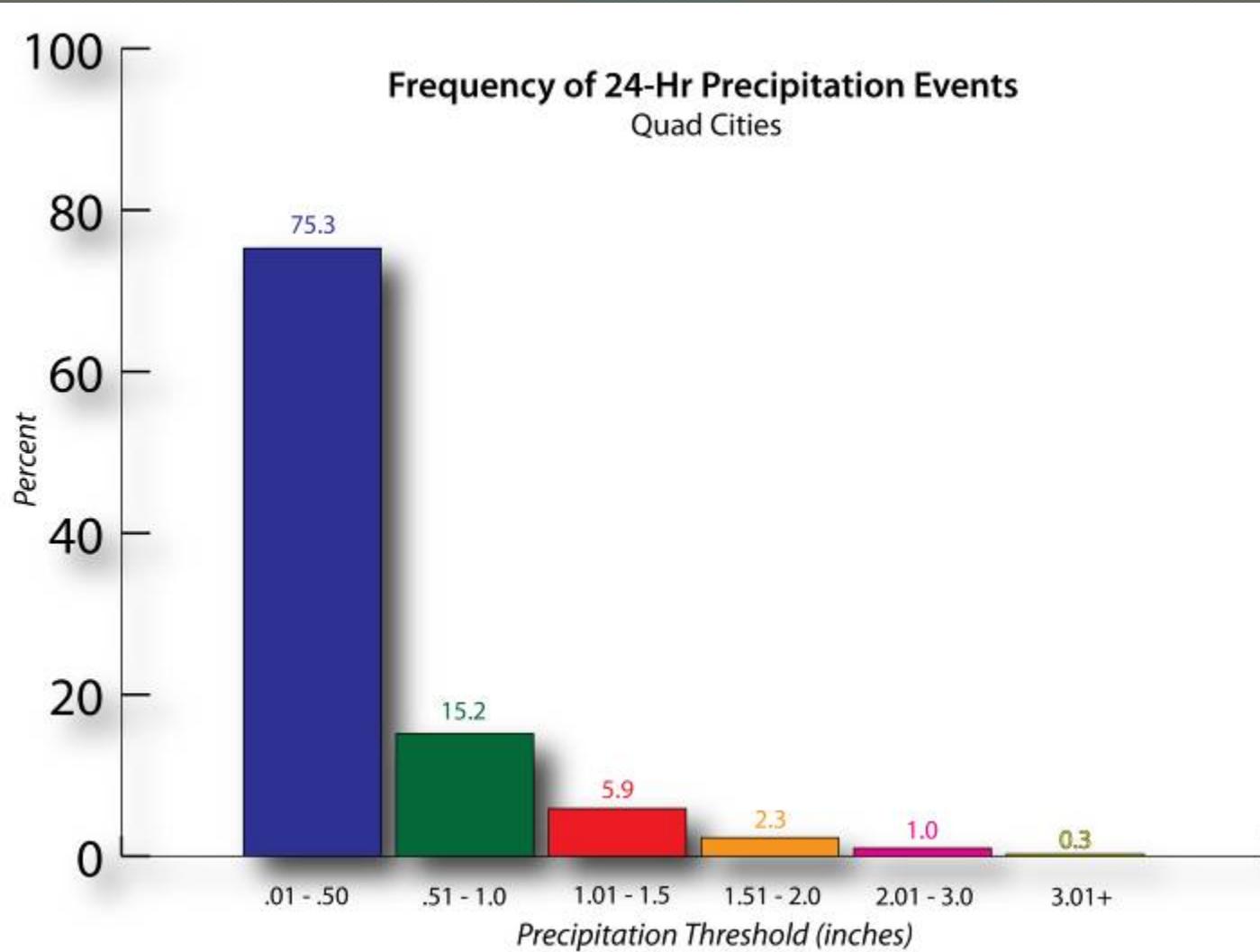
- High OM to Low OM
- High porosity to higher bulk density
- Pervious to impervious
- Effects include:
  - Less infiltration
  - Less groundwater recharge
  - More runoff
  - Flashy stream flows
  - More erosion
  - Water quality degradation
  - Increased flooding



# Rainfall Data 1948 - 2004



# Rainfall Data 1948 - 2004



# Unified Stormwater Sizing Criteria

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- ◎ Water Quality Volume - 1.25 in/24 hrs
- ◎ Channel Protection Volume - 2.38 in/24 hrs
- ◎ Overbank Flood Protection - 4 in/24 hrs
- ◎ Extreme Flood Protection -> 6 in/24 hrs

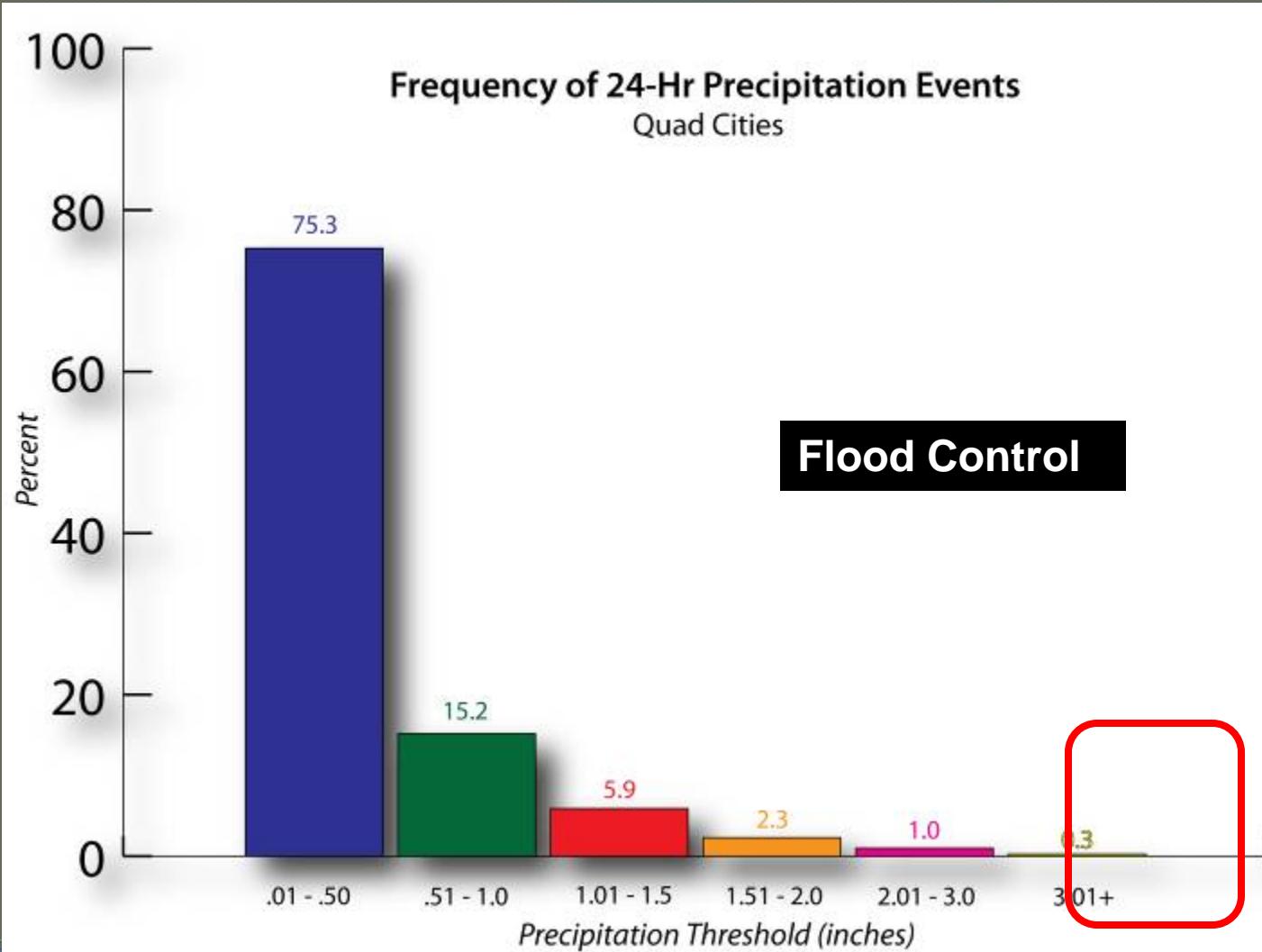
# What we've been doing...

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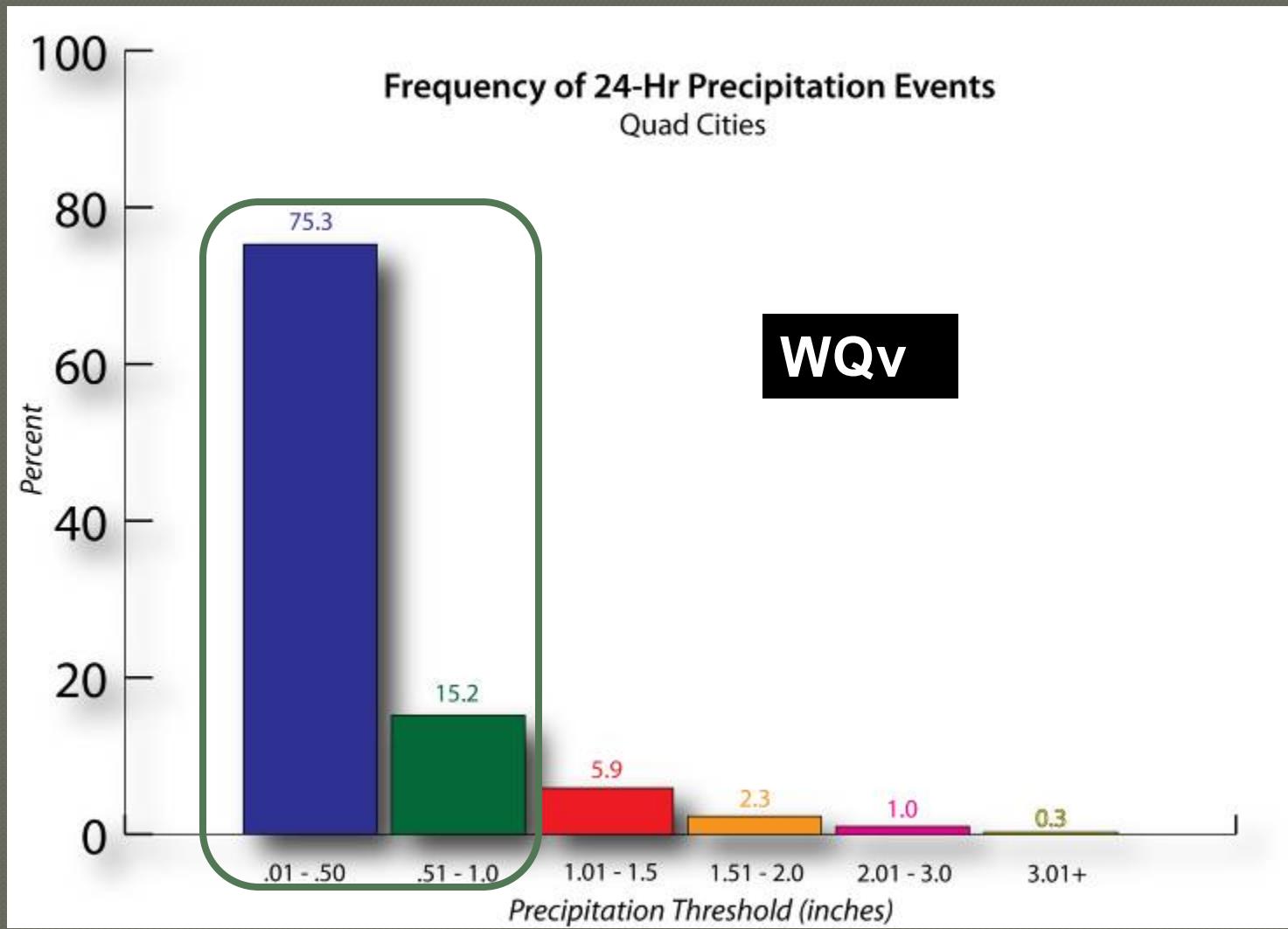


Waverly hospital rain water detention pond  
Pond built 2003. Picture taken 1-13-04.

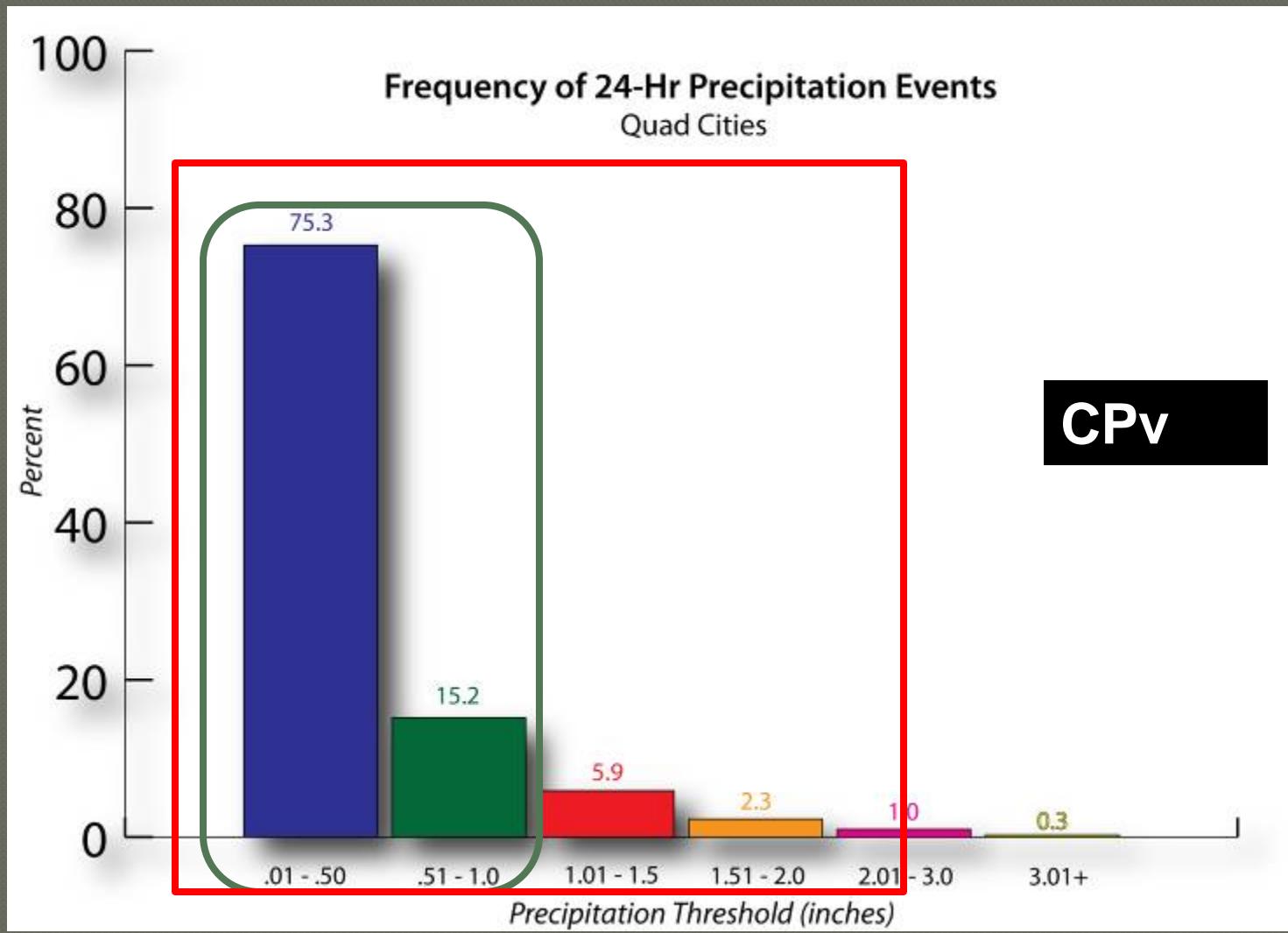
# Rainfall Data 1948 - 2004



# Rainfall Data 1948 - 2004



# Rainfall Data 1948 - 2004



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**“Up to 70% of sediment loading is  
from stream bed and stream bank  
erosion”**

Dr. Tom Isenhart, ISU

# Streambank Erosion

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Properties threatened by stream erosion in Des Moines





# Soil Quality Restoration

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PROUDLY PRESENTS  
**HOME # 68**  
IN PARTNERSHIP WITH  
Boyer County Housing Council  
Garrison Health Estimates  
West Fargo





Incorporating compost to increase organic matter content

# Retrofitting Existing Lawns



**TORO**



XTREME









Homes



# Early Spring



Yard with fall applied compost

The neighbor's yard

# Permeable Pavement

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STOP



Permeable pavers in West Union's business district  
infiltrates fire hydrant water

# Bioretention



# Okoboji Green Street Project



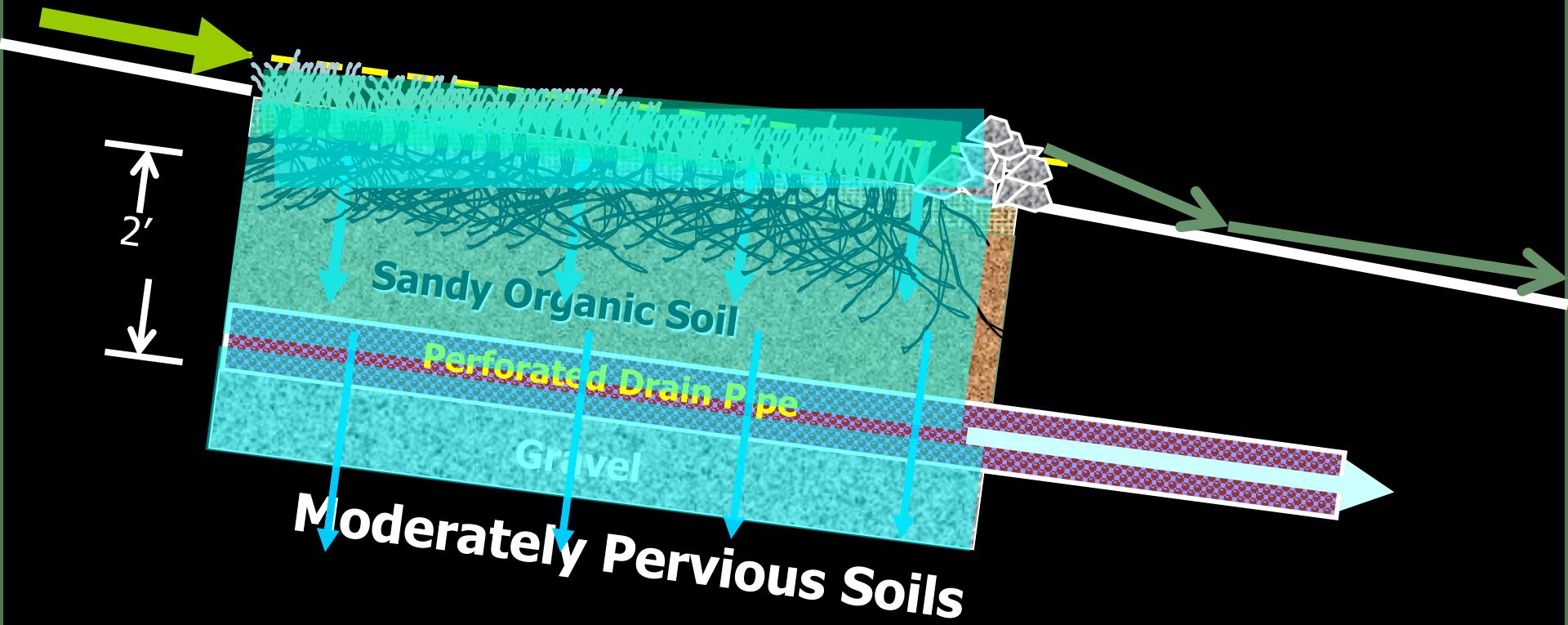




# Raingarden & Bioretention Cell vs Bioswale

Level vs sloping





# SRF Sponsored Projects

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