

DEER CREEK WATERSHED PLANNING

**Deer Creek Watershed Stakeholders
Committee**

Stakeholder Partners

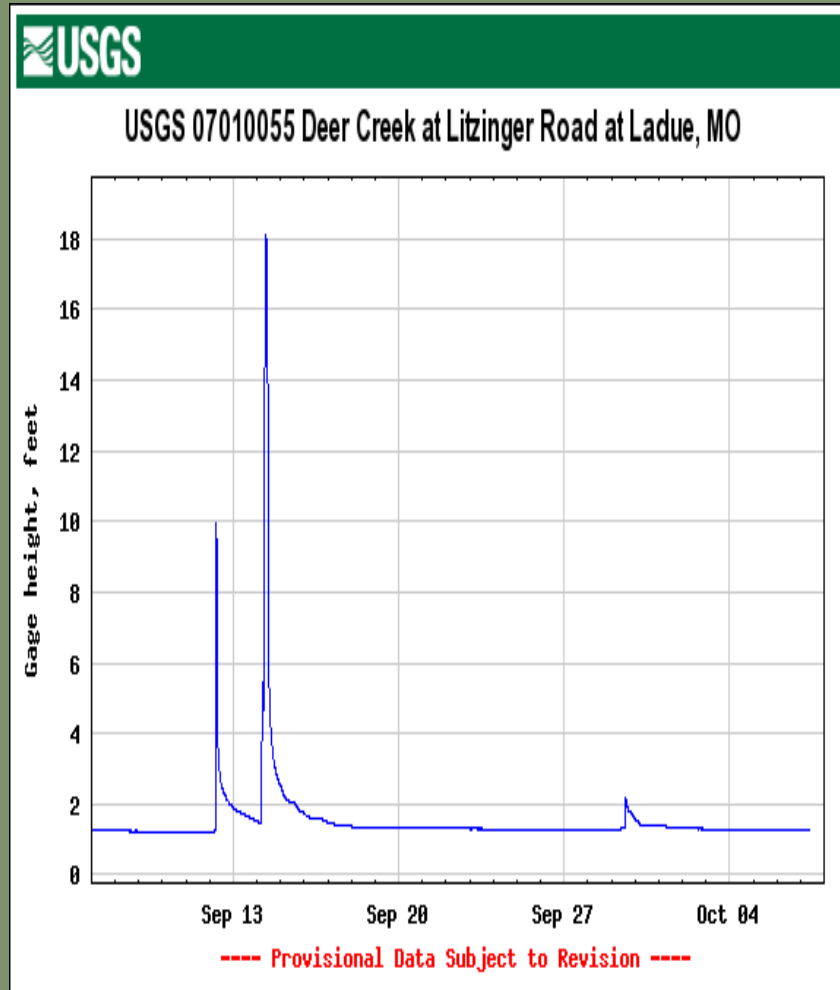
- East West Gateway Council of Governments
- Great Rivers Greenway District
- Local Municipalities
- Metropolitan St. Louis Sewer District
- Missouri Botanical Garden
- Missouri Department of Natural Resources
- St. Louis County
- U.S. Army Corps of Engineers

Outline

1. Problems
2. Root Causes
3. Solutions
4. Benefits

1. PROBLEMS

FLOODING



Litzsnger Road West McKnight, East of Lindbergh

Problems

Source: EW Gateway

BUILDING DAMAGE

McKnight Road at Litzsinger



Hurricane Ike:

- Ladue: 76 Homes
(19 Major Damage)
- Brentwood: 97 Homes,
(36 Major Damage)
- 136 Businesses
(53 Major Damage)
- Webster Groves: 32
Homes (2 Major)

EROSION/CREEK WIDENING/PROPERTY LOSS



Problems

Source: EDM Incorporated

INFRASTRUCTURE DAMAGE



Problems

WATER POLLUTION

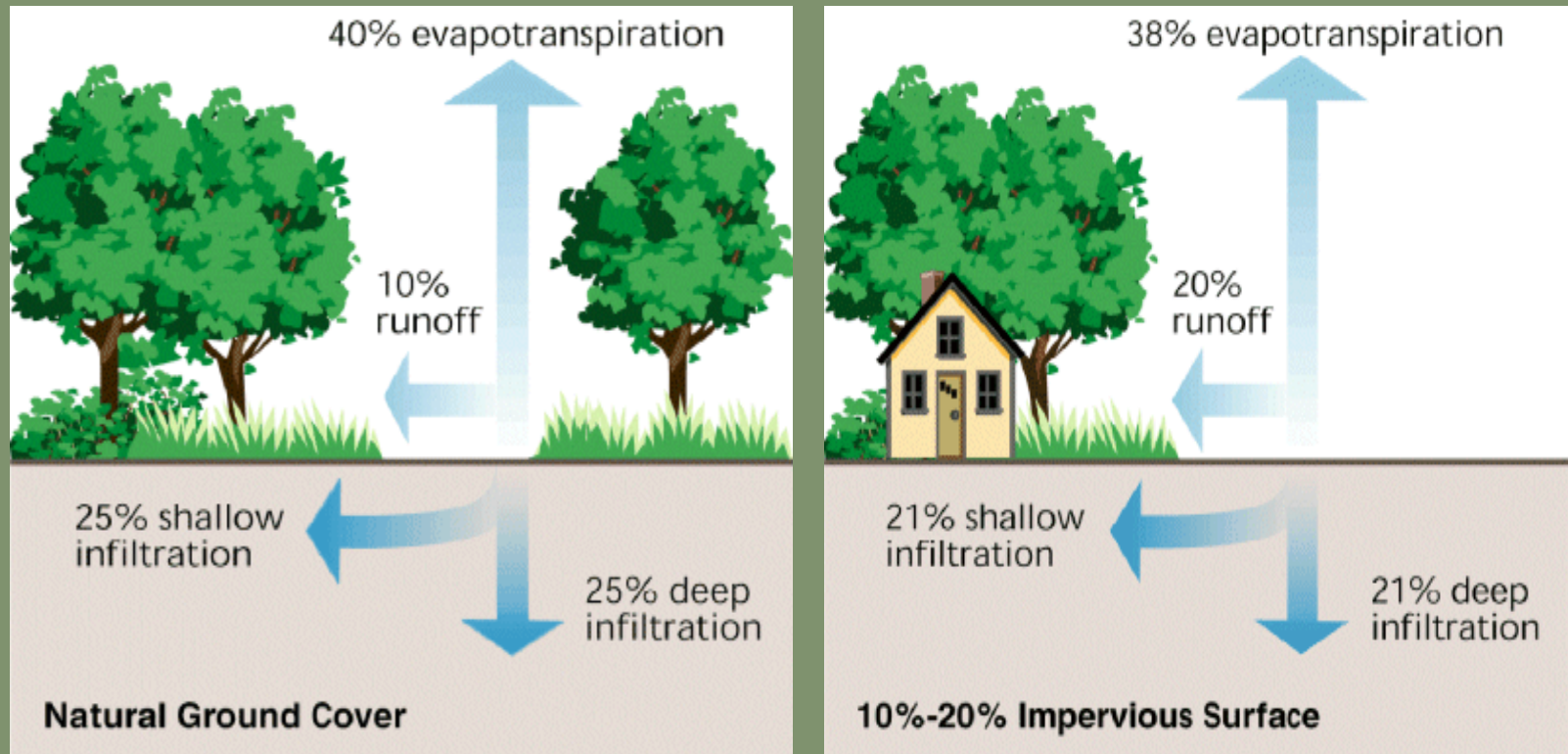


Problems



2. ROOT CAUSES

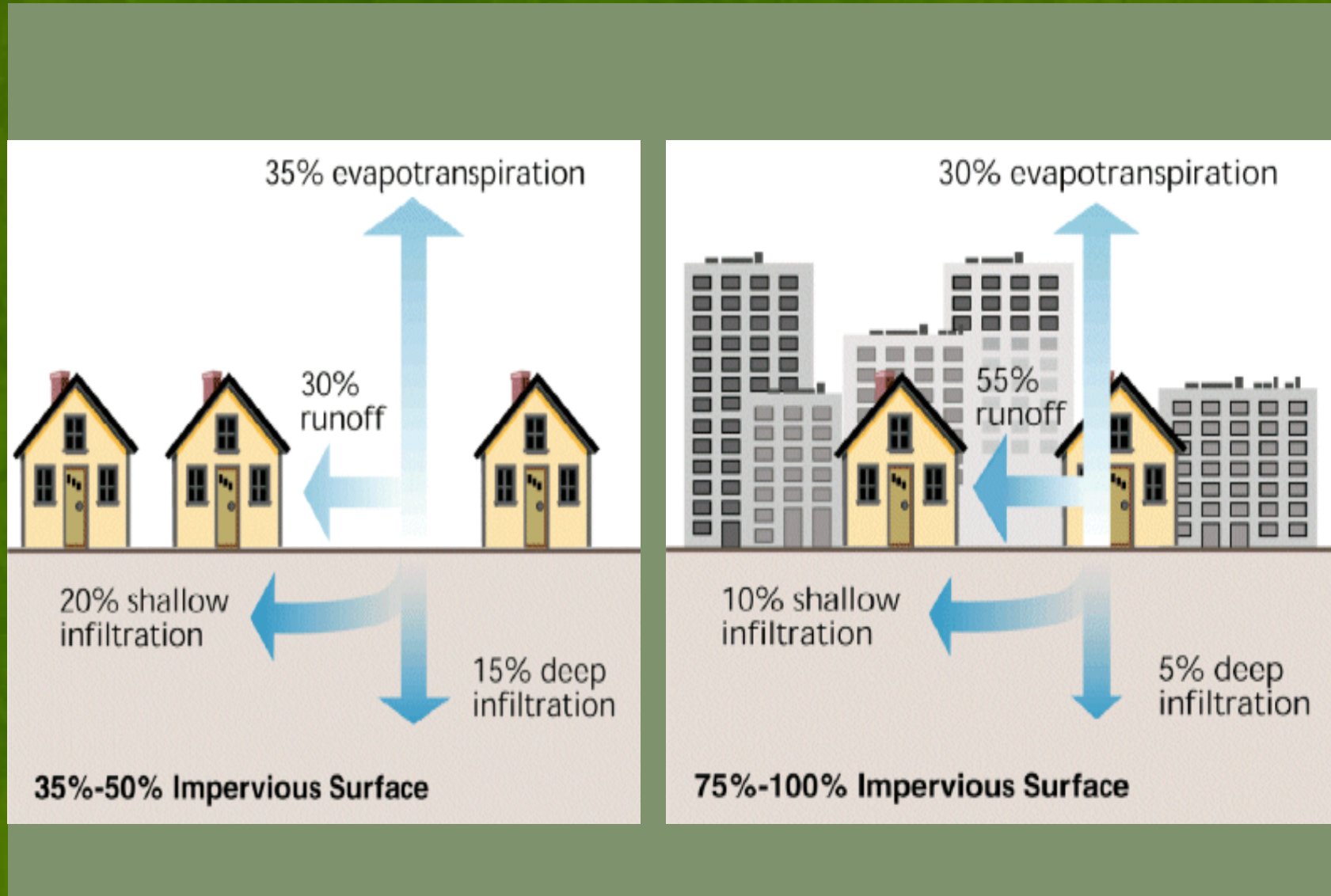
INCREASED IMPERVIOUS SURFACE AREA



Root Causes

Source: www.fairfaxcounty.gov

INCREASED IMPERVIOUS SURFACE AREA

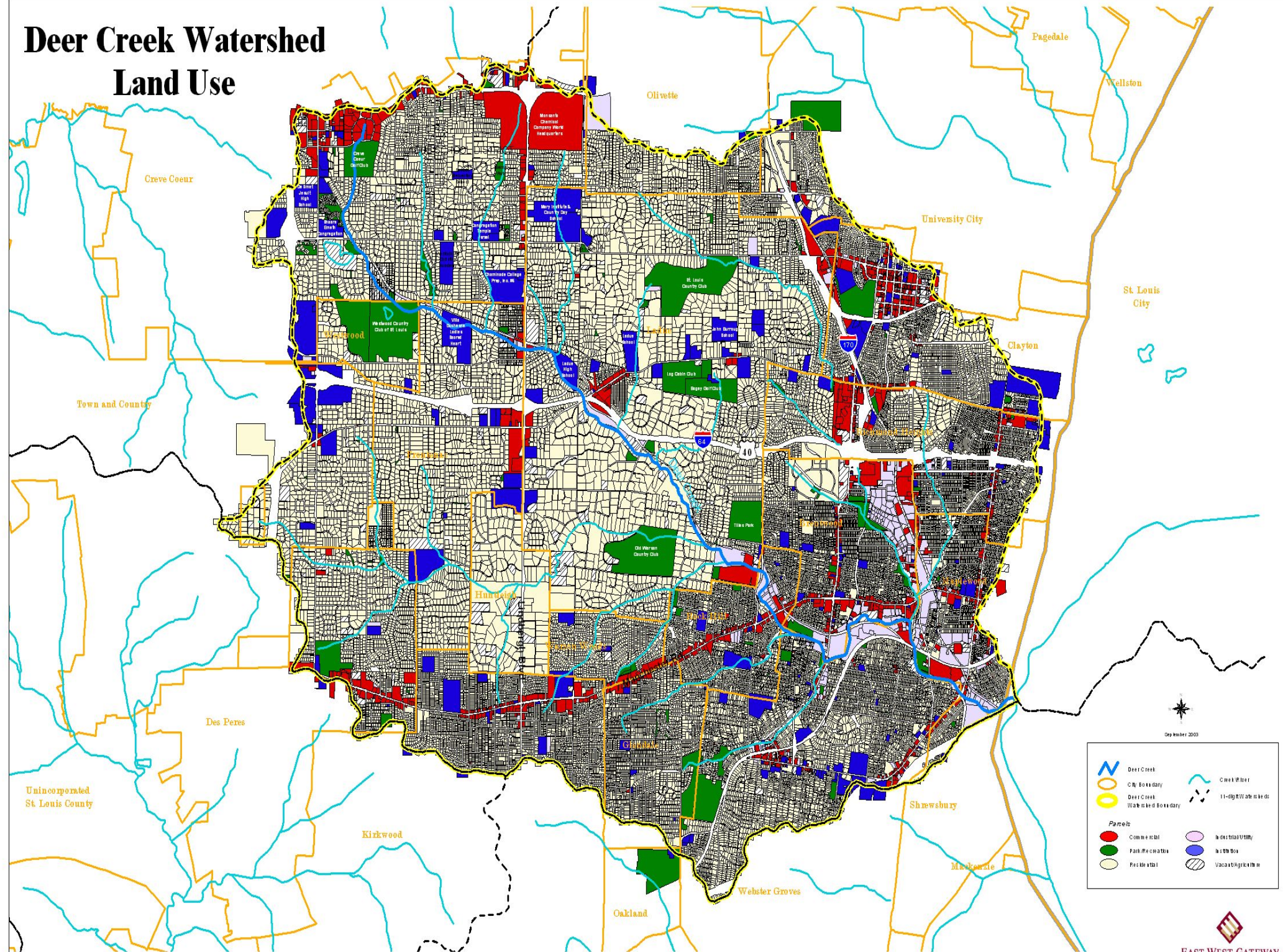


Root Causes

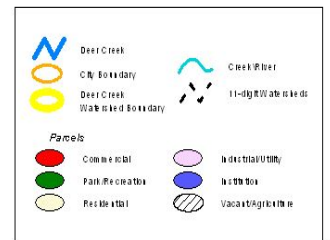
Source: www.fairfaxcounty.gov

Deer Creek Watershed

Land Use



September 2003



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

GLOBAL CLIMATE CHANGE

Hurricane
Ike

“Existing studies suggest that the Midwest, including the upper Mississippi River basin, will likely see an overall increase in winter and spring precipitation in the coming decades”

“CLIMATE CHANGE AND THE UPPER MISSISSIPPI RIVER BASIN”
Wuebbles , et al, St. Louis University Flood Forum November 11, 2008

ISS017E015718

Root Causes

GLOBAL CLIMATE CHANGE



CLIMATE CHANGE, PRECIPITATION, AND STREAMFLOW IN THE CENTRAL UNITED STATES *Zaitao Pan*

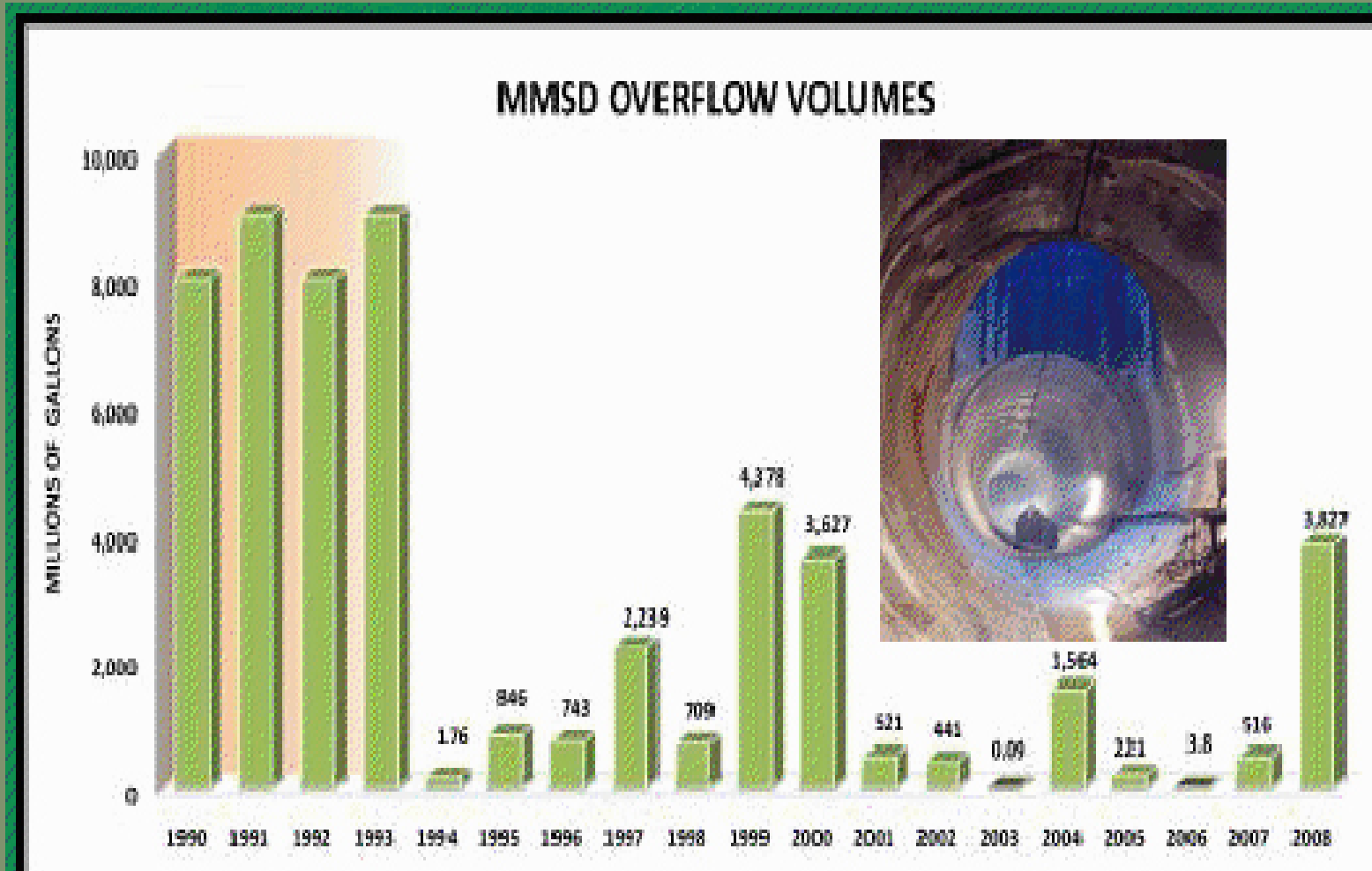
St. Louis University Flood Forum November 11, 2008

“Climate models predict that annual precipitation in the Midwest will continue to increase, with extreme precipitation events increasing more rapidly than total rainfall. Flooding on major rivers in the Midwest will worsen because direct runoff will increase even faster than extreme rainfall, as excessive rain falls on near saturated soils.”

Root Causes

3. SOLUTIONS

IMPROVE SEWER SYSTEM CAPACITY



Solutions

Source: Center for Neighborhood Technology

IMPROVE SEWER SYSTEM CAPACITY

❖ Milwaukee, June 2008:

Deep tunnel filled in 56 minutes,
~ 3 billion gallons into Lake Michigan

❖ Chicago, September 2008:

6-9 inches in 24 hours following
days of rain ~ 11 Billion gallons
CSO into Lake Michigan

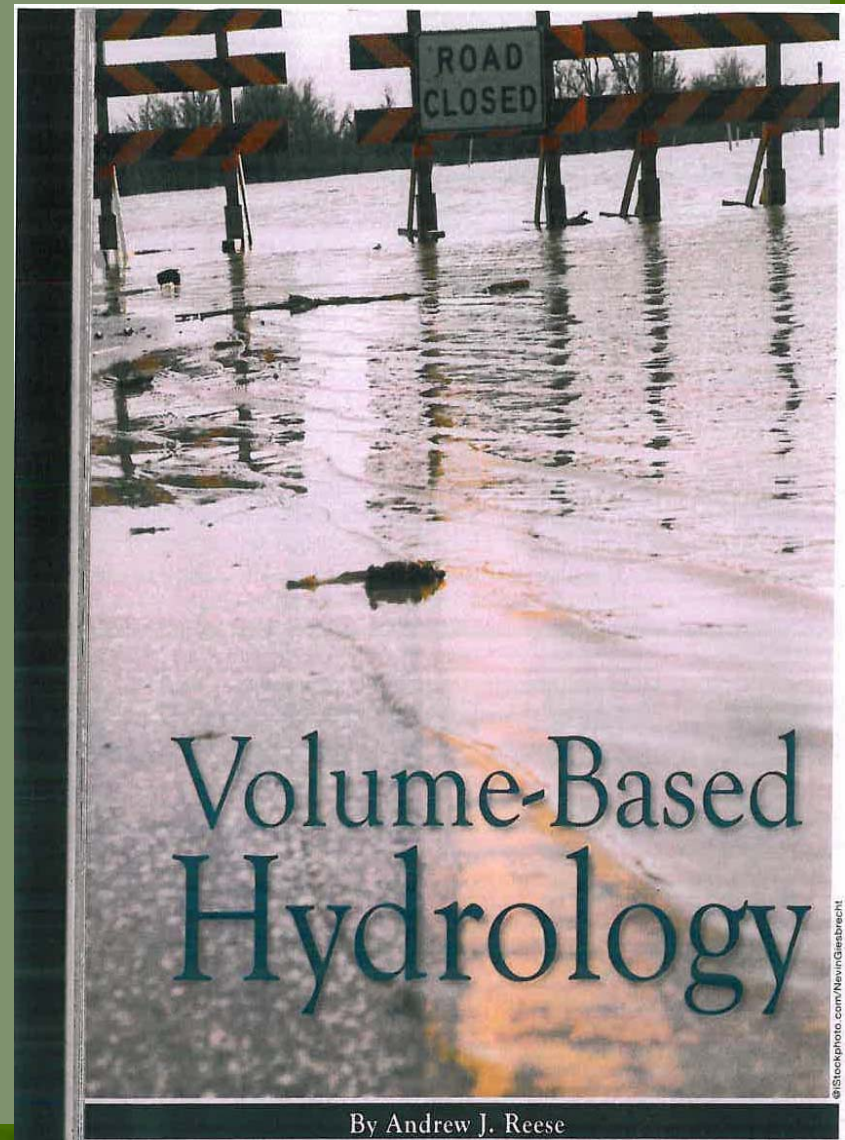


❖ “to maintain the same design and service standards, the diameter of every sewer pipe in the Chicago region would have been increased by up to 17% if increase in design rainfall intensity relationships were updated properly in time.” (Guo, 2006)

THINKING OUTSIDE THE PIPE

“There is a growing body of knowledge that the treatment of runoff is not as effective as the removal of runoff needing treatment.”

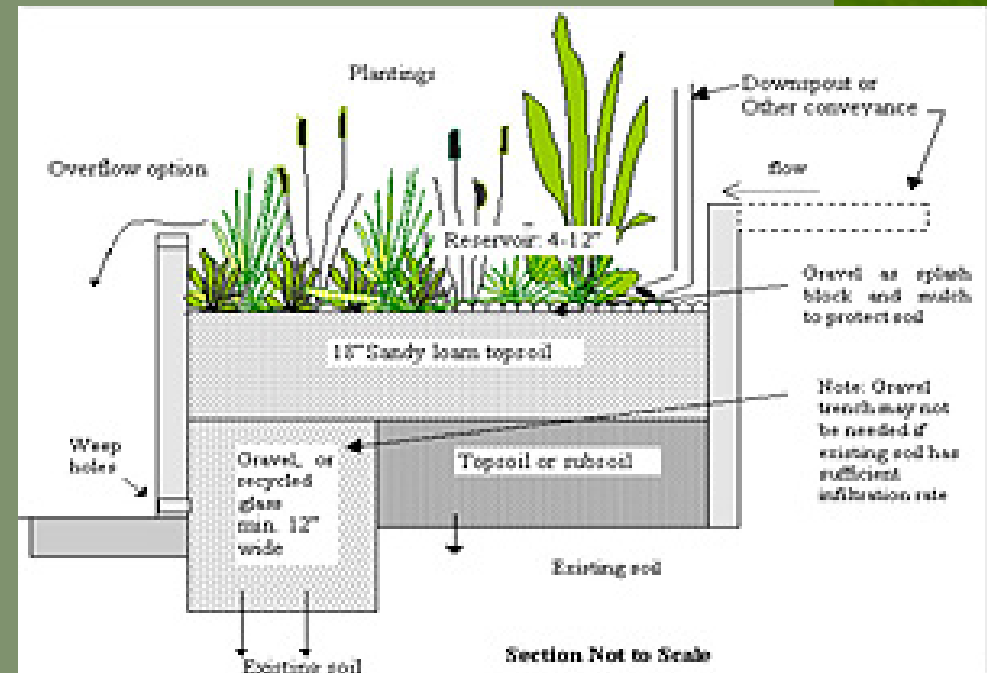
“Efforts to reduce stormwater volume will automatically achieve reductions in pollutant loadings.”



Solutions

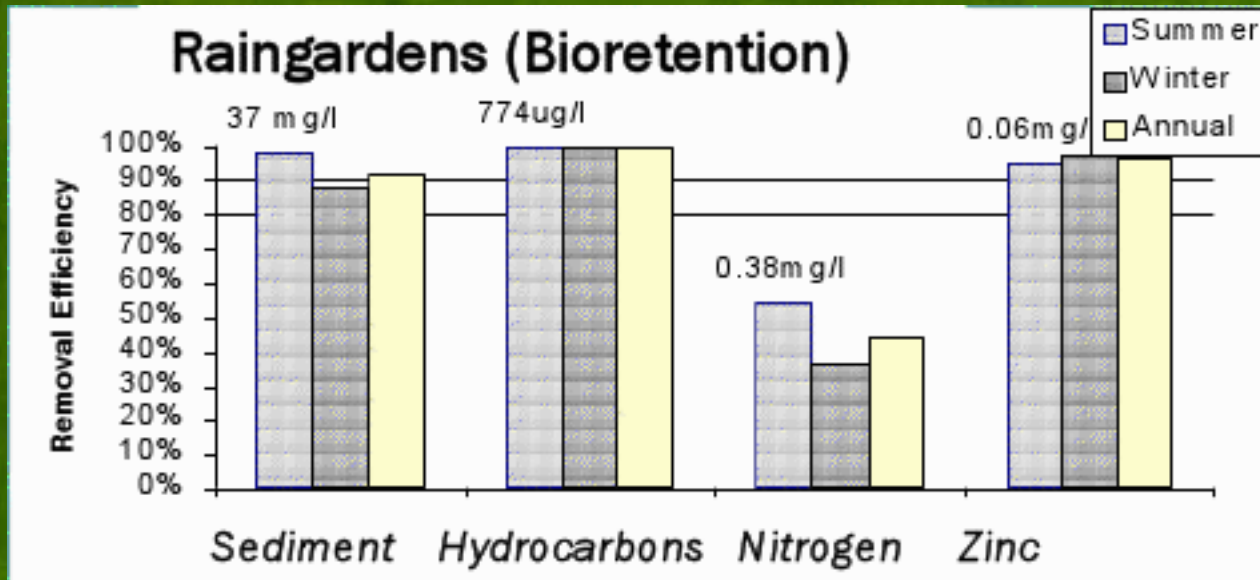
GREEN STORMWATER INFRASTRUCTURE

- ❖ Tree Planting
- ❖ Green Roofs
- ❖ Planter Boxes
- ❖ Rain Gardens
- ❖ Cisterns/Rain barrels
- ❖ Native Vegetation
- ❖ Vegetation filter strips
- ❖ Amended soil
- ❖ Stream buffer zones
- ❖ Roadside swales
- ❖ Parking Lot Swales
- ❖ Reduced Street Width
- ❖ Permeable Pavement

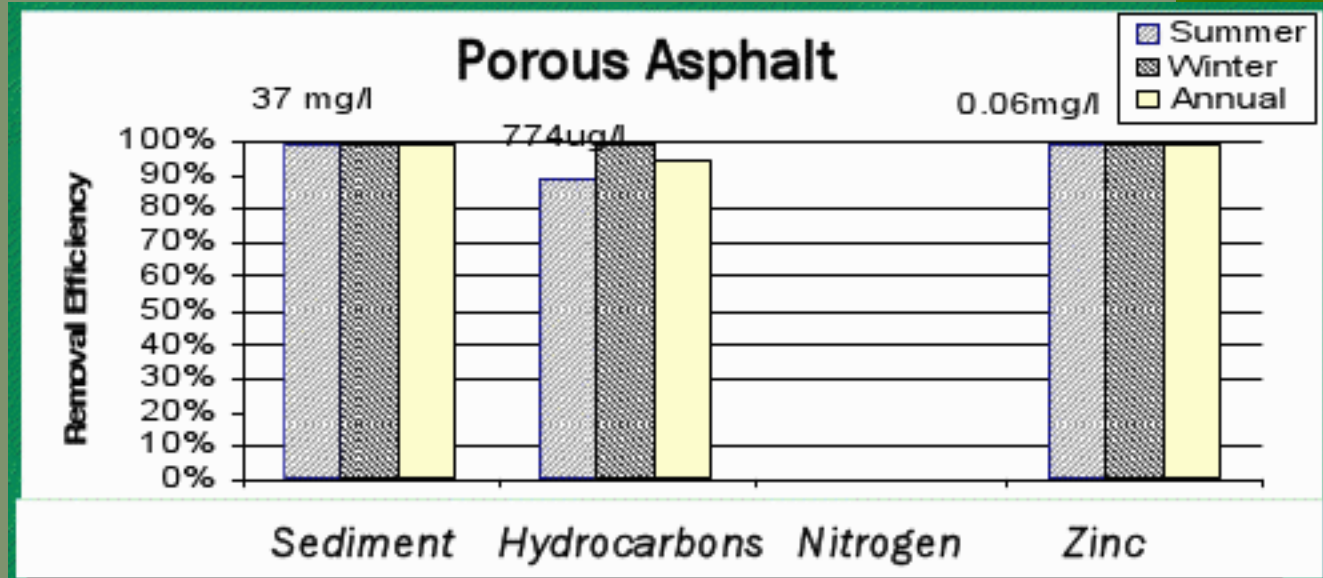


4. BENEFITS

Stormwater Pollutant Reductions



75% reduction in salt use (Toronto & NH) from reduced surface freezing

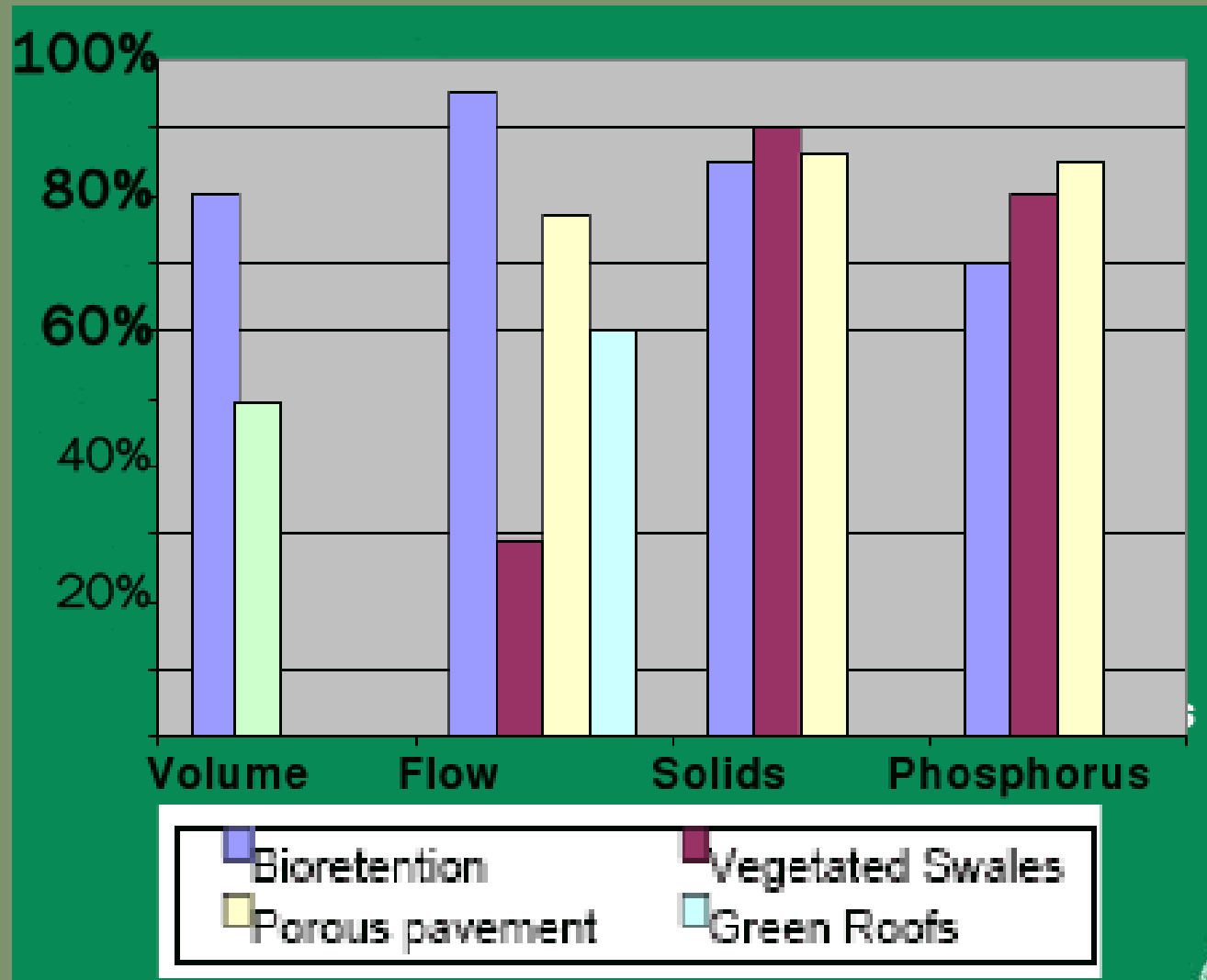


Benefits

Source: University of New Hampshire Stormwater Center

Reduced and Delayed Stormwater Runoff Volumes

Portland,
Oregon
Sustainable
Stormwater
Program



Benefits

Source: Center for Neighborhood Technology

DEER CREEK WATERSHED DEMONSTRATION PROJECTS



Benefits

Urban Cooling

❖ **Trees:** 10% canopy increase 5-10% energy savings from shading, wind blocking

❖ **Permeable pavements:** reduce heat island effect
- Toronto Study

Green Roofs: Chicago citywide projection:
\$100M energy savings = 3 coal fired power plants)
- Weston Design Consultants



Benefits

ADDITIONAL BENEFITS

- ❖ Increased Land Values
- ❖ Groundwater Recharge
- ❖ Improved Air Quality
- ❖ Improved Quality of Life
- ❖ Improved Human Health
- ❖ Community Engagement
- ❖ Reduced Crime
- ❖ Additional Wildlife Habitat
- ❖ Additional Recreational Space
- ❖ Increased Carbon Sequestration



Photo: www.teamleaf.org

Benefits

URBAN AESTHETICS



Source: SWT Design

"He who plants a garden,
plants happiness."

- **Chinese Proverb**



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