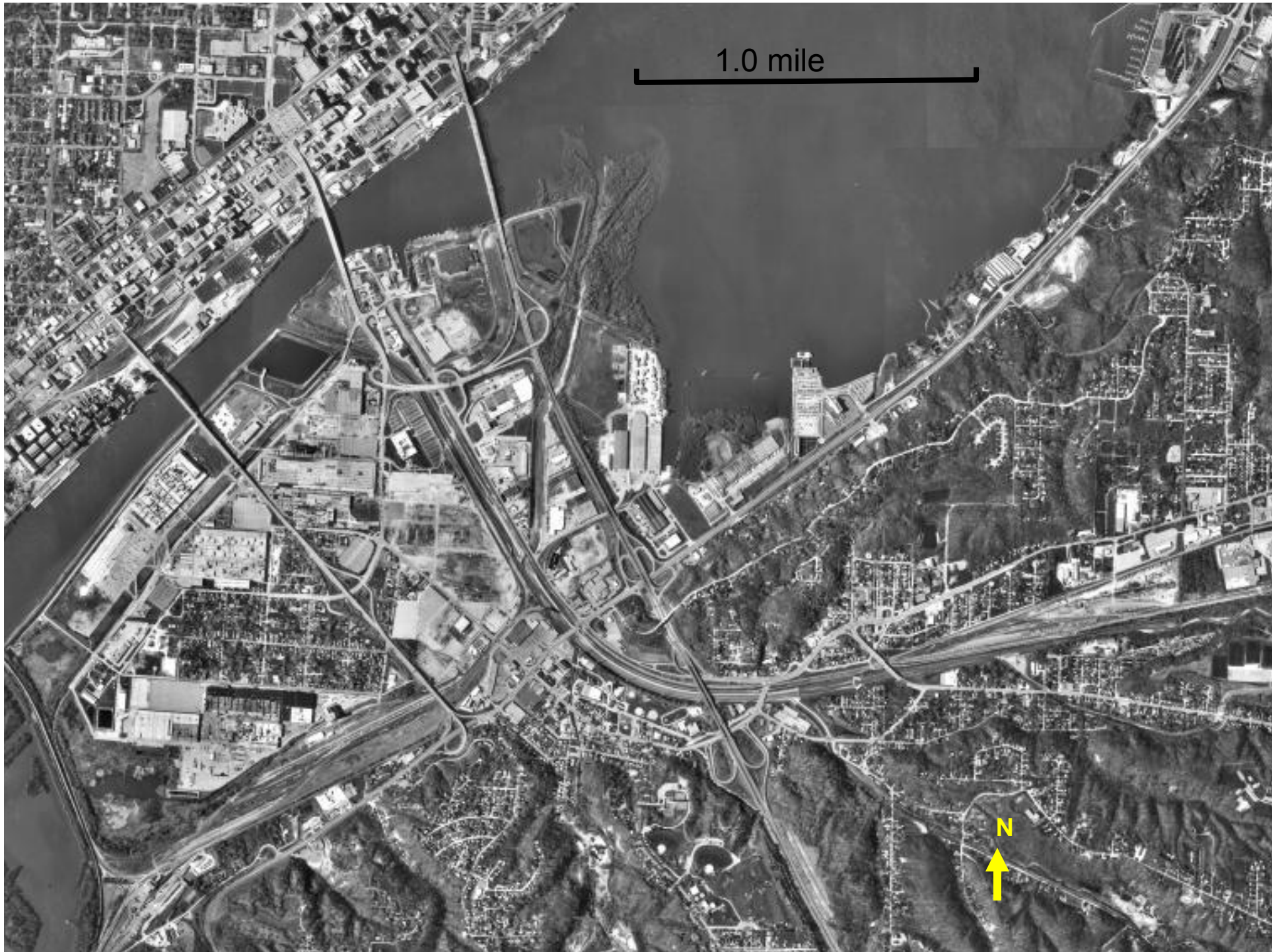




Wayne Ingram

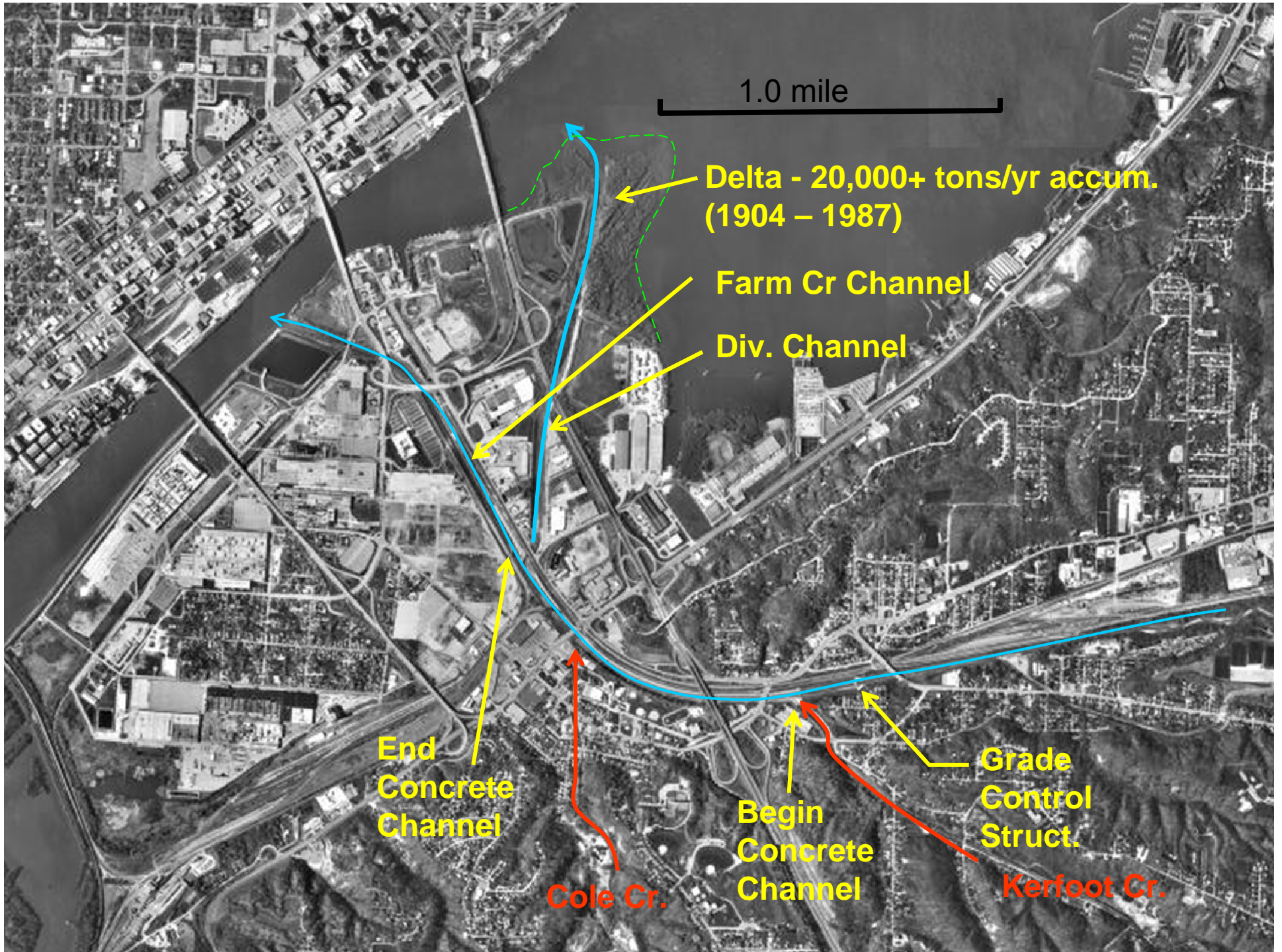


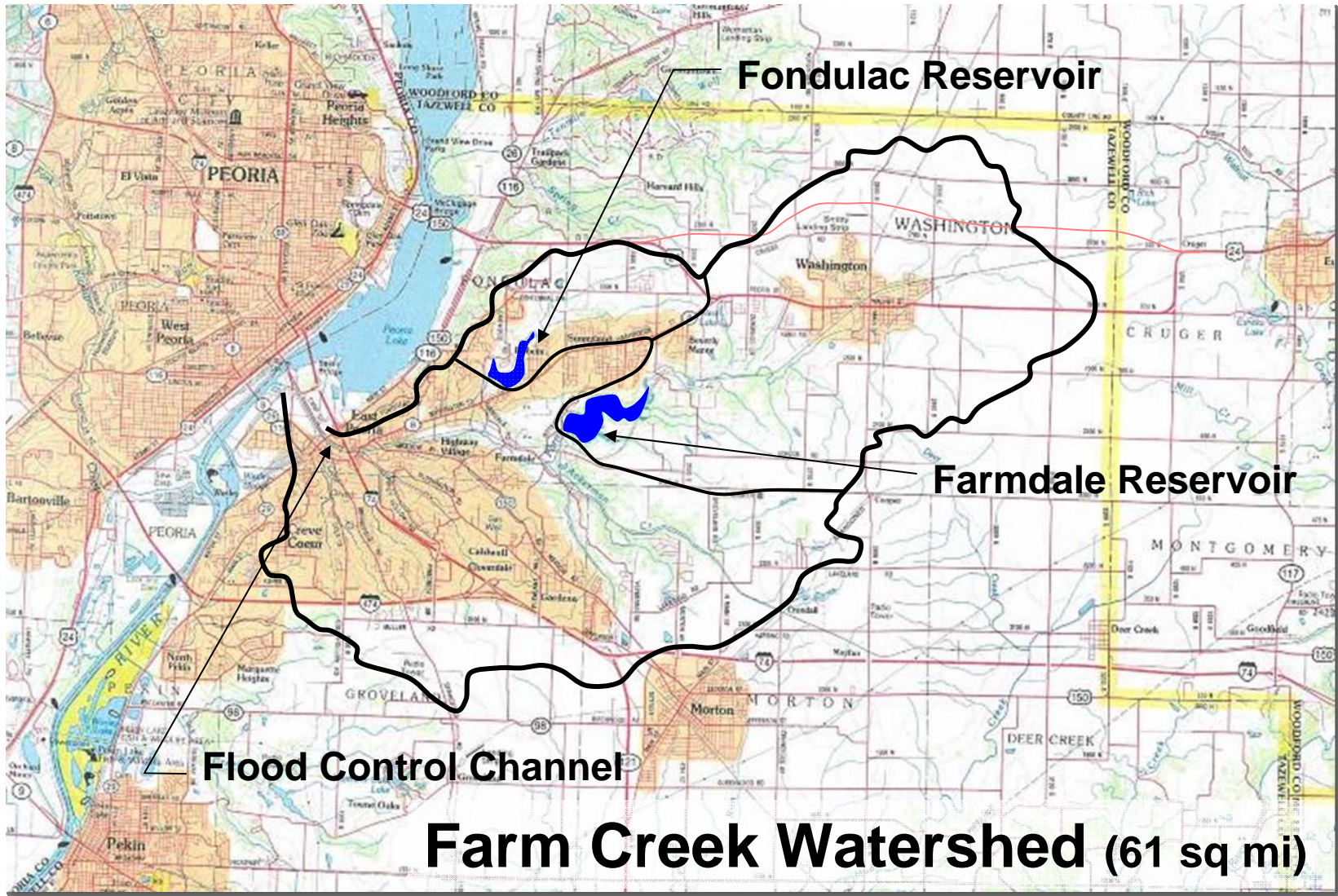
**Sediment Management
in the
Farm Creek Flood
Control Channel**



1.0 mile

N





Source: DeLorme

0 1 2 3 miles

N



How much sediment?

ISWS sediment yield equations:

Entire Watershed:

Sed. Yield Area Regional Eq.: 36,400 tons/year (0.9 tons/ac/yr)

Sed. Yield Area Regression Eq.: 202,000 tons/year (5.2 tons/ac/yr)

Downstream of Corps Reservoirs:

Sed. Yield Area Regional Eq.: 18,500 tons/year (1.1 tons/ac/yr)

Sed. Yield Area Regression Eq.: 163,000 tons/year (9.3 tons/ac/yr)

Farm Cr Diversion Channel Delta Growth:

Report 2001-08 (1904 – 1999) (60 sq mi): 20,093 tons/year

adjusted: (27 sq mi, 67% of flow, 70 yrs) 40,700 tons/year

(2.4 tons/ac/yr)



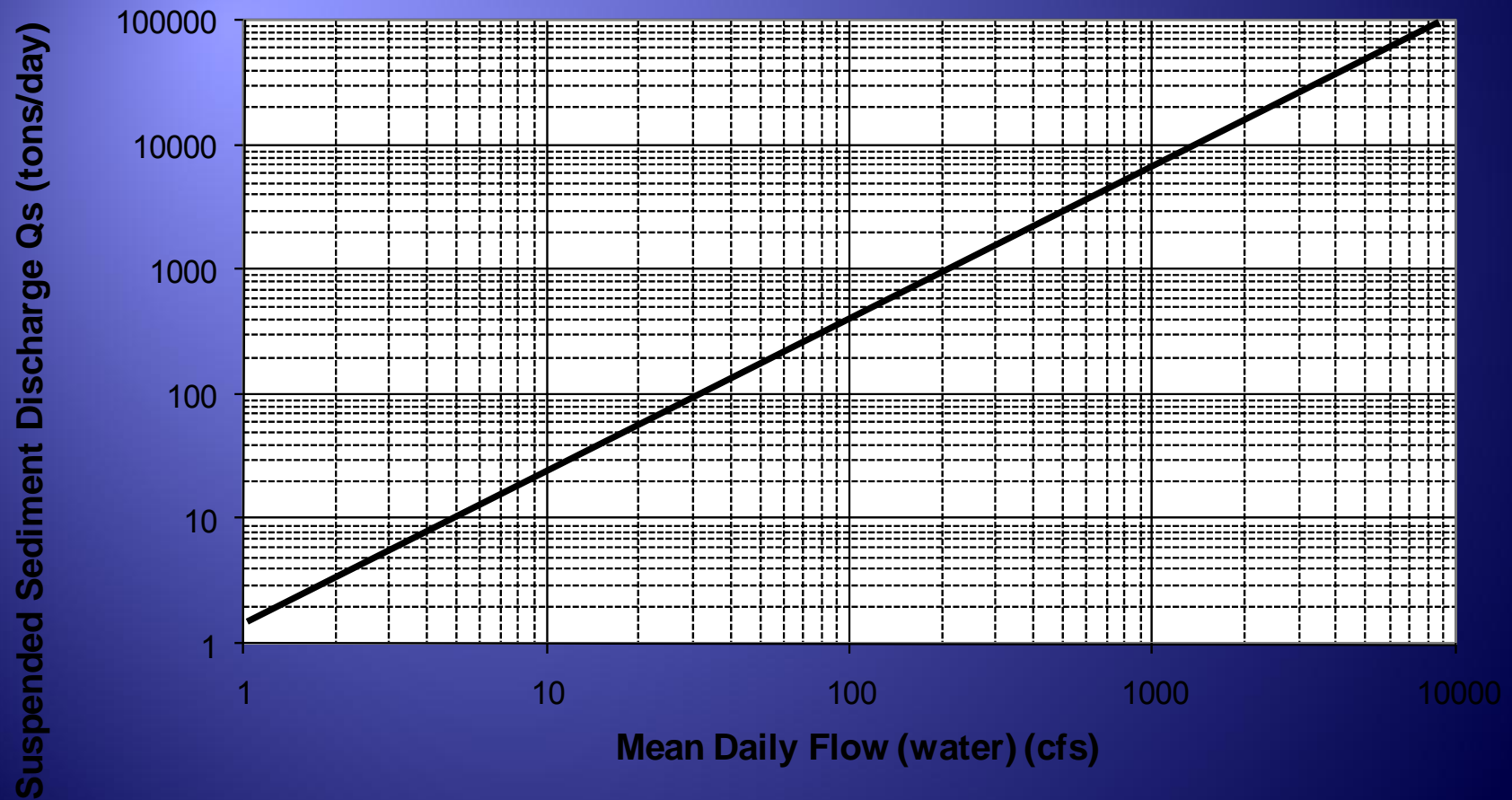
How much sediment?

Sedimentation Rates in Farmdale and Fondulac Flood Control Reservoirs:

Farmdale Res. (27.4 sq mi)	19,000 tons/year (1.1 tons/acre/year)
Fondulac Res. (5.35 sq mi)	15,400 tons/year (4.5 tons/acre/year)



Farm Creek Sediment Rating (Hypothetical)
Yields 81,400 tons/yr suspended sediment based on Daily Mean
Discharge Data at East Peoria 1943 - 1980





GRADE CONTROL STRUCTURE



GRADE CONTROL STRUCTURE



**KERFOOT CR – LOOKING
DOWNSTREAM**



Farm Creek Channel at Main Street (IL 116) Bridge



Farm Creek
Channel Upstream
of Diversion
Structure



2007



2002



2007



2002



Farm Creek Channel Outlet to River



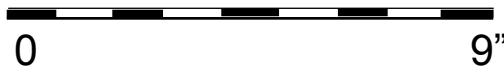
Farm Creek Channel Outlet to River



Farm Creek Diversion Channel Outlet to Peoria Lake



Farm Creek Diversion Channel Outlet to Peoria Lake



DOWNSTREAM



UPSTREAM

Farm Creek Flood Control
Channel Sediments



One Sediment Control Dam Option: Rubber Dam



Source: Bridgestone Corporation

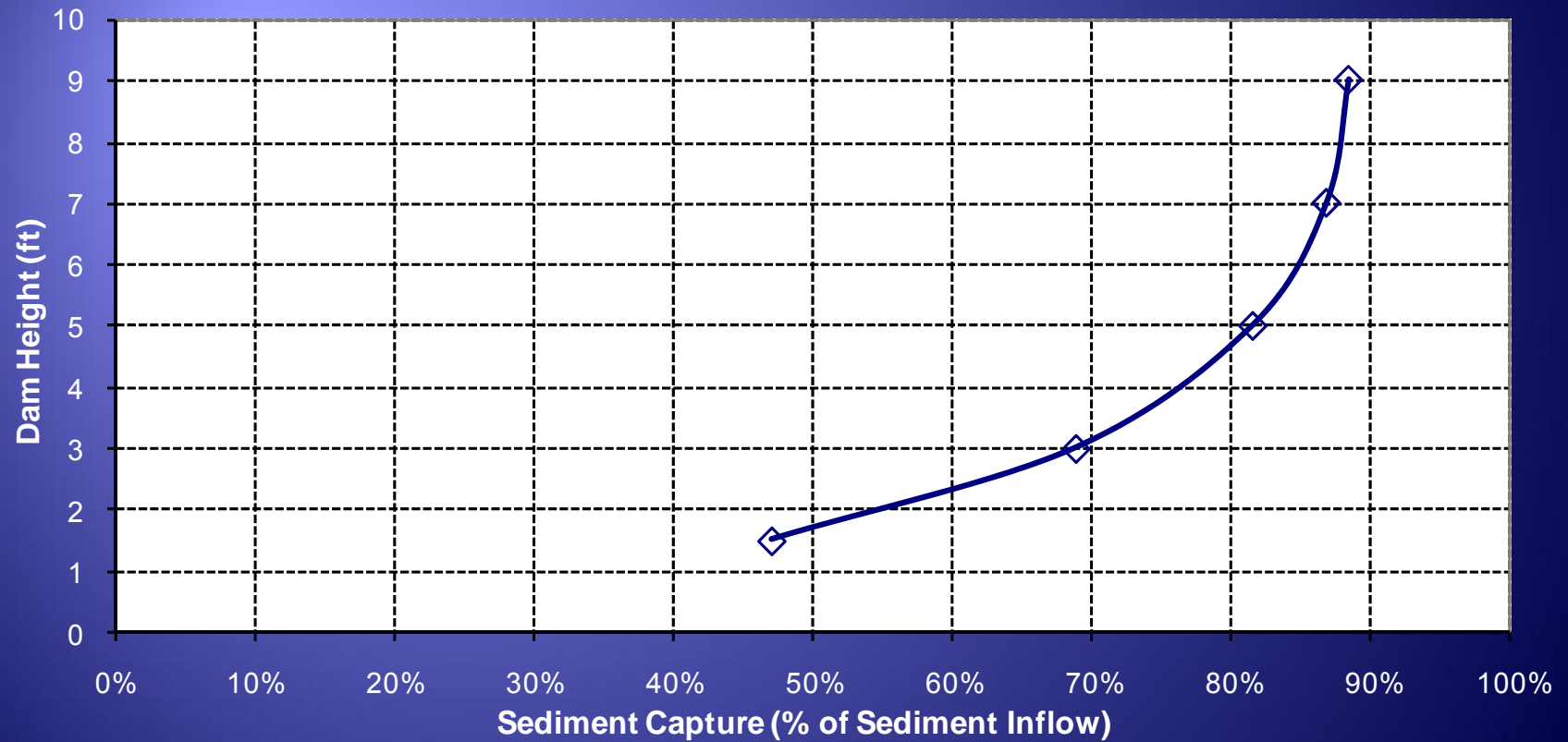
Rubber Dam Deflated



Rubber Dam Inflated

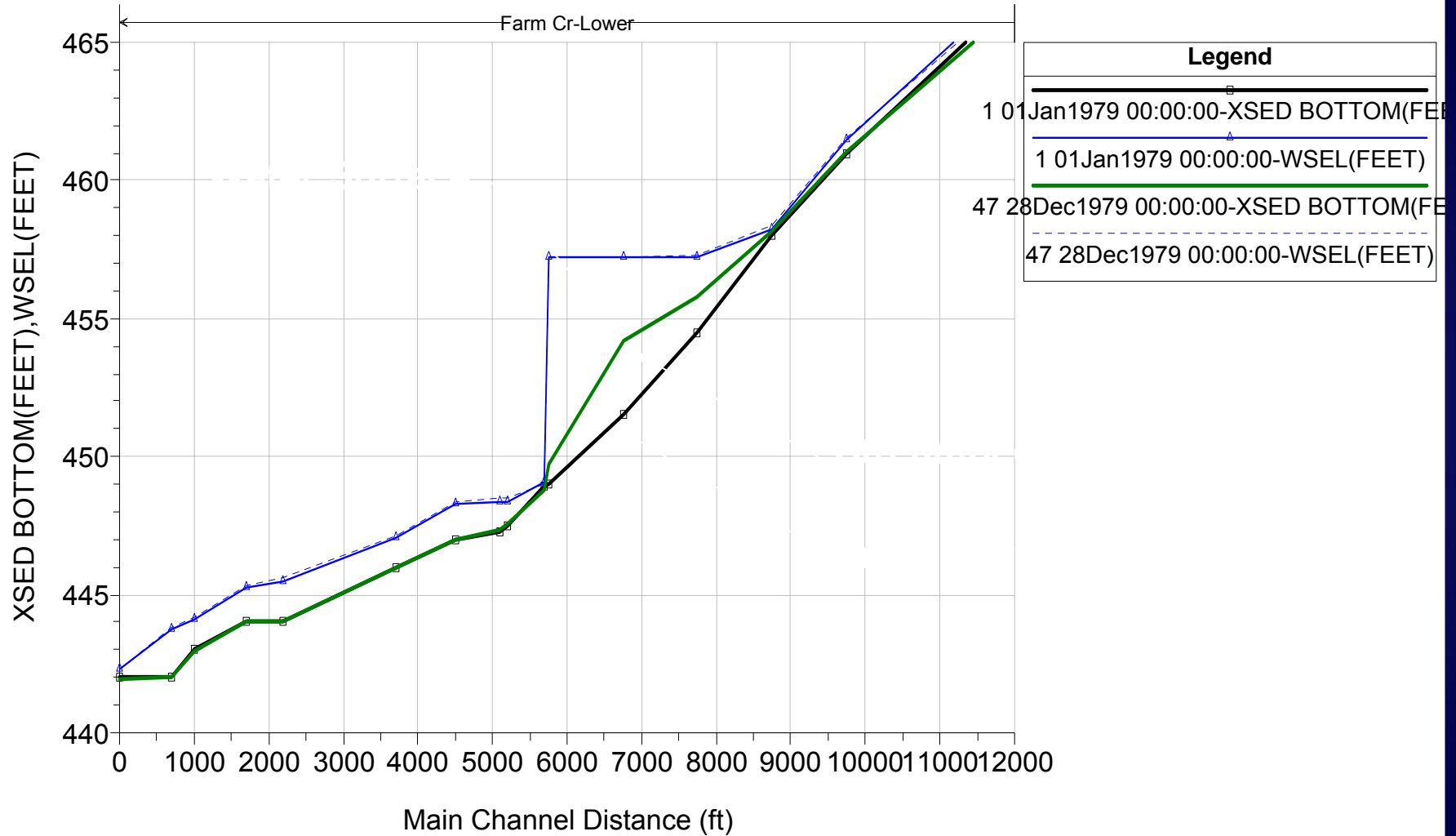


Sedimentation Basin with Farm Creek Annual Flow Duration Data



**Average Sediment Capture Efficiency for Various Dam Heights
(from standard sedimentation basin analysis)**

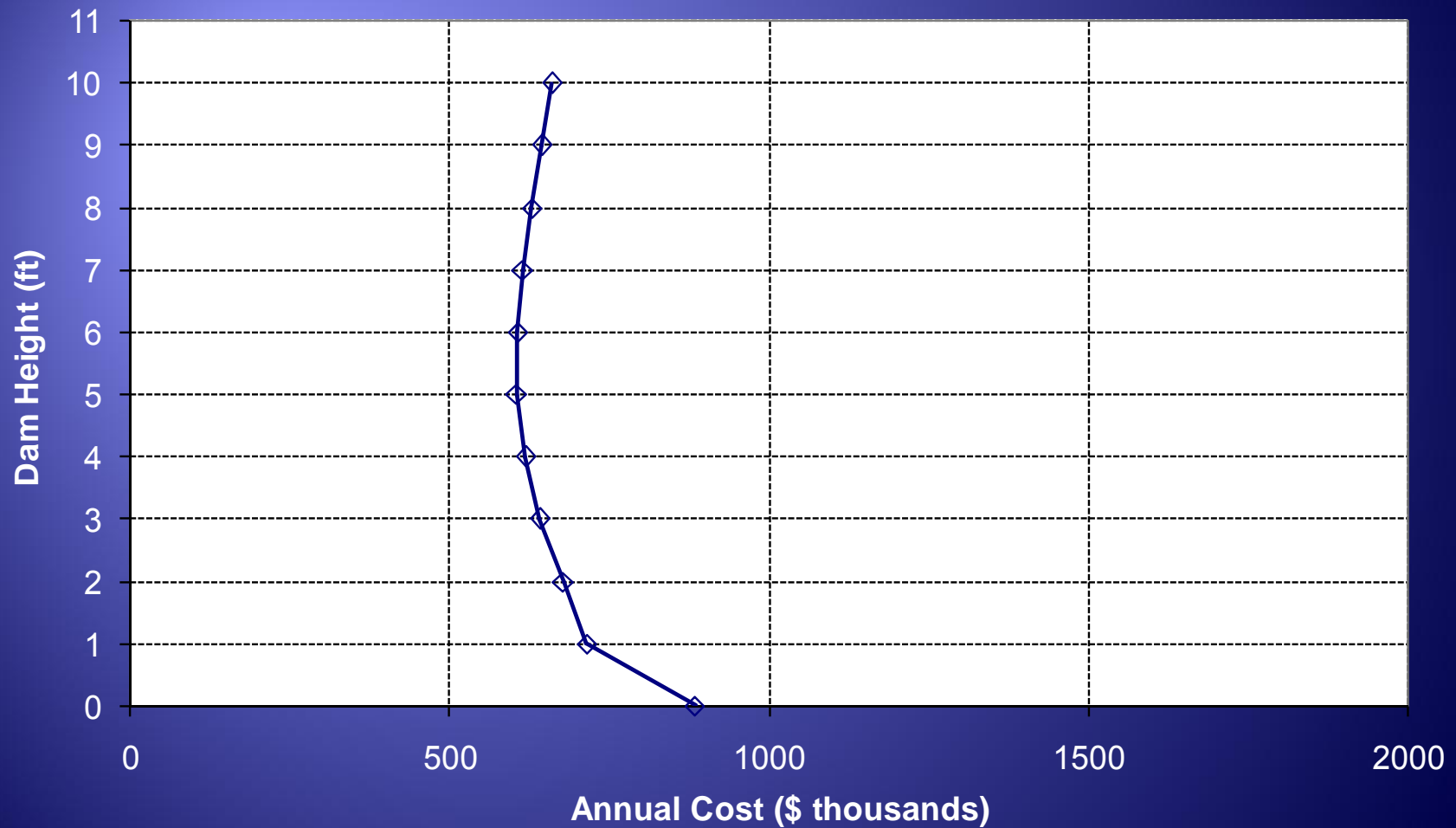
p:\3160070052\Farm Cr 07\HECRAS\LFC_SED.sed07



Farm Creek Profile - HEC-RAS Sediment Transport Model (8 ft Dam)



Sediment Management Cost - 50,000 tons/year



Optimum (Least Cost) Dam Height Analysis



Sediment Management Cost –

No Net Accumulation in River/Peoria Lake

\$0.6 million - \$1.5 million average annual cost for removal and disposal.

Equivalent to:

- \$16 - \$39 per acre per year over entire watershed

or:

- \$35 to \$87 per acre per year over the watershed downstream of Corps of Engineers flood control reservoirs

Costs include only the direct project costs; do not include costs associated with land, infrastructure or ecologic resources damages



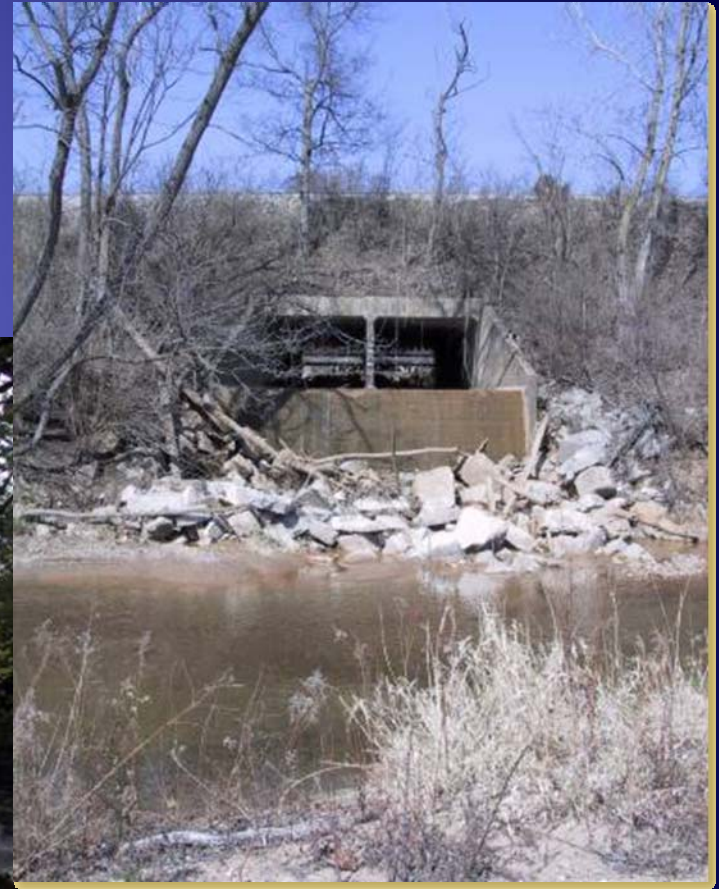
Apparent sediment
sources –
Streambank Erosion



Streambank
Stabilization Projects
Required



Apparent sediment sources – Streambed Down-cutting





Enhanced Sediment Trapping in Flood Control Reservoirs



Heartland Water Resources Council

"At the Heart of Saving the Peoria Lakes"

