

National Streamflow Information Program

Advisory Committee on Water Information
May 16, 2001

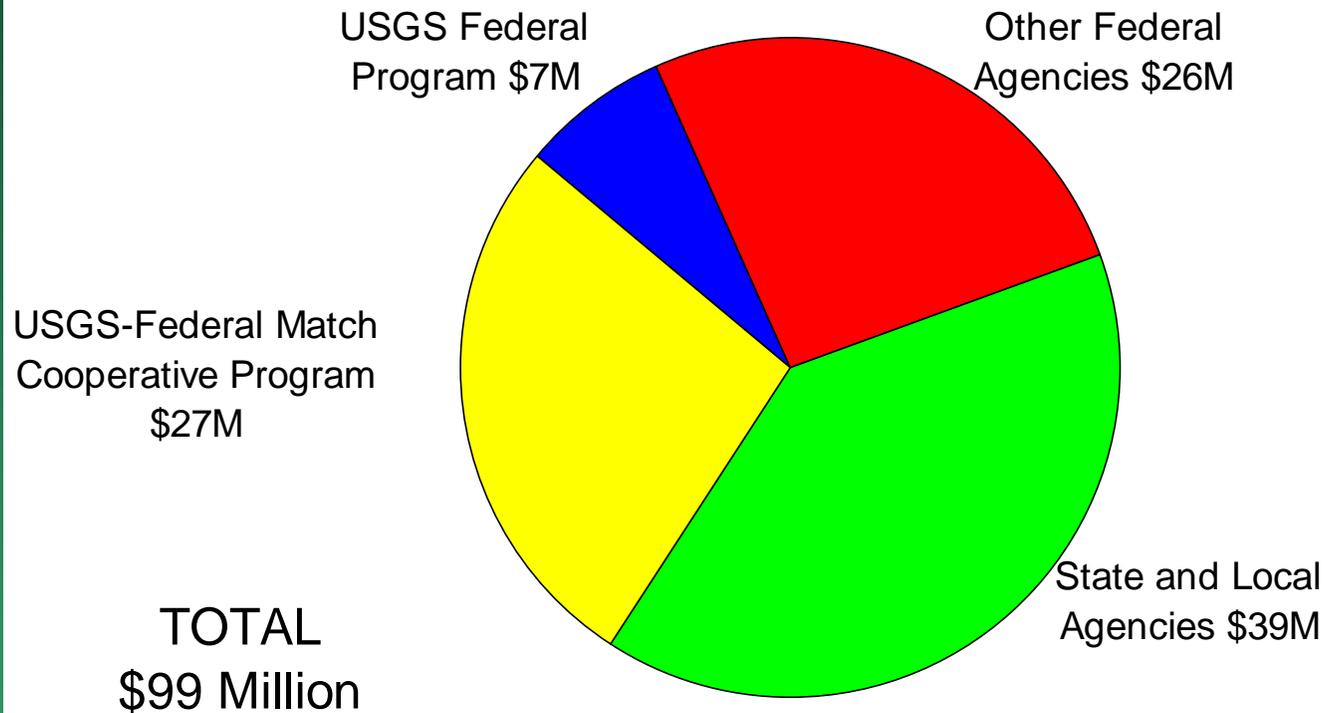


Snake River near
Moran, WY

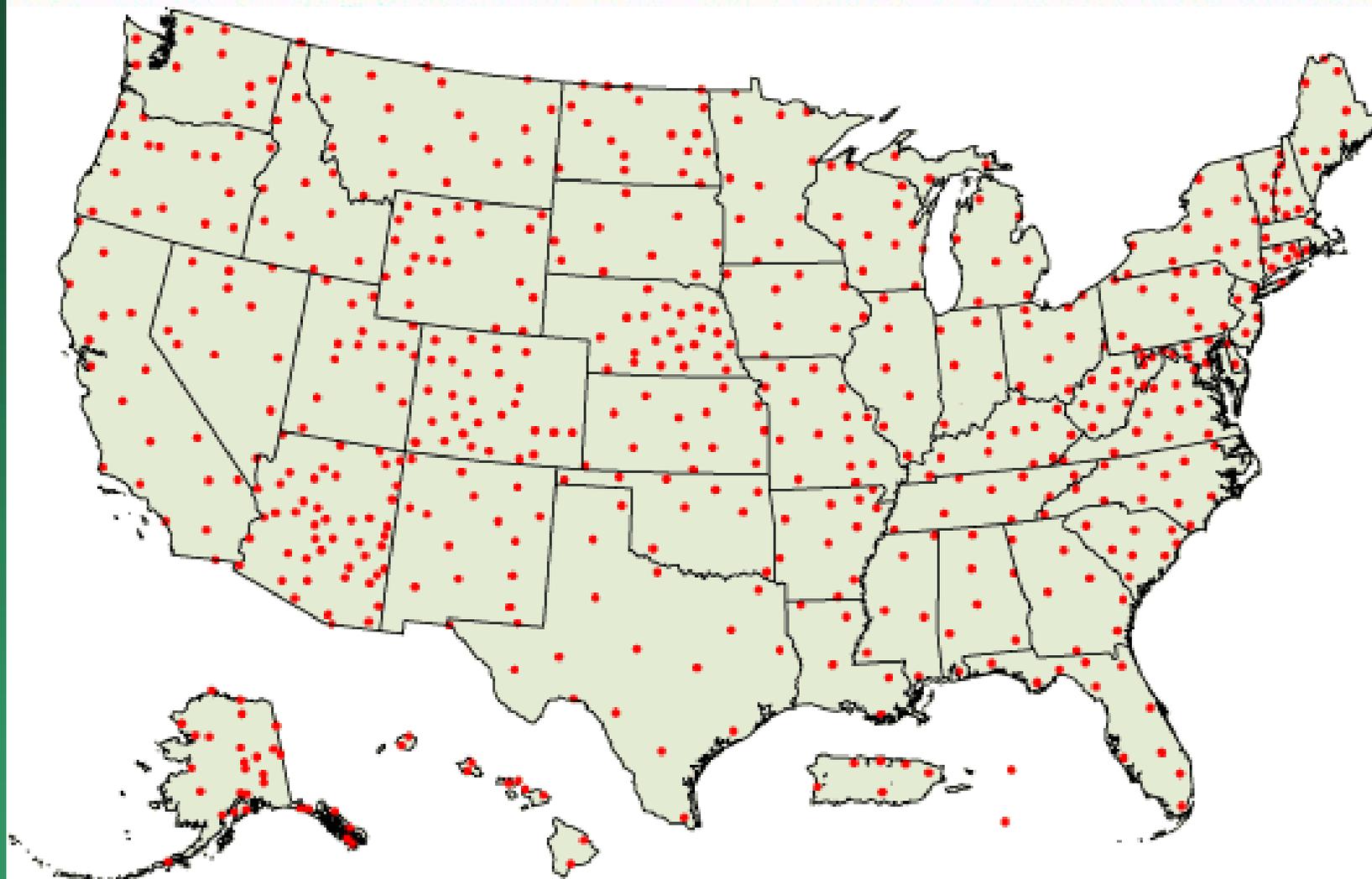
Network Funding Process

- **Coop. funding with over 800 partners.**
 - Generates *interest* in the network.
 - Keeps network *relevant* to local needs.
 - Generates *funds* for the network.
- ***Less control by USGS over network.***
 - Loss of long-term gaging stations
 - Less ability to meet national goals.

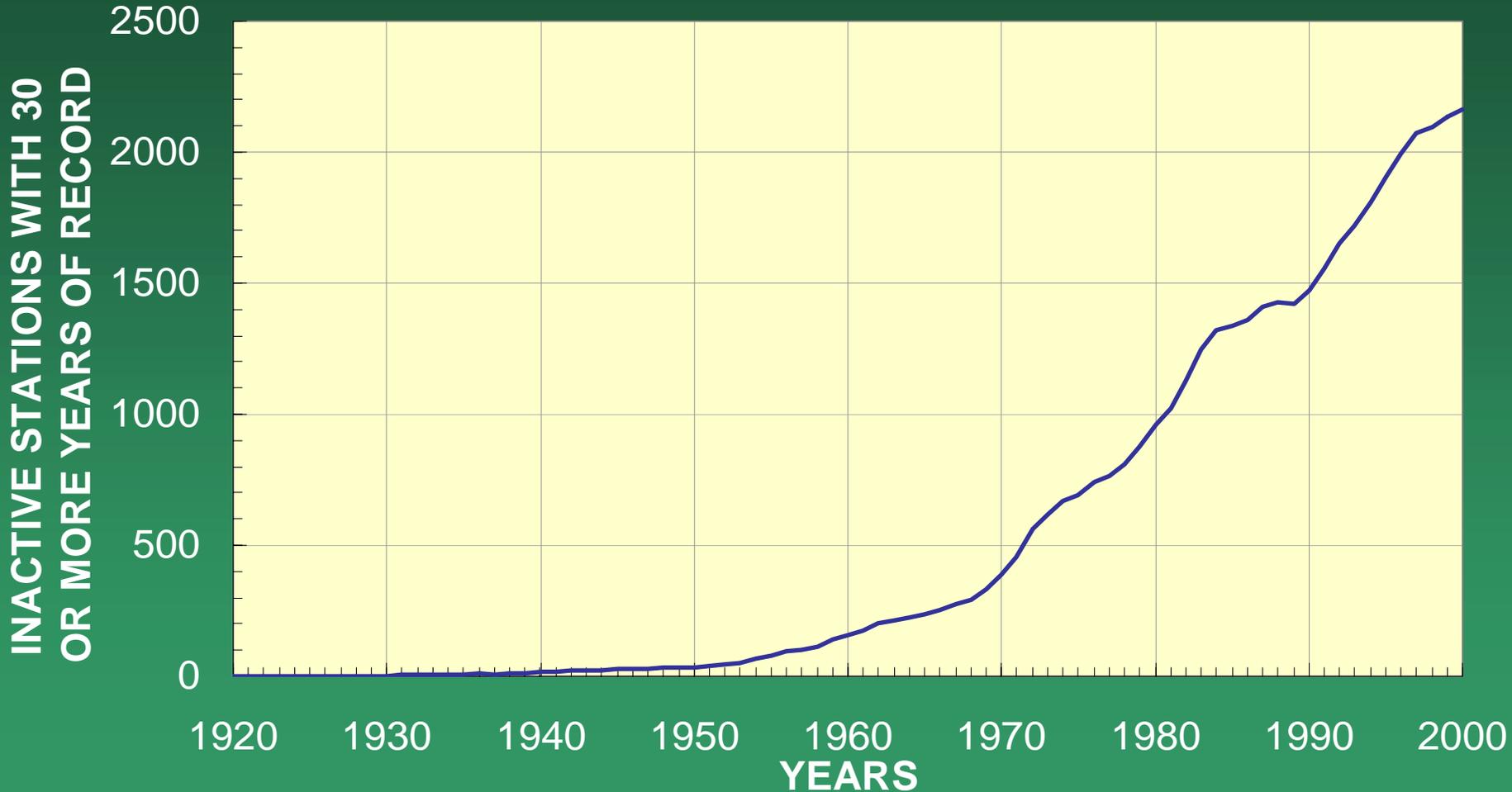
Fiscal Year 2000 Funding Sources for USGS Streamgaging Program



USGS Streamgaging Network



Number of Inactive Long-Record Streamgages



National Streamflow Information Program



A New Evaluation of the USGS Streamgaging Network

A Report to Congress
November 30, 1998

U.S. Department of the Interior
U.S. Geological Survey



Streamflow Information for the Next Century

A Plan for the National Streamflow Information Program
of the
U.S. Geological Survey



A Proposed Plan

- To increase the level of streamflow information for National needs;
- To improve the way streamgaging stations are funded and located;
- Of new ways to collect, store, and distribute streamflow information.

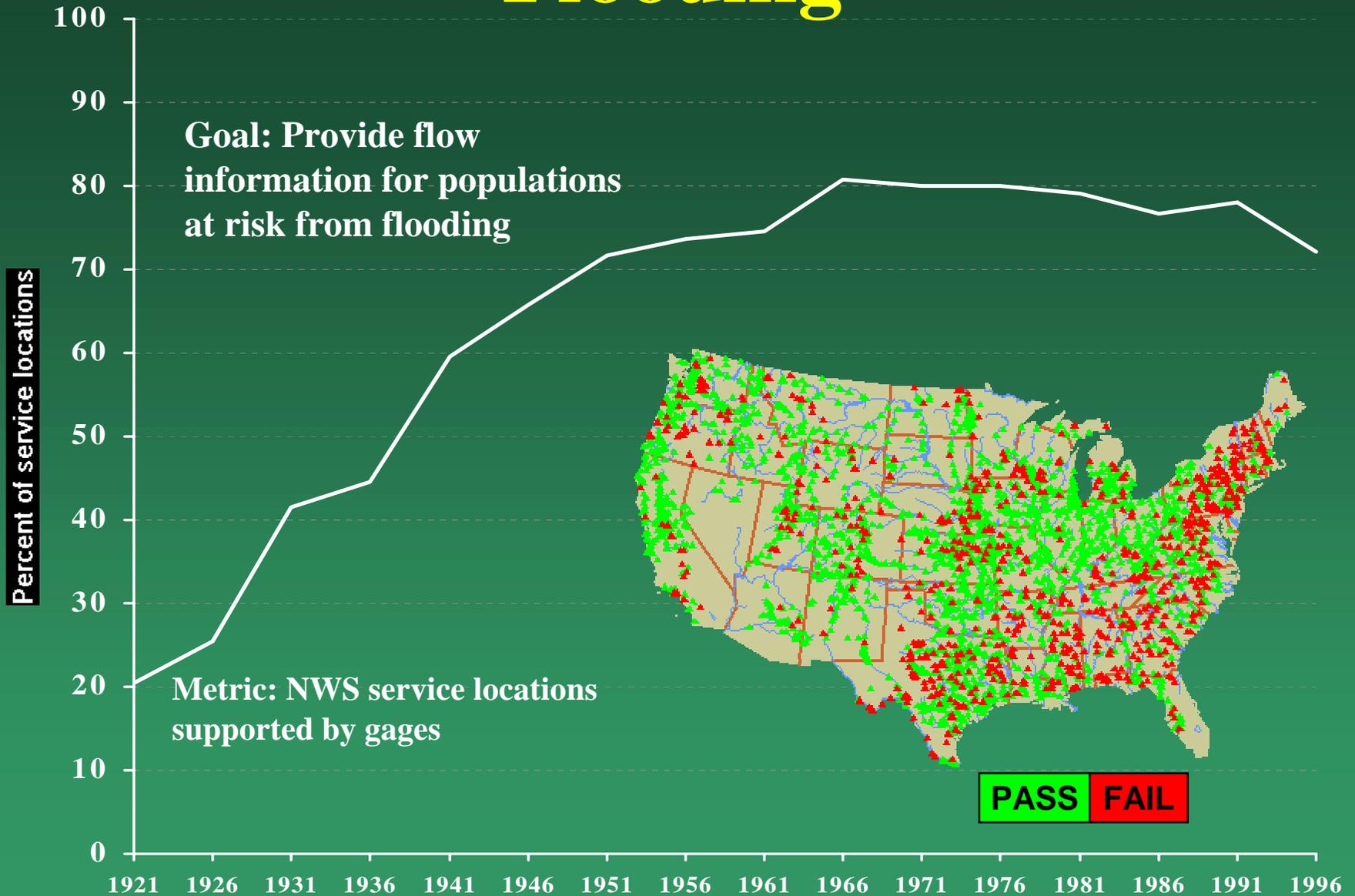
U.S. GEOLOGICAL SURVEY
Open-File Report 99-456



Federal Interests Evaluated

- **Interstate and international transfers**
- **Water budgets**
- **Flooding**
- **Water quality**
- **Long-term changes**

Flooding



What are the Issues?

- **Network's ability to meet long-standing Federal goals has declined because of:**
 - an absolute loss of streamgages
 - and our declining ability to continue operating high-priority streamgages when partners discontinue funding
- **New issues and new technology have increased the demand for streamflow information.**

What are the Issues? (2)

- **New technologies are needed to:**
 - Improve reliability
 - Decrease costs
 - Decrease uncertainty

National Streamflow Information Program

1. Enhanced nationwide streamgaging network
2. Intensive data collection during major floods and droughts
3. Periodic regional and national assessments
4. Streamflow information delivery to customers
5. Methods development and research

#1 Streamgaging Network

- USGS-funded streamgages to meet 5 basic federal goals
- Partnership-funded streamgages to achieve more complete coverage than the USGS-funded streamgages provide
 - Shared costs by USGS, State, and local agencies and other Federal agencies
- Full support for network infrastructure from Federal funds – (40% savings)

#2 Floods and Droughts

- Temporary streamgages
- Characterize the event: Precipitation, Stage, Discharge, Sediment, Water Quality, Ground Water
- Document changes in channels and riparian zones

3 Regional & National Assessments

- Regional studies for low-flow and flood statistics: updated every decade to include new data and changing conditions
- National studies of streamflow trends: related to climate and land-use factors

#4 Information Delivery

- Improve reliability through “mirror” servers
- Complete geospatial framework for rivers (NHD) and watersheds (hydrologic units)
- “Point and click” streamflow characteristics
- Make data available at time resolution of actual data collection (e.g. 15-minute)

#5 Research & Development

- Non-contact streamflow measurement
- Improve use of acoustic methods
- Improve methods for characterizing uncertainty
- Make streamflow calculation process more effective: more use of models and graphics

Five Federal Goals To Be Met By USGS-Funded Streamgages

- Interstate and International Waters
- Streamflow Forecasts
- River Basin Outflows
- Sentinel Watersheds
- Water Quality

Goal 1 – Support National Water Quality Networks

Streamflow data make water quality data more useful.

Operate a streamgage at or near each site in USGS water-quality monitoring networks: Hydrologic Benchmark, NASQAN, and NAWQA Low-Intensity Phase.

Goal 2 -- Streamflow Information for Borders and Compacts

Information on streamflow crossing State and International borders is used for interstate and international water management and adjudications. Treaties and compacts establish measuring points for water distribution and allocation.

Operate a streamgauge on the reach mandated in all compacts and decrees, and at State and International boundaries on all rivers with drainage areas greater than 500 sq. mi.

Goal 3 -- Quantify Flow From Major River Basins

Outflows from the 335 major river basins are important to understanding water yield and flux to the ocean, estuaries, and Great Lakes.

Operate a streamgage near the mouth of each of the Nation's hydrologic accounting units. Use two streamgages if no one streamgage covers more than 50 percent of the unit.

Goal 4 -- Sentinel Watersheds Gaged to Estimate Regional Streamflow Characteristics

Streamgages with long-term record, unaffected by regulation or diversion, are needed to estimate regional flow statistics and trends.

Operate at least one streamgage in each of the 828 unique ecological/hydrological areas of the Nation. The watershed for that streamgage should be entirely within the unique ecological/hydrologic area.

Goal 5 -- Support Streamflow Forecasting

Streamflow data are needed to develop and calibrate forecasting models and make flow forecasts for flooding and water supply.

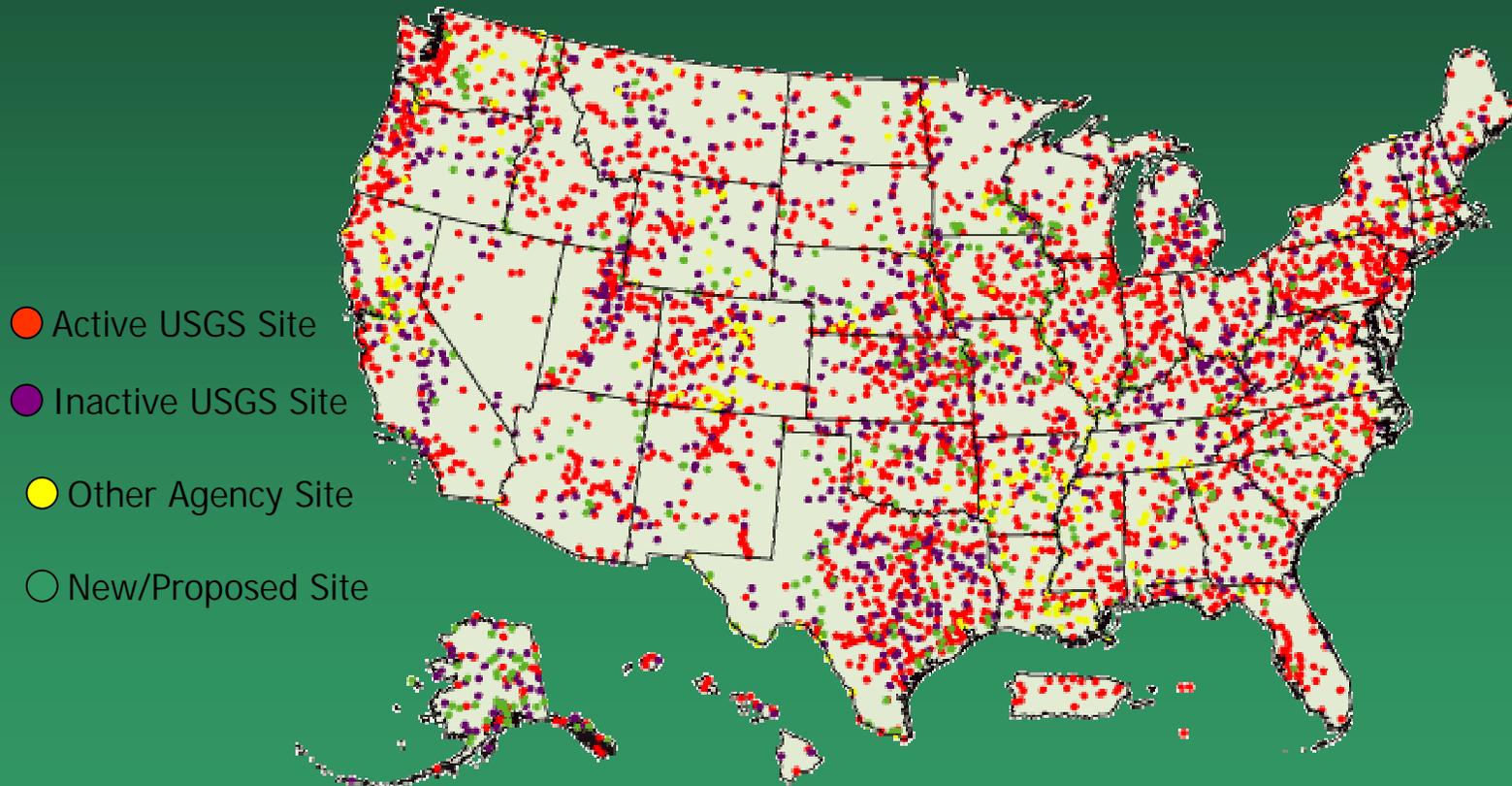
Operate a streamgauge at or near each National Weather Service forecast site.

USGS Funded Streamgages

Preliminary Design: January 2001

Basic NSIP Goals	Total number of streamgages required	New streamgages needed	Reactivated streamgages needed	Other agency streamgages requiring upgrades
Interstate and International Waters	506	17	61	15
Flood Forecasts	3,264	338	610	235
River Basin Outflows	445	13	66	24
Sentinel Watersheds	875	123	206	16
Water-Quality	210	0	0	1
Sum	5,300	491	943	291
Total Needed	4,420	484	864	278

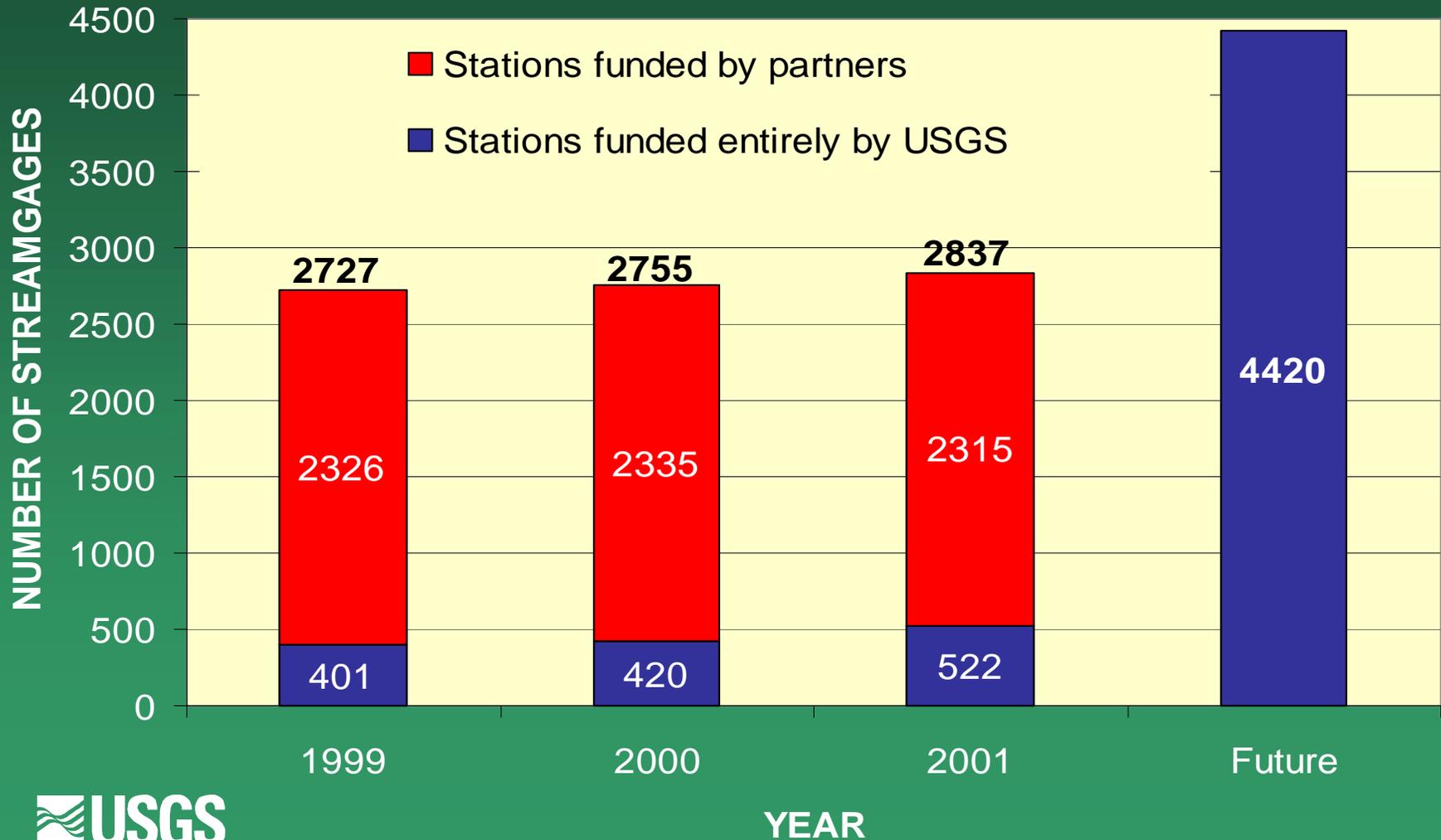
National Streamflow Information Program USGS- Funded Streamgages



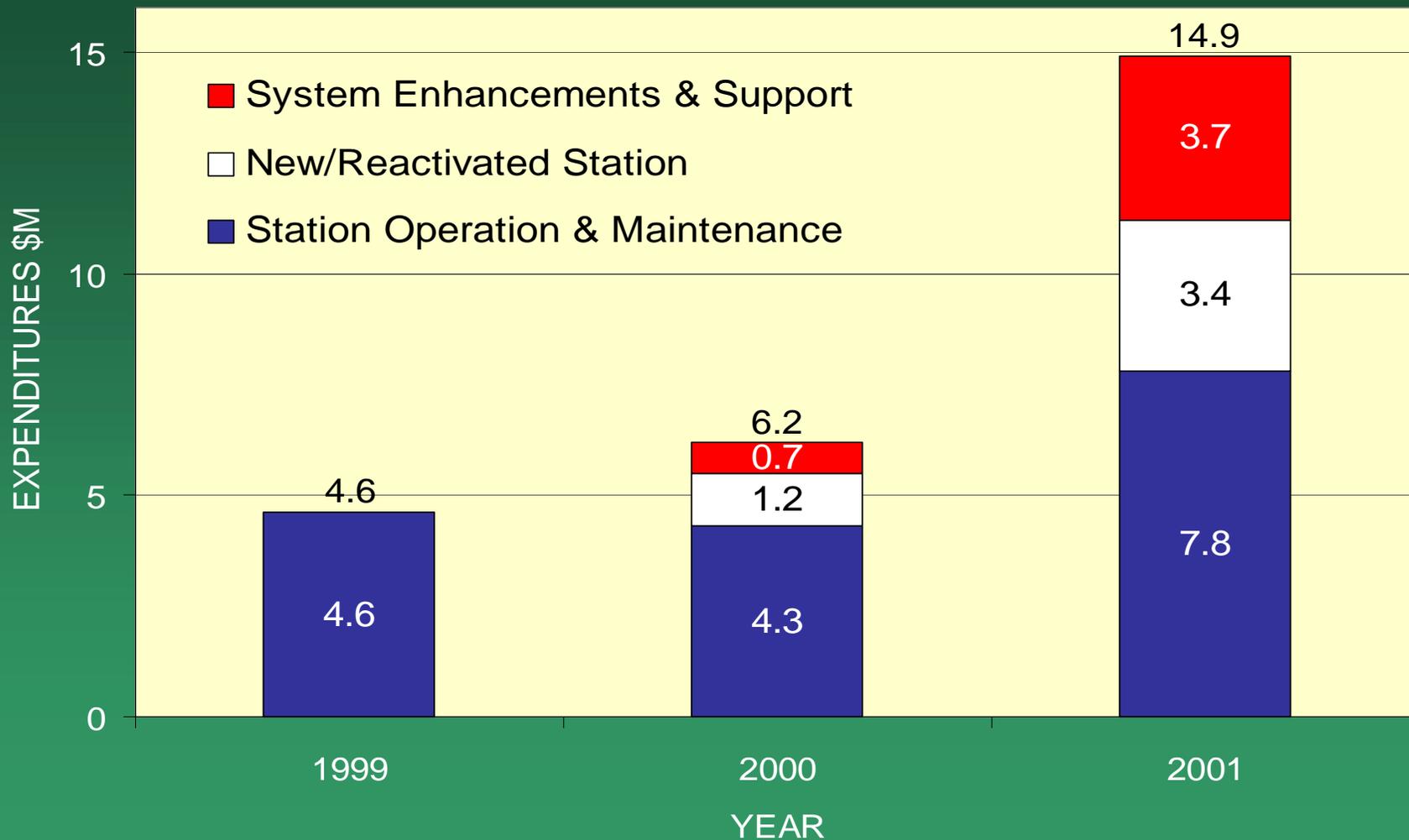
Progress Towards NSIP in FY2000 and FY2001

- 37 new streamgages;
- 73 reactivated streamgages;
- 127 streamgages with upgraded equipment;
- 15 flood-hardened streamgages;
- 40 streamgages with extended rating curves;
- ~ 100 existing streamgages with full USGS funding.

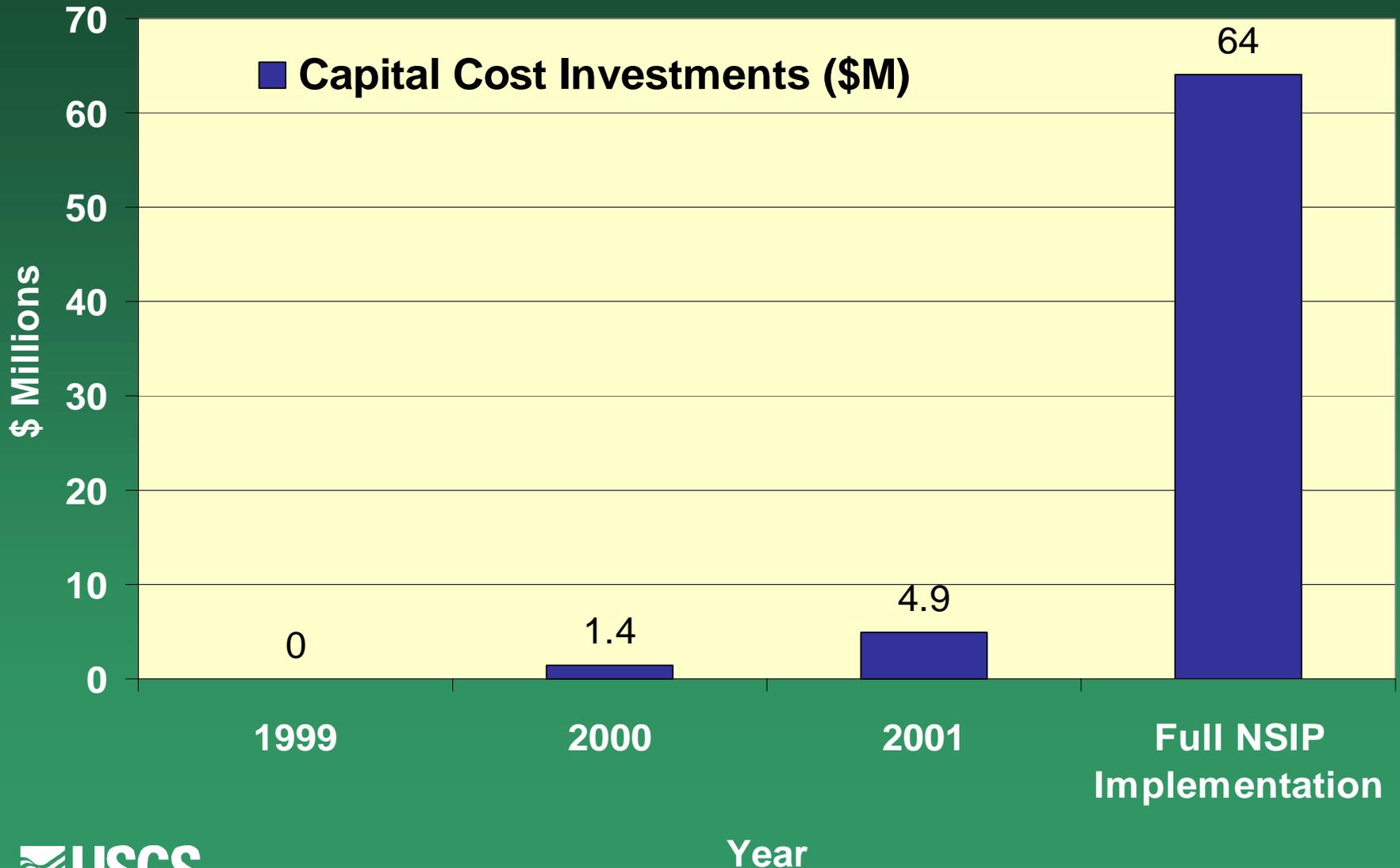
Status of Streamgages Designated to be USGS funded



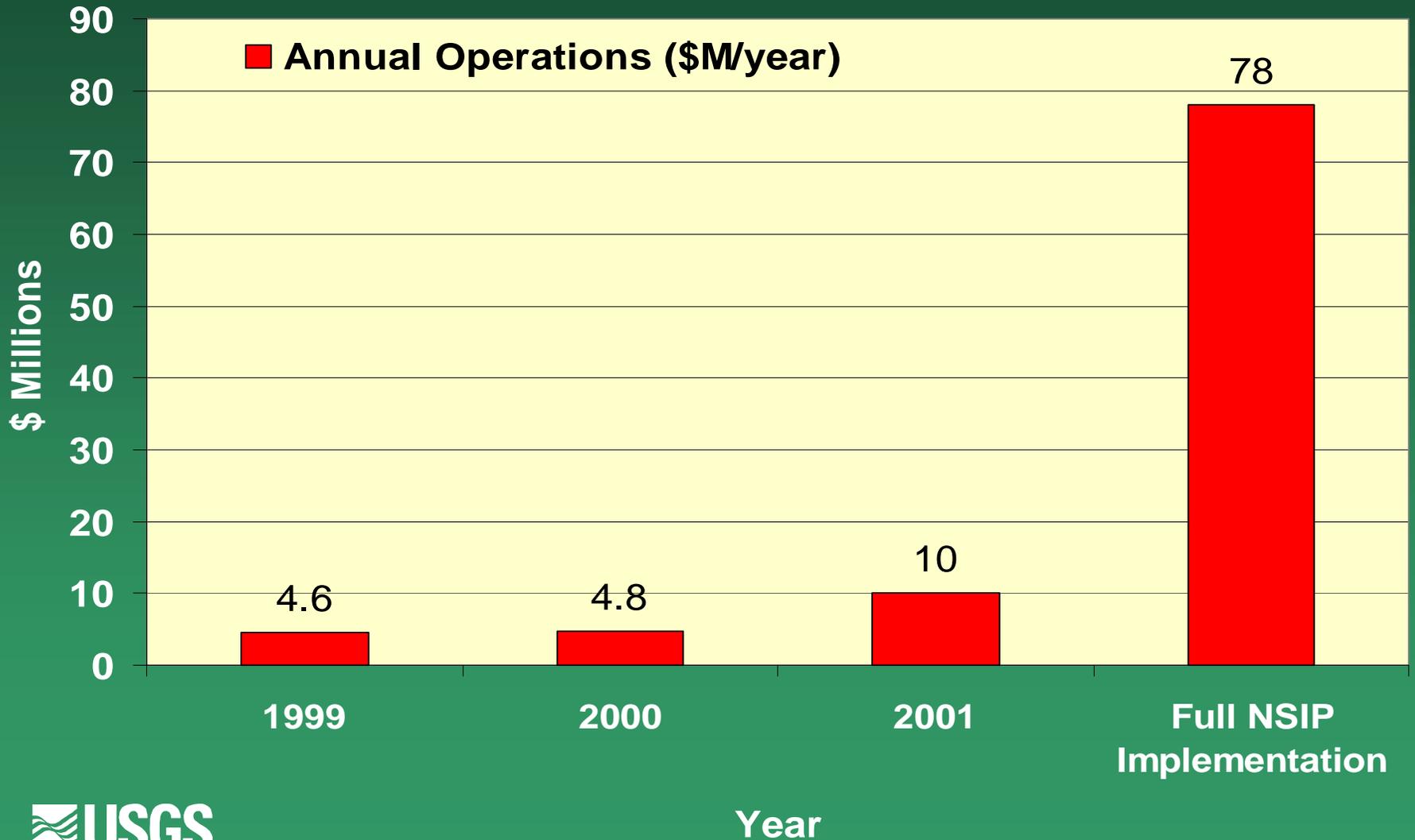
NSIP Funding



NSIP Funding: Capital



NSIP Funding: Operations





Minnesota River near Jordan, MN, April 17, 2001