THE UNIVERSITY OF IOWA

# President's Forum

# Flood Report - 2008

September 9, 2008

# Background

**1993**

- First Spillway Breach at Coralville Dam
- UI Damages $6 million
  - Insurance ($3.5 million)
  - FEMA ($1.5 million)
  - University ($1 million)

# Background

- Property casualty insurance purchased on General Fund and UI Enterprise buildings and contents
- Flood Emergency Response Plan of 2007
- CIMP – Pandemic and Disaster Planning
  - National Incident Management System Processes

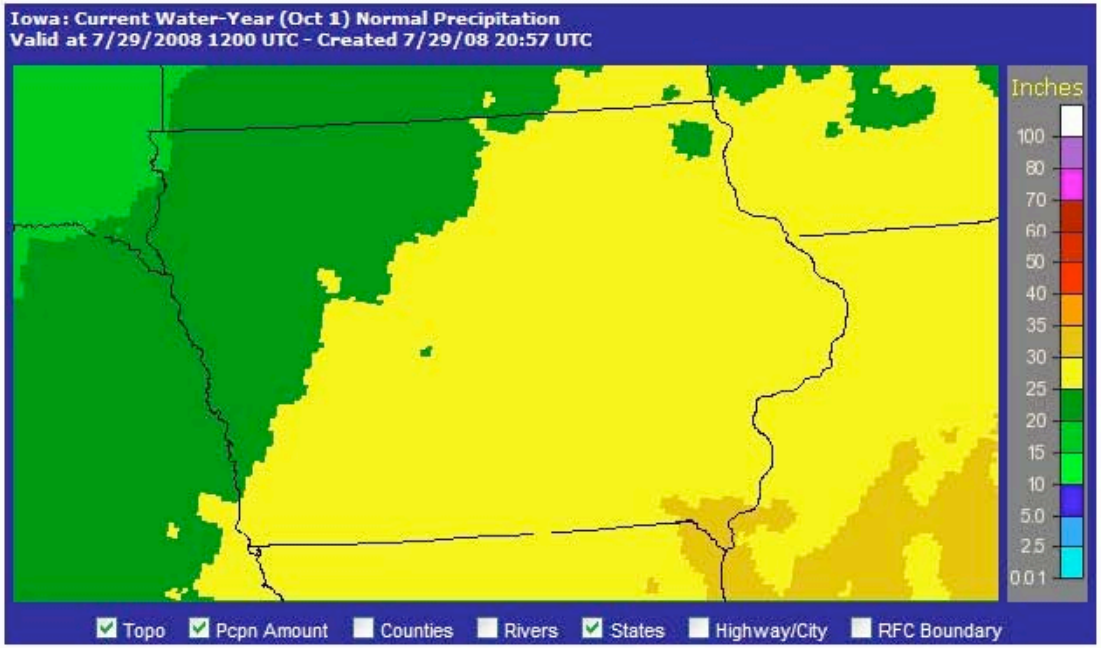
THE UNIVERSITY OF IOWA

# Precipitation

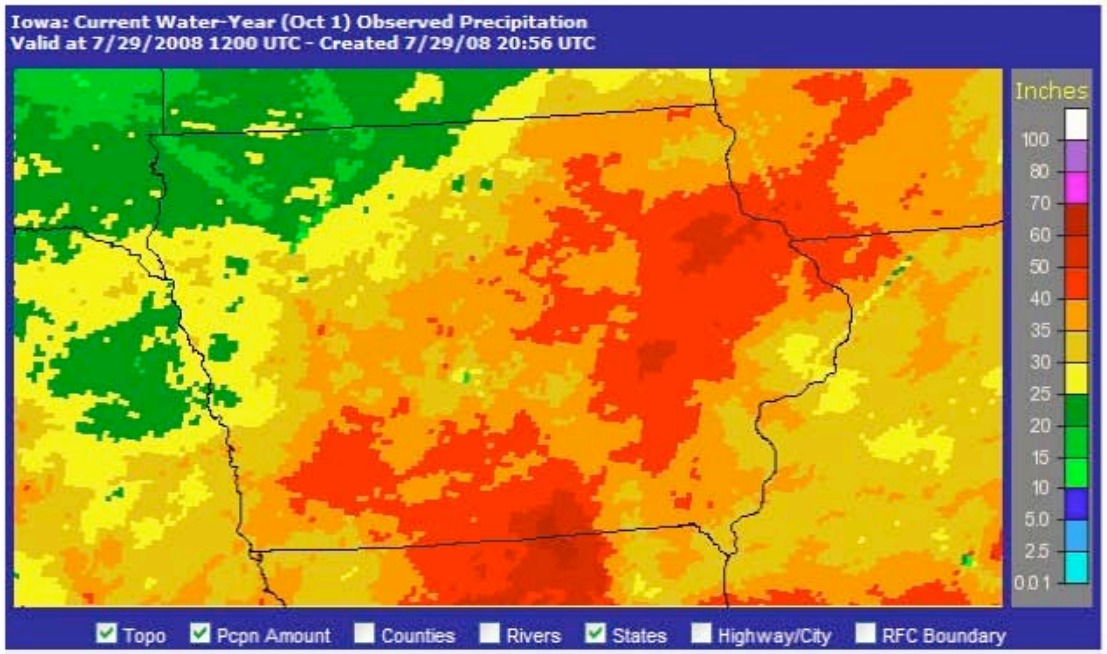
# and

# River Elevation

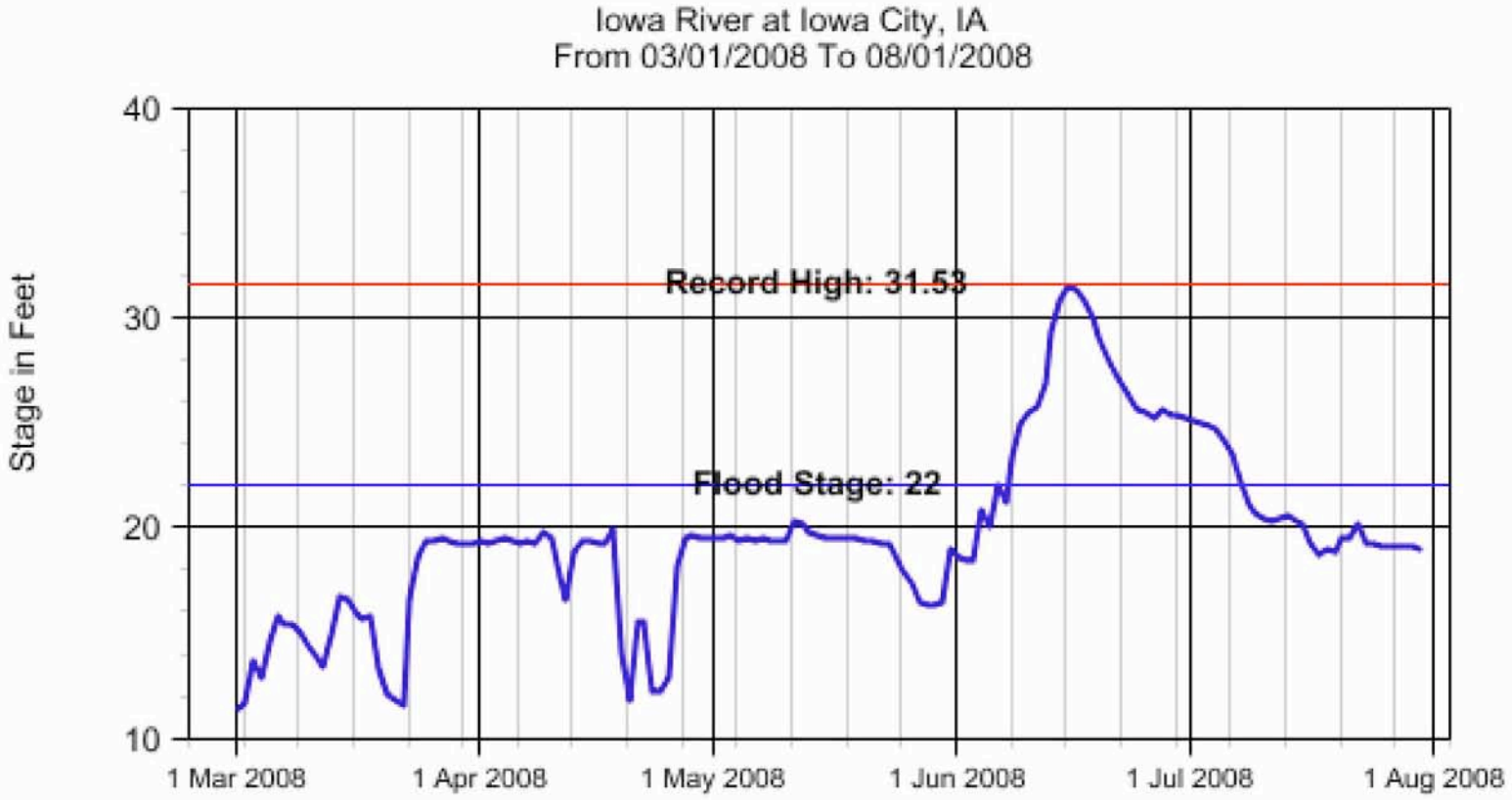
NORMAL PRECIPITATION



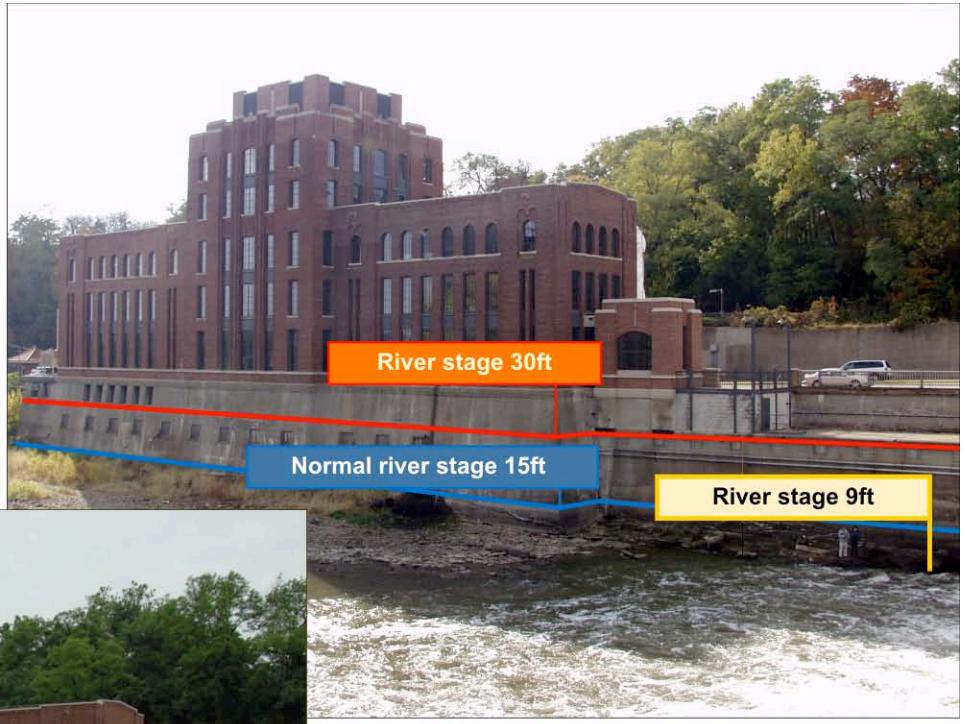

2008 PRECIPITATION

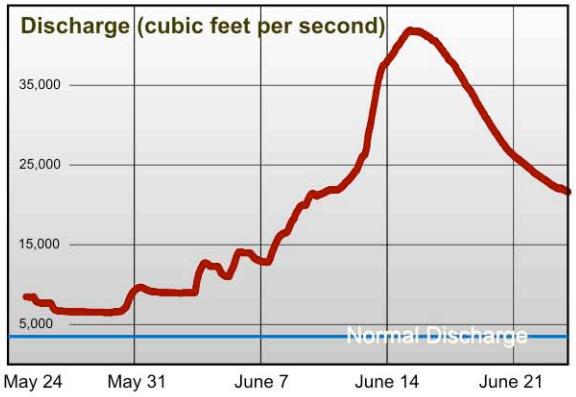



Source: National Weather Service




Source: US Army Corps of Engineers


River stage 30ft
Normal river stage 15ft
River stage 9ft


Discharge (cubic feet per second)
35,000
25,000
15,000
5,000
Normal Discharge
May 24
May 31
June 7
June 14
June 21


June 10, 2008:
Coralville reservoir flows over the emergency spillway

# Priorities Established

- Public Safety
- Patient Care – UIHC
- Emergency utility services to all critical assets
- Housing at Mayflower
- Summer classes
- Facilities restoration, or lease, for fall classes
- Critical intermediate term needs for displaced research and student services
- Reliable utility services by winter
- Intermediate and longer term restoration and flood mitigation

# Summer-Fall Classes

Relocation of classes and displaced faculty and staff

- Leasing of space
  - Former Menards
  - Clinton and Court Streets
  - Brewery Square
  - University Athletic Club
  - Local churches
- New student orientation relocated
- Mayflower – Commitment to restore living quarters for 1,000 students by mid-August

# Utilities

- Power Plant
- Tunnel distribution system
- Steam availability
- Chilled water availability
- Electrical loops to east campus
  - Work around to restore power
- Information technology services
  - Emergency generator at Jessup Hall IT Center
  - Threatened tunnel flooding at Lindquist IT Center


N
1 inch equals 500 feet
Legend
Tunnel or Vault
Flood Impacted Tunnel
E-E5
E-E4
E-E6
E-E3
E-D3
E-E2
E-E1
-ART
-NHS
-CUT
E-CB
-TBS
IMUX
-INT
HWY6
NWCS
-HSC
E-H3
E-H8
E-H6
E-H5
-H10
E-G7
E-G6
E-G5
E-G4
E-G8
-SST
-MRC
-MLS
E-G9
-G16
-G14
-G17
-G10
-G13
-G11
-G12
-COL
-FHT
-QST
-GAT
-POM
-POM
-IMU
-EPB
BCSB
-MLH
-SCH
-MBS
-SSH
-OBT
E-EL
RONT
-CAP
OPTI

# Utilities

## Short-term strategy

- Acquire and install temporary boilers and chiller units
- Emergency UIHC boiler activation
- Rationing energy use
- Energize emergency electric generators
- Temporary shut-down of non-essential functions

# Utilities

## Long-term strategy

- Stanley Consultants/Shive-Hattery
  - Power Plant restoration plan
  - Tunnel system/steam line restoration plan
- HBK Engineering – Chicago tunnel firm
- “Utility Restoration Plan” to BOR on July 18
- Complete chilled water river crossing

# Long-term Capital Projects

# WEST CAMPUS POWER PLANT

- **PROJECT:** Purchase and installation of combustion units to produce 200,000 pounds per of hour of steam and up to 20 megawatts of co-generated electric power, and the related utility distribution.

- **PURPOSE:** Create reliable utility infrastructure serving University of Iowa Hospitals & Clinics and Health Sciences Colleges.

- **ISSUE:** All base-load steam and co-generated electricity is currently produced at the Main Power Plant on the east campus. Delivery of these utilities is dependent upon river crossings. Steam is essential for the operation of the hospital – e.g.: hot water, sterilization. Emergency co-generated electricity, independent of the electrical grid, is essential for patient care and health center research.

- **FLOOD of 2008:** Main Power Plant on east campus is off line due to flood water infiltration of utility tunnel system; University of Iowa Hospitals & Clinics is dependent on emergency generators and installation of temporary boilers.

- **ESTIMATED COST: $64 million**

# SECURE INFORMATION TECHNOLOGY CENTER

- **PROJECT**: Construction of a secure information technology center on the Oakdale Campus.
- **PURPOSE**: The information technology center would provide space to house securely and reliably the computers (hundreds of servers) and networks that support core University functions including: University enterprise systems (payroll, benefits, student systems, email etc.), patient care clinical information systems, collegiate and departmental servers and research systems.
- **ISSUE**: Current data centers are outdated and undersized. They were threatened in recent flooding thus demonstrating their vulnerability. Information technology hubs are now located in Jessup Hall, the Lindquist Center and an old General Hospital annex. Recent assessments of the facilities concluded they are deficient in almost every critical category: fire protection, electrical and mechanical systems. Loss of these resources threatens the ability of the University and UI Hospitals & Clinics to carry on daily operations.
- **FLOOD of 2008**: Flood waters threatened the Lindquist Center. Flood waters infiltrated a utility vault at Lindquist causing an electrical outage to the Main Campus including the Jessup Hall data center. The University of Iowa Hospitals & Clinics data center was threatened by the loss of east campus utilities that impacted the entire campus.
- **ESTIMATED COST**: $31.7 million

# LIBRARY – SECURE ARCHIVE FACILITY

- **PROJECT:** Construction of a climate controlled library archive facility on the Oakdale Campus. Transfer valuable UI Libraries materials to this climate controlled, secure facility.
- **PURPOSE:** Secure critical UI Library materials in a climate controlled facility at a safe location. There is no room for these materials at the Main Library or satellite UI Libraries.
- **ISSUE:** Library materials must be protected from deterioration caused by time and by natural disaster. The recent flood exposed the vulnerability of the Main Library. The Main Library and other Collegiate Libraries are experiencing severe over-crowding – both the "stacks" and materials storage areas are full.
- **FLOOD of 2008:** Flood waters threatened the Main Library forcing sand-bagging and the emergency relocation of thousands of volumes of materials, some rare and extremely fragile. The Library had water in its basement and remained closed until remedial work was completed.

- **ESTIMATED COST: $10.9 million**

# Building Re-occupation

Re-entry of buildings process

(for occupancy or additional work by contractors)

- UI Police
- Facilities Management
- Information Technology Services
- Health Protection Office
- FM Global

# Damages/Recovery Finances

## Insurance

- FM Global
  - * $1 billion/$250 million/$40 million
- Lloyds of London and AXA – Fine Arts
- National Flood Insurance Program

* * *

- FM Global policy renewal – September 1

# Damages/Recovery Finances

## FEMA

- James Lee Witt Associates, FEMA consultant
- Separate rules and independent assessments from insurance
- Individual building inspections
- Funding through Iowa Homeland Security
- Match requirement issue (25% or 10%) to be resolved

# Damages/Recovery Finances

## Initial Estimate of Damages Provided to FEMA

| | |
|---|---|
| • Building Damages | $136.20 million |
| • Building Contents | $ 55.55 million |
| • Extra Expenses | $ 15.00 million |
| • Debris Removal | $ 20.00 million |
| • Emergency Protection Measures | $ 5.00 million |
| **Total** | **$231.75 million*** |

* Does not include business interruption losses

# Damages/Recovery Finances

**Private/external support**

- Flood recovery gifts
- Research sponsors' support (NIH, NSF, HHMI)
- Charitable Foundations

# Damages/Recovery Finances

**UI Exposure**

- Deductibles/matching requirements
- FEMA ineligible expenses
- Concurrent improvements or flood mitigation

# Damages/Recovery Finances

**Financing – FEMA Reimbursements and Remaining UI Expenses**

- Amend existing Academic Building Revenue Bond authorizations
- Revenue anticipation notes
- Internal loans
- UI Enterprise debt
- UI current expense reallocations
- UI project deferrals
- Future Academic Building Revenue Bond authorizations

# Damages/Recovery Finances

**Additional expenses**

- Natural gas vs. solid fuels
- Leased space
- Business interruption losses
- Temporary boilers and chillers

# Recovery Mitigation - Long Term

**Use of consultants**

- Sasaki Associates
- Ayres Associates - National flood mitigation planning firm
- Shive-Hattery
- MMS Consultants
- IIHR – UI Hydroscience & Engineering department
- Stanley Consultants
- Individual building Engineers/Architects

# Recovery Mitigation - Long Term

- Building-by-building planning
- River corridor planning and flooding mitigation
- Coordination/consultation with Iowa City/Coralville

# Recovery Mitigation - Long Term

## Enhanced UI Processes

- Presidential approval for re-occupancy of facilities damaged by flood
- Establishment of the Flood Mitigation Task Force

# Retrospective: Review University Flood Emergency Response and Organization

- Fall 2008
- Externally facilitated retrospective
- Develop revisions to disaster response plans based upon experience
- Generalize findings beyond flood response