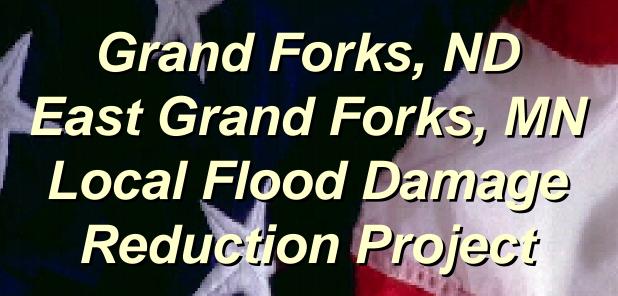
## PRESENTATION SUMMARY

- Introduction
  - Overview (M. Ryan)
    - Geography
  - Living with the Red (M. Clamen)
    - Conclusions and Recommendations
- Accomplishment's
  - Improvements in Flood Forecasting (D. Luna)
- Mitigation (Structural/non-structural/Policy/Legislation changes)
  - North of the Border
    - Manitoba (D. McNeil)
  - South of the Border
    - US Federal (J. DeHarnais)
    - US State (Dale Frink)
- Summary
  - What's next (M. Ryan)
- Questions







Presentation for the

4<sup>th</sup> International Symposium on Flood Defence

Judy DesHarnais

6 May 2008



Mitigation - US Federal





## **Presentation Summary**



- √ 1997 Flood
- **✓** Recovery Effort
- ✓ Flood Damage Reduction Project





## **Long History of Flooding**





Flooding has been an issue since the early 1800's. The top 5 flood events at Grand Forks were in 1997, 1897, 1979, 1882 and 2006.







### **1997 Flood East Grand Forks**





### **1997 Flood Grand Forks**







## **1997 Flood Grand Forks**





Mitigation - US Federal

One Team: "Relevant, Ready, Responsive, Reliable"











## 1997 Flood Damages



- √ 46,000 people evacuated
- √ 8,600 homes damaged
- ✓ Almost \$2 billion in damages









# **Emergency Levee Construction Following Flooding**









# **Road to Recovery**







## **Challenges to Recovery**

- ✓ Low-lying neighborhoods
- ✓ Historic homes along the river
- ✓ Poor soils







## Leadership



"...what makes a community a place to live in is not the buildings, it's the people. Water cannot wash that away, and fire cannot burn that away, and a blizzard cannot freeze that away. And if you don't give it away, it will bring you back better than ever."

-Mayor Pat Owens April 22,1997







## **Economic Recovery**



#### EGF "Removable" Floodwall













FAUL DISTRIC

Mississippi Valley Division Mississippi River Commission



# St. Anne's Historic Building





Mississippi Valley Division Mississippi River Commission



## Greenway







## **Riverside Dam**

#### **Before**



#### **After**





## Flood Walls and Pump Stations







## Flood Damage Reduction Project











# 2006 Spring Flood

~ 30-year event.









# Lessons Learned Summary

- Timely decisions and information are needed on recovery and rebuilding
- ✓ Embrace public involvement
- ✓ Work closely with the Project Sponsor
- ✓ Leverage resources from multiple sources
- ✓ Take the opportunity to improve the environment.
- ✓ Be open to incorporating recreation and aesthetics

