

The background of the slide is a close-up of the American flag, showing the stars and stripes. The colors are vibrant, with the red stripes and white stars on a dark blue field. In the lower right quadrant, a small, golden sandcastle is placed on the white stripes of the flag. The sandcastle has two towers and a central archway, and it is illuminated from the side, casting a soft shadow.

***DEVILS LAKE
FLOOD RISK
MANAGEMENT
PROJECT***

***Presentation
for***

PUBLIC MEETINGS

8-9 July 2008



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INTRODUCTIONS

- ✓ Corps of Engineers Team Members
- ✓ North Dakota State Water Commission
- ✓ Ramsey County
- ✓ City of Devils Lake



Gatewell at Creel Bay



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FORMAT FOR MEETING

- ✓ Please sign in and indicate if you'd like to be added to the mailing list.
- ✓ Slide Presentation
- ✓ Question and Answer Period



Placing fabric on embankment before placing rock (riprap)



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WHY WE'RE HERE

- ✓ **Corps received funding to look at what actions to take at the City of Devils Lake should the lake continue to rise.**
- ✓ **Challenge is to come up with a plan, complete the design, environmental review and real estate acquisition and allow time for implementation.**
- ✓ **Trigger points would be identified so actions wouldn't be taken until absolutely necessary.**

Embankment at Golf Course

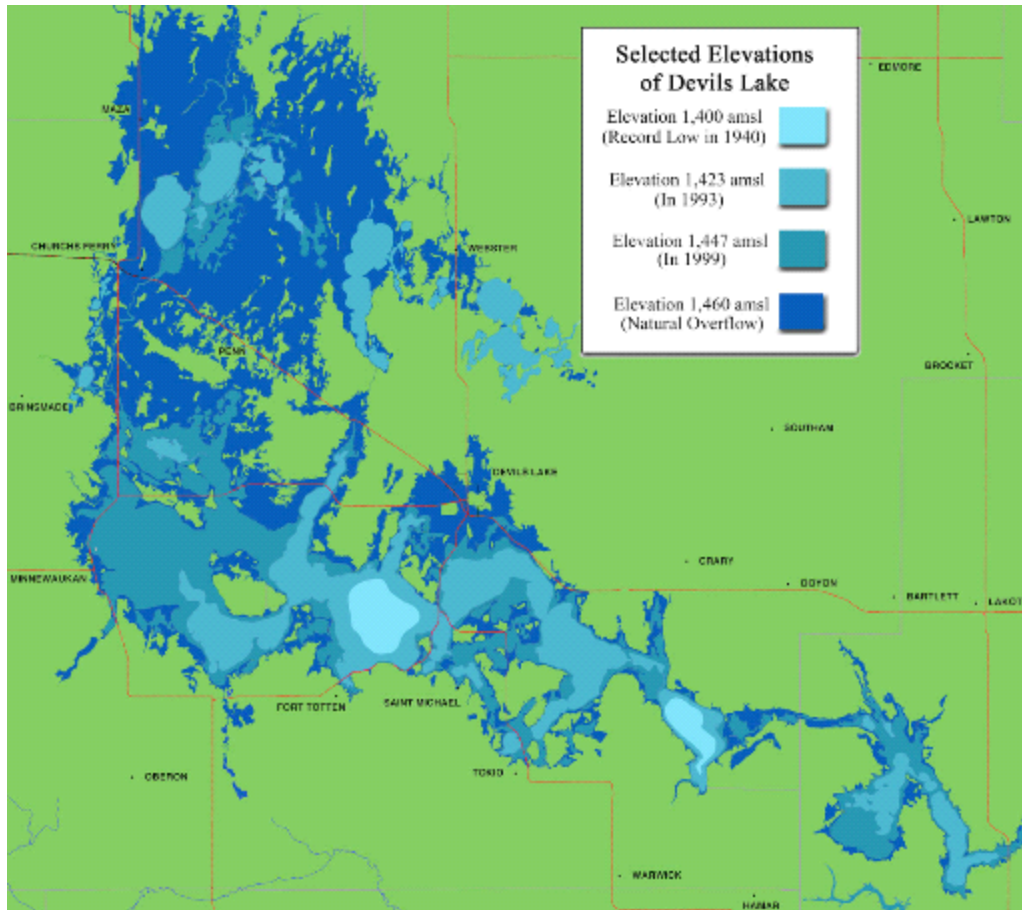




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WHAT'S HAPPENED SO FAR



- ✓ Identified Alternatives
- ✓ Obtained public feedback
- ✓ Screened Alternatives
- ✓ Eliminated Alternatives from further evaluation



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COMMENTS RECEIVED

- ✓ **Public desire is for a permanent solution to the overall lake flooding**
- ✓ **Manitoba and other downstream interests opposed to releases out of Tolna Coulee**
- ✓ **Some residents desire Tolna Coulee releases**
- ✓ **Some felt upper basin storage is the long term solution.**





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BOTTOM LINE UP FRONT



Alternatives Recommended to be Dropped from Further Consideration:

- ✓ **Upper Basin Storage**
- ✓ **Modifying elevations at Tolna Coulee.**
- ✓ **Relocating the City**



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BOTTOM LINE UP FRONT



Alternatives Recommended for Further Evaluation:

- ✓ **Embankment
Raises/Extensions**
- ✓ **Combination of Embankment
Raises/Extensions and
Relocations**





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PROJECT PURPOSE

- ✓ **The primary purpose of this project is to focus on what actions should be taken at the City of Devils Lake to reduce risk of flood damages to the city should Devils Lake continue to rise.**



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ALTERNATIVES EVALUATED



- ✓ **Future Without Condition**
- ✓ **Embankment Construction/Extension**
- ✓ **Relocation**
- ✓ **Combination of Embankments/Relocation**
- ✓ **Modifications at Tolna Coulee**
- ✓ **Upper Basin Storage**



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FUTURE WITHOUT CONDITION

- ✓ **No additional actions by the Corps at the City of Devils Lake**
- ✓ **Some interim actions may be taken by others**
 - ✓ **Road raises**
 - ✓ **Limited embankment raises or extensions**
 - ✓ **Relocations**

This is the baseline condition



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EMBANKMENT RAISE/EXTENSIONS



- ✓ Raising existing embankments and extend to high ground.
- ✓ Alignments considered could range from minimal protection to maximum protection.
- ✓ Cost: \$100 – 200 Million



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RELOCATIONS

- ✓ **Structures and facilities no longer protected by the embankment could be relocated.**
- ✓ **Could be done in increments as lake rises.**
- ✓ **Cost: \$400 Million**



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COMBINATION RELOCATIONS AND EMBANKMENT RAISE



- ✓ Embankment raise/extension
- ✓ Relocate structures not protected
- ✓ Type of action implemented in any given area based on several factors
- ✓ Cost: \$100-200 Million



East Ditch Pump Station

8/25/1998



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MODIFICATIONS AT TOLNA COULEE

- ✓ Lower Existing overflow elevation (1459)
- ✓ From as little as 2 feet to as much as 10
- ✓ An alternative design would be a gravity flow outlet from East Devils Lake

Cost: \$110 – 200 Million



Google Earth Image



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UPPER BASIN STORAGE

- ✓ Restore up to 50 % of potentially drained depressions
- ✓ About 40,000 acres
- ✓ Cost - \$54 Million





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ASSUMPTIONS

- **In the absence of developing a plan of action for the City of Devils Lake, if Devils Lake continues to rise some actions will be initiated to maintain some level of protection for the city.**
- **If the lake continues to rise to the point of overflow, some effort will be made to minimize the potential for severe erosion at Tolna Coulee**
- **No measures will be taken to elevate the existing overflow elevation at Tolna Coulee**



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ALTERNATIVE SCREENING CRITERIA

- ✓ **COST**
- ✓ **EFFECTIVENESS**
- ✓ **ENVIRONMENTAL EFFECTS**
- ✓ **SOCIAL EFFECTS**
- ✓ **ACCEPTABILITY**
- ✓ **RISK**
- ✓ **IMPLEMENTABILITY**



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COSTS



- ✓ **The First Costs of the Project.**
 - ✓ **Construction**
 - ✓ **Environmental – mitigation, monitoring, etc.**



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EFFECTIVENESS

- ✓ **Whether or not the alternative would be responsive (i.e. timely) and effective in maintaining an acceptable level of flood risk management in accordance with Corps of Engineers design criteria.**



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ENVIRONMENTAL EFFECTS



- ✓ **Direct and indirect effects on natural resources and cultural resources. Direct effects are those effects associated with the construction. Indirect effects are those effects that may occur as a result of changed environmental conditions due to the construction or operation of a project.**



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SOCIAL EFFECTS

- ✓ **Direct and indirect effects on socio-economic resources such as transportation, regional growth, public safety, employment, recreation, public facilities, and public services.**



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ACCEPTABILITY

- ✓ **Controversy and potential effects on community cohesion are indicators of acceptability. Views of other States, Nations and potential effects on Tribal Resources are also indicators of acceptability.**



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IMPLEMENTABILITY

- ✓ **Whether or not there are significant outstanding technical, social, legal or institutional issues that affect ability to implement the alternative.**



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RISK

- ✓ **The uncertainties, vulnerabilities, and potential consequences of the alternative.**



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FUTURE WITHOUT CONDITION

- ✓ Effectiveness – Low
- ✓ Environmental – High Positive/Adverse
- ✓ Social Effects – High Adverse
- ✓ Acceptability – Low
- ✓ Risk – Variable by category

- ✓ Carry Over for Detailed Evaluation – Required by NEPA Guidelines



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EMBANKMENT RAISE/EXTENSION

- ✓ Effectiveness – High
- ✓ Environmental Effects – Low adverse
- ✓ Social Effects – Moderate positive
- ✓ Acceptability – High
- ✓ Risk – Low
- ✓ Implementability – High
- ✓ Carry Over For Detailed Evaluation



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RELOCATION

- ✓ Effectiveness – High
- ✓ Environmental Effects – Low Adverse
- ✓ Social Effect – High Adverse
- ✓ Acceptability – Low
- ✓ Risk – High
- ✓ Implementability – Moderate to low
- ✓ **Drop From Further Consideration**



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EMBANKMENT RAISE /EXTENSION AND RELOCATION

- ✓ Effectiveness – High
- ✓ Environmental Effects – Low adverse
- ✓ Social Effects – Moderate positive
- ✓ Acceptability – High
- ✓ Risk – Low
- ✓ Implementability – High
- ✓ Carry Over for Detailed Evaluation



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Modify Elevation at Tolna Coulee

- ✓ Effectiveness – Low
- ✓ Environmental Effects – High Adverse
- ✓ Social Effects – High Adverse
- ✓ Acceptability – Low
- ✓ Risk – High
- ✓ Implementability – Low
- ✓ **Drop From Further Consideration**



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UPPER BASIN STORAGE

- ✓ Effectiveness – Low
- ✓ Environmental Effects – High Positive
- ✓ Social Effects – Low Adverse
- ✓ Acceptability – Moderate
- ✓ Risk – High
- ✓ Implementability – Moderate to low
- ✓ **Drop From Further Consideration**



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CURRENT SCHEDULE

- Sep 2008: Obtain Public Input**
- Dec 2008: Make Decision on Alternative**
- Apr 2009: Complete Environmental Assessment**
- Dec 2009: Begin Plans and Specifications**
- Mar 2010: Be Ready to Begin Construction**
- Sep 2012: Complete Construction**

If lake was not anticipated to rise, then plans would be shelved.

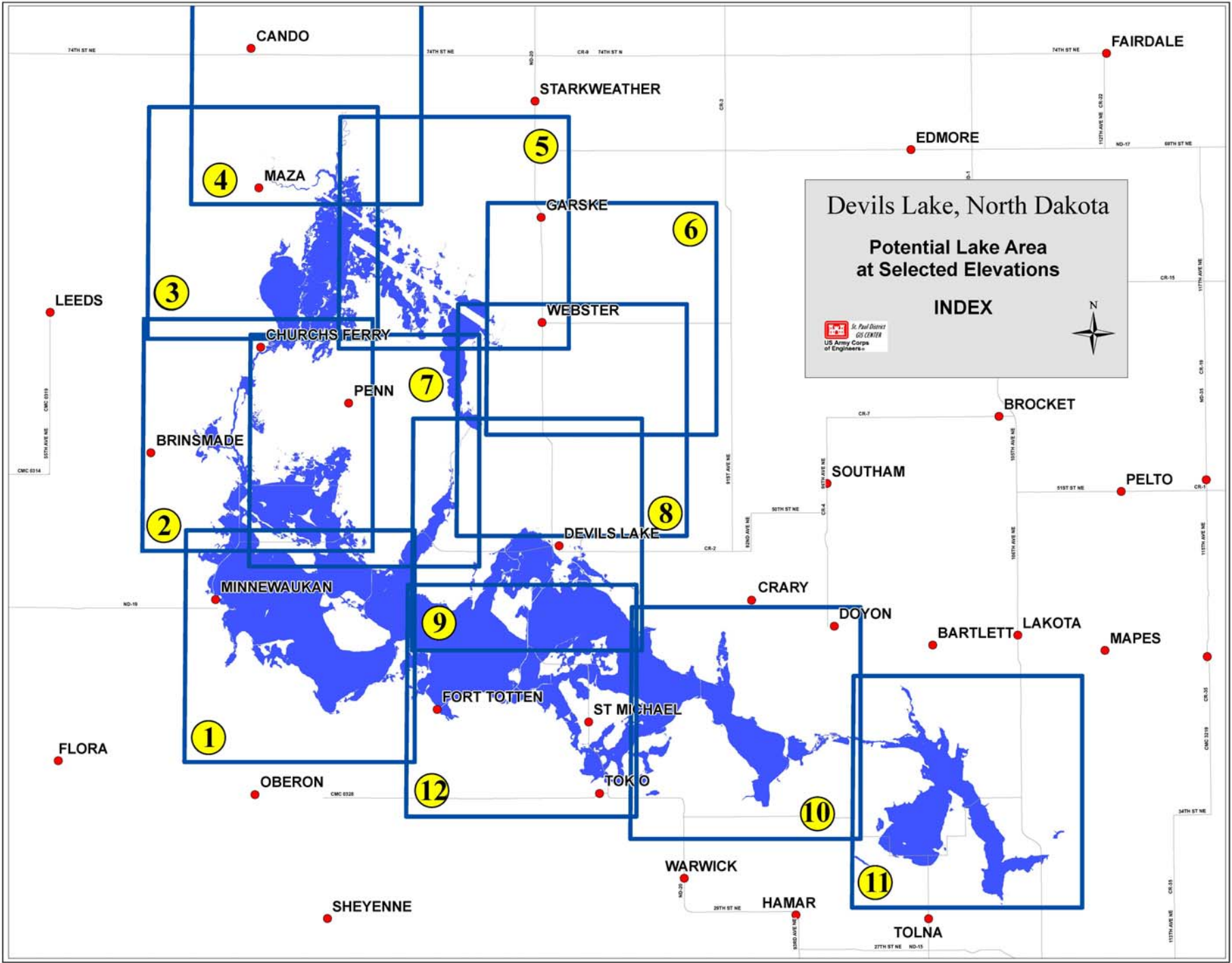


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LAKE APPROACH ONGOING



- ✓ **Coordinating lake approach with other impacted areas such as Spirit Lake Nation and Minnewaukan.**
- ✓ **Have entire basin plotted in color maps.**





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NEXT STEPS

- ✓ **Develop the remaining alternatives in greater detail.**
- ✓ **Hold public information meetings on considered alternatives and get feedback.**
- ✓ **Make decision on preferred alignment.**



Stromme's Road, Looking East From Highway 20/57

8/25/1998



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HANDOUTS AND MAPS



- ✓ **Newsletters No. 1 thru 3 mailed earlier are available.**
- ✓ **Matrix of Alternatives.**
- ✓ **Maps available online or by request.**



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CONTACTING THE CORPS



- ✓ Information on back of newsletter
- ✓ Please sign our sheet to get future mailings.
- ✓ Website: www.mvp.usace.army.mil/devilslake
- ✓ Phone numbers:
 - ✓ Kevin Bluhm 651-290-5247
 - ✓ Bonnie Greenleaf 651-290-5476
 - ✓ Cpt. Adam Rasmussen 651-290-5664



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QUESTIONS or COMMENTS?

- ✓ Please come to the podium so everyone can hear.

