



U.S. Army
Corps of
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St. Paul District

DEVILS LAKE STUDY NEWSLETTER

Issue #3, July 2008



North Dakota
State Water
Commission

July Public Meetings to Discuss Screening Document

The public meetings to be held on July 8 and 9 in the Devils Lake area are designed to review and discuss the newly complete Alternatives Screening Document. The following information in this newsletter is a brief summary of the document and shows the results in summary form. For the complete 28 page Alternatives Screening Document, please go to our Devils Lake project web site and download the pdf copy. We will also have copies of the document available at our public meetings.

ALTERNATIVES SCREENING SUMMARY

The “Emergency Supplemental Appropriations Act, 2007” provided the Corps with \$5 million to evaluate the next course of action at the city of Devils Lake should Devils Lake continue to rise. The existing embankment system at the city of Devils Lake has a top elevation of 1,460. If embankments were going to be retained as the primary approach to reducing flood risk at the city, construction would need to be initiated several years before the lake reached 1454 due to the length and magnitude of earthwork that would be involved with another embankment raise. The primary purpose of this project is to manage the risk to public safety and flood damages in the city. The expected product of this effort is to have a defined implementable plan, including plans and specifications if necessary, that can be instituted once the lake reaches a set trigger elevation with a forecast to rise further.

The purpose of the Alternatives Screening Documentation is to present the results of the screening process for the initial array of alternatives and to identify the alternatives that will be considered in greater detail.

Alternative Development: Several alternatives were identified for consideration in evaluating future possible actions at the City of Devils Lake. Input provided at public meetings and directly from stakeholders indicated a desire that the array of alternatives should include actions that would preclude the need for additional embankment raises or at least minimize the cost of the next embankment raise. The alternatives identified initially for evaluation were: Embankment Raises/Extensions, Relocation, Combination of Embankment Raises/Extensions and Relocation, Modify Elevations at Tolna Coulee, and Upper Basin Storage.

Devils Lake Study Public Meetings			
Location	Date	Time	Meeting Place
Spirit Lake Casino	Tuesday, July 8, 2008	7 p.m.	Spirit Lake Casino & Resort 7889 Highway 57, St. Michael
Cooperstown, ND	Wednesday, July 9, 2008	noon	Cooperstown City Hall 611 9th Street NE, Cooperstown
Devils Lake, ND	Wednesday, July 9, 2008	7 p.m.	Ramsey County Courthouse 524 4th Ave, Devils Lake

The meetings are expected to last two hours or less. Individuals who need directions to the meeting place or who require an auxiliary aid or service, should contact Kevin Bluhm, Corps of Engineers, by July 1 at 651-290-5247.

Alternative Screening Criteria: Screening criteria were developed to focus evaluation and design efforts on the most implementable alternatives. Given the primary focus of the project, alternatives were initially evaluated to determine if the alternative was effective in maintaining a reliable level of flood risk management at the City of Devils Lake. Other criteria include environmental effects, social effects, expected acceptability, implementability, risk and cost.

Assumptions

Several assumptions were made in evaluating the alternatives:

1. In the absence of developing a plan of action for the City of Devils Lake (i.e., the without project condition), it is assumed that if Devils Lake continues to rise, some actions will be initiated to maintain some level of protection for the city. Interim measures may involve raising the existing embankments to the extent practical. The implemented design may or may not meet Corps criteria. It is also possible that delaying design efforts may result in a plan based on expediency, not efficiency.
2. 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.

The potential adverse effects associated with an overflow are the basis for this assumption. There is some debate regarding the extent of erosion that could occur. Devils Lake is estimated to have spilled to the Sheyenne River within the last 1,200 years, and borings in the Tolna Coulee area indicate erosion did not appreciably occur at that time. However, the topography and the amount of erosion that did occur during the last overflow are unknown, and it is possible that more soil eroded than is currently in place. Analysis indicates that given the nature of the soils, should the lake rise to elevations in the range of 1,460.75 ft. (which is estimated to have a 2 percent probability of occurrence by the year 2040), there is a high potential for severe erosion to occur once an overflow from Devils Lake begins. Estimates are that, should an event of the magnitude identified using dam safety criteria (in excess of a 100-year event) occur with the initial water surface elevation at 1,459.0 ft., Tolna Coulee could erode to an elevation 1,450 with discharges in excess of 15,000 cubic feet per second and more than 900,000 cubic yards of material being eroded. Such an event would have significant effects along the Sheyenne River all the way to Lake Ashtabula, a distance of approximately 120 river miles. The water quality effects associated with such an event could continue all the way down the Red River of the North.

Screening Process Results:

ALTERNATIVE	FIRST COST (MILLIONS)	SCREENING CRITERIA		
		EFFECTIVENESS	ENVIRONMENTAL	SOCIAL
Raise/Extend Existing Embankment	\$ 100 - 200	High	Low Adverse	Mode
Relocation	\$ 400	High	Low Adverse	Hig
Raise/Extend - Relocation	\$ 100 - 200	High	Low Adverse	Mode
Modify Tolna Coulee	\$ 110 - 200	Low	High Adverse	Hig
Storage	\$ 54	Low	High Positive	Low

The maximum design elevation of the embankments is based on the assumption that actions will be taken to limit severe erosion. While it is unlikely that the exact conditions assumed would occur, it is a valid assumption for design purposes as it represents a worst case condition.

3. To maintain an acceptable level of safety for the ultimate embankment height, the current natural outflow elevation of 1,459 cannot be raised. It is assumed that no measures will be taken to elevate the existing overflow elevation at Tolna Coulee.

Alternative Evaluations and Screening Results

The Devils Lake North Dakota Integrated Planning Report and Environmental Impact Statement, dated April 2003, was a key source of information for this initial screening. That document was prepared to address the planning and analysis of alternatives to address flood damages related to rising lake levels in the flood-prone areas around Devils Lake. The study comprehensively evaluated upper basin storage, infrastructure protection and a variety of outlet options to the Sheyenne River. Extensive hydraulic, hydrologic, water quality and environmental modeling was done as part of that evaluation. While existing conditions have changed somewhat since those studies were completed, most of the information is still relevant and directly applicable to current conditions. Many of the studies completed for that evaluation were used as the source information for this initial screening.

Based on the screening criteria, the following alternatives are recommended for further evaluation: (1) Raise/Extend Existing Embankment at Devils Lake and (2) Combination Embankment Raise/Extension and Relocation. The alternatives of Relocation, Modify Elevations at Tolna Coulee and Upper Basin Storage are not recommended for further evaluation as part of this project.

Large Scale Area Maps Now Available for Entire Devils Lake Basin

Earlier this year, we put together some mapping that shows potential lake area for several specified elevations. We developed these maps for the city of Devils Lake, Minnewaukan, and the Spirit Lake Nation. We had very positive interest in these types of maps and have expanded the mapping to a total of 11 maps that cover the entire Devils Lake Basin. The intent of the maps are to give a general depiction of potential lake area at different elevations and are not designed to show specific details. Areas are representative, but not exact.

All of the maps plus an index map are going to be available at our public meetings in July. They are also available online at our Devils Lake website. These are large color pdf type files and are best viewed on a high speed internet connection. Go to www.mvp.usace.army.mil/devilslake and select the maps link on the right side of the page.

SCREENING CRITERIA				RECOMENDATION
AL EFFECTS	ACCEPTABILITY	IMPLEMENTABILITY	RISK	
rate Positive	High	High	Low	Carry Forward
h Adverse	Moderate-Low	Moderate-Low	High	Drop
rate Positive	High	High	Low	Carry Forward
h Adverse	Low	Low	High	Drop
w Adverse	Moderate	Moderate-Low	High	Drop

Next Steps for Study

July 8-9, 2008 Public Meetings: Present the findings of the screening process and which alternatives are not feasible.

July - Sept., 2008: Develop details and cost estimates for feasible alternatives.

September 2008: Present feasible alternatives in public meeting.

December 2008: Select preferred alternative.

December 2009: Complete design of preferred alternative. (May be done in stages.)

How to Get More Information

Write, call, or e-mail



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North Dakota State Water Commission
900 East Boulevard
Bismarck, ND 58505-0850

Technical reports

All past Corps technical reports associated with Devils Lake, including the Draft Integrated Planning Report/EIS, and Infrastructure Report, are available for review at:

U.S. Army Corps of Engineers, St. Paul District
www.mvp.usace.army.mil/devilslake
North Dakota State Water Commission
www.water.swc.state.nd.us



Also available on the Corps website is additional project information, background information, mailing list sign-up information, and all project newsletters.

printed on recycled paper with soy ink 

Return Service Requested

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