Report of the Federal Interagency Devils Lake Working Group

December 2010

Summary

The Devils Lake, North Dakota, region has experienced a dramatic wet cycle since 1992 that has caused the lake level to rise nearly 30 feet. The resulting flooding has negatively impacted the residents, infrastructure, and communities in the region. Additional flooding could pose an unacceptable risk of an uncontrolled overflow that could cause catastrophic flooding downstream. This report presents the results of an intensive Federal interagency effort that was initiated to assess the status of the efforts of each major Federal agency actively addressing the flooding in the area of Devils Lake and options for additional near-term actions within existing authorities. The report uses data from previous analyses to re-examine what options might be feasible to address Devils Lake flooding.

This Working Group effort involved extensive analysis by all key Federal agencies engaged in responding to flooding at Devils Lake. Led by the Army Corps of Engineers, the Working Group also included the U.S. Environmental Protection Agency (EPA), the Office of Management and Budget (OMB), and the Departments of Agriculture (USDA), Commerce, Defense, Homeland Security, Interior, Transportation, and State. The Working Group was committed to gaining an understanding of the local perspectives on these issues, and held four focus group meetings in North Dakota ("the State") – three in the City of Devils Lake and one in Valley City. The purposes of these meetings were to gather information and testimony from local and state officials and other subject matter experts, and to obtain recommendations on actions that the Federal government could undertake to assist with the problems caused by the rising lake.

The Working Group completed several specific tasks to assess the status of each agency's ongoing activities to address the flooding in the area and identified the near-term actions that could be taken within existing authorities. These tasks included:

- Identifying past and current Federal activities/programs and spending;
- identifying all available legal authorities to respond to the flooding, including those that have been used in the past and those that have not;

- compiling existing analyses of near-term and longer-term actions, including evaluating the actions raised by the North Dakota congressional delegation; and
- re-examining possible solutions using data generated from its previous analyses.

Federal agencies have already been involved in a number of initiatives to assist the population affected by the flooding, including rebuilding and elevating roads and levees; constructing dams; reimbursing local governments for damaged infrastructures; purchasing easements; relocating and buying out homes; studying the cause and modeling potential future lake levels; providing area-specific weather, water and climate forecasts; and providing assistance to farmers and local businesses. Since 1992 (when the lake started rising from an elevation of 1423 feet[1]), using at least 49 different Federal program authorities, Federal agencies have spent or committed about $852 million of Federal funding to assist those affected by Devils Lake flooding. Many of the authorities Federal agencies operate under require a local sponsor and matching contribution. As such, State and local governments have also expended hundreds of millions of dollars.

In addition to these ongoing activities, the Working Group identified and developed a number of specific actions that are underway or could be undertaken by Federal, State, and/or local agencies. The key action items are identified below.

- **To enhance the effective capacity of the State's west end outlet**

  - Water Quality Standards (WQS) on the Upper Reach of the Sheyenne River. In 2009, North Dakota relaxed the sulfate criterion for the upper reach of the Sheyenne River from 450 mg/L to 750 mg/L. The State also removed the municipal and domestic water supply designated use for this portion of the River. As a result, there are now 150 to 170 river miles downstream of the outlet where the sulfate criterion is set to protect aquatic life and agriculture rather than drinking water and is, therefore, a less stringent criterion. Coupled with an increase in the outlet's pumping capacity (from 100 cubic feet per second (cfs) to 250 cfs), the WQS revisions have meant that the

[1] All elevations referenced in this report use the NGVD29 datum, or mean sea level.

State's pumping of more Devils Lake water with higher sulfate levels to the Sheyenne River will still result in attaining the water quality standards in those portions of the river. The State also adopted a new narrative WQS to require protection of downstream standards and water supplies. These WQS changes for the upper reach were received by EPA on June 15, 2010, and EPA completed its review and approved the changes by letter on September 16, 2010.

Water Transfer Rule. Adopted by EPA in June 2008, the Water Transfers Rule (40 C.F.R. § 122.3(i)) provides that an NPDES permit is not required for a water transfer, which is defined as an activity that conveys or connects waters of the United States without subjecting the transferred water to an intervening industrial, municipal, or commercial use. On December 3, 2010, the North Dakota Department of Health provided information to EPA and indicated that the State believes that both existing and proposed outlet constitute a water transfer. As stated in a letter dated December 14, 2010, nothing in the description of the outlets provided by the State led EPA to conclude the outlets would not be a water transfer pursuant to 40 CFR 122.3 (i). As additional details of the water transfer develop or as technical planning is completed, EPA will continue to provide technical assistance to the State on the water transfers rule.

- **To prevent an uncontrolled release of water**

  - Hardening of the Tolna Coulee. The Working Group recommends that immediate consideration be given to hardening the Tolna Coulee (the natural spill point for the lake when it reaches a level of 1458) as part of a broader water management strategy that includes a review of water quality standards that address releases from the State's west end outlet. The Corps of Engineers will immediately pursue discussions with State parties to move forward with hardening the Tolna Coulee, which the Corps has concluded can be conducted under its emergency authorities if there is a willing cost-sharing partner.

- Control Structure. Such a facility might include constructing a structure to allow for controlled releases at levels below 1458 to provide the State operational flexibility. The Working Group recommends that work begin immediately on plans for a control structure to prevent an uncontrolled release of water as part of a broader water management strategy that includes enhanced capacity of the west end outlet and construction of an east end outlet that would remove additional water from the lake in an emergency to prevent an uncontrolled release of water that could have disastrous downstream consequences. The Corps of Engineers will immediately pursue discussions with State parties on how to move forward with a control structure.

- East End Outlet. The control structure should move forward in conjunction with developing an outlet to allow for controlled releases at levels below 1458 feet. This will give the State operational flexibility in the event the lake level approaches the natural spillover elevation. The State has indicated that it can construct an east end outlet that would serve as an emergency measure to remove water from the lake and prevent an uncontrolled release that could have disastrous downstream consequences. Water from this outlet could be blended with discharges of water from the west end to minimize downstream water quality impacts. The Corps of Engineers will provide technical assistance and expedite any State request for permits associated with construction of an outlet.

- Expedited Permitting. The relevant Federal agencies will provide technical assistance and expedite any necessary permitting to facilitate any effort by the State to increase the capacity of the existing State outlet. In addition, the Corps of Engineers will expedite its review of any State request for a wetlands permit to construct a pipeline to move cleaner water from Pelican Lake to the existing west end outlet or for any other permit that may be required for other projects to remove more water from the lake. Such a project (funded by the State) would improve the quality of water discharged from the outlet, which would allow more water to be discharged. To date, the State has not submitted a permit request.

- **To begin the partial relocation of the Town of Minnewaukan**

  - Impact Aid Grant. The Department of Education recently completed its review of the Town of Minnewaukan's application for an Impact Aid Discretionary Construction Grant to assist the town with the relocation of its school and has awarded $6 million to Minnewaukan for this purpose. The Impact Aid Discretionary Construction Grant Program authorizes competitive grants for emergency repairs and modernization of school facilities to certain eligible local educational agencies with a significant proportion of federally connected children, such as children of members of the uniformed services or children who live on Indian lands.

  - FEMA Hazard Mitigation. Upon a request from the State, the Federal Emergency Management Agency (FEMA) will work with the State to develop the justification for a waiver based on extraordinary circumstances of FEMA's requirement that the State have in place a Hazard Assessment Mitigation Plan before it can have access to Federal hazard mitigation grant funds. Upon a request from the State, FEMA will grant such a waiver for Minnewaukan. This action could make funds available in the near term, while the State completes and gets approval of its Hazard Mitigation Plan (the plan must still be completed within 12 months of getting funds). The State has been allocated Hazard Mitigation Grant Program (HMGP) funds as a result of recent Presidential disaster declarations and a portion of those funds not already allocated could be dedicated by the State to proceed with the relocation effort.

- **To address impacts on eligible farmers and other landowners in the Devils Lake basin whose land has been submerged by the expanding flood**

  - Contracts for Easements. The Natural Resource Conservation Service's (NRCS) Wetlands Reserve Program provides funding to protect, restore and enhance wetlands, and has a role to play in reducing water levels in Devils Lake. The 2008 Farm Bill Prairie Pothole provision under the Wetlands Reserve Program also

compensates farmers for losses from submerged land. The Administration will consider options to increase short-term contracts for easements on flooded land where water is retained, which could attract participation from landowners who prefer short-term contracts as opposed to long-term (30-Year) easements. Such actions would require legislative changes to certain Farm Services Agency and NRCS conservation programs.

- Outreach. USDA will also provide outreach to farmers and landowners to help ensure that they are aware of benefits available under its Conservation Reserve Program, which currently offers incentive payments under a Farmable Wetlands Program, and Wetlands Reserve Program, which provides funding for the protection, restoration, and enhancement of wetlands.

- Additional Measures. USDA will also work with the North Dakota Congressional delegation to develop a range of legislative options that could increase participation and enhance compensation to flooded landowners.

- **To address impacts to transportation and other infrastructure**

  - Levees. The Corps of Engineers is currently raising the levees at a cost of $125 million to provide protection to the City of Devils Lake to an elevation of 1465. The Corps of Engineers awarded the second major contract for this work in August 2010 and plans to award the final contracts later this fall in order to provide the increased protection to the City by 2012.

  - Transportation Infrastructure. The Federal Highway Administration has made funds available under the Emergency Relief Program as codified in 23 U.S.C. 125, and specific authority under Section 1937 of SAFETEA-LU for the construction of necessary measures for the continuation of roadway services or the impoundment of water to protect roads at Devils Lake. In addition, the Federal Highway

Administration is providing the North Dakota Department of Transportation a 50 percent cost share for a study to determine the effects of the rising lake levels on rail service in the Devils Lake basin.

- **To improve upper basin water storage**

  - The Extended Storage Acreage Program. The Federal government is currently having ongoing discussions with the State to continue the Extended Storage Acreage Program. This program provides funds to reimburse landowners to hold water on their property to minimize discharges to Devils Lake. Though this program is expiring, EPA is currently discussing continued participation in this program with the State of North Dakota.

  - Outreach. An important component to successful upper basin management is increased public support from landowners for the voluntary conservation programs that assist them (i.e., the Environmental Quality Incentives Program (EQIP), Wetlands Reserve Program (WRP), Conservation Reserve Program (CRP), Wildlife Habitat Incentives Program (WHIP), Agricultural Water Enhancement Program (AWEP), and Conservation Stewardship Program (CSP)). The USDA/NRCS and DOI will provide technical assistance and will develop specific goals and targets for increasing awareness and understanding of these programs and their benefits among landowners, to include goals for greater voluntary participation in these programs. The U.S. Fish and Wildlife Service, working with the North Dakota Game and Fish Department, will also provide technical assistance related to private land management to address water storage and supplement farm income.

  - Additional Measures. As noted above, USDA will also work with the North Dakota Congressional delegation to develop a range of legislative options that could increase participation and enhance compensation to landowners whose land is storing water.

- **To improve Federal, State, and local collaboration and planning**

  - Governmental Collaboration. Federal agencies will work with the State and the Spirit Lake Tribe to develop new arrangements or extend the use of existing collaborative governmental activities, such as the North Dakota Silver Jackets team, to improve how Federal, state, Spirit Lake Tribe and local agencies work together to reduce flood risk and address flood impacts, including the identification of specific lake elevation trigger points for emergency actions. To ensure close collaboration among the relevant Federal agencies and clear communication with State and local officials, the Administration will designate the Chief of the US Army Corps of Engineers to oversee efforts and ensure Federal actions are expedited to the greatest extent possible.

  - Comprehensive Watershed Management Strategy. The Working Group strongly encourages the State to develop a coordinated, comprehensive watershed management strategy that is fully integrated with the established future lake level (or lake level range), and that supports the permanent long-term recovery and sustainability of the Devils Lake basin while considering downstream interests. Federal agencies will offer the State technical assistance and participation in the preparation and maintenance of such a comprehensive strategy.

The Administration recognizes the importance of addressing flood issues in the Devils Lake area. This report identifies a series of new and ongoing actions that will provide near- and long-term efforts to help address the flooding and mitigate its impacts. Although this report concludes the interagency Working Group's review, the Federal agencies that participated in this review remain committed to developing solutions to these issues and will continue to work with the State and other stakeholders to do so.

Table of Contents

I. Description of the Interagency Review Initiative

On June 10, 2010, the Federal interagency Working Group began a Federal interagency evaluation of actions taken to date to address flooding in the Devils Lake, North Dakota area. The interagency Working Group, led by the Army Corps of Engineers, included representatives from the Environmental Protection Agency (EPA), the Office of Management and Budget (OMB), and the Departments of Agriculture (USDA), Commerce, Defense, Homeland Security, Interior, Transportation, and State.

The Federal effort included a group of policy officials from each agency and a technical working group to collect and assess information on the flooding conditions at Devils Lake, actions taken to date to address flooding, and potential additional actions. The initial policy group meeting was held on June 18, 2010 with the technical working group team kick-off following on June 22, 2010. Following the kick-off, both groups held weekly meetings.

The technical working group held focus group meetings in Devils Lake and in Valley City from July 13 through July 19, 2010, to gather information and testimony from local and State officials and other subject matter experts, and to obtain recommendations on actions that the Federal government could undertake to assist with the problems caused by the rising lake. Immediately following these focus group meetings, the technical working group considered issues and proposed actions in a meeting held in St. Paul, Minnesota on July 20-21, 2010.

To achieve the objectives of this effort within an expedited timeframe, the group identified and relied primarily on data generated from previous analyses such as technical reports and environmental impact statements. Two significant reports utilized in the effort were the 2003 Devils Lake, North Dakota, Integrated Planning Report and Environmental Impact Statement prepared by the Army Corps of Engineers, and the 1995 Devils Lake Interagency Task Force report (the "1995 Report") prepared by a task force led by the Federal Emergency Management Agency (FEMA). The 1995 Report was updated by the State during this interagency review initiative, resulting in the August 2010 "Report of the Devils Lake Basin Technical Review Team," developed by the North Dakota State Water Commission, North Dakota Department of Emergency Services, and the US Army Corps of Engineers. The Federal

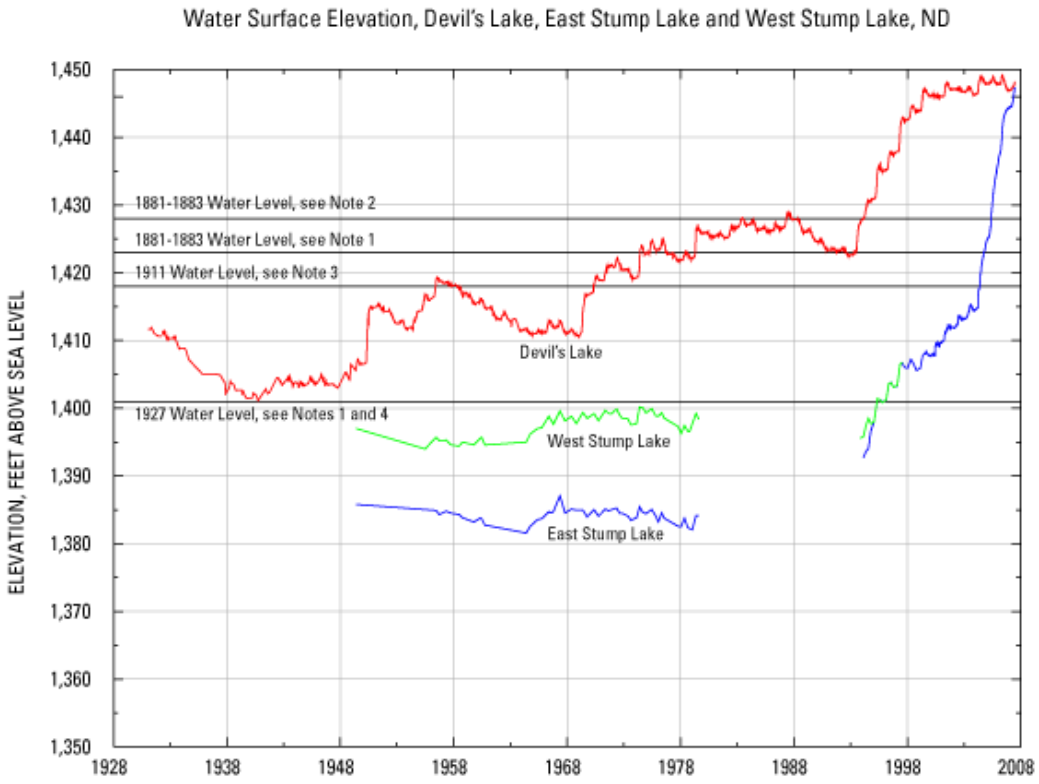
technical working group then re-examined which actions might be feasible to address Devils Lake flooding and identified authorities that would be required for implementation. The final report provides options for the Federal, State, local, and other interests that could address the flooding issues in Devils Lake. While the interagency Working Group's report does not specifically address each individual issue in the State Report, the State Report priorities helped to inform the interagency Working Group as it prepared its final report.

The interagency Working Group identified 21 potential actions that could be implemented cooperatively with local, State and other interests, many of which align with the State priorities. After evaluating these potential action items and engaging the State, local interests, and the congressional delegation, this report groups these 21 potential actions into four categories: Governance, Water Management, Infrastructure, and Risk Management. The interagency Working Group assessed the effectiveness and viability of each potential action, including the timeframe to implement, actions already underway, benefits, participants, costs, funding sources, challenges, and possible next steps. From the 21 potential actions, this report discusses the actions considered to address the most pressing issues facing Devils Lake, including actions to work with the State on water quality standards, help avoid an uncontrolled spill, assist with the relocation of the Town of Minnewaukan, provide assistance to farmers and other landowners, continue raising roads, expand upper basin storage, and improve coordination and planning on Devils Lake flooding issues.

II. Historical Context of Devils Lake Conditions

Devils Lake is located in North Dakota within Ramsey County to the north and east, Nelson County further to the east, Benson County to the west, and the Spirit Lake Indian Reservation to the south. The Town of Minnewaukan is in Benson County, on the western shore of Devils Lake.

The period 1990 through 2009 ranks as the wettest 20-year period in the Devils Lake Basin since 1895, and lake levels have risen as a result. The figure below tracks the surface elevation of Devils Lake over the past century.



The graph above from the US Geological Survey (found at http://nd.water.usgs.gov/devilslake/data/slelevation.html) illustrates how the area around Devils Lake has experienced a wet cycle since the early 1990s. While this wet cycle is not necessarily unusual in terms of the basin's geologic history, it is nonetheless unprecedented in recent times and has caused devastating flooding throughout the area.

Devils Lake is contained within a 3,810 square-mile sub-basin of the Red River of the North. As a result of rising water levels, Devils Lake has combined with Stump Lake, which together currently form a 172,000-acre closed basin lake, meaning a natural lake with no significant drainage or flow out of the lake. Water from rain and snowmelt drains into the lake from surrounding creeks, rivers and numerous surface drains, but there are no natural outflows until the lake reaches an elevation of 1458. Although Devils Lake lies within the Red River of the North-Hudson Bay drainage system, no water has flowed from the Devils Lake Basin in recorded history (since the 1830s). Instead, Devils Lake, together with adjacent Stump Lake, collects the basin's surface runoff flowing through many small coulees, lakes and man-made

surface drains. (The west end of Devils Lake collects about 86 percent of the runoff; Stump Lake at the east end collects the remainder). The runoff remains in this lake system until it evaporates, enters the groundwater table, or potentially spills into the Sheyenne River. These increases in Devils Lake water surface elevations present significant challenges, including inundation of homes and agricultural land and damages to infrastructure such as roads, bridges, water and sewer systems, and flood control systems. In addition, there are impacts on recreation access, tourism, the local and national economy, and public safety. Positive impacts include improvement in water quality and expanded fish and wildlife habitat.

The first recorded lake elevation measurements began in the late 1800s, with lake levels above 1430. The lake water surface elevation has been recorded to be as low as 1400.9 in 1940. The current elevation is 1451.41, as of September 17, 2010, down from this year's peak of just over 1452. Devils Lake began flowing into Stump Lake when it reached 1446.5 in 1999, equalized with Stump Lake and the upper chain of lakes in 2008 (see the figure above), and now has a total surface area of about 172,000 acres. If the lake reaches or approaches an elevation of 1458.0, the combined area of the lake would grow to about 260,000 acres and it would overtop the high point between the lake and Tolna Coulee and flow downstream through the coulee and Tolna Dam, to the Sheyenne River. Although not recorded during modern times, according to the North Dakota Geological Survey (NDGS), geologic evidence indicates that Devils Lake has overflowed into the Sheyenne and Red Rivers at least twice during the past 4,000 years. The last Devils Lake spill into the Sheyenne River occurred less than 2,000 years ago.

Devils Lake formed several thousand years ago at the end of the last ice age. Bottom sediments contain pollen grains and other microscopic evidence of what the climate around the lake basin was like over the past four thousand years. These sediments show a long history of cycles of wet periods and dry periods, including periods of wetness that pushed lake levels even higher than they are today.

Average precipitation across the U.S. has increased since the late 1960s, following prolonged dryness that lasted for much of the first half of the 20th century. More importantly, a narrow corridor of the Great Plains running from the Texas panhandle to southern Manitoba and Saskatchewan experienced abrupt decades-long swings between dry and wet periods. Devils Lake has been at the virtual epicenter of the most recent wet epoch, which began in 1992.

Drainage improvements in the upper basin for agriculture, transportation, development, and other uses may be contributing to quicker movement of water toward Devils Lake, but the extent to which the recent lake level rise can be attributed to increased drainage towards the lake is not known. As mentioned previously, Devils Lake has been higher than its current level several times prior to recent history.

III. Previous and Current Actions to Address Flooding and Its Impacts

Federal agencies have responded to flooding in the Devils Lake basin since the 1980s with extensive funding to: rebuild and elevate roads and levees; construct dams; reimburse local governments for damaged infrastructure; purchase easements; relocate and buy out homes; study the cause of and model potential future lake levels; provide area-specific weather, water and climate forecasts; and provide assistance to farmers and local businesses. Since 1992 (when the lake started rising from an elevation of 1423), Federal agencies working with the State of North Dakota, as well as the cities, townships, and counties surrounding Devils Lake have spent over $1 billion to address the effects of the rising lake. Federal agencies have spent or committed about $852 million of Federal funding to assist those affected by Devils Lake. The ability to provide State, local, and individual assistance is authorized under at least 49 different Federal authorities. The interagency Working Group estimates that Federal agencies have offered assistance to Devils Lake under 40 of those 49 separate authorities. Many of the authorities Federal agencies operate under require a local sponsor and matching contribution, and as such the State and local government have also expended hundreds of millions of dollars.

The table below identifies funding by agency and major activity from 1993 through 2010, followed by examples of the Federal response to date.

Federal Funding by Agency and Major Activity Through 2010		
Agency	**Activity**	**Funding** ($ millions)
USACE	Reports and Studies	13.4
USACE	Emergency Activities	54.6
USACE	Water Supply Program	7.5
USACE	Devils Lake Levee raise to elevation 1466 (ongoing)	125.0
FEMA	FEMA programs including NFIP, Public Assistance, and Individual Assistance	78.2
USDA / FSA	Flood Compensation Program	62.0
USDA / NRCS	Water Utilization	.9
USDA / NRCS	Conservation Programs	46.9
USGS	Water Monitoring, analysis, and modeling	4.7
NOAA	Warnings, Forecasts, and Data Center	.8
USEPA	Grants	.2
USEPA	Modeling and cost estimates	.15
DOI / FWS	Upper Basin management for wetlands, fish, and wildlife	6.8
DOI / FWS	Infrastructure Protection	4.8
DOI / BIA	Infrastructure Protection	80.9*
DOT / FHWA	Roads and Bridges Raises	364.1
State Dept.	Studies and Analyses	1.2
Total		**$852.2**

* The DOI/BIA amount shown here includes $80.7 million provided through DOT/FHWA. $163,000 came from the BIA's "Safety of Dams" program.

Army Corps of Engineers

The Army Corps of Engineers constructed the initial embankments to an elevation of 1445 to protect the City of Devils Lake in the 1980s. Since 1996, the Corps has raised and extended the embankments three times due to rising lake levels, at a total cost of $53 million. In 1996, embankments were raised to 1450, again in 1997 to 1457, and again in 2004 - 2005 with a top of embankment elevation of 1460. The current embankment system is about 8 miles in length along the west, south and east side of the city.

In 2009, the Corps of Engineers recognized that this embankment system created a unique situation where the embankments had both levee and dam characteristics. The Corps of Engineers prepared a design criteria report that identified the appropriate criteria for such a hybrid system and recommended the embankments be constructed to an elevation of 1466 for most sections. The Corps of Engineers is currently completing the design and construction of the embankments to 1466. The design criteria for this project include the assumption that lake level rise is limited by the current configuration of the Tolna Coulee (at elevation 1458.0). Raising the Tolna Coulee would have major consequences on the design of the embankments for the City of Devils Lake. When complete in 2012, the new embankment system will provide full protection to the City of Devils Lake to the elevation at which water would be draining through the natural overflow at Tolna Coulee. The Fiscal Year 2009 Emergency Supplemental (P.L. 111-32) provided $125 million for the Corps of Engineers to do this work.

Federal Emergency Management Agency (FEMA)

Beginning in the year 2000, FEMA bought out 76 properties in the city of Churchs Ferry and 26 additional homes in Ramsey County. As of 2003, more than 500 homes had been flooded or relocated, and this number has increased since then.

The FEMA Public Assistance Program has provided $31 million in funding for repair or replacement of public infrastructure facilities, county and township roads, public buildings, and utilities. In addition, FEMA has provided about $46 million more through its Individual Household Assistance program, the National Flood Insurance Program, risk assessments, and

other grants. Projects include road grade raises, sewer and water repair, bridge and culvert repair and protection, and debris removal projects.

Department of the Interior, Bureau of Indian Affairs (BIA)

Beginning in 1995, the Central Federal Lands Highway Division (CFLHD) and the BIA started raising BIA Routes 1, 2, 4, and 5, initially to an elevation of 1442 and later to an elevation of 1447.5. In 1998 to 2000, BIA Routes 1, 2, 4, and 18 were raised to an elevation of 1450.5. In 1999, the BIA contracted with the Bureau of Reclamation to perform dam safety hazard classifications on the roads that had been raised. These studies classified the roads that were acting as dams as having a significant hazard potential since they were not designed as dams.

Work is now underway to raise some of the roads on the reservation to an elevation of 1455 and to eliminate all "roads acting as dams". When complete, any embankment road structure acting as a dam will be designed and constructed as a dam rather than a raised road. In some cases, perimeter dams are being built to protect roads instead of raising the roads.

The Spirit Lake Tribe contracted for this work under P. L. 93-638. The work includes raising and installing dam components on 3.4 miles of roads acting as dams (BIA Routes 4 and 5) and 3.7 miles of perimeter dams. When working in wet areas, the base is constructed to a width that will allow additional work to continue raising the structures an additional 5 feet to elevation 1460 when funding allows. This latest construction started in 2009 and will continue through 2011.

As of July 2010, work to raise the Spring Lake Dam and Jetty Dam on the Spirit Lake Reservation to elevation 1455 is underway but not complete. Due to the increase in the level of Devils Lake to its current elevation, emergency measures were undertaken which included building a berm along BIA Routes 4 and 5 to provide wave protection while the work to install the dam components and raise the structure to elevation 1455 continues.

Emergency action plans have been written for the Roads Acting as Dams and dams on the Spirit Lake Indian Reservation.

Department of Transportation

In addition to the partnered involvement in addressing the Roads Acting as Dams issue discussed above, the Federal Highway Administration has provided or is in the process of providing over $350 million for projects in the Devils Lake area. Current grade raise projects are focused on getting essential roadways to an elevation of 1460. A number of bridges were previously constructed to an elevation of 1465. From 1995 to the present, Emergency Relief Program funding has been and is being used to raise roads and bridges on multiple occasions. Although a majority of the funding has come from the Emergency Relief Program, some limited funding has come from such sources as the National Highway System Program and Surface Transportation Program of the Federal-aid Highway Program. For example, the National Highway System Program and Surface Transportation Program funding was used for grade raises in 1999.

Other Agency Actions:

- The Department of Agriculture, through the Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA), has provided over $100 million to the Devils Lake area since 1992. Assistance to agricultural interests came from FSA in the form of crop loss assistance programs when lands were incapable of production due to flooding issues. Additionally, NRCS has implemented water conservation and quality practices as well as wetland protection, restoration, and improvement programs that have resulted in reduced flooding on agricultural lands and improved water quality.

- NOAA's National Weather Service (NWS) has developed enhanced hydrologic prediction capabilities that are being used to forecast flooding at Devils Lake. Plans are to use these capabilities to develop future scenarios for the area. It is through NOAA and the NWS in partnership with USGS and other Federal and State agencies that much of the science behind current and future projected conditions has been developed. NOAA recently created a website dedicated to Devils Lake: the Devils Lake Decision Support System

(www.devilslake.noaa.gov) provides up-to-date information on all of the conditions in the Devils Lake area, as well as integrated maps, data on future conditions, and links to other resources.

- The US Fish and Wildlife Service (USFWS) has supported the Devils Lake area since the early 1990s through upper basin management, infrastructure protection, and active private lands programs. The USFWS has helped to restore wetlands and grasslands in the Devils Lake Basin, often on private lands, resulting in improved upper basin management and overall environmental health and water quality. In addition, the USFWS has conducted several analyses regarding fish pathogens and other biota issues for Devils Lake.

IV. Recent Public Outreach

The Devils Lake technical working group held four focus group meetings in North Dakota, as well as a meeting with stakeholders from North Dakota and the Congressional Delegation in Washington, D.C. The purpose of these meetings was to gather information and testimony from local and State officials and other subject matter experts, and to obtain recommendations on actions that the Federal government could undertake to assist with the problems caused by the rising lake. The first meeting, which focused on individual assistance, was held July 13, 2010 at the auditorium on the campus of Lake Region State College in Devils Lake. Attendees represented the State Congressional delegation, the four primary counties within the Devils Lake basin – Benson, Nelson, Ramsey and Towner; communities within those counties; the Spirit Lake Nation; and State and congressional interests. The major topics presented at the meeting included agricultural impact, stress on residents, and challenges faced by roads that are being inundated by the lake.

The second meeting, which focused on water management, was held July 14, 2010 at the Devils Lake Armory. Attendees represented the state Congressional delegation; the Spirit Lake Tribe; the Governor's Office and state agencies; Ramsey County; Benson County; and the cities of Devils Lake, Minnewaukan, and Valley City and others. The major topics presented at the meeting included moving water off the lake as soon as possible (i.e., a gravity outlet on the east

end of the lake), the need to address water quality standards in the Sheyenne River and the Red River of the North, upper basin storage, and risk management.

The third meeting, which focused on infrastructure, was held July 15, 2010 at the Ramsey County Courthouse. Attendees represented the State Congressional delegation; the Spirit Lake Tribe; the Governor's Office and state agencies; Ramsey, Benson, Towner and Nelson counties; the City of Devils Lake; and others. The major topics presented at the meeting included lack of local matching funds, inability of grade raises to keep pace with the rising lake, deterioration of roads, expediting the review and approval of environmental and other permits, identification of wetland mitigation sites, effects on sewer and water systems, the need to move the water off the lake, and effects on the regional economy.

The fourth meeting, which focused on downstream interests, was held July 19, 2010 at the AmericInn in Valley City. Attendees represented the State Congressional delegation; State agencies; the cities of Valley City, Kathryn, Lisbon and Fargo; Barnes and Ramsey counties; and non-governmental organizations. The major topics presented at the meeting included armoring Tolna Coulee, improving upper basin management in the Devils Lake basin, water quality, water quantity (flow), and development of an emergency action plan.

Finally, officials from the Working Group met with local, State, and Federal representatives from North Dakota in a meeting hosted by the congressional delegation in Washington, D.C. on September 3, 2010. As part of this meeting, the Working Group provided updates on progress made in the various areas of focus. Federal, State, and local officials spoke to the needs of the communities and discussed various options.

V. Analysis of Possible Additional Actions

Federal agencies, with the assistance of non-governmental organizations (NGOs), academia, the State of North Dakota and the City of Devils Lake, have been working collectively to enhance their scientific understanding of factors contributing to the flooding in the Devils Lake area. This body of knowledge has been used to guide the State, local, and Federal response to the rising lake level. Many agencies involved in the drafting of this investigation have additional ongoing analyses of rising lake levels and mitigation actions to address it.

The goal of the interagency Working Group was to re-examine these analyses and develop a report highlighting which options might be feasible to address Devils Lake flooding. Drawing on all the past and ongoing analyses of Devils Lake, and information from the focus group meetings with local stakeholders, the interagency Working Group produced a list of alternative actions that could be taken to address the various issues caused by the rising lake levels. The interagency Working Group considered a full range of options, including actions to stabilize or reduce the lake level, providing upper basin storage, and protecting existing infrastructure. The group then evaluated each option's technical and economic feasibility, water quality impacts, environmental impacts, agricultural impacts, and the interests of upper and lower basin stakeholders. The group categorized the actions into four areas: Governance, Water Management, Infrastructure, and Risk Management.

A common comment received during the focus group meetings was that the lake level must be prevented from rising any further in order to avoid new hardships due to flooding and to preclude the need for any more infrastructure protection, such as road raises or embankment raises. However, the Working Group's analysis indicates that if current weather conditions persist, no such solution is realistically available without very substantial financial investments by all parties, and significant impacts on downstream ecosystems and communities. To illustrate this point, a preliminary evaluation indicates that a sustained discharge from the lake of 1,300 to 1,440 cubic feet per second (cfs) over the course of six months would be required simply to maintain a particular lake elevation from year to year with weather such as the 2009 inflow of 585,000 acre-feet (assuming 100,000 acre-feet of evaporation). For reference, the current state pumping plant has a capacity of 250 cfs and the natural flow in the upper Sheyenne River is normally characterized by very low flows (10 to 20 cfs) during the summer, punctuated by higher flows from heavy rain events. The sustained discharge of water at this level could significantly change the geomorphologic and ecologic characteristics of the upper Sheyenne River basin, as well as lead to flooding along the Upper Sheyenne River. Discharges at this level would also carry with them significant water quality issues and impacts to downstream Sheyenne River ecosystems and communities, particularly those communities that rely on the Sheyenne River for drinking water. Downstream effects would also extend to Red River of the North communities, including Canada, with potential implications for United States obligations under the bilateral Boundary Waters Treaty.

A table summarizing the 21 possible actions considered by the Work Group is appended to this report.

Based on the interagency Working Group's review of previous analyses, input from the focus group meetings, and evaluations of the various alternatives developed, three areas of future actions to address Devils Lake flooding were identified: a series of water management approaches that involve local, State, and Federal involvement; actions to proactively reduce risk to human safety; and targeted investment in infrastructure. The options identified below are actions that the interagency Working Group believes are the most viable options and have the potential to be effective in addressing Devils Lake flooding. Some of these near-term actions would be undertaken by the Federal government in conjunction with non-Federal parties, while others would primarily be the responsibility of the State and other non-Federal parties.

Governance Approaches

There are a number of current examples of collaborative governance approaches that could be further developed to help facilitate efforts to reduce or mitigate the flooding issues in Devils Lake. One such example is the North Dakota Silver Jackets team. This team is a continuously-operating, State-led, collaborative interagency team working together to reduce flood risk at the State level. Participants include the Corps of Engineers, FEMA, and other Federal, State, and local agencies that provide a unified approach to addressing any number of the State's priorities. This type of approach recognizes that no single agency has the complete solution, that each has one or more pieces, and that the committee is the forum where all agencies come together to coordinate their individual pieces to develop and implement collaborative solutions. In order to ensure close collaboration among the relevant Federal agencies continues, the Administration will designate the Chief of the US Army Corps of Engineers to oversee efforts and ensure Federal actions are expedited to the greatest extent possible. In addition, the following option is a strategic plan that could harness existing governmental entities to help guide the process.

Comprehensive Watershed Management Strategy

The State could develop a coordinated, comprehensive watershed management strategy that is fully integrated with the established future maximum lake level (or maximum range of lake levels), and that supports the permanent long-term recovery and sustainability of the Devils Lake basin while considering downstream interests. The strategy should address environmental, economic, flood mitigation, and social issues (e.g., enhanced quality of life, stable housing, education, emergency medical services, transportation, and equitable compensation), and establish goals and document accomplishments for the watershed. The comprehensive watershed management strategy must be constructed through a collaborative process to include upper basin, Devils Lake proper, and downstream interests. A strategy is necessary for the further development of action plans. To be effective, the strategy and the plans that implement the strategy need to fully consider schedules or "trigger" points for all actions to be taken in the basin, since those items control when, and if, a plan is implemented. Collaboration is critical to making these decisions. For that reason, schedules and trigger points should be among the first items included in the strategy.

The brief period for this evaluation did not allow for a complete and thorough assessment of all options, particularly longer-term options. These include such options as the east Devils Lake outlet, which could reduce the chance of an unregulated spill from the Tolna Coulee. However, in addition to evaluating other options and assessing economic, environmental, and international issues, State and Federal resource availability and fiscal constraints must be taken into consideration. Further discussions with Federal agencies and non-Federal interests to determine whether these and other options warrant further analysis and consideration are recommended. These discussions should be included as part of the Comprehensive Watershed Management Strategy.

Next Steps:

The Working Group supports and strongly encourages the development of a Comprehensive Watershed Management Strategy, and further development of action plans,

including timelines and/or "trigger" points that provide specific commitments and recommendations for actions that can be taken to address the ongoing flooding in the Devils Lake Basin. Federal agencies will provide technical assistance and participate in the preparation and maintenance of a comprehensive strategy. Also, the appropriate Federal agencies will work with the State to further develop feasible options for increasing outflow from Devils Lake. This could include options for the existing State outlet or potentially altogether new options.

Water Management

Increase the discharge on the Upper Reach of the Sheyenne River

In 2009, North Dakota increased the West outlet's pumping capacity from 100 cubic feet per second (cfs) to 250 cfs. The water quality standards (WQS) revisions have meant that the State's pumping of more Devils Lake water with higher sulfate levels to the Sheyenne River will still result in attaining the water quality standards for those portions of the river. The State also adopted a new narrative WQS to require protection of downstream standards and water supplies.

Water Quality Standards

Prior to 2009, North Dakota WQS severely restricted the volume of water that could be transferred from Devils Lake to the Sheyenne River if the water quality standards were to be attained. However, revisions to WQS first adopted by North Dakota in July of 2009 have meant that increased releases of Devils Lake water may occur while still meeting the water quality standards. Most notably, the State has revised the sulfate water quality criterion - from 450 mg/L to 750 mg/L - for the upper reach of the Sheyenne River. Under the relaxed standard, there are 150 to 170 river miles downstream of the outlet where the revised 750 mg/L sulfate criterion applies. Tributary and groundwater inflows dilute the river within this reach, and Lake Ashtabula (a 70,000 to 80,000 acre-foot reservoir formed by Baldhill Dam) is located at the bottom of this reach. Although outlet releases generally increase sulfate levels in the river, concentrations diminish with distance downstream from the outlet. The 450 mg/L sulfate criterion applies beginning 0.1 miles below Baldhill Dam. The change to the sulfate criterion for

the upper reach was adopted by emergency rulemaking procedures in July of 2009, and again by the State Health Council on April 28, 2010 as part of the WQS triennial review required by the Clean Water Act (CWA). Coupled with an increase in the outlet's pumping capacity (from 100 cfs to 250 cfs), the WQS revisions have meant that the State may pump more Devils Lake water to the Sheyenne River via the constructed outlet while still attaining the water quality standards for those portions of the river.

The EPA has worked collaboratively with the State in its effort to review and revise the WQS for the upper reach of the Sheyenne River, an effort which resulted in the standards adopted by the State Health Council on April 28, 2010. The WQS changes for the upper reach were received by EPA on June 15, 2010, and EPA completed its review and approved the changes to the WQS for the upper reach of the Sheyenne River by letter on September 16, 2010.

Next Steps:

On November 2, 2010, EPA convened a meeting with the State of North Dakota and the State of Minnesota to discuss the water quality effects of water conveyed to the Sheyenne River. To help provide a strong scientific basis for understanding the water quality effects of conveying water, the USGS is currently modeling the specific impacts of additional flows out of Devils Lake on downstream sulfate levels.

The U.S. Department of State is engaged in ongoing discussions with North Dakota, Manitoba, and Canadian Federal governments to discuss issues of mutual concern. The issue of Devils Lake flooding was also included on the agenda of the International Red River Board meeting at Devils Lake on September 14-15, 2010.

Additionally, the Working Group understands that the State is exploring options under the Water Transfer Rule. Adopted by EPA in June 2008, the Water Transfers Rule (40 C.F.R. § 122.3(i)) provides that an NPDES permit is not required for a water transfer, which is defined as an activity that conveys or connects waters of the United States without subjecting the transferred water to an intervening industrial, municipal, or commercial use. On December 3, 2010, the North Dakota Department of Health provided information to EPA and indicated that

the State believes that both existing and proposed outlet constitute a water transfer. Based on EPA's response of December 14, 2010, nothing in the description of the outlets provided by the State leads EPA to conclude the outlets would not be a water transfer pursuant to 40 CFR 122.3 (i). As additional details of the water transfer develop or as technical planning is completed, EPA will continue to provide technical assistance to the State on the water transfers rule.

Increase Upper Basin Storage

Much of the watershed in the Devils Lake basin has been drained for agricultural production, with an estimated 95,000 to 189,000 acres of wetlands drained in the Upper Basin of Devils Lake. Drainage and improvement of drainage conveyances continue today. These landscape changes have impacted water storage, increased velocity and frequency of flow, and reduced water quality.

Upper Basin water storage, including on private and public lands, could be increased through a number of means, including reduced soil tillage and increased residue management practices, wetland restoration, wetland enhancements, developing storage in upper basin coulees, drainage water management, small water control devices and embankments, and converting cropland to permanent vegetation. In addition, voluntary easement programs can provide restoration and protection of wetlands and grasslands for flood management for this and future events.

These voluntary conservation actions to increase Upper Basin storage could provide private landowners, including Native Americans and farmers, with funding that could help with costs and damages associated with flooding issues. Implementation would include outreach and education efforts with Devils Lake basin stakeholders on the opportunities, needs and benefits of increased Upper Basin Storage.

<u>Next Steps</u>:

The Working Group concludes that an important component to successful Upper Basin management is an increased level of public support from landowners for the voluntary conservation programs that assist them (i.e., the Environmental Quality Incentives Program

(EQIP), Wetlands Reserve Program (WRP), Conservation Reserve Program (CRP), Wildlife Habitat Incentives Program (WHIP), Agricultural Water Enhancement Program (AWEP), and Conservation Stewardship Program (CSP)). The USDA/NRCS and DOI will provide technical assistance and will develop specific goals and targets for increasing awareness and understanding of these programs and their benefits among landowners, to include goals for greater voluntary participation in these programs. Similarly, the U.S. Fish and Wildlife Service and the North Dakota Game and Fish Department, which also have private land programs that can address water storage and supplement farm income, will also provide technical assistance related to land management.

Initial assistance for wetlands restoration in the Devils Lake area was provided through the Water Bank Program. The Conservation Reserve Program currently offers incentive payments under a Farmable Wetlands Program to allow enrollment of up to 20 acres on farms impacted by flooding with short-term contracts. Currently, the NRCS Wetlands Reserve Program provides funding for North Dakota and the Devils Lake area, and the Working Group agrees that this program has a role to play in reducing water levels in Devils Lake. USDA will also work with the North Dakota Congressional delegation to develop a range of legislative options that could increase participation and enhance compensation to flooded landowners.

The Federal government is currently having ongoing discussions with the State to continue the Extended Storage Acreage Program. This program provides funds to reimburse landowners to hold water on their property to minimize discharges to Devils Lake. Though this program is expiring, EPA is currently discussing continued participation in this program with the State of North Dakota.

North Dakota stakeholders have voiced the need to continue and to expand successful programs for water storage in the Upper Basin. In addition, some have expressed a need for additional actions that would provide compensation to farmers that have been subjected to losses due to flooding. There is a possibility to address this need by creating programs to pay for short- and long-term or perpetual flood protection. Additionally, there are numerous lands that have been inundated that could be purchased in fee or easement, compensating landowners for floodwater storage in the future. Innovative programs could provide for both long term

floodwater storage and economic gain by allowing farm income or tourism focused activities when lands are not flooded.

Pipeline from Pelican Lake to Round Lake

The North Dakota State Water Commission has completed some preliminary scoping and design work for this alternative to draw water from the Pelican Lake on the west side in order to provide relatively "clean" water to substantially dilute outlet discharges during summer and fall from the State's existing outlet. Further analysis is needed to determine the optimal pipeline route, but it would require construction of a pump station and approximately 15 miles of pipeline extending from Pelican Lake southwest to Highway 281, and then following more or less along the highway to the existing pump station. Also, as part of the review and permitting process, scientific evidence regarding species of concern and organisms associated with this project would need to be considered. If required, a biota filtration system would add significantly to both the construction costs and annual operations and maintenance costs.

Next Steps:

The Corps of Engineers has committed to expedite its review of any request from the State for the permits that would be necessary to carry out this option, or additional options to increase outlet capacity. The Corps of Engineers estimates that it would take about two years to conduct all of the necessary design work associated with this project. The Corps of Engineers is available to provide technical assistance to the State as needed to help the State develop its plans.

East Devils Lake Outlet

One option that could potentially reduce the rate of lake level rise, and in some scenarios even reduce lake levels, is the construction of an outlet at the east end of the lake. This type of outlet has been considered in past reports and could include the construction of a gravity flow outlet and channel from east Devils Lake along Black Slough to Tolna Coulee. Relying on gravity flow, it would be significantly less costly to operate and maintain.

A major concern with the east Devils Lake outlet proposal is that releases from the outlet would be constrained by considerations of downstream flooding; also problematic is that the water toward the east end of the lake is of even lower quality than that on the west side. These water quality and quantity constraints are already a limiting factor for the existing State outlet. With regard to the State outlet, it is important to understand that the State has voluntarily operated the outlet so as to not cause exceedances of the State water quality standards. In addition, as with the Pelican Lake pipeline proposal, there may be concerns over species of concern, which, if necessary, could be addressed by installation of a suitable filtration system.

Next Steps:

The Corps of Engineers will continue coordination with the potential project sponsor(s) regarding the desirability of this project. The Corps of Engineers and USGS will also assess the downstream channel and possible means to maximize its carrying capacity. If any of the above actions will enable more water to be moved from the lake to the Sheyenne River, the Corps of Engineers will work with the State to determine whether its existing authority (Section 208 Continuing Authority) for limited channel clearing and excavation might be useful in helping to deal with downstream flooding and erosion concerns. As noted above, if the state moves forward with constructing an outlet, the Corps of Engineers is available to provide technical assistance as needed and will work to expedite its review of any request from the State for permits that would be necessary to carry out this option.

Continued Targeted Investment in Infrastructure

The interagency Working Group identified several options that highlight the ongoing and future work that will help to protect critical infrastructure in the affected Devils Lake areas. In general, funds have typically been made available under the Emergency Relief Program, and specifically under Section 1937 of SAFETEA-LU for the construction of necessary measures for the continuation of roadway services or the impoundment of water to protect roads at Devils Lake. In addition, the State of North Dakota has used a limited amount of its regular Federal Aid

Highway formula funds provided under Title 23, which average about $200 million (obligation limitation) annually, for infrastructure needs in the Devils Lake area. The Federal Highway Administration provides Federal funding to states for improvements to roads qualified as part of the Federal Aid highway system for projects identified in State and local plans. Examples of major Federal Highway Administration programs include the National Highway System Program, Surface Transportation Program, the Highway Bridge Program, and the Highway Safety Improvement Program. The Federal Highway Administration and the Department of Transportation will continue working with the State to raise eligible roads, using funds that may be made available through the Emergency Relief and Emergency Relief for Federally Owned Roads programs, including Section 1937 of SAFETEA-LU as appropriate.

Utility Relocations

Various Federal agencies, including the Corps of Engineers, FEMA, and the Department of Agriculture are authorized to provide assistance for replacement or relocation of utilities that are adversely affected by flooding due to the rise of Devils Lake. FEMA is currently working with the State and local applicants to identify potential projects.

Roads Acting as Dams

This alternative includes the Section 1937 of SAFETEA-LU funding for projects to modify Roads Acting as Dams and to construct associated perimeter dams to protect both roadways as well as those areas that would otherwise flood. In past years the culverts under several roads were plugged and the roads were raised to prevent the waters of Devils Lake from flooding even more land. Currently, the FHWA has assembled a multi-agency team to address these safety issues for critical roads in the Devils Lake area. Construction is currently underway to raise roads on dams and to build perimeter dams to protect the roads. This will raise the structures to an elevation of 1455 and is 49 percent complete.

<u>Next Steps:</u>

The remaining $10 million of Section 1937 funding is available in fiscal year 2011, and will be used to increase the elevation of perimeter dams and roads until funds are exhausted.

Risk Management

The Working Group identified both structural and non-structural approaches to managing the risk of flooding in Devils Lake.

Structural Risk Management:

Harden Tolna Coulee Outlet

Based on current conditions, and assuming the State outlet operates at 250 cfs, the USGS estimates there is a three percent chance of an overflow at the Tolna Coulee outlet within three years, and an eight percent chance of an overflow in 20 years. This option includes the design and construction of measures to maintain the structural integrity of the coulee and prevent erosion of the outlet in the event that the lake continues to rise, including environmental and cultural mitigation actions. A preliminary analysis, completed in 2001, analyzed the hydraulic and geotechnical parameters of the outlet area. This analysis indicated that given the nature of the soils, should the lake rise to elevations in the range of 1460.75, there is a high potential for severe erosion to occur that could degrade the Tolna Coulee down to an elevation of 1450.0. Should this occur, it could result in a very large and uncontrolled release of water downstream. This would result in flooding with an extended peak flow in many towns along the Sheyenne River. It would also have major impacts on water quality and aquatic life on the Sheyenne and Red Rivers.

The interagency Working Group understands that hardening Tolna Coulee to prevent erosion would benefit downstream residents in North Dakota, Minnesota, and Canada by preventing a potentially catastrophic failure of the natural outlet; and that residents in the Devils Lake area oppose hardening the outlet unless more can be done to remove water from the lake and slow potential future lake level rises. Therefore, the interagency Working Group believes

this option can only be considered in conjunction with additional outlet capacity for moving water off the lake either through enhanced releases from the State outlet or other outlets.

Based on the Corps' preliminary analysis in 2001 that a major lake rise has a high potential to cause severe erosion that would degrade Tolna Coulee and have catastrophic downstream impacts, and due to the relatively high risk of an overflow based on current lake levels and modeling by USGS, the interagency Working Group recommends that a control structure at the east end of Devils Lake be designed and built to prevent an uncontrolled overflow and that the structure be designed in a manner that could allow for controlled releases of water to be blended with water from the State outlet.

Next Steps:

The Corps of Engineers has concluded that it has existing emergency authority under P. L. 84-99 to carry out the hardening of the Tolna Coulee if requested by the State of North Dakota. The Corps of Engineers estimates that it would take approximately three years to complete the project, including necessary interagency coordination, the Project Information Report (PIR), NEPA documentation, negotiations with the non-Federal cost-sharing partner, and design and construction. Initial funding to develop contingency plans for Tolna Coulee has already been provided under P.L. 84-99 Advance Measures. The Corps of Engineers' preliminary estimate to design and construct the hardening of the outlet, based upon a conceptual plan with no design, is $15 to $20 million. Approximately $20 million would also be required for real estate and cultural and environmental mitigation, for a total cost of about $35 to $40 million.

It is recommended that this alternative be given immediate consideration for implementation and that the Corps of Engineers continue discussions with local stakeholders about this option and prepare a Project Information Report (PIR). Discussions will include consideration of incorporating design features for future operational capability as discussed in the State Report. All associated costs, including design, permitting, and NEPA compliance would be the responsibility of North Dakota. These actions would allow the Corps of Engineers to begin immediately to obtain the necessary NEPA documentation for the project, pending

further review. The Corps will work in consultation with CEQ to expedite the environmental review process.

The Working Group recommends that the Corps of Engineers immediately begin working with the State on plans for a State-built control structure to prevent an uncontrolled release of water as part of a broader water management strategy that includes enhanced capacity of the west end outlet and construction of an east end outlet that would remove additional water from the lake in an emergency to prevent an uncontrolled release of water that could have disastrous downstream consequences. The Corps of Engineers will immediately pursue discussions with State parties on how to move forward with a control structure. If the State moves forward with constructing a control structure, the Corps of Engineers is available to provide technical assistance as needed and will work to expedite its review of any request from the State for permits that would be necessary to carry out this option.

Non-Structural Risk Management:

Acquire/Relocate Imperiled Structures

Acquisition/relocation of imperiled structures could permanently reduce the flood damage risk by moving these structures to a higher elevation, as designated by the sponsoring agency. FEMA's Hazard Mitigation Assistance grants can be applied through the State to acquire and/or relocate imperiled structures from high-risk areas to safer grounds. However, funding is limited and a special appropriation would be needed to achieve appreciable results.

Structures eligible for acquisition/relocation are typically seriously impacted or have a threat of becoming impacted by rising lake levels. This option would offer willing homeowners a non-structural opportunity to reduce their risk before they suffer damage, and would avoid future damage when the lake reaches this level again.

The Town of Minnewaukan could potentially be considered for relocation as part of this alternative. This would require planning, engineering, real-estate acquisition, utility and municipal construction, relocation of structures, and willing property owners in the community to participate in the relocation.

Next Steps:

The Department of Education recently completed its review of the Town of Minnewaukan's application for an Impact Aid Discretionary Construction Grant to assist the town with the relocation of its school and has awarded $6 million to Minnewaukan for this purpose. The Impact Aid Discretionary Construction Grant Program authorizes competitive grants for emergency repairs and modernization of school facilities to certain eligible local educational agencies (LEAs) with a significant proportion of Federally connected children, such as children of members of the uniformed services or children who live on Indian lands.

FEMA is assisting State and local officials in the development of a Multi-hazard Mitigation Plan. This plan is a requirement for local communities to receive mitigation grants from FEMA. Hazard mitigation grants are available to the State to assist local communities in their mitigation efforts. FEMA does have the authority to waive this requirement for up to a year for the Hazard Mitigation Grant Program (HMGP). This requires the Governor or the Governor's Authorized Representative to request "extraordinary circumstances" for the given community. FEMA has worked to ensure the State has a full understanding of these requirements and waivers, and, upon request from the State, will grant such a waiver for Minnewaukan. The HMGP grant is administered by the State and the State sets the priorities for funding local mitigation projects. The State has been allocated HMGP funds as a result of recent Presidential disaster declarations and a portion of those funds not already allocated could be dedicated by the state to proceed with the relocation effort.

In addition, two USDA programs, the Community Facilities and the Water and Wastewater Grants and Loans programs, also offer financial assistance that could help with acquisitions and relocations. For example, the Community Facilities program offers grants, loans and loan guarantees for development of essential community facilities including schools, libraries, medical clinics, assisted living facilities, fire and police stations, and community centers for areas of 20,000 people or fewer. The direct loans and grants apply a means-test to qualify for funding. The Water and Wastewater Grants and Loans program provides funds to low-income rural communities of 10,000 or fewer people. The program finances drinking water, sewer, solid waste disposal, and storm drainage facilities through direct or guaranteed loans and grants. In order to qualify, applicant communities must be unable to finance their needs through

their own resources or with credit from commercial lenders. Priority is given to loans serving smaller communities that have greater financial need, based on criteria such as median household income, poverty levels, and size of service population. USDA is available to provide technical assistance as needed for both of these programs.

Prepare Multi-County Evacuation Emergency Operations Plans

This option would have the State lead preparation of a multi-county evacuation and mass care annex to existing emergency operations plans that will address downstream flooding along the Tolna Coulee and Sheyenne River drainage below Devils Lake.

Next Steps:

The Working Group recommends that local communities along the Sheyenne River begin work immediately with the North Dakota Department of Emergency Services and County Emergency Managers to develop a collaborative and comprehensive evacuation and mass care annex to existing Emergency Operations Plans. The annex will address safety and life-sustaining actions to support evacuation, sheltering, feeding, and operations in the event of flooding through Tolna Coulee and on the Sheyenne River downstream from Devils Lake. Since Devils Lake has been a closed basin, existing plans most likely do not address potential flooding resulting from discharges out of Devils Lake. Federal agencies are available to provide technical assistance to help in preparation of such plans.

APPENDIX: Possible Actions Considered

Option	Category	Description
Devils Lake Executive Committee (DLEC)	Governmental Collaboration	Create a committee which would be the forum for all agencies that have responsibilities and authorities related to proposals and recommendations on projects, plans and ongoing actions affecting the Devils Lake watershed and those downstream. The formal committee would provide continuity for an interagency approach to planning and implementing measures to reduce the risks associated with flooding in the Devils Lake basin and vicinity.
Devils Lake Collaborative Working Group (DLCWG)	Governmental Collaboration	Create a comprehensive working group representing all basin stakeholders to develop and recommend direction and actions to the Devils Lake Executive Committee (DLEC). Members of the committee would include senior working staff from Federal, tribal, State, local government, the International Joint Commission (IJC) (observer status), Canada (observer status), NGOs and private interests.
Comprehensive Watershed Management Strategy	Governmental Collaboration	Develop a coordinated, comprehensive watershed management strategy that is fully integrated with the established future lake level (or lake level range), and that supports the permanent long-term recovery and sustainability of the Devils Lake basin while considering downstream interests. The strategy would address environmental, economic, flood mitigation, and social issues (e.g., enhanced quality of life, stable housing, education, emergency medical services, transportation, and equitable compensation), and establish goals and document accomplishments for the watershed.
Development of the Multi-Purpose "Pelican Bay Recreation and Wildlife Area"	Governmental Collaboration	This proposed park/wildlife area would encompass an area of significant size between Minnewaukan and Lake Alice Flats. This alternative would provide acquisition opportunities to local landowners, thereby creating an opportunity to increase recreation and tourism to assist in maintaining or improving economic growth in the Devils Lake Basin. In addition there would be an opportunity to have State and Federal agencies manage an area for recreation, wildlife and tourism.
Consider Options for Revising Water Quality Standards	Water Management	Review downstream water quality standards (WQS), and consider only WQS revisions that are legally and scientifically defensible and that would comply with Clean Water Act (CWA) requirements. This alternative includes review of the downstream WQS applicable to the Sheyenne River and the Red River.
Harden Tolna Coulee Outlet at Elevation 1458.0	Water Management	Construction of a structure on the upper end of Tolna Coulee that would allow significant flows to pass over the high point of Tolna Coulee without eroding the channel. This alternative includes environmental and cultural mitigation. This would provide assurance that if Devils Lake was to continue to rise up to or above the natural outflow elevation at Tolna Coulee, it would not result in erosion of the outlet and the potentially catastrophic flooding associated with such erosion.

Option	Category	Description
East Devils Lake Outlet	Water Management	Construction of a gravity flow outlet and channel from East Devils Lake along Black Slough to Tolna Coulee. This alternative includes environmental, downstream users and cultural mitigation. This alternative would slow potential future lake level rises.
Pipeline from Pelican Lake to Round Lake	Water Management	Construction of a pump station and approximately 15 miles of pipeline extending from Pelican Lake to the existing pump station at Round Lake. This alternative includes environmental, downstream users and cultural mitigation. This alternative could maintain the total State Outlet capacity at the current level (250 cfs), with 100 cfs coming from Pelican Lake and 150 cfs coming from West Bay, or could potentially increase the State outlet capacity to 350 cfs. This alternative would improve the overall water quality being pumped from Devils Lake to the Sheyenne River to allow for greater outflows from an East Devils Lake Outlet.
Increase Upper Basin Storage	Water Management	Increase Upper Basin water storage by soil tillage and residue management practices, wetland restoration, converting cropland to permanent vegetation, wetland enhancements, wetland protection and within coulee storage. Storage could also take place on existing State and Federal lands within the basin and there may be sites for small dam construction. Increased incentives for storage could be made available to secure the delivery of water and land management on private lands. Compensation programs would assist with land restorations, water retention and water management practices.
Increase Sheyenne River Channel Capacity	Water Management	Increase the Sheyenne River channel capacity to allow bank full flow up to 800 cubic feet per second. Presently, the Sheyenne River channel capacity is approximately 600 cfs, although average flows are much lower and often less than 50 cfs. The additional capacity would permit greater releases from Devils Lake.
Construct Biota Filter for Devils Lake Outlets	Water Management	Construction of water treatment facilities to filter biota for discharges from the existing State Outlet and/or for the East Devils Lake Outlet. The facilities would be designed to handle a maximum flow of 250 cfs from the State Outlet and 800 cfs from an East Devils Lake outlet.
Control Structure on Jerusalem Channel between East Devils Lake and Stump Lake	Water Management	Construction of a gated control structure on Jerusalem Channel between East Devils Lake and Stump Lake to regulate flow into (and hence out of) Stump Lake. This alternative would control the rate of erosion and reduce severity of flooding downstream by reducing the rate of outflow and allowing it to occur over a longer period of time.
Construct Diversion from Edmore Coulee to Tributaries of the Red River of the North	Water Management	Construction of a diversion through the Edmore Coulee (in the northeast part of the upper basin of Devils Lake) to tributaries of the Red River of the North (Forest River, Pembina River, etc.).

Option	Category	Description
Non-Structural Hazard Reduction: Acquisition/Relocation of Imperiled Structures	Water Management	Acquisition/relocation of imperiled structures, which would permanently reduce the risk by moving these impacted structures to a higher elevation. This activity would offer willing homeowners a non-structural opportunity to reduce their risk before they suffer damage, and would avoid future damage if the lake reaches this level again. The Town of Minnewaukan could potentially be relocated as part of this alternative.
Fully Fund Roads Acting as Dams Project	Infrastructure	Increase levels of funding for the Federal Highway Administration (FHWA) and Bureau of Indian Affairs (BIA) activities in Devils Lake to modify roads acting as dams and construct associated other embankments. The increased funding allocation would allow construction to proceed to a level of protection that is sufficiently higher than the lake could reach (1466 feet).
Road Raise Contracts to 1460	Infrastructure	Provide funds for existing construction contracts on Federal aid roads which are currently being raised to elevation of 1460.
Modify Road Raise Contracts and Provide Additional Contracts to 1465	Infrastructure	Obtain authorization and funding to modify existing road raise contracts to elevation 1465. The roads eligible for Federal-aid highway funding include all critical Federal aid system roads (State and county roads that are major collector and above, but not township and lower classification county roads). The elevation to which the roads would be raised is based on protecting roads from inundation and wave action, and would be consistent with the elevation that has been used for bridge replacement construction (1465) previously completed.
Utility Relocations	Infrastructure	Use existing authorities (the Section 594 North Dakota Environmental Infrastructure Program and the Stafford Act) to repair, replace or relocate utilities that are adversely affected by flooding due to the rise of Devils Lake.
Railroad Embankment Raises	Infrastructure	Raise existing railroad embankments effected by the rising lake. The level of protection is based on protecting the railroad from wave action and being overtopped by the lake. The elevation would be consistent with the elevation proposed for critical roadways in the Devils Lake basin.
Prepare a Multi County Evacuation and Mass Care Annex to Existing Emergency Operations Plans	Risk Management	Prepare a multi county evacuation and mass care annex to existing emergency operations plans that will address downstream flooding along the Tolna Coulee and Sheyenne River drainage below Devils Lake. Multi county evacuation and mass care planning will address life safety and sustainability in the event of flooding from an uncontrolled release of water from Devils Lake. Planning would provide guidance and protocol for emergency response/action during an event.
Additional Observations for Emergency Preparedness	Risk Management	Enhance the current environmental monitoring network in and around Devils Lake to observe key structural and atmospheric conditions that would allow for better preparedness for both the upper and lower basin. Such observations would help in short term flood emergency response and longer term mitigation and adaptation planning.