
FINDING OF NO SIGNIFICANT IMPACT

THE DEVILS LAKE, NORTH DAKOTA ROADS-ACTING-AS-DAMS PROJECT ND ERFO 1(992) PHASE II



**PREPARED BY
FEDERAL HIGHWAY ADMINISTRATION, CENTRAL FEDERAL LANDS DIVISION
AND BUREAU OF INDIAN AFFAIRS, GREAT PLAINS REGIONAL OFFICE**

MAY 2008

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U.S. DEPARTMENT OF TRANSPORTATION

Federal Highway Administration
Central Federal Lands Highway Division

FINDING OF NO SIGNIFICANT IMPACT

for

The Devils Lake, North Dakota Roads-Acting-as-Dams Project
ND ERFO 1(992) Phase II

This Finding of No Significant Impact is submitted pursuant to:
42 U.S.C. 4332 (2)(c) and 49 U.S.C. 303

The Federal Highway Administration, Central Federal Lands Highway Division, has determined that this project, for which Alternatives 1-A, 2-D, 3-A, and 4-B have been selected, will have no significant impact on the human or natural environment. Principal areas of public controversy have been addressed, and there are no major unresolved issues outstanding. This finding is based on the Environmental Assessment, coordination with State and Federal agencies and consultation with the Spirit Lake Nation, public involvement, and applicable laws, executive orders, and regulations. The Environmental Assessment, with clarifications contained herein, accurately and adequately discusses the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. The Finding of No Significant Impact/Revised EA and *de minimus* Section 4(f) evaluation lists environmental commitments to be carried out by the FHWA and the BIA in order to minimize unavoidable impacts. The Environmental Assessment provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The Federal Highway Administration takes full responsibility for the accuracy, scope, and content of the following Environmental Assessment.



F. Dave Zanetell, P.E.
Director, Project Delivery

05 JUNE 2008

Date

In Cooperation With:

Bureau of Indian Affairs, Great Plains Regional Office
Spirit Lake Nation
North Dakota Department of Transportation
U.S. Army Corps of Engineers

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U.S. DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs
Great Plains Regional Office

ADOPTION OF THE FINDING OF NO SIGNIFICANT IMPACT

for

The Devils Lake, North Dakota Roads-Acting-as-Dams Project
ND ERFO 1(992) Phase II

The BIA finds it is in the public interest to adopt the EA and incorporate, by reference, information contained in FHWA's FONSI as the basis for its own FONSI. The BIA has reviewed the EA, FHWA's FONSI, and supporting documentation and finds that these documents meet the requirements for EAs and FONSI set forth in: 40 CFR 1500 to 1508; and related environmental laws, executive orders, and implementing regulations. Based on this review, the BIA concurs and adopts FHWA's findings, conclusions, and recommendations contained in their EA and FONSI. The BIA agrees that the proposed project will result in no significant impacts and that an Environmental Impact Statement is not required in accordance with Section 102 (2)(c) of the National Environmental Policy Act of 1969 42 USC 4332 (2)(c). Mitigating measures, including site-specific stipulations, will be used to lessen impacts on environmental resources and the human environment.



Rod Cavanaugh
Superintendent Fort Totten Agency
Great Plains Region

June 5, 2008

Date

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SPIRIT LAKE NATION
and
**NORTH DAKOTA DEPARTMENT OF
TRANSPORTATION**

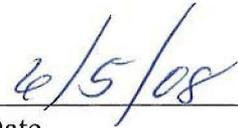
STATEMENTS OF SUPPORT

for
The Devils Lake, North Dakota Roads-Acting-as-Dams Project
ND ERFO 1(992) Phase II

The Roads-Acting-as-Dams Project is vital for the continuation of roadway services in the St. Michael area of the Spirit Lake Nation Reservation. As members of the Project Delivery Team, we have been involved in project planning and design since the inception of this project. By signing below we indicate that we have been involved in the project process, the Environmental Assessment adequately analyzes impacts to the human and natural environment, and we concur with the preferred alternative decision of Alternatives 1-A, 2-D, and 3-A.



Myra Pearson, Tribal Chairwoman,
Spirit Lake Nation



Date

The Roads-Acting-as-Dams Project is vital for the continuation of roadway services in the Acorn Ridge and St. Michael areas of the Devils Lake Region. By having staff representatives as part of the Project Delivery Team, we have been involved in project planning and design since the inception of this project. By signing below we indicate that we have been involved in the project process, the Environmental Assessment adequately analyzes impacts to the human and natural environment, and we concur with the preferred alternative decision of Alternatives 1-A, 2-D, 3-A, and 4-B.



for _____
Francis Ziegler, P.E., Director
North Dakota Department of Transportation



Date

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**ENVIRONMENTAL ASSESSMENT
AND
Section 4(f) Evaluation
FOR THE
DEVILS LAKE, NORTH DAKOTA
ROADS-ACTING-AS-DAMS PROJECT
ND ERFO 1(992) PHASE II**



**PREPARED BY:
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
LAKEWOOD, COLORADO**

LIST OF ACRONYMS USED IN THIS DOCUMENT

AST	aboveground storage tank
BGEPA	Bald and Golden Eagle Protection Act
BIA	United States Bureau of Indian Affairs
BMPs	best management practices
BOR	United State Bureau of Reclamation
Camp Grafton	Camp Grafton Training Center
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DES	North Dakota Department of Emergency Services
EA	environmental assessment
EIS	environmental impact statement
ERFO	Emergency Relief for Federally-owned Roads
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FE	Federally endangered
FEMA	Federal Emergency Management Agency
FHWA, CFLHD	Federal Highway Administration, Central Federal Lands Highway Division
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FT	Federally threatened
GIS	geographic information systems
HGM	Hydrogeomorphic
ITA	Indian Trust Assets
LEDPA	Least Environmentally Damaging Practicable Alternative
NAGPRA	Native American Grave and Repatriation Act
NDNG	North Dakota National Guard
NDDOT	North Dakota Department of Transportation
NDDOH	North Dakota Department of Health
NDGF	North Dakota Department of Game and Fish
NE	no effect (to threatened and endangered species)
NEPA	National Environmental Policy Act
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resource Conservation Service
NWS	National Weather Service
PDT	Project Delivery Team
PST	Project Support Team
RAAD	road-acting-as-a-dam
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users
SHPO	State Historic Preservation Officer
SLN	Spirit Lake Nation
SWC	North Dakota State Water Commission
SWDS	solid waste disposal sites
TDS	total dissolved sulfates
TERO	Tribal Employment Rights Office
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WPA	waterfowl production area

U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division

In Coordination with
Spirit Lake Nation
U.S. Bureau of Indian Affairs
U.S. Army Corps of Engineers, St. Paul District
North Dakota Department of Transportation

**ENVIRONMENTAL ASSESSMENT
AND SECTION 4(f) EVALUATION**
Pursuant to 42 U.S.C. 4332(2)(c) and 49 U.S.C. 303

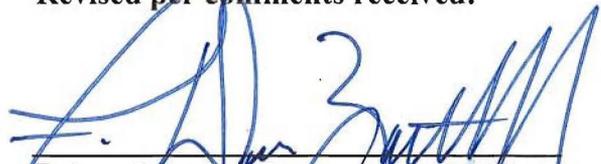
For the
**Devils Lake, North Dakota Roads-Acting-As-Dams Project
ND ERFO 1(992) Phase II**



F. Dave Zanetell, P.E.
Director, Project Delivery
FHWA, Central Federal Lands Highway Division

1 Nov 2007
Date

Revised per comments received:



F. Dave Zanetell, P.E.
Director, Project Delivery
FHWA, Central Federal Lands Highway Division

05 JUNE 2008
Date

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Clarifications or Corrections to the EA

The following are clarifications, corrections, or additions to information provided in the EA.

Location	Resolution
Global Change	Global change from “St. Michael Interior” to “Commonly protected area” as per request from SLN.
Pages 11-12	In Table 1-1: SLN business license language was corrected.
Page 52	Vegetation—an estimate of the overall impact was added and mitigation wording was changed to reflect the need for further coordination on this issue.
Page 52	Wildlife—wording was added to address impacts to wetlands and woodlands.
Pages 56,57,59	Tables 3-1, 3-2, 3-3 updated to differentiate between effect to Tribal trust land and allotted trust land.
Pages 57, 62, 82, 87, 94, 101	Figure 3-2 replaced to update the outline of the commonly protected area. FHWA realized that we had inadvertently included two blocks to the eastern side of the area which should not have been part of the commonly protected area. Tables 3-2, 3-8, 3-11, 3-13, 3-16 were also updated to reflect the corrected acreage.
Page 69, 136	Indirect effects under “Transportation” were updated to include potential damage to haul roads.
Page 81	Two additional residences were noted in the commonly protected area. Table 3-7 was updated to reflect the change.
Page 86	Table 3-10 was updated to correct a transposition between State and Federal lands.
Pages 88, 101, 137	Language referring to transfer of ownership of land under “mitigation” that stated that, “under this option, these landowners would no longer retain ownership of their land” was deleted. Impacts to each property will be evaluated based on the particular situation and the appraisals will reflect the proposed compensation. Evaluation of impacts of the project will occur on a case-by-case basis.
Page 99	Calculation errors on tables 3-15 were corrected.
Pages 120-122, 138	In Chapter 3 “Cultural Resources”, language was added related to effects to traditional cultural or medicinal plants.
Pages 80, 137	The potential effects of changes in groundwater were added to the section on “Relocation” and to Chapter 4.
Page 127	For materials sources, language was clarified to state that a contractor would have to coordinate with FHWA to provide mitigation for unavoidable impacts to resources at materials sources.

Location	Resolution
Page 145, 153	Language in the 4(f) section (Chapter 5) was clarified regarding the presence of easement tracts adjacent to the proposed project.
Chapter 6	Chapter 6 was expanded to include more information on collaboration/ consultation with SLN, and to add coordination meetings which have occurred since the EA was released for public review.
Chapter 7	Chapter 7 was added, which includes a summary of public comments and comment letter received, with responses where appropriate.

Abstract

Devils Lake in north central North Dakota has steadily risen 26 feet in elevation over the past several years, from 1423 feet in 1992 to a high of 1449 feet in May, 2006. Devils Lake is anticipated to continue to rise over the next decade, flooding property, communities, and transportation systems until the water level reaches 1,459 feet at which time the water begins to flow into the Sheyenne River. During the last 14 years, local government agencies in the area raised portions of roads and plugged their culverts in an effort to protect properties and the transportation system. These roads include North Dakota State Highways 20 and 57 and U.S. Bureau of Indian Affairs Roads 1, 2, 4, and 5. The roads were not designed or constructed as dams to impound water, and they pose a threat to human health and safety, particularly as the roads are raised to prevent overtopping by the rising waters of Devils Lake. Because additional raises of these roads-acting-as-dams are not eligible for regular federal funding, Congress earmarked \$70 million in the 2005 transportation bill, "Safe, Accountable, Flexible, Efficient, Transportation Equity Act – A Legacy for Users," to address the safety concerns associated with these roads-acting as-dams.

The Central Federal Lands Highway Division of the Federal Highway Administration in cooperation with the Spirit Lake Nation, U.S. Bureau of Indian Affairs, U.S. Army Corps of Engineers, the FHWA North Dakota Federal Aid Division, and the North Dakota Department of Transportation are proposing safety improvements described and evaluated in this Environmental Assessment to address the geotechnical and hydraulic deficiencies associated with these roads-acting-as-dams.

Due to the number of different roads-acting-as-dams that need to be addressed, the project area was divided into four zones, Zones 1 through 4, and build alternatives were developed to address the roads-acting-as-dams in each zone. This Environmental Assessment evaluates the effects of build alternatives as well as the No Action Alternative for each Zone. Alternatives 1-A, 2-D, 3-A, and 4-B have been identified as the preferred alternatives.

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APPENDIX A FHWA MEMORANDA TO NDDOT AND BIA

APPENDIX B SECTION 1937 OF SAFETEA-LU

APPENDIX C 10-17-07 HYDRAULICS REVISED MEMORANDUM

APPENDIX D AVAILABLE TECHNICAL REPORTS

APPENDIX E ESTIMATED INUNDATION IMPACTS TO RESIDENCES

APPENDIX F ESTIMATED RIGHT-OF-WAY ACQUISITION IMPACTS TO RESIDENCES

Introduction

A. Background

Devils Lake (the Lake) is a closed sub-basin located in north central North Dakota (**Figure 1-1**). According to geological records, the Lake has fluctuated between nearly empty and overtopping its basin since glaciation. Due to a current wet climate cycle, the Lake has been steadily rising since the year 1940, with a dramatic 26-foot increase since the year 1993 (**Figure 1-2**). Because North Dakota has relatively flat topography, lake level increases are accompanied by dramatic increases in surface area, causing flooding. The Lake has increased from a historic low of 1,400

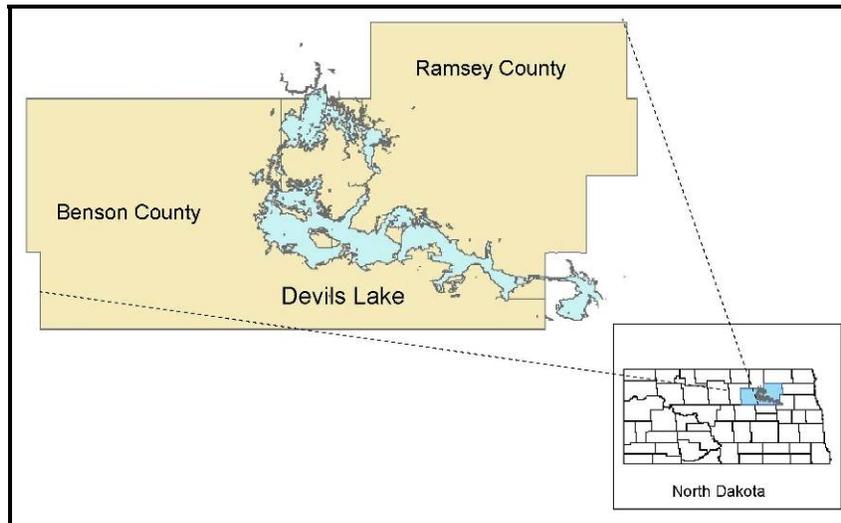


Figure 1-1. Devils Lake Location within North Dakota

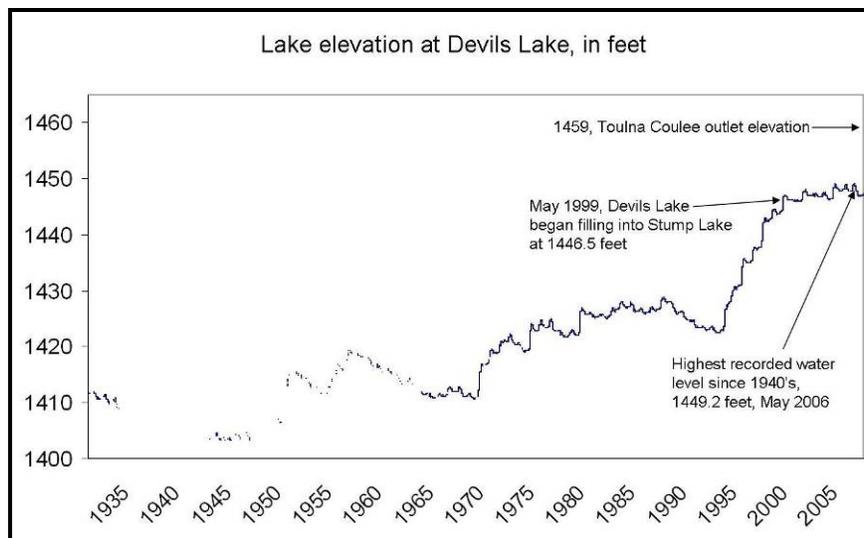


Figure 1-2. Devils Lake Water Surface Elevation 1930–2007 (USGS gage data)

feet in the 1940s, covering approximately 6,400 acres, to a high of 1,449 feet in May 2006, covering 140,199 acres (USGS 2007c).

In the year 1999, at the approximate elevation of 1,446 feet, Devils Lake began to fill nearby Stump Lake (Figure 1-3). As of early 2007, Stump Lake was at an elevation of 1,445 feet and matched the elevation of Devils Lake, 1,447 feet, during the summer of the same calendar year (NOAA 2007). If the current wet climate cycle continues, water levels in both lakes are anticipated to continue rising until the water level reaches a natural outlet, the Tolna Coulee, to the Sheyenne River at an elevation of 1,459 feet. Both lakes would eventually cover a surface area of approximately 274,486 acres (USGS 2007c).

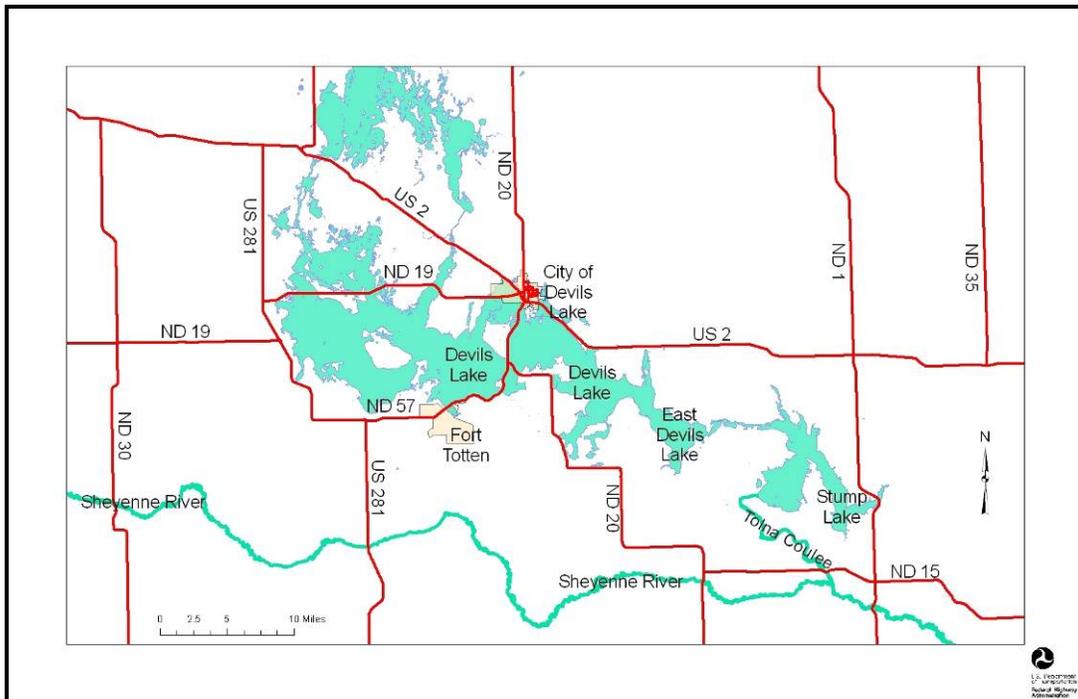


Figure 1-3. Devils Lake

The rising lake levels have inundated properties and communities, including transportation systems; and great efforts have been taken by federal, state, and local governments to respond to flood events and address the threat of future flooding. Over \$450 million has been spent on such efforts so far in the Devils Lake basin (NDSWC 2007), including the relocation of homes. Benson County reported 177 homes were relocated (FHWA 2007b). Of these, an estimated 171 were relocations that occurred on privately held lands within Spirit Lake Nation (SLN). In addition, 29 homes on U.S Bureau of Indian Affairs (BIA) trust lands were relocated for a total of 200 homes relocated within SLN (FHWA 2007b). In Ramsey County, 450 homes have been relocated (FHWA 2007b). The North Dakota National Guard's (NDNG) Camp Grafton Training Center (Camp Grafton) has had one structure flooded and demolished (Tabor 2007). Other efforts to prevent or reduce flood damage include constructing/raising of perimeter dams, raising roads, developing water storage projects, and moving rail lines and utilities (1997 Congressional Hearings).

As a part of these efforts, some roads have had their culverts plugged so that they will impound water and then have been raised multiple times as Devils Lake rises. This has created concerns for the stability of the existing roadway system, the safety of the traveling public, and the safety of those individuals currently sheltered by those roads that are impounding water. Because the roads-acting-as-dams (RAADs) were not originally intended to function as dams, the design of these roads did not involve the features typically associated with dams (e.g. seepage berms, clay cores, etc.); nor did their construction involve the necessary construction methods and quality of material typically used when constructing a dam. As a result, at the current lake levels, there is concern that these RAADs have an increased likelihood of failing, disrupting the regional transportation network, and flooding areas currently being protected (*BOR 1999*). Also, should waters rise as predicted, overtopping of the RAADs continues to threaten to disrupt the regional transportation network (**Photo 1-1**).



Photo 1-1. Inundation of BIA Road 5 in the spring of 1997 prior to the road being raised in 1999 and again in 2006 to an elevation of 1,452 feet

Initially, federal funds were used to raise the federal and state RAADs in response to the rising waters of Devils Lake. However, it was brought to the attention of the Federal Highway Administration (FHWA) in late 1999 that these federal and state RAADs were not designed and constructed as dams, nor had they received the necessary approval by the appropriate agencies with authority in dam design and construction. The Code of Federal Regulations (CFR), Title 23, part 650, section 115 requires that roads impounding water must receive approval from an agency responsible for the safety of dams such as the U.S. Army Corps of Engineers (USACE), the U.S. Bureau of Reclamation (BOR), or the BIA, or a state agency such as the North Dakota State Water Commission (SWC). However, it was determined that the existing RAADs could not be approved without major modifications (*Interagency Task Force 2000* and *NDDOT 2001*). The FHWA notified both the North Dakota Department of Transportation (NDDOT) and the BIA that federal funds may no longer be used on raising those portions of the federal and state RAADs, until they are either designed and reconstructed to safely impound water and are approved by an appropriate dam-building agency, or culverts are installed so that water may equalize on both sides of the road. Until this occurs, the NDDOT and the BIA have to use other

funding to perform work on these RAADs (**Appendix A**). Neither jurisdiction has the funding available to finance the necessary grade raises without federal assistance.

Based on a review of past coordination efforts and discussions with the government agencies that have been working on the RAADs issue, federal and state RAADs have been identified in two areas (*Interagency Task Force 2000, NDDOT 2001, and FEMA 2002*). These two areas are located in Benson and Ramsey counties (**Figure 1-4**). The St. Michael area, within the

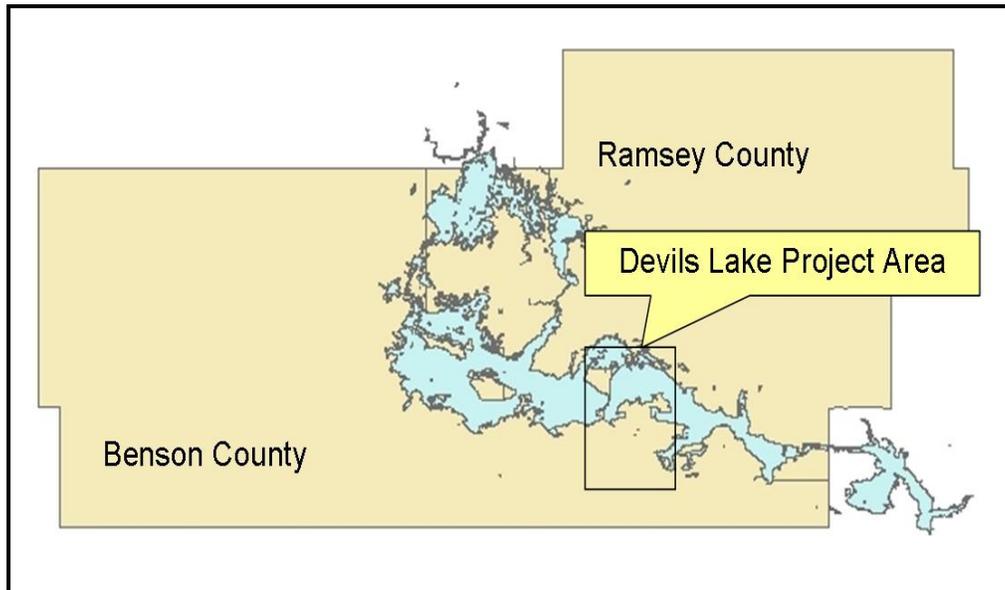


Figure 1-4. Project Area within the Devils Lake Area

boundaries of the SLN, is the area of concern in Benson County. In Ramsey County, the area of concern is Acorn Ridge, which includes Camp Grafton (*FEMA 2002*) (**Figure 1-5**). The specific federal and state roads of concern that are acting as dams are portions of BIA Routes 1, 2, 4, and 5 and North Dakota State Highways 20 and 57. These RAADs are currently protecting from inundation approximately 30 miles of the regional transportation network including portions of BIA Roads 6, 9, and 16 in the St. Michael area and Military Road in the Acorn Ridge area.

In May 2000, an interagency task force comprising representatives from federal, tribal, state, and local agencies issued a report identifying alternatives for addressing the safety concerns associated with the RAADs and the funding needed to implement these alternatives (*Interagency Task Force 2000*). Subsequent reports and technical briefings were prepared by the Federal Emergency Management Agency (FEMA) and the NDDOT refining the alternatives presented in the May 2000 interagency task force report and underscoring the need for funding given the prohibition of using federal funds on RAADs (*NDDOT 2001 and FEMA 2002*). With the passage of the transportation bill, the Safe Accountable Flexible Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), in 2005, Congress directed the Secretary of Transportation, in Section 1937, to use a total of \$70 million to “construct such measures as the Secretary determines to be necessary for the continuation of roadway services, or the impoundment of water to protect roads, or both, at Devils Lake in the State of North Dakota” (**Appendix B**).

Project Zones



Figure 1-5. Devils Lake Project RAADs

B. Agency Teams

Following the passage of SAFETEA-LU, a Project Delivery Team (PDT) was assembled to develop appropriate measures to address the RAADs issue. The PDT members are those entities that have a role in developing and/or approving the National Environmental Policy Act (NEPA) document and/or the engineering plans for the proposed project. These team members include the SLN, the BIA, USACE, the NDDOT, the North Dakota Federal Aid Division of the Federal Highway Administration (FHWA-ND), and the Central Federal Lands Highway Division of the Federal Highway Administration (FHWA-CFLHD). Throughout the rest of this document, “FHWA” will refer to “FHWA-CFLHD” unless otherwise noted. The PDT identified the FHWA as the lead agency for this document and the preliminary design given its experience in working with multiple local, state, and federal agencies that own and maintain roads.

Other entities are participating in addressing the RAADs issue and function as the Project Support Team (PST). These agencies include FEMA, Benson County, Ramsey County, the SWC, the City of Devils Lake, NDNG, and the North Dakota Department of Emergency Services (DES).

The PDT, with input from the PST, determined that there would be two projects—

Phase I Emergency Project – The primary intent of the Phase I Emergency Project was to address some of the more immediate, pressing issues regarding safety and overtopping by raising some perimeter dams and some of the RAADs to an elevation of 1,452 feet and improving the embankments to safely impound water. Phase I construction was completed in the fall of 2007.

Phase II – A long term project(s) involving the design and construction of measures to 1) reduce the safety threat currently being posed by the RAADs to the regional roadway network and the properties afforded protection by these RAADs and, 2) ensure safe roadway access to the St. Michael and Acorn Ridge areas at the maximum lake elevation.

With respect to compliance with NEPA, the Phase I Emergency Project was designed and constructed under an emergency designation. Given the emergency designation, the Phase I Emergency Project was classified as a categorical exclusion in accordance with 23 CFR 771 and 23 CFR 625 and was completed in June of 2006.

This document evaluates the impacts associated with the Phase II Project. In consultation with the PDT and the PST, and based on public and agency scoping meetings (**Chapter 6**), it was determined that an Environmental Assessment (EA) was needed to identify and evaluate impacts the proposed project would have to the following social, economic, and environmental resources:

- Social and Economic Resources including—
 - Transportation
 - Utilities
 - Relocation
 - Land Use and Ownership

- Agricultural Land
- Prime, Unique, and Important Farmland
- SLN Trust Assets
- Economic Resources
- Social Resources
- Environmental Justice
- Wetlands and Waters of the U.S.
- Water Quality
- Floodplains
- Threatened and Endangered Species
- Cultural Resources
- Hazardous Materials
- Visual Quality
- Section 4(f) Resources

C. Assumptions

Responding to the rising water of Devils Lake is a complex issue due to the involvement of multiple agencies, the presence of international issues and political concerns, and the fact that it involves a dynamic natural environment and weather patterns, requiring the use of predictions to make important decisions. In order to complete a concise and logical analysis of alternatives and their effects in this document, the following assumptions were used.

1. Outlet

Devils Lake will naturally outlet into the Sheyenne River through the Tolna Coulee at an elevation of 1,459 feet. There have been proposals to construct another outlet so that Devils Lake might begin outletting at a lower elevation to reduce inundation in the Devils Lake and Stump Lake areas. One outlet has already been constructed by the SWC, but is not operating at full capacity due to water quality concerns. The USACE has proposed another outlet, but the implementation of this outlet has been stalled indefinitely due to concerns expressed by Canada, which would ultimately receive the water, and questions concerning whether the benefit-cost ratio supports the building of this outlet. Given that operation of either outlet is unknown for the reasonably foreseeable future, it will be assumed in this document that the federal outlet will not be constructed or operational and the operation of the state outlet will have minimal impact on lake levels.

There have also been discussions about lowering the existing outlet at Tolna Coulee to reduce the maximum lake elevation or raising the outlet to prevent Devils Lake from outletting at 1,459 feet. The FHWA has concluded for purposes of this document that these discussions are speculative and, therefore, do not warrant consideration in the analysis. As a result, the FHWA will assume that no action will be taken to lower the existing natural outlet or to prevent the Lake from outletting when it reaches 1,459 feet. This issue is discussed further in Chapter 2 in the section “Alternatives Considered but Dismissed from Further Analysis.”

2. Effects of this Project on Lake Levels Elsewhere

Should all of the RAADs be constructed as dams, the resulting displaced water in the rest of the lake would likely cause the lake to reach the outlet elevation of 1,459 feet less than four days sooner than if the roads were not acting as dams and displacing the water. This was determined using 120-day inflow studies prepared by the USACE (*USACE 2007*) which showed that the dams would displace approximately 130,000 acre-feet of water at that time the Lake begins outletting through the Tolna Coulee. With the total volume of Devils Lake at the outlet elevation of 1,459 feet to be approximately 4,866,283 acre-feet, the volume of water displaced by the RAADs at this elevation is approximately four percent of the total volume. Therefore, the effect of the proposed project on the overall lake levels in other portions of the Lake is negligible (**Appendix C**).

3. Predictions and Probabilities

Deciding how to best address the concerns associated with the effects of the rising lake levels on the regional transportation system requires some consideration of the predicted future lake levels. The elevation of Devils Lake responds directly to the climate variability, which occurs when the jet stream circulation patterns shift. Being a closed basin, Devils Lake is particularly sensitive to these circulation shifts as the lake level depends on many years of prior precipitation, runoff, or evaporation (*USGS 2000b*). Essentially, predicting future water levels of Devils Lake is based on predicting future weather conditions.

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) provides short-term probability predictions of lake levels based on climate forecasts and other factors (*NOAA 2007*). These predictions extend to less than one year and while they are helpful for short-term planning, they provide little useful information on which to base long-term planning activities necessary for addressing the regional transportation infrastructure concerns of the project area.

Predicting the long-term weather patterns (longer than 50 years) is accompanied by a great deal of uncertainty. However, the general consensus of the scientific community is that the wet cycle currently causing Devils Lake to rise will continue. While there is a great deal of disparity as to the extent the wet cycle will impact the precise elevation of Devils Lake, the U.S. Geological Survey, the USACE, and the University of North Dakota Regional Weather Information Center all appear to agree that the wet cycle will continue through 2015, thereby causing the Lake to continue to rise as well (*Osborne 2000, USGS 2000a, USGS 2000b, USGS 2002, and USACE 2003*).

This assumption that the wet cycle will continue also appears to be accepted by the various federal, tribal, state, and local governments within the Devils Lake basin. In its 2004 EA for the relocation of US 281, the NDDOT assumed that the lake levels will continue to rise thereby warranting the relocation of US 281 (*NDDOT 2004*). In 2006, FEMA released a programmatic EA addressing treatment of roads, other than those addressed in this document, should the Lake continue to rise (*FEMA 2006*). The USACE is currently working with the City of Devils Lake to determine how best to address the current Devils Lake levee system around the city should the Lake continue to rise. The

SLN was instrumental in securing the SAFETEA-LU funding from Congress to address the regional transportation concerns associated with the rising Devils Lake waters. Also, U.S. Senator Byron Dorgan is in the process of forming an interagency committee to evaluate issues faced by the entire Devils Lake basin area should the Lake continue to rise as anticipated.

Based on this information, the PDT has agreed to assume that the Lake will continue to rise. To assume otherwise is not a viable option due to the enormous potential monetary and social costs the local communities would face in terms of lost regional transportation infrastructure should the Lake continue to rise and nothing is done.

4. Existing Structural Deficiencies Requiring Treatment

The RAADs are at risk of failure under the current conditions because they were originally designed and constructed only to act as roads, not as dams to impound water. These RAADs impound water only because the culverts were plugged. The original embankments were likely constructed on glacial materials, which function well in dry conditions, but not as dams because glacial materials permit seepage paths and internal erosion of the embankment (*BOR 1999*). Also, the RAADs were not constructed with impermeable clay cores or filters typically used on dam embankments to prevent cracking, seepage, and piping. Without these critical features, the RAADs can begin to erode internally, which would ultimately cause the embankment to fail. Even if the Lake were to stop rising and no additional road raises were needed, the risk associated with these RAADs failing still warrants correcting their structural deficiencies.

In addition to these safety concerns, work needs to be done on these RAADs so that they will once again be eligible for normal federal transportation funding. Until the RAADs are either reconstructed as dams and approved by a state or federal dam-building authority, or they are fitted with culverts so that the water may equalize, federal funds, other than those set forth in SAFETEA-LU, may not be used on these RAADs, thereby creating a large financial burden on the local, tribal, and state agencies responsible for maintenance of the roadway.

D. Decision Process

Preliminary environmental scoping indicated the impacts the proposed project would have to the social, economic, and environmental resources listed under Section 1.B of this chapter are unknown and, therefore, an EA should be prepared. Upon final review of the impacts, the FHWA will determine whether the environmental consequences of the proposed action require preparation of an Environmental Impact Statement or a Finding of No Significant Impact (FONSI).

E. Environmental Assessment Content and Development

This EA evaluates several alternatives including the No Action Alternative and several build alternatives for ensuring a long-term, safe transportation network in the Devils Lake region. Chapter 1 discusses the purpose and need for the proposed project. Chapter 2 describes the alternatives. Chapter 3 describes the affected environment and gives an analysis of the environmental consequences for each alternative. Chapter 4 reviews the mitigation to be

implemented for the proposed project. Chapter 5 addresses Section 4(f) properties. Chapter 6 describes consultation and coordination for this EA. Chapter 7 provides the list of preparers, and Chapter 8 provides references. This EA has been prepared in accordance with NEPA, the Council of Environmental Quality's implementing regulations, 40 CFR Parts 1500-1508, and FHWA regulations (23 CFR 771). The EA has also been developed with public, SLN, and interagency involvement. Because the NDDOT, the BIA, and the SLN will likely be implementing the commitments made in this document, the FHWA has coordinated the development of this document closely with these entities to ensure that it meets their NEPA requirements and can be readily adopted.

Due to the number of different RAADs that need to be addressed, the project area was divided into four zones, Zones 1 through 4, and build alternatives were developed to address the RAADs in each zone. A Preferred Alternative is identified for each Zone.

F. Phased Implementation

This document addresses the impacts associated with the roadways, RAADs, and perimeter dams built to an elevation needed to accommodate the ultimate natural elevation of Devils Lake. However, preliminary cost estimates to build to this elevation run in excess of \$250 million, far beyond the \$70 million provided by Section 1937 of SAFETEA-LU. Due to budget constraints and the commitment to spend tax dollars wisely, the PDT concluded that the actual construction of the proposed project would consist of a phased approach. Specifically, during the initial construction phase, roads, RAADs, or perimeter dams would be constructed to a lower elevation—approximately 1,455 feet. This construction is anticipated to occur in the year 2009. Then, in subsequent phases, the roads, RAADs, or perimeter dams would be raised as the water rises and funding becomes available. By phasing the construction of the proposed project, available funds will be used to address immediate safety concerns and the current lake level. Phased implementation has the added benefit of being a fiscally responsible approach to addressing the uncertainty associated with predicting the weather and future lake levels. If the wet cycle ends earlier than predicted, and the Lake does not reach its ultimate height, the roads and dams would not be built to ultimate height thereby saving tax dollars. If the Lake rises faster than anticipated, an Emergency Action Plan will be in place to notify residences, and the FEMA flood program may be available to assist homeowners with damage compensation.

G. Compliance with Federal, Tribal, State, and Local Regulations

The FHWA or the agency with construction oversight responsibilities will comply with applicable federal, tribal, state, and local regulations for implementing the proposed project and all applicable BIA or NDDOT guidelines, provisions, and acts. Regulatory requirements for the proposed project are expected to include the permits and approvals in **Table 1-1**.

Table 1-1. Permits, Stipulations, or Approvals Required

Permits, Stipulations, or Approvals	Purpose
U.S. Army Corps of Engineers	
404 Permit (Clean Water Act 33 CFR 320)	To allow the discharge of dredged or fill material into waters of the U.S., including wetlands. Implementation of the preferred alternative would require a 404 permit because there would be discharge of fill into waters of the U.S. A 404 permit application would be submitted to the USACE prior to construction and would mitigate all wetlands unavoidably affected by the proposed action.
U.S. Fish and Wildlife Service, Devils Lake Wetland Management District	
Special Use Permit	To allow activities on USFWS refuge systems and easements.
Section 7 Consultation	Ensure protection of threatened and endangered species.
North Dakota State Department of Health	
401 Certification on non-tribal lands (Clean Water Act 40 CFR 121)	To certify that any activity requiring a federal license or permit that may result in any discharge into waters of the U.S. would not cause or contribute to a violation of Clean Water Act requirements.
North Dakota Pollutant Discharge Elimination System (NDPDES)—Storm Water Program	To allow discharge of storm water from one acre or more to state waters. A Storm Water Pollution Prevention Plan would be prepared as part of the NDPDES permit process to address construction-related sediment and erosion control plans. In addition, a construction dewatering permit also may be needed.
North Dakota State Water Commission (Acorn Ridge only)	
Sovereign Permit	To allow any work within the Ordinary High Water Mark within Devils Lake, excluding trust lands.
Construction Permit	To ensure that structures that hold back water use sound engineering principles and meet safety requirements.
Local Floodplain Administrator (to be determined)	
Floodplain Permit	To allow work within the 100-year floodplain on non-tribal lands.
Spirit Lake Nation	
Floodplain Permit	To allow work within the 100-year floodplain on tribal lands.
Tribal Employment Rights Office (TERO) Requirements	Encourages employment of tribal members.
Business License	A license required to do work on Tribal lands.
North Dakota State Department of Transportation	

Permits, Stipulations, or Approvals	Purpose
Approval of any contractor-optioned proposed disturbed areas including material sources, staging areas, plant sites, stockpile areas, and access roads	To certify that contractor-optioned ground-disturbing activities will not adversely impact natural and cultural resources.
Environmental Protection Agency	
401 Certification on tribal lands	To certify that any activity requiring a federal license or permit on tribal lands that may result in any discharge into waters of the U.S. would not cause or contribute to a violation of state surface water quality standards.
National Pollutant Discharge Elimination System (NPDES)–Storm Water Program	To allow discharge of storm water from one acre or more to state waters. A storm water management plan would be prepared as part of the NPDES permit process to address construction-related sediment and erosion control plans. In addition, a construction dewatering permit also may be needed.
Advisory Council on Historic Preservation	
Section 106 Review (National Historic Preservation Act 36 CFR 800)	To consult with the North Dakota State Historic Preservation Office, Spirit Lake Nation, affected landowners, other tribes as needed, and the Advisory Council on Historic Preservation for potential effects to historic properties.

H. Units of Measurement

The design and construction of this proposed project will be in English units. Elevations are rounded to the nearest foot and are based on the National Geodetic Vertical Datum of 1929, or NGVD 29, to remain consistent with USACE elevations and past reports concerning Devils Lake.

Chapter 1 – Need for and Purpose of the Action

This chapter explains why tax dollars have been earmarked to be spent on a project addressing the RAADs in the Devils Lake basin. Presented first are the various components of the need or the “problem.” The need is the existing condition or conditions that require relief, warranting the expenditure of money. Then the corresponding purpose or goal to be accomplished to address these problems is presented.

The purpose and need statement serves as the foundation for the remainder of this document. It drives the identification of reasonable alternatives considered in Chapter 2. Courses of action that the FHWA, in consultation with the PDT, has decided not to carry forward are identified as “Considered but Eliminated” in Chapter 2 and are dismissed from further discussion in this document. Courses of action that the FHWA has determined, in consultation with the PDT, to carry forward are analyzed for social, economic, and environmental impacts in Chapter 3.

A. Need or the “Problem”

The current condition threatens the long-term viability of a safe regional transportation network within the St. Michael and Acorn Ridge areas.

The regional transportation network comprises US roads, state highways, and BIA roads. Residents within the project area are fully dependent on the road system to access schools, jobs, and emergency services, as well as most businesses and social services. If these roads were no longer available due to failure or overtopping, it would create a burden on the local people due to the detour route, which can be up to three times the length of the regular route. For instance, in 1997 when North Dakota State Highway (ND) 20 was overtopped, the detour between Fort Totten and the City of Devils Lake included ND 57 west to US 281 north, and ND 19 to Devils Lake; this nearly tripled the distance from 13.5 miles to 38 miles. Also, the project area is home to the Spirit Lake Casino and Camp Grafton, which, together, employ well over 600 workers, or roughly five percent of the entire region’s employed workers. The predominant points of access to these establishments are from ND 57 and ND 20. These highways are also used by residents in the region to access the major population and employment centers of Devils Lake and Fort Totten. Although Camp Grafton could be accessed by secondary roads, if ND 57 or 20 were no longer available, there is no alternate access to the Spirit Lake Casino since BIA 18 has already been flooded. Additionally, ND 57 and ND 20 are critical farm-to-market roads that provide a vital link for commerce between the SLN and the surrounding communities to the south of Devils Lake and the City of Devils Lake.

It is evident that as the RAADs continue to be raised to avoid overtopping by Devils Lake, the continued existence of a safe regional transportation network itself is threatened (*BOR 1999*). Structures intended to hold back water are designed and constructed differently from roads. Because the RAADs were not originally constructed as dams, containing the necessary features (clay cores and seepage berms) to make them dams, there is concern that the RAADs cannot withstand the pressure applied by the rising waters of Devils Lake. Due to these safety concerns, normal federal funding may not be used to continue raising these RAADs until the necessary corrective measures have been taken to make them safe.

The regional transportation network is threatened not only by possible failure of the roads themselves but also by possible overtopping by Devils Lake. Devils Lake has been rising for the past 65 years with the last 14 years seeing dramatic rises, and current predictions anticipate that it will continue to rise. Devils Lake has reached an elevation of 1,449 feet in 2006. The existing elevations of the state highways and BIA roads range from 1,452 feet to 1,455 feet (**Photo 1-2**). As a result, the roadways run the risk of being overtopped should Devils Lake continue to rise.

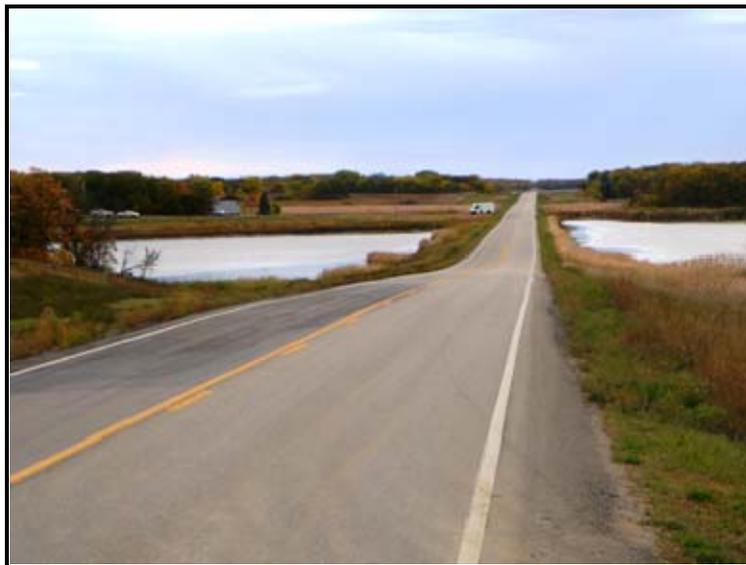


Photo 1-2. Low spot on ND 20, 2006

B. Purpose or the “Goal”

Plan and provide for the long-term existence of a safe regional transportation network in the St. Michael and Acorn Ridge areas.

Congress, in its passage of SAFETEA-LU in August 2005, provided the first step in addressing the problem described above, by authorizing \$70 million dollars for use on the RAADs issue. Section 1937 states, in part:

. . . The Secretary shall use funds made available to carry out section 125 of title 23, United States Code, through advancement or reimbursement, without further emergency declaration, to construct such measures as the Secretary determines to be necessary for the continuation of roadway services, or the impoundment of water to protect roads, or both, at Devils Lake in the State of North Dakota, as the Secretary determines to be appropriate . . .

The entire text of Section 1937 can be found in **Appendix B**. Based on the language in the funding legislation and the needs or problems described earlier, the project purpose or “goal” is to identify and implement measures that adequately respond to the rising waters of Devils Lake to allow for the long-term existence of the regional transportation network. The proposed action should provide for a safe regional transportation network by removing the threat of failure currently associated with these RAADs.