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VIA U.S. MAIL AND E-MAIL (aaron.m.snyder@usace.army.mil)

Mr. Aaron Snyder
Corps of Engineers Planner and Project Manager
180 E. Fifth Street East, Ste. 700
St. Paul, MN 55101–1638

Re: Comments on Draft Feasibility Report and Environmental Impact Statement on the Fargo-Moorhead Metropolitan Area Flood Risk Management Project on the Red River of the North

Dear Mr. Snyder:

On behalf of the National Wildlife Federation, we offer these comments on the Draft Feasibility Report and Environmental Impact Statement (DEIS) on the Fargo-Moorhead Metropolitan Area Risk Management Flood Project on the Red River of the North.

The National Wildlife Federation recognizes the need for additional flood control for the Fargo-Moorhead area. Unfortunately, we cannot support moving forward with the U.S. Army Corps of Engineers' ("the Corps") preferred alternative in the DEIS, a massive and expensive diversion channel that will cause unacceptable environmental impacts and put downstream communities and landscapes at additional flood risk.

We are exceedingly disappointed that the Corps has proposed building "The Big Ditch" without a basin-wide analysis of how flood risk can best be managed and without more thoroughly considering other structural and non-structural alternatives that would not only reduce flood risk, but also provide additional environmental and economic benefits. From our analysis, it seems clear that a combination of wetland restoration and farm field storage projects could provide effective flood control and also provide significant benefits to fish and wildlife resources, water quality, and local economies.

We understand the Corps may not have the capacity or the desire to actually move forward with these greener alternatives. Nonetheless, to bring forward a proposal that is so expensive that it may never be funded and so controversial that it may never be built, does no good service to the people of Fargo-Moorhead. In contrast to the divisive ditching project proposed by the Corps, wetland restoration and farm field water storage would be broadly supported by a diverse public that includes farmers, conservationists, and those concerned with economically responsible public works projects.

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We urge the Corps to enlist other partners, such as the Natural Resource Conservation Service, the U.S. Fish and Wildlife Service (USFWS), and state and local agencies, and to move forward with a supplemental environmental impact statement that includes a basin-wide assessment and that evaluates a full array of water management alternatives.

A. Introduction

Human activities and alterations in, and around, the Red River Basin (RRB) have led to significant environmental changes throughout the watersheds, including the metropolitan areas of Fargo, North Dakota and Moorhead, Minnesota and their surrounding rural and agricultural communities. Fargo-Moorhead has always been threatened by flooding from the Red River of the North. In the last two decades, however, floods have become more frequent and more severe because thousands of wetlands throughout the RRB have been drained and converted into farmland. Prairie wetlands that once soaked up thousands of acre feet of water have been ditched and drained, increasing both the amount of spring melt water and the rate at which it enters the Red River. North Dakota and Minnesota have lost several hundred thousand acres of wetlands since the establishment of agricultural communities beginning in the 1800s, and North Dakota's wetlands continue to be drained at a rate of 20,000 acres per year.[i] Climate change has also led to earlier and more abundant springtime runoff into the RRB and will continue to do so for the unforeseeable future. As both flood peaks and floods have increased, so too has the cost of fighting floods. The communities of Fargo and Moorhead now spend more than $195 million annually for flood damages.

In response to the threat of more severe and more frequent flooding, the Corps has evaluated a limited number of engineering alternatives to reduce the threat of flooding in the Fargo-Moorhead area. Based on this evaluation, the Corps now proposes to build a 36-mile-long diversion channel around the Fargo-Moorhead area. The Corps' preferred diversion channel alternative will cover 9,382 acres, and will impact 137 acres of forest habitat, 226 acres either directly or indirectly of wetlands, and 39 acres of riverine aquatic habitat. The diversion channel will span between 100 and 300 feet in width. The projected cost of the diversion channel construction is $1.4 billion, although some believe this estimate understates the cost of the project. The Corps' DEIS fails to factor into its cost estimations the expense of potential downstream mitigation that may also be needed, as well as maintenance and operation costs in the future.

The National Wildlife Federation strongly opposes the Corps' proposed diversion channel, and disagrees with many assessments made in the DEIS. Not only will the project be a massive federal and state expenditure, but also does not even guarantee to solve the RRB's current catastrophic flooding problems. Furthermore, the diversion channel will offer no ecological benefits, and will almost certainly have large negative impacts on the region's fish and wildlife and their habitats.

B. The DEIS fails to adequately address the negative consequences of the Red River diversion channel options.

In the DEIS, the Corps has evaluated eight different diversion channel alternatives, including the MN20k, MN25k, MN30k, MN35k, MN40k, MN45k, ND30k, and the ND35k. The ND35k was chosen as the Corps' Locally Preferred Plan (LPP), the MN40k was chosen as the National Economic Development plan (NED), and the MN35k was chosen as the Federally Comparable Plan (FCP).

Under NEPA, it is "mandate[d] that federal agencies take a hard look at the environmental consequences of a major federal action before taking that action." *Mid States Coalition for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 533 (8th Cir.2003). Listed below are several potentially damaging effects of the Corps' LPP, which seriously call into question the thoroughness of the Corps' DEIS.

1. **Most damaging and expensive plan**

The proposed LPP will result in greater ecological impacts than both the FCP and the NED.[ii] More tributaries and roughly 120 more acres of wetlands, forests, aquatic riverine, and fish tributaries and passages will be affected from the LPP than the FCP. The LPP will have a greater impact on wildlife and fisheries than the FCP and the NED. Under the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the U.S. Fish and Wildlife Service (USFWS) is authorized to provide recommendations to the Corps on federally funded water development projects. For the reasons listed above, the USFWS has recommended the FCP alternative rather than the LPP.[iii] The comparable costs (in millions) of the LPP, FCP, and NED are $1,462, $1,236, and $1,367, respectively. (DEIS-ES-11).

The Corps selected the LPP primarily because of political considerations. The primary impetus for the construction of the massive diversion channel being proposed has come from the North Dakota congressional delegation and the City of Fargo. Because of lukewarm support for the project by Moorhead and other Minnesota political entities, North Dakota supporters pressured the Corps and the Assistant Secretary for Civil Works to accept the LPP alternative. The result is that the DEIS has identified a preferred alternative that is the most ecologically harmful and the most expensive, the 36-mile North Dakota LPP.

2. **More flooding downstream**

The DEIS states that downstream effects of the diversion channel on social resources could be significant, but it fails to adequately measure these impacts. The Red River is more than 500 miles long, with Fargo and Moorhead being located very near its point of origin at the Bois de Sioux River. Downstream effects of a large diversion channel could impact virtually hundreds of river miles. For the ND35k plan (LPP), the Corps only analyzed 43.5 river miles downstream.

The Red River flows northward and eventually empties into Lake Winnipeg near Manitoba, Canada. The river's northward flow creates an increased possibility of ice downstream. Large pieces of ice in the Red River create an even greater risk of springtime flooding downstream of Fargo-Moorhead, making this region particularly sensitive to springtime runoff. Furthermore, the Fargo-Moorhead diversion channel will also increase water levels downstream because more natural floodplain storage will have been eliminated. In all flooding scenarios mentioned in

section 5.2.1.4.1 (10-percent, 2-percent, and 1-percent chance), it was determined that *more* acreage would be impacted than the amount of acreage that is currently being impacted. (DEIS-153). In July 2010, the Corps issued a Preliminary Downstream Impact Analysis that also demonstrated that that both the LPP and the FCP would cause more flooding downstream. The DEIS needs to provide supporting information that even more homes downstream of Fargo-Moorhead will not be lost due to the increased water levels from the diversion, and that costs of flood control and repairs for flood damage would not actually *increase* as a result of the diversion channel.

3. Changes in sediment distribution

Section 5.2.1.3 states that "the proposed diversion structures should not lead to an appreciable change in suspended sediment concentrations along the project area," but the DEIS fails to give any concrete sedimentation data. The Corps' diversion channel will substantially affect sedimentation in the Red River and other connected tributaries. Sedimentation is a major problem in many rivers and lakes, which can cause a reduction in storage capacity that can lead to flooding. A build up of sediment can also lead to many aquatic changes that could have negative impacts on aquatic life. As a result, fish may begin avoiding areas of heavy sedimentation, ultimately changing their migratory patterns, wintering grounds, nursery areas, or spawning habitat. Valuable fish spawning areas could be covered in silt, and the sediment increase could lead to adult and juvenile fish mortality if their gills become filled with sediment.[iv] Fish foraging success will decline, which could also lead to mortality, especially in younger fish, and adult fish could be kept from spawning due to malnutrition.[v] Therefore, sedimentation impacts and sedimentation mitigation costs must be included in the final EIS.

4. Destruction of wetlands

The diversion channel will affect more than 200 acres of wetlands. The Corps has suggested that any wetland taken away or adversely affected by the diversion channel will be replaced with new wetlands within the diversion channel in a low flow channel. The DEIS describes the low flow channel as "a channel that is typically in the center of a larger channel which is sized to handle small flows from drains, ditches or groundwater." It will be approximately 10 feet wide and 3 feet deep. (DEIS-166). The National Wildlife Federation challenges the feasibility of the Corps' solution of simply "replacing" wetlands by simulating wetland conditions on the bottom of the diversion channel in a low flow channel. A strip of wetlands 10 feet wide does not provide the security and benefits that larger blocks of wetlands provide. The DEIS does not address how these wetlands will be comparable to the previously existing wetlands that were affected by the diversion and does not describe the diversion channel wetlands' functions for surrounding wildlife. In addition, many problems can arise with a low flow channel. The channel will need frequent maintenance and modifications to ensure that it is effective, and it can be very easily damaged in severe situations such as flooding or drought. Section 5.2.1.6.3 of the DEIS states that "wetlands near [the Lower Rush River and the Rush River] could be impacted by not getting the same recharge from overland flooding that they have received in the past," but there is nothing further discussing how those negative impacts will be mitigated and what mitigation efforts will cost. The final EIS must include projected mitigation costs for additional wetlands

that might be impaired such as those near the Lower Rush and Rush rivers. The Corps must also include in its final EIS exactly what function the low flow channel will serve and how it is guaranteed to adequately compensate for existing wetlands adversely affected by the diversion channel.

5. Diversion will affect multiple tributaries and potentially harm their fish and wildlife

The North Dakota diversion would cross five tributaries: Wild Rice River, Sheyenne River, Maple River, Lower Rush River, and Rush River. (DEIS-ES-15). In addition, the DEIS states that "[t]he channels of the Lower Rush and Rush Rivers between the diversion channel and downstream to their confluences with the Sheyenne River will be abandoned…" (DEIS-166).

On page 15 of their Draft Feasibility Report and EIS, the USFWS states that nesting birds, mammals, and mussel species could be displaced or killed during the project's construction, and nesting birds' eggs could be abandoned or crushed. The USFWS states on page 14 of their Draft Feasibility Report and EIS that "construction and excavation within the riverine aquatic habitats could kill adult or juvenile fish," and some fish mortality is unavoidable. The USFWS also states that the additional sediment load, deposition, and accumulation into the Red River could alter aquatic and riverine habitat.

The DEIS indicates that fish could use the diversion channel, but the diversion channel will not contain any meaningful fisheries. The DEIS continues on to state that fish ending up in the diversion channel without their natural habitat will not be a significant issue during the operation of the diversion channel. (DEIS-ES-14). Fish caught in the diversion channel during flooding, however, will be forced to use concrete fish ramps for passage. It is not known at this point whether certain sensitive fish species, such as the Lake Sturgeon, will be successful at using artificial passages. The DEIS also does not address how changing the velocity of water within the diversion might affect certain fish species. The velocity of the water within the diversion and downstream of the diversion could be too strong and prevent certain species and juvenile fish from traveling upstream.

The diversion channel will create numerous problems for multiple tributaries and wildlife and aquatic species. The final EIS must address the negative impacts to all tributaries and the specific adversities facing wildlife and aquatic life. A plan to mitigate these adversities must be identified and mitigation costs must be included in the final EIS.

C. The DEIS failed to analyze flood mitigation in the entire Red River Basin.

In a letter dated June 22, 2009 (attached), we urged the Corps to look for a flood mitigation plan that would alleviate flooding basin-wide rather than just the areas of Fargo and Moorhead. The limited study area of only Fargo-Moorhead does not allow the Corps to accurately evaluate the causes of increased flooding in the RRB or the full range of alternative remedies. In particular, the study would have needed to include the area above or upstream from Fargo-Moorhead. The entire Flood Risk Management study has been flawed from the beginning because the RRB was not analyzed in its totality.

According to the National Weather Service, the Red River of the North has exceeded the flood stage of 18 feet in 47 of the past 108 years, and every year from 1993 through 2010. (DEIS-5). The increased flooding over the past century has been a direct consequence of wetland loss in the interest of agricultural development. Studies have demonstrated that wetland drainage in the RRB has significantly increased both the timing and size of Red River floods and also that wetland drainage continues to affect thousands of acres annually. Wetland restoration throughout the RRB would help offset these destructive land use practices that are so costly in terms of water quality, wildlife and flood costs. Several studies have demonstrated the effectiveness and feasibility of restoring wetlands or using upland depressions to temporarily store water during a flood event. The restoration of wetlands can significantly reduce flood frequency and severity while also providing vital ecosystem benefits.

A possibility for wetland restoration lies in the Prairie Pothole Region's wetlands of the northern Great Plains, which span more than a 300,000-square-mile area. Almost since farming began in this region in the mid 1800s, wetland drainage has been employed to facilitate agricultural activities. According to the 1997 Minnesota Wetlands Conservation Plan, more than 95% of the native wetlands in the Minnesota portion of the RRB and upstream sub-basin have been lost. The cumulative impacts of this wetland drainage have been significant with more than 50% of the region's wetlands having been drained with more than 90% in some watershed basins. Wetlands in the Devils Lake basin of North Dakota have the potential to store approximately 72% of the total runoff volume from a 2-year frequency runoff event and 41% of a 100-year frequency runoff event.[vi] Restoring drained and farmed wetlands could increase the water retention capacity in the Prairie Pothole Region of Minnesota "by up to 63%."[vii] Furthermore, potholes are natural filters for nutrients such as sediments containing nitrogen and phosphorous, therefore, improving water quality.[viii] We recommended to the Corps in our June 22, 2009 letter that they explore and analyze this reasonable and logical alternative, however, the Corps' DEIS failed to do so.

Grasslands or grazing lands span approximately 600 million acres of the United States. Grasslands have proven to be a major source of watershed filtration, ground water recharge, and carbon sequestration. Grasslands have excellent potential to markedly improve water and air quality.[ix] Proper management of existing grasslands can enhance the land's ability to better reduce erosion and flooding by slowing and more evenly distributing surface waters. Grasslands also help the percolation of precipitation creating recharged groundwater aquifers. Conservation of grasslands can occur on private and public lands, and wildlife populations thrive with the availability of these habitats. Through cooperative efforts with agencies such as the Bureau of Land Management (BLM) and the Natural Resources Conservation Service (NRCS), private landowners can learn to maintain their property as grasslands in a manner that is most effective in preventing soil erosion and flooding in the Red River basin. Again, the Corps failed to explore this economically feasible and ecologically friendly alternative in its DEIS.

Based on this information, the Corps should enlarge its study area to include all upstream river basins above Fargo-Moorhead. As a result, the Corps will necessarily have to evaluate the impacts of flood crests, flood frequencies and flood severity of wetland drainage. It is only then

that the Corps can adequately evaluate the benefits of wetland and grassland restoration in terms of reducing these flood impacts.

D. The DEIS failed to adequately evaluate reasonable non-structural and flood storage alternatives.

Without the Corps' study of the entire RRB, it would be impossible to fully and accurately evaluate non-structural alternatives at scale because the study did not identify an analysis of an area that was properly scaled. The study only included Fargo-Moorhead, and for that area only, the DEIS identifies several measures retained for possible inclusion as features of the alternative plans. Those measures include: non-structural measures, flood storage, and wetland and grassland restoration. The DEIS provides an extensive analysis of a non-structural measure contained in Appendix P, which illustrates a very invasive and tedious process of raising and flood-proofing individual homes at a significant cost. However, all other measures, including wetland restoration, grassland restoration, and flood storage are dismissed as stand-alone plans with less than a page of justification in the DEIS.

1. The Corps must evaluate the Waffle Project.

The Energy & Environmental Research Center (EERC) of the University of North Dakota began conducting a four-year study on flood prevention in the wake of the devastating 1997 flood in the RRB. The goal of the study, beginning in 2002, was to see how a process referred to as the Waffle Project ("the Waffle") could mitigate the effects of mild to severe springtime flooding in the population center of Fargo-Moorhead, in addition to the surrounding areas of North Dakota, South Dakota and Minnesota. The Waffle uses micro-basins or preexisting areas, such as depressed agricultural lands bordered by raised roads, for short-term water storage. Agricultural areas make up approximately 74% of the land area in the RRB, making potentially 36,000 square miles of the RRB available for the Waffle Project.[x] The study randomly selected 3,732 sections of land to use in evaluating water storage potential, and multiple scenarios were used due to non-uniformity of Waffle sizes. The sections showed that their storage volume estimate was 583,400 acre-feet, which includes a reduction for the freeboard between the stored water surface and the lowest point on the surrounding roads and a reduction to account for natural water storage.[xi] The most significant impact shown in the study was a 7-foot decrease in the water level of the Red River in the Fargo-Moorhead area during floods. The study showed that the Waffle can successfully slow and significantly reduce the drainage of excess runoff before it enters water tributaries, most notably, the Red River of the North.

a. Costs associated with the Waffle

Costs associated with the Waffle were projected for a 50-year period. The Waffle would first involve finding landowners willing to enroll in the program, and then implementing the project by modifying existing culverts and installing new culverts and other water control mechanisms. There would also be costs associated with landowner payments and maintenance, and administrative overhead. Adjustments to cost projections were made for probability of flood occurrence, expected damage to residential and commercial properties and public infrastructure,

current economic conditions and value of real property, changes in flood protection, and future population changes. Waffle sizes were also divided into three categories: maximum, moderate and minimum, with costs projected as baseline, optimistic and pessimistic on full-scale and half-scale hypothetical models. Below are the results of this cost analysis.

Present Value of Projected Costs of the Waffle, 2006 through 2055[xii]

Scale & Acreage Est.	Baseline	Optimistic	Pessimistic
Full-Scale			
Minimum	$207,931,000	$155,739,000	$287,326,000
Moderate	$362,191,000	$269,537,000	$494,872,000
Maximum	$543,040,000	$402,721,000	$738,602,000
Half-Scale			
Minimum	$107,964,000	$80,915,000	$149,494,000
Moderate	$184,797,000	$137,578,000	$252,897,000
Maximum	$275,505,000	$204,386,000	$375,132,000

The cost analysis table above illustrates that a plan for significant flood reduction on a full-scale effort can be implemented for between $156 and $739 million during the next 50 years. This is a stark contrast from the Corps' $1.4 billion diversion channel, a price tag that only includes construction cost, and not operations and maintenance costs. The above table and the Waffle study's flood reduction results flatly contradict the Corps' conclusion that flood storage is cost prohibitive and less effective than a 36-mile diversion channel. The Waffle study suggests that significantly less storage than that determined by the Corps is needed to achieve a substantial flood level reduction. The numbers that the Corps lists in Section 3.4.6.2 of the DEIS were derived from a very preliminary modeling effort conducted through the Fargo-Moorhead Upstream Feasibility Study, which did not actually look at specific storage options in each of the tributaries of the Red River. Instead, the Corps estimated what the tributary flow reduction would be based on general assumptions. There is no rational explanation supporting the Corps' conclusion that doubling the storage volume from 200,000 acre-feet to 400,000 acre-feet only achieved another 0.2-feet stage reduction at Fargo.

b. Economic benefits from the Waffle

The Waffle Project studies show that net benefits of the Waffle could be significant over the next 50 years, with benefits being positive in 106 of the 108 scenarios that were evaluated. More than 85% of the scenarios indicated benefits in excess of $300 million, and more than half of the scenarios had benefits in excess of $500 million. Some scenarios showed economic benefits of up to $700 million.[xiii]

2. The Corps must evaluate other flow reduction strategies.

Similar to the EERC's Waffle, the Red River Basin Commission (RRBC) also created a strategy that would decrease flood levels in the RRB. They simulated 1997 flood conditions (9.25" of

precipitation) and found that their storage areas could reduce flood levels in the Red River up to 20% in some areas. They found that the most significant reduction was a 20% peak flow reduction and 20% volume reduction at White Rock, South Dakota. The study demonstrates that storage areas built in river basins are 80% effective, and if all of the tributary basins upstream of the Red River do their share in flood storage, effects on Red River flood reduction can be substantial.[xiv]

There was no formal cost-benefit analysis done for this study. However, preliminary estimates showed that upstream storage competes very favorably with the Corps' diversion channel option because of the ratio based on the Fargo-Moorhead area damages alone. There would also be more widespread flood control benefits, in addition to a great potential for natural resource benefits under this program.

3. The Corps must evaluate an alternative that combines wetland and grassland restoration and other flow reduction strategies.

It is clear that the optimal strategy for minimizing flood risk, while also improving water quality and fish and wildlife habitat in the RRB, would involve a combination of wetland restoration and utilizing farm fields for temporary storage. The Corps, working with state fish and wildlife agencies and other federal agencies including the USFWS and the Natural Resources Conservation Service, should develop an alternative or alternatives that combine these approaches. The National Wildlife Federation urges the Corps to formulate an alternative that would include 500,000 acre-feet of storage through wetland and grassland restoration and an additional 500,000 acre-feet of storage through temporary storage utilizing farm fields.

In evaluating such an alternative, the Corps should consider the following costs and benefits.

- Flood control benefits
- Water quality benefits
- Fishery benefits
- Benefits to upland and migratory birds
- Recreational benefits, including increased hunting and fishing opportunities.

E. Wetland and grassland restoration, combined with flood storage, will have many positive impacts.

A successful and long-term flood protection plan results when flood storage concepts, such as those developed by EERC and RRBC, are implemented in conjunction with grassland and wetland restoration.

1. **Protects more than just two cities**

The Corps' diversion channel will only provide significant flood protection for two major metropolitan areas, Fargo and Moorhead. All other downstream cities and communities will not receive the benefited flood protection, and will likely see more flooding due to increased water

flow from the diversion channel. Should wetland and grassland restoration strategies be implemented along with flood-water-storage projects, not only will Fargo-Moorhead see decreased flooding, but downstream cities and communities will also experience flood relief. Flooding is also likely to be decreased upstream from Fargo and Moorhead, which only adds to the overall benefit of wetland and grassland restoration and flood storage efforts. Programs such as EERC's Waffle Project, RRBC's Flow Reduction Strategy, and concepts created by numerous other agencies and organizations, including Wetland Reserve Program and USFWS, provide ample data and opportunity to implement wetland and grassland restoration and flood storage as viable alternatives for flood prevention downstream.

2. **Creates and enhances wildlife habitat and recreation, while also mitigating affects of climate change**

Increasing wetland habitat will provide stability to migrating and nesting bird habitats, as well as numerous other species of wildlife. This in turn creates opportunities for hunting, fishing, bird watching, hiking and other recreation. Wetlands also play an important role in filtering polluted water and recharging the aquifer into both nearby ground and surface waters, greatly improving water quality. Grasslands further reduce the runoff of water and sediment, creating a more stable water level and providing an area to host a diverse community of native grasses, sedges, rushes and other submersed vegetation.[xv]

Wetlands play at least two critical roles in mitigating the effects of climate change, "one in the management of greenhouse gasses (especially carbon dioxide) and the other in physically buffering climate change impacts."[xvi] Wetlands International, a global organization that works to sustain and restore wetlands, states that "inland wetlands in arid regions can play a very cost-effective role in attenuating the impacts of extreme weather events such as the impacts of extremes in precipitation and increases in evaporation due to higher temperatures."[xvii] Wetlands serve to recharge ground and surface waters, meaning that while they prevent flooding in wet times, they serve to replenish and retain adequate water supplies and stream flow during drier periods.

The benefits of wetland and grassland restoration are numerous. Wetlands and grasslands provide various ecosystem services to farmers and communities, recreational opportunities, global warming mitigation, and most importantly, flood control. One study concluded that, "wetlands on [USDA] program lands [in the PPR] have significant potential to intercept and store precipitation that otherwise might contribute to downstream flooding."[xviii] Additionally, the conversion of cultivated cropland to grassland cover as part of conservation programs results in a reduction in surface runoff and, ultimately, reduces the rate at which a basin refills and overflows.

3. **Economic benefit to farmers**

The preferred diversion plan (LPP) would eliminate approximately 5,400 acres of farmland from operation. (DEIS-ES-15). On the other hand, the Waffle or Flow Reduction Strategy would only "borrow" or "rent" land from willing landowners in the event of flooding. Even if the land was

used to store water, it would be done early enough in the spring so that the landowner would still be able to farm their crop in most years. Therefore, the payment from these flood storage programs would be a bonus above and beyond the farmer's "normal" agricultural income.

4. Set precedence for other green flood control solutions

As human activity continues to escalate and their harmful affects become increasingly evident through climate change, environmentally friendly alternatives will only gain in popularity. The states of North Dakota and Minnesota have a unique opportunity to show the rest of the nation a more natural and cost effective method of flood control. The precedent could be set for more ecologically favorable flood mitigation efforts rather than more expensive, concrete and environmentally damaging solutions. There has already been an international trend to move toward nonstructural flood control methods, and it is in our nation's best interest to closely follow in the same direction.

F. Conclusion

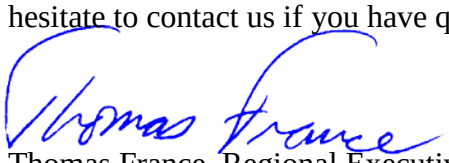
The U.S. Army Corps of Engineers is planning a 36-mile-long diversion channel around Fargo that will cost North Dakota and the Federal government $1.4 billion to construct. The projected $1.4 billion cost does not even include mitigation and maintenance expenses in the years after construction of the diversion channel has been completed. During this country's time of economic uncertainty, the Corps' project seems not only irrational and impractical, but also downright irresponsible when other green options to restore wetlands and grasslands along with creating flood storage have proven to be just as effective and a far less expensive means of flood mitigation. The Corps' colossal and esthetically displeasing diversion channel will be not only a massive state and federal expenditure, but also an ecological nightmare with resounding affects for centuries. If cities and communities within the Red River Basin do not want to face even bigger and more expensive problems combined with wildlife habitat destruction and decline a decade from now, the Corps must seriously reconsider their chosen diversion channel alternative.

Much of the Red River Basin flooding has been a direct result of wetland and grassland elimination during the past century for the sake of agricultural development. However, even though agricultural land is largely to blame for the present-day flooding predicament, it can now be used as temporary flood storage that would prevent dangerous flood levels. Grasslands and wetlands not only have remarkable abilities to store excess water runoff, but they are also attractive and provide much needed wildlife habitat in a region of the country that continues to have rapid human population increases. In its DEIS, however, the Corps all but completely ignores these environmentally friendly alternatives.

In recent case law, it is determined that "[w]hile the EIS need not be exhaustive, the existence of a viable but unexamined alternative renders an [EIS] inadequate." *Friends of the Boundary Waters Wilderness v. Dombeck*, 164 F.3d 1115, 1128 (8th Cir. 1999). There is no doubt that the Corps' DEIS leaves many alternatives largely unexamined. We strongly urge the Corps to fully address and consider the use of non-structural techniques for flood control. It is irresponsible for

the Corps not to consider more reasonable, but similarly effective solutions that do not have the long-term effects on the tributaries and streams of the Red River.

The National Wildlife Federation sincerely thanks you for considering these comments on the Draft Feasibility Report and Environmental Impact Statement on the Fargo-Moorhead Metropolitan Area Flood Risk Management Project on the Red River of the North. Please do not hesitate to contact us if you have questions or would like additional information.



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Cc; Senator Byron Dorgan
Senator Kent Conrad
Congressman Earl Pomeroy
Senator Amy Klobuchar
Senator Al Franken
Congressman Collin Peterson
Senator Tim Johnson
Senator John Thune
Congresswoman Stephanie Herseth Sandlin

Endnotes:

[i] Gary L. Pearson, *Draining the Great Marsh*, USA Today, November 1985: 83-89.
[ii] U.S. Fish and Wildlife Service Coordination Act Report, Fargo Moorhead Metro Draft Feasibility Report and Environmental Impact Statement, p. 21 (May 27, 2010).
[iii] *Id.*
[iv] *Id.* at 14.
[v] *Id.*
[vi] USGS, Robert A. Gleason & Brian A Tangen, *Ecosystem Services Derived from Wetland Conservation Practices in the United States Prairie Pothole Region with an Emphasis on the U.S. Department of Agriculture Conservation Reserve and Wetlands Reserve Programs* ch. D: Floodwater Storage, http://pubs.usgs.gov/pp/1745/pdf/;;1745web.pdf (accessed July 8, 2010).
[vii] *Id.*
[viii] Rex R. Johnson, Fred T. Oslund & Dan R. Hertel, (May/June 2008). The past, present and future of prairie potholes in the United States, *Journal of Soil and Water Conservation* 63(3), 86A.

[ix] Grazing Land Conservation Initiative Strategic Plan 2010-2015, http://www.glci.org/images/Current%20News/StrategicPlan_WebVersion3.pdf (accessed August 5, 2010).
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[xi] B. A. Kurz, W.D. Peck, E.N. Steadman, L.L. de Silva, S. K. Hanson, M.D. Kurz, T. K. Simonsen, & X. Wang, 2008, *An Overview of the Waffle Concept, A Tool For Water Management in the Red River Basin.* http://www.undeerc.org/waffle/overview.pdf (accessed August 5, 2010).
[xii] Dean A. Bangsud, Eric A. DeVuyst, & F. Larry Leistritz, *Benefit-cost Analysis of the Waffle®: Initial Assessment*, 37 (North Dakota State University 2008).
[xiii] Kurz, Peck, Steadman, de Silva, Hanson, Kurz, Simonsen, & Wang, *supra* n. xi at 44-52.
[xiv] Red River Basin Commission and Bois de Sioux Watershed District, *Application of the Flow Reduction Strategy in the Bois de Sioux Watershed*, 7-18 (JOR Engineering 2010).
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