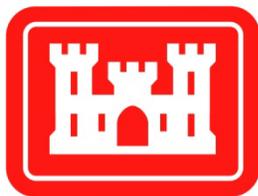


# Appendix S Draft Environmental Impact Statement Public and Private Summarized Comments and Corps Responses

Fargo-Moorhead Metropolitan Area  
Flood Risk Management

Final Feasibility Report and Environmental  
Impact Statement

July 2011



**US Army Corps  
of Engineers** ®

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# Appendix S

## Draft Environmental Impact Statement Public and Private Summarized Comments and Corps Responses

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# 1.0 Public Comments on DEIS/Feasibility Report

## 1.1 Comments and Responses

The Draft Environmental Impact Statement (DEIS) and Feasibility Report was published in the Federal Register for a 45 day public review period on June 11, 2010. The review period closed on August 9, 2010 after being extended by 14 days. The review period generated a number of questions and comments on the DEIS and Feasibility Report and covered a wide range of topics. These comments are provided in Appendix R. To best manage the responses to these comments, the Corps has captured the intent of the various comments by subject matter and then provided a single response when this summarized comment was similar to other comments. The comments have been separated into these categories:

- A. Plan Formulation Alternatives
- B. EIS Process and Schedule
- C. Impacts
- D. Modeling Technical
- E. Page Specific Comments
- F. Coordination of Permits
- G. Project Management
- H. Miscellaneous

All comments have been reviewed by the Corps. Many comments are unique and many are reiterated in comments by multiple individuals. In an attempt to respond to each comment, all comments have been condensed, paraphrased and repeated only once. These comments appear in the subsequent sections and are categorized as they relate to the planning process. Many of the responses provide a general overview and then direct the reader to the location within the Supplement Draft Feasibility Report and Environmental Impact Statement where more detailed information can be found. The Supplement Draft Feasibility Report and Environmental Impact Statement is referred to as the SDEIS throughout this Appendix.

## **2.0 Comment Category A: Plan Formulation Alternatives**

### **A-1 Scope of Study – Basin-wide versus Metro Area**

Some comments questioned the scope of the study and the focus on the Fargo-Moorhead Metro area instead of a basin-wide study. These comments stressed that flood risk management solutions should be developed from a basin-wide perspective, so as to find a full range of alternatives (including upstream storage), and impacts to areas outside the metro would be fully considered. In order to formulate a full array of alternatives and evaluate all of their effects, it is necessary to utilize a basin-wide study area.

#### **Response:**

The problems and opportunities identified in section 2.4 of the SDEIS pertain to the Fargo-Moorhead Metro area. Planning efforts should and do consider a full array of possible solutions and evaluate effects of reasonable alternatives. The significant amount of existing flood risk in the metro warrants evaluating measures that chiefly benefit the metro. Therefore, the planning objectives of this study are to reduce flood risk in the metro, and to improve environmental quality, wetland habitat and recreation in conjunction with reducing flood risk, with the constraint of avoiding increasing peak flood stages upstream or downstream of the metro. While alternatives were considered from a basin-wide perspective, and the effects of those alternatives were evaluated basin-wide, those alternatives were formulated with the objective of addressing flood risk in the metro area. For a discussion of the study area see sections 1.3 and 4.1 of the SDEIS. For a discussion of problems and opportunities and objectives and constraints see sections 2.4 through 2.7 of the SDEIS.

### **A-2 Storage Alternatives – Stand Alone and in Combination**

Many comments asked the Corps to consider storage as a flood risk management alternative, either on its own or in combination with other flood risk management measures. Storage refers to any number of measures intended to store flows (discharge) during flood events in order to reduce the peak discharge of the event. Examples of storage measures include retention, detention, reducing drainage (i.e. farm fields), wet dams, dry dams, etc. These comments generally took the following form:

The Corps has failed to consider storage alternatives; the Corps has not given equal consideration to storage alternatives; why has the Corps not given consideration to storage alternatives; the Corps does not want to implement storage alternatives; etc.

#### **Response:**

The study team has found that storage alternatives, either as stand-alone measures or in combination with others, do not effectively or efficiently address the flood risk in the Fargo-Moorhead Metro area. Storage alternatives have the potential to produce stage reductions over a large area, and would likely have substantial cumulative benefits. However, storage alternatives do not substantially reduce flood risk in the Fargo-Moorhead Metro area. Furthermore, flood storage would need to be implemented in many small increments, over an extended period of time. The study team has found that other alternatives, such as diversion channels, are more

efficient (provide more benefits at less cost) and more effective (reduce flood risk to a greater degree) than storage. While giving full and equal consideration to storage alternatives, the study team has not recommended they be carried forward due to their relative inefficiency and ineffectiveness, and their difficulty in implementing on a large scale. For further discussion of storage alternatives, refer to sections 8.4.2 and 8.4.3 of Appendix O of the SDEIS. The tentatively selected plan (LPP) does include approximately 200,000 acre-feet of staging and storage upstream of the diversion channel inlet to nearly eliminate downstream impacts.

### **A-3 Wetlands/Grasslands – Stand Alone and in Combination**

Many comments asked the Corps to consider wetlands and grassland restoration as a flood risk management and ecosystem restoration alternatives, either on their own or in combination with other flood risk management measures. Many of these comments cited the draining of wetlands for agricultural use as a chief source of increasing flood trends. Wetland and grassland restoration measures provide flood storage, wildlife habitat, and improve water and air quality.

#### **Response:**

Opportunities for wetland and grassland restoration do exist in the Red River Basin. Wetland and grassland restoration could have substantial cumulative benefits basin-wide, both in terms of flood risk and environmental quality. While these measures are effective basin-wide, they are not effective in reducing flood risk in the Metro area. Sections 8.4.2 and 8.4.3 of Appendix O of the SDEIS contain more information on wetlands and grassland restoration measures.

### **A-4 Storage and Wetlands/Grasslands Restoration Alternatives Improve Environmental Quality**

Many comments asked the Corps to consider the environmental quality improvements that could be provided by storage and wetlands/grasslands restoration alternatives. Wetlands and grasslands provide habitat for migratory birds, fish, and other wildlife; they improve water quality and decrease storm water runoff; and they contain a variety of native plant vegetation. In addition, wetlands play a role in water supply as they recharge ground and surface waters. Storage and wetlands/grasslands restoration alternatives could provide opportunities to improve environmental quality.

#### **Response:**

Section 8.4.3 of Appendix O of the SDEIS considers flood storage alternatives. Flood storage opportunities and wetland and grassland restoration opportunities do exist, and with the right operational scheme, storage impoundments could improve environmental quality. Flood storage alternatives could be effective basin-wide and produce cumulative benefits basin-wide. However, these measures are not the most effective or efficient measures to reduce flood risk to Fargo-Moorhead. Any combination of flood storage systems is costly and relatively ineffective at addressing the flooding problems in Fargo-Moorhead.

### **A-5 Multi-faceted Alternatives & Combination of Alternatives**

Some comments raised questions about combining measures into more complex alternatives. These comments asked the Corps to look at combined alternatives such as blended diversions,

levees, and storage impoundments. The comments suggested that a more complex and comprehensive alternative might be found by evaluating various measures combined.

**Response:**

Section 8.4.3 of Appendix O of the SDEIS addresses the array of all measures and combinations of measures. This section of the appendix describes how alternatives and combined alternatives are evaluated, compared and screened. Some measures from Phase 3 were re-visited and some new measures were introduced; all measures and combinations of measures were considered.

**A-6 Consideration of Floodwall and Levee Alternatives**

Some comments asked about floodwall and levee alternatives and questioned if floodwalls and levees received the same consideration as other alternatives. Some asked if the diversion alternative received more time and attention than floodwall and levee alternatives.

**Response:**

Levees and floodwalls were considered as alternatives in Phase 2; section 5.1.2 of Appendix O of the SDEIS outlines the array of measures and alternatives that were evaluated, compared, and screened in Phase 2. The largest levee plan could only be certified up to the 1-percent chance event. This was an intolerable level of remaining risk and the levee alternative was dropped from consideration. Floodwalls were also screened out during Phase 2 because of geotechnical constraints to designing and constructing floodwalls and because floodwalls did not provide the same level of risk reduction as other alternatives.

**A-7 Planning Objectives and Constraints**

Some comments asked how the Corps addressed the study objectives and constraints. The study identifies the following planning objectives: to reduce flood risk in the Fargo-Moorhead metro area, and to improve environmental quality, wetland habitat and recreation in conjunction with reducing flood risk. A study constraint was identified as avoiding increasing peak flood stages upstream or downstream of the metro. Comments asked why the objectives are not all achieved to the same degree and constraints are not avoided to same degree.

**Response:**

The planning objectives are broad statements that address the specified problems and opportunities in the study area; objectives are not specific measures. Throughout the planning process, a variety of specific flood risk management measures and combinations of measures are evaluated, compared and screened. The range of alternatives considered includes measures that could achieve one or more of the planning objectives; however, not all measures are justified or feasible and not all of the measures adequately address the identified problems. Any recommended alternative must effectively and efficiently address the problem of flooding in the Fargo-Moorhead Metro area; the alternative that best addresses the problem may not achieve all objectives to the same degree. Section 7.5.3 of Appendix O of the SDEIS describes how alternatives are compared according to screening criteria to determine the degree to which each alternative meets the planning objectives. The storage and staging upstream of the diversion is incorporated to avoid the constraint of increasing peak flows downstream of the Fargo-Moorhead Metro Area.

### **A-8 Waffle Project and Other Storage Alternatives**

Some comments asked whether the Corps had sufficiently evaluated all water storage alternatives, including the “Waffle Project” and the “Mike 11 Model.” The “Waffle” concept is a basin-wide model that utilizes upstream water storage areas in existing depressions in the watershed. The existing network of roads contains the depressions or storage areas.

#### **Response:**

The “Waffle” concept was specifically explored as a water storage alternative (SDEIS, Appendix O, Section 8.4). On a basin-wide scale, the “Waffle” could produce flood stage reductions over a large area, and cumulative benefits to the basin. However, the “Waffle” would not substantially reduce flood risk to the Fargo-Moorhead area. In addition, the “Waffle” would be costly to implement and could likely not be implemented in a period of less than 10 years. Like other storage alternatives considered, the study team determined that the “Waffle” approach was relatively ineffective and inefficient. Other alternatives were found to be more effective at reducing flood risk in Fargo-Moorhead and more efficient in that they could be implemented for a lower cost. A flood storage system does provide some level of flood risk reduction, particularly for the smaller, more frequent flood events; however, the level of risk that remains for the larger, less frequent flood events is not a tolerable level of risk. Flood storage alternatives, including the “Waffle Project,” do not effectively address the identified problem of flooding in the Metro area.

### **A-9 Flood Storage Alternatives Provide Opportunities for Water Supply**

Some comments noted that historically drought and water supply have been issues of concern in the Red River Basin. The comments asked the Corps if upstream storage areas could provide other opportunities such as water supply in times of drought.

#### **Response:**

The problem identified in this study is flooding in the Fargo-Moorhead Metro Area; any recommended alternative must effectively and efficiently address this problem. Although upstream flood storage alternatives may provide opportunities for water supply, these alternatives are not effective at substantially reducing the level of flood risk in Fargo-Moorhead. Because these alternatives do not effectively address the main problem identified in this study, they were screened out as stand-alone alternatives (SDEIS, Appendix O, Section 5.1 and Section 8.4).

### **A-10 Revise Operating Plans of Upstream Dams**

Some comments asked the Corps if existing dams in the area could be used to reduce flood risk. For example; “Let water out of the dams and keep the levels lower so if we do get a heavy rain, we are able to handle it.”

#### **Response:**

Many dams in the basin are operated for flood damage reduction, but dams are not always located in an area where all snowmelt or rainfall can be captured. Dams in the basin are operated according to specific operating plans to optimize the performance of the individual dam. Many

dams in the basin do provide flood water storage and reduce the flows downstream and provide risk reduction benefits.

#### **A-11 Consider Land Use Changes**

Some comments questioned how future changes might influence the effectiveness of the alternatives considered. Future changes in land use or additional tile drainage in the basin may impact the effectiveness of the recommended plan. These potential land use changes must be considered and any impacts these changes may have on the proposed alternative must be evaluated.

#### **Response:**

Forecasting future conditions with and without the proposed project is an important step in the Corps iterative planning process (SDEIS, Appendix O, Section 1.3). Expert opinion, modeling, and key assumptions are used to forecast future conditions and potential changes in the study area (SDEIS, Appendix O, Section 4.3). Future conditions were revisited in Phase 2 (SDEIS, Appendix O, Section 6.3) and in Phase 4 (SDEIS, Appendix O, Section 8.3). Potential changes in hydraulics and hydrology were considered, among other factors. Land use changes on a basin-wide scale may have a cumulative effect on flood stages; however, the impacts to Fargo-Moorhead would not be substantial.

#### **A-12 Diversion Size and Alignment**

Some comments asked the Corps to consider alternative sizes for the diversion and/or shifting the diversion alignment. Some suggested consideration of smaller diversions with flows reduced to 15,000 cubic feet per second. Others suggested shifting the alignment further west or further south.

#### **Response:**

Multiple sizes for the diversion were considered and each of these alternatives was evaluated, compared, and screened according to the required criteria. The final array of diversion combinations can be found in SDEIS, Appendix O, Section 8.4.3.8. The array of alternatives includes consideration of multiple diversion sizes and alignments.

#### **A-13 Non-structural Alternatives – Stand Alone and In Combination**

Some comments asked if the Corps had adequately considered non-structural alternatives. Non-structural measures do not modify flood behavior. Non-structural measures include flood proofing, or measures that are applied to a structure and/or its contents that prevent or provide resistance to damage from flooding. Such measures include buying and relocating flood-prone structures, wet and dry flood proofing, elevating structures, flood warning systems, and flood insurances.

#### **Response:**

Several nonstructural measures were considered in Phase 2, including relocation, flood proofing, elevating structures, flood warning systems, and flood insurance (SDEIS, Appendix O, Section 5.1.2). As with all alternatives, these were evaluated, compared and screened against specific criteria. Stand-alone nonstructural alternatives were not found to be effective at substantially

reducing flood damages in Fargo-Moorhead, and these alternatives were not found to be cost effective. As such, non-structural measures were screened from consideration as stand-alone alternatives. Non-structural measures were revisited in Phase 4 in combination with other measures and Table 18 in Appendix O of the SDEIS illustrates the final array of combinations. Nonstructural measures are included in combination with the alternatives.

#### **A-14 North Dakota versus Minnesota Diversion**

Some comments asked why the North Dakota diversion was recommended since it is more expensive than the Minnesota diversion.

#### **Response:**

In the evaluation of project alternatives, ER 1105-2-100 requires the Corps to identify the plan that maximizes net national economic development (NED) benefits. The NED plan would be the most cost-effective solution from the federal perspective. In the Fargo-Moorhead Metro feasibility study, the Minnesota 40K short diversion was the NED plan. ER 1105-2-100 requires the Corps to recommend the NED plan unless there are “overriding reasons for selecting another plan based upon other Federal, State, local and international concerns.” The non-federal sponsors preferred a North Dakota diversion alignment that would provide benefits to a greater number of people and reduce risk not only from the Red and Wild Rice rivers, but also from the Sheyenne, Maple, Rush and Lower Rush rivers. The North Dakota alignment benefits more people near the confluence of the Wild Rice and Red rivers and northwest of Fargo, North Dakota, than the NED plan does. Based on these considerations, the Assistant Secretary of the Army for Civil Works approved the North Dakota alignment as a locally preferred plan (LPP). The non-federal sponsors are responsible for additional costs associated with the LPP. For additional information see section 3.14.2 Cost Apportionment.

#### **A-15 Benefit/Cost Information**

Some comments addressed the benefit/cost analysis and specifically asked how the benefits and costs are calculated and where the data come from. Some comments asked how and why these figures have changed over the course of the study. Other comments questioned the truthfulness of the analysis, given that the estimates have changed dramatically.

#### **Response:**

All benefit-cost data presented are based on the latest and best modeling and are honest representations of said modeling. Refinement of modeling has been an ongoing process and therefore benefit-cost data have changed. A number of major changes in the analysis were made, including updated hydrology, that led to dramatic changes in the benefit analysis. The uncertainties inherent in all modeling efforts are made explicit in the benefit-cost analyses. All benefit-cost analyses are documented in the SDEIS and specifically in Appendix C (Economics) and Appendix L (Cost).

#### **A-16 Level of Risk Reduction**

Some comments asked how the level of flood risk reduction for the project was determined. One comment asked this question: “Why is the Fargo-Moorhead project being designed for a 500-

year flood when the Grand Forks-East Grand Forks flood protection system was designed for a 300-year flood?”

**Response:**

The level of risk reduction targeted in this project guided by a goal set by the non-federal sponsors’ Work Group. The Metro Flood Study Work Group (MFSWG) established the goal of a stage of 36 feet at the Fargo gage during a 0.2-percent chance event, or the 500-year event. The assurance of a stage of 36 feet is not achieved at the 0.2 percent event with the Locally Preferred Plan, or the Federally Comparable Plan; the MFSWG has approved of the diversion channel alternatives providing a level of protection lower than the original goal. See section 7.4 of Appendix O of the SDEIS for more details.

**A-17 Non-Structural Measures and Flood Storage**

How are the terms “non-structural measures” and “flood storage” defined?

**Response:**

Many comments used the term non-structural measure to refer to wetlands/grasslands restoration measures or flood storage measures, or any measures that reduce runoff. The Corps definition of a non-structural measure is one that reduces the adverse affects of flooding without modifying flood behavior. These include buyouts, elevation of structures, structure flood-proofing, and others. Any measure that reduces runoff by definition changes flood behavior. For the purposes of this report, measures that modify flood behavior are considered structural measures, while measures that do not are non-structural. Comments A-2, A-3, A-4, A-8, A-9, and A-10 address concerns about measures that reduce runoff. Comment A-13 addresses concerns about non-structural measures.

**A-18 Solution to Red River Basin Flooding Problems**

The project does not even guarantee to solve the Red River Basins catastrophic flooding problems.

**Response:**

There is no measure that can guarantee to solve flooding problems; however, existing data and hydraulic modeling indicate that the proposed project would substantially reduce flood risk in the Fargo-Moorhead Metro Area. Even with the flood risk reduction project in place, there will always be residual risk to surrounding communities that can be further reduced through zoning, building codes, insurance and evacuation.

## **3.0 Comment Category B: EIS Process and Schedule**

### **B-1 Process for commenting on DEIS**

Several comments inquired about the correct process for commenting on the Draft Environmental Impact Statement (DEIS)

#### **Response:**

Comments can be submitted through the website [www.waterinstitute.org/feasibility/index.htm](http://www.waterinstitute.org/feasibility/index.htm), via postal mail at U.S. Army Corps of Engineers, St. Paul District, Attn. Aaron M. Snyder, 180 East Fifth Street, Suite 700, St Paul MN 55101-1678.

### **B-2 Coordination**

Some comments asked the Corps to enlist other partners including Natural Resource Conservation Service (NRCS), the U.S. Fish and Wildlife Service (USFWS), and state and local agencies.

#### **Response:**

The Corps has been coordinating with the NRCS, USFWS, and state and local agencies from the beginning of this planning process. A list of all participating entities is included in Chapter 6 of the SDEIS.

### **B-3 Request for Supplemental Draft EIS**

Some comments requested that the Corps prepare a Supplemental Draft EIS that addresses the issues raised in comments, and, once complete, provide a notice and comment period for the Supplemental Draft EIS.

#### **Response:**

In response to comments and to more fully study upstream and downstream impacts, the Corps has made the decision to prepare a Supplemental DEIS. The notice of intent to prepare a Supplemental DEIS was published on December 27, 2010. The Supplemental DEIS is being made available for public comment.

### **B-4 Request for Extension**

Some comments asked the Corps to extend the comment period on the DEIS until 45 days following the release of a completed study on downstream impacts.

#### **Response:**

Although the Corps did not extend the comment period on the DEIS beyond August 9, 2010, it did decide to extend the feasibility study and prepare a Supplemental DEIS. The Supplemental DEIS is being made available for public comment.

## **4.0 Comment Category C: Impacts**

### **C-1 Induced Growth**

The DEIS did not include the environmental impacts of induced growth from changes to the regulatory floodplain. The environmental analysis needs to look at the indirect impacts of the project such as inducing development in the former 100-year floodplain. The main areas of indirect impacts are wetland losses, loss of flood storage areas, and loss of riparian habitat. Ironically, the diversion channels will also increase development in the floodplain, increasing the area that may need to be protected during major flood events.

#### **Response:**

The future without project condition indicates that Fargo will continue to grow at a rapid rate. There will be no impacts based on induced growth because the area will grow with or without the project.

### **C-2 Public Safety**

Citizens that live in rural areas as well as entire towns downstream of the project will be cut off of emergency egress and emergency vehicles such as fire and ambulance. Travel will be impossible during large events leading to high risk of loss of human life.

#### **Response:**

Emergency access during floods is an existing problem in the study area. The Minnesota 35K diversion (FCP) and North Dakota 35K diversion (ND35K) would increase the frequency of flooding downstream to varying degrees depending upon location. Increased loss of emergency egress would occur infrequently for relatively short periods of time. The tentatively selected plan (North Dakota diversion with upstream staging, or LPP) would have minimal impacts to downstream flood stages, but could have impacts to emergency access upstream. All diversion plans would significantly improve public safety in the Fargo-Moorhead region by reducing the risk to several major medical facilities in the benefitted area and by improving emergency vehicle travel throughout the project area.

### **C-3 Farm Equipment Access**

Having to travel longer distances between fields as well as having to drive large farm equipment across bridges for field access is costly and dangerous.

#### **Response:**

There will be bridges placed at a minimum every three miles to get around the diversion channel. Standard safety rules, laws and regulations for highway travel with heavy equipment will have to be complied with. The environmental consequences of the diversion channel alternatives are discussed in more detail in Chapter 5 of the SDEIS.

#### **C-4 Safety for Recreational Users**

Section 5.2.3.1.5 of the DEIS titled 'Public Health and Safety' should include a description of safety and operational measures proposed to ensure the safety of recreational users on the Red River and its tributaries.

#### **Response:**

The structure on the Red River will be treated as if it were a bridge for the majority of the time and recreational boats will be able to pass underneath it as they please. While the project is in operation recreational boaters will not be allowed to pass underneath the structure or to go within a to-be-determined distance of the structure for safety reasons. Appropriate signage and educational information regarding the Red River and its tributaries will be available to the public as the project moves forward.

#### **C-5 Catastrophic Failure Risk**

The SDEIS should include an analysis of control structure catastrophic failure risk and provide loss of life estimates in the event of catastrophic failure.

#### **Response:**

An analysis of the potential for loss of life due to flooding for existing conditions was completed January 5<sup>th</sup>, 2009 and included in the SDEIS in Appendix D Other Social Effects. An analysis that will look at catastrophic failure of the tentatively selected plan (LPP) will be done and included in the Final Environmental Impact Statement.

#### **C-6 Mitigating for Downstream Impacts**

The SDEIS must include mitigation for damages caused downstream and the estimated cost for addressing the downstream stage and flow increased regardless of Corps authority to fund such mitigation actions. The Council of Environmental Quality (CEQ) guidance titled NEPAs Forty Most Asked Questions states that: All relevant, reasonable, mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. Sections 1502.16(h), 1505(c). This will serve to alert agencies or officials who can implement these extra measures, and will encourage them to do so.

#### **Response:**

The SDEIS documents the economic value of downstream impacts and reflects them in the benefits and costs of the diversion channel alternatives. The study includes an analysis of non-structural measures that could be economically justified as part of the project. The study also includes an analysis to identify any impacts that rise to the level of a taking of property under the Fifth Amendment of the U.S. Constitution. The report identifies several measures that could be implemented by others to mitigate downstream and/or upstream impacts, including flood easements, farmstead ring levees, community levees, buyouts/relocations, and other non-structural measures. Existing federal, state and local programs are available to assist in implementing such measures. Several of the affected communities are independently pursuing levee projects as a result of the 2009 flood.

### **C-7 Extent of the Downstream Impacts**

The extent of downstream impacts needs to be quantified all the way to the location on the river where there will be no impacts or where impacts will be negligible. Only when this is done can there be a quantification of the cost verses the benefits.

#### **Response:**

The SDEIS documents the full extent of the impacted area.

### **C-8 Cost of Mitigation for Downstream Impacts**

The Corps should consider participation in the cost of mitigation for the downstream impacts caused by the project, including maintenance and operation costs in the future. How will these downstream impacts be mitigated? Any stage increase on the 100 year flood greater than six inches needs to be mitigated.

#### **Response:**

Corps policy only allows federal participation in measures that are economically justified or to address impacts that rise to the level of a taking of property under the Fifth Amendment of the U.S. Constitution. The non-federal sponsors may mitigate for additional impacts. Operation and Maintenance of the project is a requirement of the non-federal sponsors.

### **C-9 Flood Protection for Individual Homeowners**

Will there be a process in place to provide flood protection options for homeowners who are situated outside of the protected area, but will be impacted by more water as a result of the project?

#### **Response:**

Corps policy only allows federal participation in measures that are economically justified or to address impacts that rise to the level of a taking of property under the Fifth Amendment of the U.S. Constitution. The study includes an analysis of non-structural measures that could be economically justified as part of the project and an analysis to identify any impacts that rise to the level of a Constitutional taking of property. The report identifies several measures that could be implemented by others to mitigate downstream and/or upstream impacts, including flood easements, farmstead ring levees, community levees, buyouts/relocations, and other non-structural measures. Existing federal, state and local programs are available to assist in implementing such measures.

### **C-10 Takings Analysis**

The final EIS should include a description of the takings analysis and be explicit as to why the project does or does not result in a taking. Inclusion of the taking analysis as an appendix would be useful.

#### **Response:**

The takings analysis is prepared by our attorneys to advise the decision-makers, and is protected by attorney client privilege. Therefore it will not be included as an appendix. The Corps will

provide a summary of the results of the takings analysis and a description of the methodology used when analyzing Fifth Amendment takings.

### **C-11 Compensation for Rented Land**

The proposed route of the diversion will directly and adversely impact farming operations and homes. Large tracts of farm land will be taken as part of the project; since land that we farm is rented we will not be compensated for this. It would put us out of business.

#### **Response:**

There are programs to assist when the acquisition of land for a project adversely affects businesses. In certain circumstances, farmers and other business owners can qualify for business relocation benefits. Consult with a relocation advisor to determine whether your business qualifies for benefits under Public Law 91-646.

### **C-12 Farm Land Fragmenting**

Our remaining land will be on the wrong side of the diversion. The result will be a loss in value of the property. It is possible we might not even be able to sell it if need be. Not only will it affect our present way of life but also our retirement years.

#### **Response:**

The Fifth Amendment prohibits the acquisition of property by a governmental unit for a public use without just compensation. Just compensation is defined as the market value of a property as established by an impartial appraisal. Frequently, the government will purchase a portion of a property instead of the entire tract. When this happens, the market appraisal will establish the market value of the entire tract before the acquisition occurred and the market value of the portion of the property that is retained by the property owner (the remainder). The compensation that the property owner receives will be calculated by subtracting the value of the remainder from the value of the entire property before the acquisition occurred. In this way property owners are compensated for any decrease in the value of the remainder caused by the government's acquisition.

### **C-13 Township Roads and Bridges**

The diversion channel will destroy our township roads and bridges so our access route to town would be difficult and lengthy. Bridges will be long and very difficult to transport our agricultural equipment across without the inevitable traffic jam half way across. We will lose a lot of rural access by dead end roads and our rural township, already poorly maintained by few taxpayer dollars, will lose more tax base. Rural businesses in and around the path of the diversion, will lose access during the building of it and certainly suffer economic impact. We constantly see this with road construction projects.

#### **Response:**

Bridges will be placed along the diversion channel every three miles. More information on the impacts of these bridges and a map detailing the location of the bridges can be found in section 5.2.3.1.4 of the SDEIS.

### **C-14 Loss of Long Term Earning Potential**

The loss of land will greatly impact farming operations, it will take away a percentage of land from individual farmers ranging from 1 to 100 percent, in doing this it will take away long term earning potential from the farmers.

#### **Response:**

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

### **C-15 Loss of Farmstead**

How do you plan to put a market value on farmsteads when the entire farm operation is run out of it?

#### **Response:**

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be address in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly. There are programs to assist when the acquisition of land for a project adversely affects a business. In certain circumstances, farmers and other business owners can qualify for business relocation benefits. Consult with a relocation advisor to determine whether your business qualifies for benefits under Public Law 91-646.

### **C-16 Extra Cost for Longer Commutes to Farmland**

We have never farmed land more than two miles away in our lives; can you guarantee this to continue? Hundreds of extra hours per year will be spent on roads around the diversion costing tens of thousands of dollars in productivity and machinery costs per year. Who pays for this?

#### **Response:**

Any acquisition of land will include surveying, appraisals, and negotiations. Just compensation will be provided for all private property taken for the project. A full market analysis will be conducted on each parcel of land to determine a fair market value. This market value will be the amount to acquire the property. Other relocation costs and expenses will be included on a case-by-case basis. Diversion crossings and transportation impacts are discussed in the SDEIS as well as Appendix C (Economics).

### **C-17 Impacts to Aquifers**

One of my biggest concerns is what will happen to the aquifers. Clean drinking water is the most priceless asset we have. With my water table so close to ground level we could pollute our ground waters forever.

**Response:**

The soils in the area are typically tight glacial clays. These types of soils are not conducive to transmitting large quantities of water especially over the relatively short timeframe that any proposed diversion would be filled for a high water event. For these reasons it is anticipated that there would be little to no impact to water quality in the aquifers from the diversion channel alternatives.

**C-18 Eminent Domain**

The proposed Fargo Diversion path in its big wide sweeping design clearly will be challenged by the North Dakota Eminent Domain laws. 32-15-01 item 4 of the Law states "Notwithstanding any other provision of law, a public use or a public purpose does not include public benefits of economic development, including an increase in tax base, tax revenues, employment, or general economic health." The City of Fargo has seen that the design be pushed west to allow future growth. The current design path would clearly allow future growth....the "including an increase in tax base...."

**Response:**

As non-federal sponsors, the cities of Fargo and Moorhead are responsible for acquiring the real estate necessary for the project. The non-federal sponsors will comply with all applicable state and federal laws when conducting real estate acquisitions, including the North Dakota eminent domain statute cited in the comment. The public purpose justifying the use of eminent domain is flood protection for the cities of Fargo and Moorhead, not an increase in the tax base of either city.

**C-19 Defining Downstream Impacts**

Downstream impacts have not been fully defined and they need to be able to show the timing, quantity, length of impacts before the project can move forward.

**Response:**

The project impacts have been defined in Chapter 5 of the SDEIS and summarized in Chapter 3. Detailed impact information can be found in Appendix B Hydraulics.

**C-20 Consequences of Downstream Impacts**

The project's downstream or upstream impacts will not come without consequences; there could be the loss of homes, increased repair costs to existing and future development, impacts to farmers and their crops, emergency and regular access issues, increased costs of flood insurance, additional damages to public infrastructure, increased flood fighting costs, natural resources impacts, along with other economic and social impacts (environmental justice and socioeconomic degeneration).

**Response:**

It is acknowledged that any project impacts will have consequences. The economic consequences have been identified in the SDEIS in Chapter 3 along with Appendix C - Economics. Social impacts from increased stages are included in Appendix D - Other Social

Effects. Impacts that have not been specifically identified or discussed are considered to be relatively minor and not significant.

**C-21 Project Impacts versus Without Project with Emergency Levees**

What will the impacts be with the project compared to when Fargo-Moorhead constructs emergency levees?

**Response:**

The project impacts have been analyzed based on no emergency measures being in place for any communities. However, in the DEIS released to the public on June 1, 2010 tables in Chapter 5 indicated the difference between with and without emergency protection for select reaches, these tables are include here for reference (Table S-1 and Table S-2).

**Table S-1: Minnesota Short 35K – 10 percent chance event**

<b>Minnesota Short 35K – 10-percent chance event</b>		
Location	Difference in inches between with Project and Existing with No Emergency Protection in Place	Difference in inches between with Project and Existing with Full Emergency Protection in Place
Halstad Gage	5.5	6
Near Hendrum	4	4.3
Perley	3.4	3.7
Georgetown	2.7	3
<b>Minnesota Short 35K - 2-percent chance event</b>		
Halstad Gage	1.3	1.1
Near Hendrum	4.3	3.5
Perley	2.6	1.9
Georgetown	2.1	1.3
<b>Minnesota Short 35K - 1-percent chance event</b>		
Halstad Gage	4.6	3.7
Near Hendrum	9.4	6.8
Perley	6	4.2
Georgetown	7.7	5.3

**Table S-2: North Dakota East 35K – 10 percent chance event**

<b>North Dakota East 35K - 10-percent chance event</b>		
Location	Difference in inches between with Project and Existing with No Emergency Protection in Place	Difference in inches between with Project and Existing with Full Emergency Protection in Place
Halstad Gage	24.7	25.2
Hendrum	16.7	17
Perley	10.9	11.3
Georgetown	7.1	7.3
<b>North Dakota East 35K - 2-percent chance event</b>		
Halstad Gage	2.3	2
Near Hendrum	6.8	6
Perley	3	2.3
Georgetown	1.8	1.1
<b>North Dakota East 35K - 1-percent chance event</b>		
Halstad Gage	5.3	4.4
Near Hendrum	10.4	7.9
Perley	5.4	3.6
Georgetown	7.6	5.2

### **C-22 Review for Each Impacted Site**

There should be a review of each impacted site individually.

#### **Response:**

As part of the takings analysis that has been conducted as part of this study each impacted structure has been considered. The takings analysis will be updated as needed.

### **C-23 Future Floodplain Development**

How will indirect support of floodplain development be minimized in the future?

#### **Response:**

Floodplain development is regulated by local units of government and if they are participants in the National Flood Insurance Program (NFIP) restrictions are placed on local development in the floodplain. Local governments are responsible for floodplain zoning and would likely leave some restrictions in place. For the LPP the staging area and Storage Area 1 will include fee acquisitions and the purchase of flowage easements which will not allow for future development in at least parts of those areas.

### **C-24 Ditching is the Problem**

Ditching in the basin is the problem, what will happen in the future when more ditches are in place?

#### **Response:**

It is believed that ditching may contribute to smaller summer flood events; however it is unlikely that they play a significant role during large spring flood events. It is unlikely that drain improvements in the future would play a significant role in increases in flooding, as many areas are currently well ditched today.

### **C-25 Impacts to Natural Resources Downstream**

Impacts to natural resources downstream of the diversion channel need to be addressed and identified.

#### **Response:**

Impacts to the natural resources for the entire area of impacts are described in Chapter 5 of the SDEIS.

### **C-26 Peak Stages**

The EIS must explain how plans that will result in downstream stage increase are consistent with the identified planning constraints (specifically, 'avoid increasing peak stages').

#### **Response:**

Section 3 of the SDEIS and Appendix O - Plan Formulation discuss compliance with the planning constraints. It is acknowledged that it is not possible to develop a large scale regional flood risk management project without causing impacts.

### **C-27 Environmental Justice**

The Corps' consideration of environmental justice is entirely deficient. It includes no scoping of, nor indeed any mention of, environmental justice (EJ). The DEIS assumes, without discussion, that the relevant geographic scale for EJ analysis is the project area. The DEIS must be supplemented to correct this deficiency.

#### **Response:**

An Environmental Justice analysis has been completed for this project. The geographic scale of the EJ section ranges from Abercrombie north to the Canadian border. The section discussing EJ can be found in Chapter 5 of the SDEIS.

### **C-28 Flood Insurance**

What will the implication for flood insurance be as a result of this project?

#### **Response:**

Flood insurance rates may be updated based on the updated hydrology and hydraulics developed as part of this study. These updates will be coordinated with FEMA and the FEMA will decide how to use the updated hydrology and hydraulics. Generally speaking the Fargo-Moorhead Metro communities will see a reduction in their flood risk, and some properties outside of the metro may see some increase in their flood risk.

### **C-29 Ice Impacts to Downstream Flooding**

Downstream impact should also report the additional potential of ice damage due to the crest coming higher and sooner than it would be without the diversion. It is logical to assume the sooner you get the crest, the more ice will be present and consequently the more ice damage will occur. Due to the above, it is logical to assume that damage to infrastructure - roads, power lines, phone and data cables, bridges, etc. - would be far more extensive than the expression of additional inches is telling us.

#### **Response:**

The Corps is conducting a study of ice impacts being led by an expert with the U.S. Army's Cold Regions Research and Engineering Laboratory (CRREL). This and other ice-related issues will be addressed through this study effort. Preliminary, if not final, results will be provided in the Final EIS.

### **C-30 Impacts to Existing Downstream Flood Protection Projects**

The EIS needs to address impacts to downstream flood protection projects from potentially increased flows and stages, potential implications involving reduced flood protection, flood insurance map implications for homeowners and/or levee certification and re-certification requirement implications. One comment asked if additional state funding would be made available to raise the height of state funded levee projects.

**Response:**

Downstream impacts, including interactions with existing projects and conditions, have been identified in Chapter 5 of the SDEIS and in Appendix B - Hydraulics. Economic costs of the impacts are identified in Chapter 3 of the SDEIS and in Appendix C – Economics. The availability of additional state assistance would depend on the state's policies and procedures for funding flood damage reduction projects.

**C-31 Regulations Related to Land Drainage**

The EIS does not address problems with the current local, state, and federal regulations related to land drainage in the Red River basin. To keep up with our current wet cycle and to mitigate local flooding, ditches continue to be cleaned and improved at a rapid pace. Small culverts are being replaced by large culverts, regardless of downstream consequences. New ditches above Fargo continue to be proposed and installed. For example, a nine-mile drainage ditch through the Sheyenne sand hills is proposed as a way to mitigate a high water table in McLeod, North Dakota (population 28). Excavation on this ditch has begun. How will this, along with literally tens of thousands of other cleanouts, field scrapes, and other new ditches affect the model results and performance of the diversion? More importantly, how will downstream locations be influenced by continued expansion of drainage in the mid- to upper parts of the watershed, when combined with the diversion?

**Response:**

Drainage is generally a local development issue and regulated at the local level, unless it impacts waters of the United States and is under the jurisdiction of the Corps of Engineers. It is generally believed that ditching may contribute to smaller summer flood events, however it is unlikely that they play a significant role during large spring flood events. It is unlikely that drain improvements in the future would play a significant role in increases in flooding, as many areas are currently well drained today.

**C-32 Increase in Base Flood Elevation**

Section 3 of EO 11988 requires (1) an evaluation of alternatives that would not result in increases in the Base Flood Elevation (BFE), with an explanation of why they are not feasible and (2) certification that no structures are located in areas that would be impacted by the increased BFEs. These requirements may implicate additional alternatives, modifications to the alternatives, and may affect the NED, RED, and OSE accounts in your analysis. FEMA encouraged the Corps to revise the DEIS to take into account these elements and provide FEMA an opportunity to review the revised version before it becomes final.

**Response:**

Chapter 3 of the SDEIS and Appendix O - Plan Formulation address compliance with Executive Order 11988. The Corps will continue to work with FEMA on the upstream and downstream impacts of the project.

### **C-33 Floodplain Development**

The EIS can be improved by identifying the measures that would minimize the adverse impacts from the proposed floodplain modification. The document can be improved by identifying measures to reduce the alternatives' indirect support of future development in the floodplain.

#### **Response:**

Chapter 3 of the SDEIS and Appendix O - Plan Formulation address compliance with Executive Order 11988. Floodplain development is regulated by local units of government and if they are participants in the National Flood Insurance Program (NFIP) restrictions are placed on local development in the floodplain. For the LPP the staging area and Storage Area 1 will include buyouts of properties and the purchase of flowage easements which will not allow for future development in those areas.

### **C-34 Socioeconomic degeneration**

Several comments mentioned the issue of socioeconomic degeneration. This project may cause accelerated migration of rural residents to the safety of FMM. NEPA requires analysis of this socioeconomic degeneration. Aspects of socioeconomic degeneration include people moving away, impacts on local businesses, and impacts on property values. The project will impose hardship on some communities. The DEIS is silent on socioeconomic degeneration and on this basis alone is inadequate and must be supplemented before it is presented to the Corps' final decision maker.

#### **Response:**

The issue of socioeconomic degeneration is discussed in the SDEIS in section 5.2.3.1.7 and in section 5.2.3.2.1. This is also addressed in Appendix D of the report.

### **C-35 Impacts to Caledonia N.D.**

The unincorporated town of Caledonia may have some project related impacts, have they been looked at?

#### **Response:**

The town of Caledonia has been inventoried and it has been considered in the downstream impacts analysis. More information on the downstream impacts analysis and impacts at the Goose River, where Caledonia is located, can be found in the SDEIS, Chapter 3, Section 3.8.4.2. Structures in Caledonia were accounted for in downstream economic analysis in Appendix C.

### **C-36 Downstream Towns Do Not Support this Plan**

Downstream towns, townships, and counties downstream towns have spoke out against a project that would put more water onto their towns.

#### **Response:**

Noted.

### **C-37 Change in Alignment**

We would support a slight change in the alignment that would reduce the amount of farmsteads that would need to be moved.

#### **Response:**

The Corps will consider slight alignment shifts where practical to reduce impacts to individuals.

### **C-38 Shift Alignment Further South and West**

The proposed ND 35K route should be located further south so as to allow proper development of the entire area. It should also be located further west for its entire route so as to eliminate stifling of growth in Horace and West Fargo, ND.

#### **Response:**

The objective of the Fargo-Moorhead Metro project is to reduce overall flood risk to existing development in the metropolitan area, including the city of Horace. Federal projects must comply with federal regulations and policies. Executive Order (EO) 11988 Floodplain Management states a goal to “avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” If avoiding the floodplain altogether is not practicable, EO 11988 requires federal agencies to “minimize potential harm to or within the floodplain.” On the west edge of the metro area, there is considerable development as far south as Horace east of the existing Sheyenne Diversion, so we chose to follow the existing diversion as much as possible and pass south of Horace. This alignment substantially reduces the risk of flooding in Horace from the Sheyenne, Wild Rice and Red rivers while minimizing the loss of floodplain in the area. The project would not prevent development east of Horace, west of the diversion or south of the diversion west of County Road 17. The North Dakota West alignment between Horace and West Fargo, ND is discussed in section 3.7.3.

### **C-39 Impacts to Rural Public Infrastructure**

Impacts to rural public infrastructure need to be quantified. This includes impacts to roads, highways, bridges, state campgrounds, and other public infrastructure. In addition, impacts to agricultural and private lands also should be quantified. Highway 75 and other rural roadways will be closed sooner and possibly longer with increased levels of water causing more damage to the roadway. When roads are closed, transportation of goods and services is impaired, schools need to be closed, and fire and medical services are limited. Existing levee systems will need additional improvements.

#### **Response:**

Impacts to downstream and upstream infrastructure are addressed in the main report. More information on the impacts to bridges and other infrastructure along with a map detailing the location of bridges can be found in section 5.2.3.1.4 of the SDEIS. Sections 3.8.3 and 3.8.4 of Appendix C of the SDEIS contains additional details about impacts to rural and public infrastructure.

### **C-40 West Side Drainage**

The diversion channel must not affect drainage of agricultural land and legal drains.

#### **Response:**

The diversion channel, regardless of its location in either North Dakota or Minnesota, will be designed to minimize impacts to local drainage. Where the channel intersects existing legal drains, the channel will be designed to accept flow from the drain. In areas between drains, ditches adjacent to the channel will be used to convey drainage to a place where it can enter the diversion channel. Section 3.7.2 of the SDEIS includes a figure depicting the channel profile, this chart indicates when flows in the diversion are below ground flows will enter the diversion. If flows in the diversion are above ground flows from local drainage will not enter the diversion. Drainage in the summer will likely not be impacted as summer flood events are significantly smaller than spring flood events.

### **C-41 Maintain Drain 13**

The Rush River Water Resource District proposed a realignment of the Red River Diversion to maintain Drain #13 as a legal drain by moving the route ½ mile or 1 mile east. The District submitted a petition signed by 50 residents and landowners, representing 95% of the residents living in the drainage area of Drain #13. The proposed realignment was approved by the Rush River Water Resource District Board at its July 17, 2010 meeting and the board requests that the Corps support implementation of the plan.

#### **Response:**

The proposed North Dakota diversion alignment has been shifted to maintain Drain #13 and to avoid a farmstead in the area northwest of Harwood, ND.

### **C-42 Farmland Policy Protection Act (FPPA)**

Because this project will impact agricultural lands, it is a requirement that a Farmland Policy Protection Act (FPPA) site assessment be appropriately filed. Should the alternatives be modified to impact additional farmland, the FPPA review should be reinitiated.

#### **Response:**

As a result of slight modifications to the project an updated Farmland Conversion Impact Rating has been requested by the Corps and received from NRCS. If there are more modifications to the projects impacts this will be updated again. The AD 1006 can be found in Appendix F of the SDEIS.

### **C-43 Suggestions to Minimize Impacts to Farmers**

- Utilize north-south or east-west alignments as much as possible to minimize diagonal crossings of farmlands
- Design and build the channel to carry 100yr flood flows with surface elevation below outside ground elevation when possible to ensure positive drainage from surrounding farmland

- Design and build drainage channels outside of spoil banks to ensure surface water can get to the diversion inlets
- Design and build gravel roads along diversion between bridge crossings to allow for local traffic and farm equipment
- Design and build tile drainage inlets into the diversion to allow for development of gravity tile drainage systems into diversion over time
- Allow landowners to retain ownership of land not needed for the project
- Corps should get input from local farmers and township officials regarding diversion alignment spoil location and drainage inlet locations.

**Response:**

The Corps will work with the local farmers during future phases of the project to ensure that impacts are as minimal as possible and consideration will be given to all of the issues raised above.

**C-44 Spring versus Summer Flooding Impacts to Farmland**

No differentiation between the significantly different impacts that spring and summer flood events have on affected agricultural lands. An assessment of the impacts of each event should be included in a comprehensive evaluation of downstream impacts.

**Response:**

Based on the current operating plan where the diversion will go into operation when the flow reaches 9,600 cfs, the diversion would have operated four times during the summer months; the maximum discharges were 13,200, 9,810, 13,500, and 10,600 cfs in 1975, 2005, 2007 and 2009 respectively. For comparison the maximum discharges were 29,100 cfs and 21,100 cfs during the spring floods of 2009 and 2010, respectively. As the data indicates, there is a much higher probability of a spring event but also the possibility of a summer event. Events in the spring time will have minimum impact since the water will recede in time for farmers to be able to get their crops in the field to take advantage of a full growing season, whereas summer impacts could completely wipe out the crop for the season. Every effort will be made to not operate the project during summer events, so the expectation is that there will be no impact unless faced with an extremely rare event. If the project is not operated during the summer months, no staging will be required and without staging there are no impacts; as such, there are no project impacts in the summer when the project is not operated.

**C-45 Increased Flooding on Farmland**

Farmland downstream of the diversion channel outlet will flood more frequently with project in place, this farmland already has many legal drains that run through it and terminate at the Red River. This flooding could result in delays in planting causing loss of yields. Flooding events occurring after planting could cause crops to die. Farmers use crop insurance to ease their risk with regard to natural events, with more frequent flooding by this project would cause an increase in claims over several years, it is possible that Federal Crop Insurance may deem the

land uninsurable and prevent farmers from purchasing crop insurance, reducing the value of the land.

**Response:**

The design of the project will be to keep increased flooding to a minimum in duration and frequency. Very few parcels will have large impacts for a sustained duration. For impacts that rise to the level of a taking under the Fifth Amendment of the U.S. Constitution, the landowner will be entitled to just compensation.

**C-46 Replacing Farmland**

How can 6500 acres of farmland be replaced, at what cost and where will this land be found?

This project will raise the value of any farmland for sale within the area.

**Response:**

The value of farmland along the project will be determined by market values, there is no current evidence that values will increase as a result of the project.

**C-47 Cultural Resources**

The proposed Fargo Diversion will impact thousands of acres of historical land containing information of past cultures. Native American artifacts are uncovered all of the time by farmers in this region.

**Response:**

A Phase I cultural resources survey of the proposed diversion alignments and tieback levees on both the North Dakota and Minnesota sides of the Red River is currently underway. If changes are made to these alignments, any new areas will also be surveyed. A Phase I survey consisted of a walkover of the project area by archeologists to identify and record any surface-visible prehistoric and historic archeological sites. Subsurface testing during the survey involves small hand-dug shovel holes or soil auger holes to identify shallowly buried prehistoric archeological sites and soil cores to identify more deeply buried sites. The purpose of this survey is to locate and record both prehistoric and historic archeological sites and any standing structures over 50 years old. The next step will be to do testing and archival research for any archeological sites found in the selected alignment to determine if they are eligible for inclusion on the National Register of Historic Places. Archival research and interviews on the history of any 50 year old or older structures, including farmsteads, will be conducted to determine if they meet any of the eligibility criteria for listing on the National Register (i.e., the site/building is associated with significant historic events; is associated with important persons; has a distinctive type, period or method of construction, is the work of a master architect, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or has the potential to provide information important to history or prehistory). Finally, any archeological sites and architectural structures listed on or determined eligible to the National Register which will be impacted by the diversion construction will have to have those impacts mitigated prior to diversion or tieback levee construction in that area. Mitigation for eligible or listed prehistoric or historic archeological sites generally consists of data recovery excavation of a portion of the site. Mitigation for historic architectural sites generally consists of

large-format photography and measured drawings of any buildings and structures, a scaled planview map of a farmstead layout, and a written history of the site. Native American tribes with historic ties to the Red River Valley are also being consulted regarding locations in the project area which are important to them either currently or historically.

#### **C-48 LPP is More Environmentally Damaging and Expensive**

The proposed LPP will result in greater ecological impacts than both the FCP and the NED. 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. The comparable costs (in millions) of the LPP, FCP, and NED are \$1,462, \$1,236, and \$1,367, respectively. 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.

#### **Response:**

The costs of the LPP and FCP are described in Chapters 3 and 5 of the SDEIS. The primary planning objective is to reduce flood risk to the entire Fargo-Moorhead Metro area. The LPP reduces flood risk to a larger geographic area and a greater number of people than the FCP.

#### **C-49 Fish and Wildlife Service Coordination Act**

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. The USFWS has recommended the FCP alternative rather than the LPP.

#### **Response:**

The Fish and Wildlife Service has been involved in the process from the very beginning of the planning process; they have provided a Fish and Wildlife Service Coordination Act draft report in which they have made recommendations for this project. Each of those recommendations is addressed in the SDEIS. The Fish and Wildlife Service Coordination Act report can be found in Attachment 3 of the SDEIS.

#### **C-50 Transfer of Invasive Species**

The DEIS does not discuss the potential for invasive species transport during construction or how the operation of the project may potentially be affected. Given the recent discovery of zebra mussels in the Red River, maintenance associated with removal from infrastructure (to ensure smooth operation) can be costly and should be included in the analysis provided by the EIS.

**Response:**

The diversion channel alternatives would not be expected to speed the spread of any invasive species over existing conditions. Invasive species, such as zebra mussels, would not be expected to affect the operation of the project.

**C-51 Rare Species**

In the interests of providing a quantitative comprehensive analysis, the EIS must describe whether key habitats and species of greatest conservation need are present in the project area and whether they will be affected by the project. The EIS should document the known presence of lake sturgeon in the Red River basin.

**Response:**

Section 4.2.1.9 of the SDEIS provides a Red River basin fish species list. This list is taken from primary scientific literature (a 2005 symposium of the American Fisheries Society, 45:293-321), which was written by a MNDNR biologist who has participated in agency coordination for this project. This table (pg 314 in Aadland 2005) states that lake sturgeon have been extirpated from the Red River basin. However, Aadland (2005) also recounts the history of lake sturgeon in the basin, including efforts to reintroduce the species. This recount is included in section 4.2.1.9.1 of the SDEIS, including reference to stocking numbers since 1997. We believe this information taken from primary literature, written by a MNDNR biologist on our coordination team, accurately conveys the status of lake sturgeon in the basin. Information identifying other state and federal listed species is documented in the SDEIS in Chapter 4 and 5.

**C-52 Geomorphic Impacts Mitigation**

It is encouraged that the Corps uses the Emergency Watershed Protection Program administered by NRCS or acquisition of riparian corridors to mitigate for geomorphic impacts caused by the project.

**Response:**

Coordination with NRCS has been ongoing discussing potential riparian areas where the landowners would be interested in having riparian habitat restored as mitigation for the Fargo Moorhead Metro project. Areas have been identified along the Maple, Wild Rice and other tributaries in the project area to look at in further detail.

**C-53 Drayton Dam for Mitigation**

Drayton Dam is the dam that has the highest priority for fish passage, and should be considered before other dams for mitigation for fish passage for this project.

**Response:**

Corps agrees that Drayton Dam is a higher priority; by providing for fish passage at Drayton Dam we are reconnecting several hundred miles of Red River.

**C-54 Wetland Mitigation**

There is concern that wetland mitigation within the bottom of the diversion channel may not restore form and function that is lost by the wetlands impacted by project.

**Response:**

An analysis was completed to describe the form and function of the wetlands to be lost; this information will be used when designing the wetland types for the bottom of the diversion channel. An adaptive management and monitoring plan has been developed to ensure that proper form and function is achieved with the new wetlands. The types of wetlands lost are mostly farmed wetland with very poor function ratings. The wetlands created on the bottom of the diversion channel will easily exceed the functions provided by the existing farmed wetlands, particularly given that the amount of acreage available on the bottom of the diversion channel greatly exceeds that lost.

**C-55 Mitigation for Riparian Forests**

It is desired that all mitigation lands be acquired in fee so that the land can be made available to the public for use after the mitigation is complete.

**Response:**

This is being considered as an option; in order for this to occur there would have to be a willing property manager of this land other than the Corps.

**C-56 Mitigation and Monitoring**

The mitigation and monitoring plans for the project are largely undefined. Draft mitigation and monitoring plans(s) should be included in the FEIS identifying which measures are required, who will be implementing and funding the measures and identifying the criteria that will be used to determine success. Further, a monitoring and adaptive management program should be created to ensure mitigation measures are implemented effectively. Public participation and accountability should be included as part of these plans.

**Response:**

A mitigation and adaptive management section has been written and coordinated with the partners and is included as Attachment 6 in the SDEIS.

**C-57 Mitigation for Less than Significant Impacts**

The EIS must explicitly state why it is not feasible to provide mitigation for what Corps feels are less than significant impacts (i.e fish passage, Red River and tributary geomorphology, and downstream stage increases).

**Response:**

Significant impacts have been identified and addressed within the SDEIS. Fish passage may be significant for the LPP diversion alternative, and mitigation would be provided. For other resource categories the Corps of Engineers has determined that impacts are not significant. Thus, further mitigation is not required (Reference: Implementation guidance for Section 2036(a) of the Water Resources Development Act 2007 – Mitigation for Fish and Wildlife and Wetlands Losses, 31 Aug 2009). The SDEIS includes greater detail on quantification of impacts and subsequent mitigation needs for impacts to be considered potentially significant.

### **C-58 Mitigation Measures Must Ensure No Loss of Habitat Function**

The EIS must demonstrate that proposed mitigation measures ensure no loss of habitat function or values. Replacement of habitat, as a mitigation method, can replace lost functions and values. The success of habitat restoration or creation in replacing function and value can be estimated with the Habitat Evaluation Procedure (HEP), Habitat Equivalency Analysis (HEA) or other methods.

#### **Response:**

An adaptive management and mitigation plan has been included which provides habitat values for lost habitat in greater detail; this section can be found as Attachment 6 in the SDEIS.

### **C-59 Adaptive Management**

It is unknown whether or not the project will function as modeled after it is built. There has to be monitoring in place to ensure that the project indeed function as modeled to ensure that adequate mitigation was used to offset the impacts. If there are inadequacies and there are actually more impacts than described during the study phase where will the funding come from to mitigate for these greater impacts? There needs to be a commitment from the sponsors in the form of financial assurance and agreement to undertake future mitigation as necessary.

#### **Response:**

Mitigation measures outlined in the Final EIS would be implemented concurrently with the flood risk management project. This would use federal funding and be cost-shared with the non-federal sponsors. Pre-project habitat monitoring would be accomplished with a combination of federal and sponsor funds. Post-project habitat monitoring, as outlined in the Final EIS, will be the responsibility of the non-federal sponsors as a part of the operation and maintenance plan for the project. Pre- and post-project monitoring will be central parts to the adaptive management plan to help verify whether or not mitigation measures are offsetting project impacts. Should significant remaining impacts be identified in the future, the sponsors would then pursue funding options for additional mitigation. This could be local, state or federal funding. However, no guarantee can be made at this time that additional federal funding will be provided should future impacts be identified.

### **C-60 Water Quality**

Identify and protect water well locations during construction of the diversion channel. Drinking water supply wells should be identified and measures should be in-place during and after construction to monitor ground water levels. The Corps should have a contingency plan to protect water wells in case of spills or unintended contaminant releases. Surface water should be diverted away from well casings during construction.

#### **Response:**

All water well locations have been identified from the Minnesota Department of Health (MDH) or North Dakota State Water Commission websites. Any wells within the proposed diversion footprints will be abandoned per Minnesota or North Dakota state guidelines. As part of the design process the Corps is currently undertaking a study to better define aerial extent and determine phreatic surface of aquifers along the alignments. The final design will incorporate

any feasible measures to mitigate or eliminate impacts to the groundwater table. If necessary, long term monitoring of regional aquifers likely would be the responsibility of the non-federal sponsors as part of Operation and Maintenance. All Corps construction contracts have spill prevention/control plans. The Corps agrees that surface water must be diverted from well casings during construction.

### **C-61 Contaminated Water from Devils Lake**

The water in Devils Lake will degrade the Sheyenne River and water from Stump Lake will be even worse. How will water of that quality affect downstream residents, owners and users?

#### **Response:**

The impacts that this water will have on downstream residents, owners and users would not change with or without the Fargo-Moorhead Metro project.

### **C-62 Proper Construction Methods**

Construction best management practices should be taken to minimize impacts including: measures to minimize fugitive dust emissions; care to be taken near any water of the State (stream beds, banks, replacement and revegetation); permits required to discharge storm water runoff in projects disturbing  $\geq 1$  acre; and noise should be controlled through the use of recommended mufflers and schedule. Any fill material placed below the high water mark must be free of top solids, decomposable materials and persistent synthetic organic compounds (in toxic concentrations).

#### **Response:**

Best management practices will be used during construction to prevent erosion of exposed surfaces, to minimize dust emissions, and to avoid unnecessary impacts to waters. NPDES and Stormwater permits will be required before doing any work. Clean fill material will be used for the project, both below and above the high water mark.

### **C-63 Sedimentation**

All of the proposed alternatives will have a significant effect on the geomorphology, sedimentation and sediment dynamics of the Red River. The diversion channel will substantially affect sedimentation in the Red River and tributaries. Experiences with the Sheyenne Diversion channel make it clear that large changes in sediment dynamics are likely to occur. Sedimentation can reduce storage capacity that leads to flooding. Sedimentation can also have negative impacts on aquatic life that can lead to fish mortality and changes in behavior. The Draft EIS needs to completely assess the geomorphology and sediment dynamics using concrete sediment data to evaluate sedimentation impacts and include sedimentation mitigation costs.

#### **Response:**

The SDEIS includes the USGS report “Sediment Concentrations, Loads, and Particle Size Distributions in the Red River of the North and Selected Tributaries near Fargo, North Dakota during the 2010 Spring High-Flow Event.” In addition, Appendix F of the “Red River Diversion, Fargo-Moorhead Metro Flood Risk Management Project, Feasibility Study, Phase 4” prepared by the consulting team (Moore Engineering, Inc., Houston Engineering, Inc., Barr

Engineering, Co., and HDR Engineering, Inc.) includes a full exhibit presenting and interpreting this USGS 2010 dataset as well as other sediment/geomorphology datasets available for the study area, upon which an evaluation of the potential impacts on the sediment transport characteristics and geomorphology of the rivers that could be anticipated as a result of the proposed project will be made. The USGS 2010 dataset combined with the Geomorphology Study by West Consultants (2001) clearly show that the Horace-West Fargo diversion has not resulted in large changes on the sediment dynamics of the Sheyenne River; the Horace West Fargo diversion provides an example of the potential maximum impacts that can be expected from the diversion channel alternatives.

#### **C-64 Erosion and Sedimentation Impacts**

The Corps must determine and quantify the cost and impacts of erosion and sedimentation, including sheet erosion on agricultural lands, for various crest elevations downstream of the proposed diversion channel that are caused by the diversion channel.

#### **Response:**

The LPP will result in minor increased water surface crest elevations downstream of the diversion. However, staging upstream of the diversion is part of the LPP in the Phase 4 feasibility design. Appendix F of the "Red River Diversion, Fargo-Moorhead Metro Flood Risk Management Project, Feasibility Study, Phase 4" prepared by the consulting team (Moore Engineering, Inc., Houston Engineering, Inc., Barr Engineering, Co., and HDR Engineering, Inc.) includes a full exhibit presenting the evaluation of potential impacts on the sediment transport characteristics and geomorphology of the rivers due to this staging upstream. The ND35K and the FCP would result in increased water surface elevations downstream of the diversion. These increased water surface elevations would have not resulted in noticeable impacts on erosion and sedimentation because (1) the increases mostly occur during large infrequent flood events, not during bankfull conditions when there is no need to operate the project control structures; (2) the increases are on top of water surface elevations that under existing conditions already extent over a very wide floodplain, with relatively low flow velocities, which will not be significantly affected by the project; and (3) the predominant form of sediment transport in the Red River of the North is in suspension, with most of the suspended sediment consisting of clays and silts that interact very little with the channel bed.

#### **C-65 Distribution of Suspended Sediments**

There is no data to support the assumption that there will be a uniform distribution of suspended sediment concentration throughout the water column. Particle size analysis of the total sediment load of the Red River should be included in the final EIS. Without this information, mitigation must be included for impacts to the Red River.

#### **Response:**

The SDEIS includes the USGS report "Sediment Concentrations, Loads, and Particle Size Distributions in the Red River of the North and Selected Tributaries near Fargo, North Dakota during the 2010 Spring High-Flow Event." This report presents measurements of sediment particle sizes through the water column, which demonstrate the validity of the assumption of uniform distribution (even during very large floods, which is precisely when the diversion would

be in operation). This report also presents measurements of particle size gradation for bed sediment, bedload sediment and suspended sediment during the pass of a large flood hydrograph in the Red River of the North and the North Dakota tributaries.

### **C-66 Sedimentation and Aquatic Impacts**

The EIS should also discuss whether sedimentation and impacts to aquatic habitat associated with reduced flows from the confluences of the Rush and Lower Rush Rivers to the diversion channel outlet are anticipated. Also, potential geomorphic impacts to Wolverton Creek and necessary mitigation of impacts must be included in the final EIS.

#### **Response:**

Additional information was added to the SDEIS to further address potential geomorphic effects, including potential effects to Wolverton Creek. Appendix F of the “Red River Diversion, Fargo-Moorhead Metro Flood Risk Management Project, Feasibility Study, Phase 4” prepared by the consulting team (Moore Engineering, Inc., Houston Engineering, Inc., Barr Engineering, Co., and HDR Engineering, Inc.) includes a full exhibit presenting additional information on potential impacts on sediment transport characteristics and geomorphology.

### **C-67 Secondary Wetland Impacts**

The Corps’ suggestion of mitigating for wetlands by designing the bottom of the diversion channel as a wetland is not enough. There are not enough acres in the bottom of the diversion to satisfy the necessary mitigation for this project. 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. How will secondary wetland impacts be mitigated?

#### **Response:**

A detailed wetland analysis has been done for the LPP, FCP and ND35K. A summary of this analysis can be found in the SDEIS Chapter 5, and the more detailed analysis is located in Appendix F. As part of this analysis, wetlands were delineated and a function analysis was done using the Minnesota Routine Assessment Method (MnRAM) as recommended by the Fish and Wildlife Service for each wetland type. This analysis identified wetland functions, including functions for wildlife. Using this information the Corps is confident that mitigation within the diversion channel bottom would more than adequately mitigate for the loss of wetlands. This mitigation not only includes the 10 foot wide low flow channel but also includes the entire 250 foot bottom width of the diversion channel and an undetermined distance up the side slope of the channel. Wetland features will be included during the design of the diversion channel to ensure that different wetland functions are being incorporated into the plan.

An adaptive management and mitigation plan has also been included (Attachment 6 of the SDEIS). This plan discusses the wetland mitigation, costs, and monitoring that will be conducted post project to ensure the success of the mitigation.

### **C-68 Fish Passage**

Fish passage channel at the Wild Rice River appears to only allow fish to enter the diversion channel and not directly back into the Wild Rice River. Fish passage will be severely limited during any event greater than a 5-year event under this scenario.

#### **Response:**

Additional design information is provided in the SDEIS. We will continue to coordinate the design of fish passage channels with the agency team. The design information addressing this can be found in Section F2.2.5 of Appendix F of Attachment 5 of the SDEIS.

### **C-69 Adverse Impacts to Fish and Wildlife**

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.

#### **Response:**

The adverse impacts to fish and wildlife due to the project were addressed in Chapter 5 of the DEIS. This discussion was carried forward into the SDEIS in Chapter 5. A mitigation plan, including costs, was described in the draft report, and is provided in Attachment 6 of the SDEIS.

### **C-70 Fish Passage Mitigation**

The proposed alternatives will have direct impacts on fish passage and connectivity of the Red River and its tributaries. The DEIS does not adequately assess these issues. Further work is needed to describe the effectiveness of proposed fish passage mitigation measures and a more complete picture of what species are going to be affected and when critical passage issues are likely to occur. Minnesota, North Dakota, and local communities have invested a substantial amount of resources into modifying and removing fish passage barriers on the Red River and its tributaries to improve the function of the aquatic system. A new structure on the Red that acts as an effective fish barrier is a significant step backwards that must be avoided. Impassable structures on the tributaries also will result in lost functions for the aquatic system. The stream habitat losses evident in the proposed alternatives will have to be mitigated. The DNR does not concur with Corps conclusions regarding fish passage and believes mitigation is necessary.

#### **Response:**

The SDEIS reconsiders potential impacts to fish passage and connectivity based on comments on the DEIS, as well as altered designs and operations. After further consideration, impacts would again be expected to be less than significant for the FCP and ND35K. However, impacts would be potentially significant for the LPP. Additional fish passage channels, as well as mitigation (fish passage at Drayton Dam) is included for the LPP to offset potential impacts that could arise from partially reduced connectivity.

### **C-71 Woody Debris**

The EIS must acknowledge that woody debris is an important component of many river systems providing fish habitat and channel stability. Increased grubbing and clearing at the structures may reduce habitat for both aquatic and terrestrial organism. The Department does not support wholesale removal of woody debris immediately adjacent to the rivers, despite acknowledging that the woody debris may increase maintenance.

#### **Response:**

Clearing of woody vegetation adjacent to structures may be necessary to ensure structural integrity. Similarly, woody debris that accumulates at structures may need to be removed if they threaten the integrity of the structures. Removal of woody vegetation and debris at structures will be minimized to the extent practicable. Woody debris is acknowledged as being of value to certain fish and wildlife species in Appendix F of the SDEIS.

### **C-72 Indirect Impacts**

Indirect impacts are likely, and increased drainage is likely in the form of tile or surface drains. This may impact wetlands very near the project area. How will these indirect impacts be addressed?

#### **Response:**

A detailed wetland analysis has been done for the LPP, FCP and ND35K. A summary of this analysis can be found in Chapter 5, and the more detailed analysis is located in the SDEIS, Appendix F. Direct and indirect impacts to wetlands will be mitigated and wetland functions have been incorporated into the design plan. Attachment 6 of the SDEIS contains an adaptive management and mitigation plan. This plan discusses the wetland mitigation, costs, and monitoring that will be conducted post project to ensure the success of the mitigation.

### **C-73 Compensatory Mitigation**

Compensatory mitigation must meet the requirements of Section 404 of the Clean Water Act and, in the case of the Minnesota alternatives, the requirements of the Minnesota Wetland Conservation Act (WCA).

#### **Response:**

Compensatory mitigation in accordance with section 404 of the Clean Water Act is planned and recommended in Attachment 6 of the SDEIS.

### **C-74 USDA Program Benefits**

The project sponsors are not USDA program benefit recipients, thus the wetland conservation (swampbuster) provisions of the 1985 Food Security Act, as amended, are not applicable. However, if actions from by a non-USDA participant may jeopardize owners/operators from USDA eligibility, the landowner/operator should contact the county Farm Service Agency (FSA) to apply for a third party exemption.

#### **Response:**

Noted.

### **C-75 Culvert Mapping**

Have culverts been mapped?

#### **Response:**

Culvert locations are summarized in Section 5.2.1.7 of the SDEIS. Culverts are also addressed in Appendix F of the SDEIS.

### **C-76 Expert Opinion Elicitation**

The DEIS mentions that flooding from Fargo has increased over recent decades, but results from the Expert Opinion Elicitation on pg 85 states that 1 percent flows decrease from the present to the year 2060. Aren't these statements contradictory?

#### **Response:**

The flood history of the Red River Basin show that flood flows have been larger and more frequent in recent decades compared to previous decades. Records from approximately 1940 to present are markedly "wetter" than the decades prior to 1940. The statement that flows will decrease between present and fifty years from now reflects the uncertainty in the causes of the "wet" period. These statements are not contradictory, but the practical implication is that the "wet" cycle is at its peak and flows will begin to decrease in the future. The assumption that the Basin would transition out of the "wet" cycle over the next fifty years was made in order to account for uncertainty in the hydrology and to take a conservative approach for economic analysis.

### **C-77 Indirect and Ongoing Economic Impacts**

Have all indirect economic impacts been accounted for? Loss of farmland will result in additional losses to regional businesses such as seed dealers, grain elevator, fertilizer sales, and more. These economic impacts will occur annually, the losses will be ongoing. Taking 6500 acres out of the tax base will have negative impacts. The cumulative indirect and ongoing economic impacts will be devastating.

#### **Response:**

Not all economic impacts are fully known. The study team has attempted to address all major economic impacts that would affect decision making at the local and federal level. All known economic impacts are discussed in Appendix C (Economics), Appendix D (Other Social Effects), and in section 5.2.3 of the SDEIS.

### **C-78 Velocity Gradients for Fish Communities**

Department requests that, after construction, actual velocities be collected at various river stages to assure velocity gradients are available to the fish communities.

#### **Response:**

Concur. Velocity gradients will be monitored following project construction.

**C-79 Update Table**

An updated table similar to that used in Appendix F should be included in Section 4.2.1.14.4 of the EIS. Section 6.2.10 must provide determination of all state and federally listed species.

**Response:**

An updated table is included in the SDEIS Appendix F, and Chapter 4 references those tables. Chapter 5 provides determinations for all federally listed species and state listed species that have a moderate chance of occurring within the study area.

**C-80 Stormwater Pollution Prevention Plan**

In order to minimize erosion and sedimentation caused by construction activities, a Stormwater Pollution Prevention Plan must be developed that addresses utilization of appropriate water quality Best Management Practices.

**Response:**

As stated in Section 3.14.4 Permits of the SDEIS, the construction contractors will be responsible for acquiring the National Pollutant Discharge Elimination System (NPDES) permit from the Minnesota Pollution Control Agency and the North Dakota Department of Health. The construction contractors are required to prepare the Stormwater Pollution Prevention Plan as part of this process.

**C-81 Ecological Benefits to Fish and Wildlife**

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.

**Response:**

The diversion channel will be designed with a low flow channel that will pass all flows from the Rush River and the Lower Rush River to the Red River. This low flow channel will be designed with sinuosity that will provide some habitat for the aquatic species that exist within the Rush and Lower Rush Rivers. The channel would be planted with native wetland species on the bottom and the fringe of the side slopes of the channel, with the remainder of the side slopes being planted as a prairie swale type community. Appropriate native seed mixes may be those developed for ditch/swales, sedge/wet meadow or wetland fringe. A buffer strip of 50 to several hundred feet on either side of the diversion channel up to the embankment top would help limit encroachment from agricultural activities and would provide filtering of surface runoff into the diversion channel wetlands.

**C-82 Rush River and Lower Rush River wetland impacts**

The DEIS states that "wetlands near [the Lower Rush River and the Rush River] could be impacted". There is no further discussion of how the negative impacts will be mitigated. The Corps must 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.

**Response:**

A detailed wetlands discussion is included in the SDEIS Chapter 5 and Attachment 6. These discussions include a wetland delineation that analyzes all wetlands to be impacted by project features, provides a functional assessment of the impacted wetlands and discusses mitigation necessary to offset these impacts.

As part of the assessment of impacts to aquatic resources and based on recommendations from the interagency team, the Minnesota Routine Assessment Methodology for Evaluating Wetland Functions (MnRAM Version 3.3) was used to assess the functions of wetlands within the diversion channel corridors. Due to the similarity of the identified wetlands, functionality was not assessed on every area determined to be wetland. Instead, at least one randomly-chosen area representative of each type of wetland found within the diversion channel alignments was assessed for typical functionality. The types of wetlands found within the diversion channel corridors, in accordance with Eggers & Reed are farmed seasonally flooded basin (PEMAF is the corresponding Cowardin classification), fresh wet meadow (PEMB), shallow marsh (PEMC), floodplain forest (PFO1A) and shallow open water (PUBH). Floodplain forest wetlands were assessed separately in Section 2.3. Overall the function assessment of wetlands indicated poor wetland function. Therefore the mitigation plan presented will provide improved wetland function.

**C-83 Concurrent Crests**

The report should identify how crests may relate to the Red Lake River crest and identify if there are increased risks for concurrent crests.

**Response:**

Unsteady flow modeling does indicate an increased risk of having coincident crests at the mouth of the Red Lake River. The revised Locally Preferred Plan (LPP) involves upstream staging to minimize downstream stage impacts caused by changes in flood crest timing caused by the diversion channel. The impacts for the Federally Comparable Plan (FCP) and the LPP are provided in Attachment 5, Appendix C, Section 3.0 and Exhibits 1-4.

**C-84 Flood Insurance Rate Map (FIRM)**

How will the increased crest numbers affect the newly adopted Flood Insurance Rate Map?

**Response:**

The Corps used information up to the 2009 flood in the analysis contained in the feasibility report. The Corps will be coordinating the updated information with other Federal agencies, including FEMA, and those agencies would decide how to use that information.

## **5.0 Comment Category D: Modeling Technical**

### **D-1 Hydrology**

The hydrology needs to be finalized and clearly summarized. All analyses (stage, environmental, etc.) must be based on the final hydrology and presented clearly.

#### **Response:**

The SDEIS includes updated appendices on the hydrology (Appendix A), hydraulics (Appendix B), and impact analyses (SDEIS Main Report, Chapter 5).

### **D-2 Timing of tributary flows**

The timing of tributary flows in relation to peak flows on the Red River must be fully explained.

#### **Response:**

For the synthetic events (10-, 2-, 1-, and 0.2-percent chance events) tributary flood hydrographs from 2006 were used to estimate tributary flow contributions and timing. Four historic events were also evaluated to assess the effect of different timing scenarios. This is explained in more detail in Attachment 5, Appendix B, Part B, Section B4.4 of the SDEIS. The results of these analyses are presented in Attachment 5, Appendix C, Section 3.0 and Exhibits 1-4.

### **D-3 Drainage and Flooding outside protected area**

How will the proposed North Dakota diversion affect drainage and flooding outside the protected area along the Sheyenne/Drain 14/Maple/Rush corridor?

#### **Response:**

The goal is to not cause any additional flooding from the Sheyenne, Maple, and Rush rivers, Drain 14, or local flows that will be affected by the LPP or ND35K. For many areas flooding will be reduced since the design water surface profile in the LPP diversion will be lower than it is in the existing Horace to West Fargo and West Fargo diversions, but to preserve existing floodplains the inlets to the diversion will not be designed to reduce flooding for the 1-percent chance and less frequent peak flows from the Sheyenne, Maple, and Rush rivers, Drain 14, or local drainage areas (for these events the goal is to maintain the existing condition). The current design presented in the SDEIS does not completely meet the goals stated above, and does have areas where flooding is worse than the existing condition. Resolving the issue of increased flood stages will be relatively easy in some areas and more of a challenge in others. Details regarding drainage along the Sheyenne/Drain 14/Maple/Rush corridor can be found in Attachment 5, Appendix C (Section C.2.10, Section 2.16.8, and Exhibit 3 figures), and in Attachment 5, Appendix F (Section F2.2 and Exhibit F).

### **D-4 Operation of I-94 Interchange 342**

How will the project affect the operation of I-94 Interchange 342?

#### **Response:**

Long term impacts to I-94 Interchange 342 are not anticipated with the diversion plan; however there will be impacts during construction of the project. The impacts to I-94 Interchange 342

will be during the construction of the new bridges over the diversion and would take two construction seasons to complete. The crossovers and one direction of the interstate would be completed the first construction season. The remaining direction and clean up the right-of-way, seeding, etc. would be completed during the second construction season.

#### **D-5 Devils Lake Effect**

How do the current and potential outflows from Devils Lake affect the proposed diversion project?

#### **Response:**

The diversion channel alternatives have been designed such that existing draining conditions will not be made worse due to the project. Details remain to be designed, but the modeling done to date indicates that inlets into the new diversion can be designed such that flood stages will be no higher than they would be without the diversion. Additional ditches will be needed in some areas to make sure that overland flow makes it to the diversion without causing flood stages to be higher than the existing condition. Current and potential outflows from Devils Lake are a concern regardless of the diversion project. Given the travel time of a sudden release from Devils Lake or from Baldhill Dam, it is unlikely that peak flow conditions on the Sheyenne River will coincide with peak flows in the diversion, but the increase in flow would require changes to the inlet designs. Exactly what needs to be modified to address potential increased flows from Devils Lake outflow will be studied as the project moves forward.

#### **D-6 Ice**

The effect of ice and debris on project operation and performance must be considered as part of the project.

#### **Response:**

The effect of ice on project operation and performance is being studied by the Ice Engineering Group at the Corps' Cold Regions Research and Engineering Laboratory (CRREL). The effort includes study of ice at the gated structures, ice in the diversion channel, and the effect of lower flows on ice in the protected area. The effort also includes the study of similar flood risk management projects under ice conditions (e.g. Winnipeg diversion). This and other ice-related issues will be addressed through this study effort. Preliminary, if not final, results will be provided in the Final EIS.

#### **D-7 Saving the Town of Oxbow**

Locating the diversion inlet south of Oxbow would save the town of Oxbow and reduce the cost of the project.

#### **Response:**

Section 3.7.4 of the SDEIS and Appendix O contain information on locating the diversion inlet south of Oxbow. In sum, moving the inlet south of Oxbow would cost an additional \$35 million and have additional environmental and floodplain impacts.

#### **D-8 Sizing of the Diversion Channel**

The size of the diversion can be reduced by backing up more water.

#### **Response:**

The size of the diversion has been reduced due to staging water upstream of the diversion. The amount of staging must be balanced with downstream impacts, cost, and environmental concerns. The staging of water and the size of the diversion are discussed in Section 3.3 and Section 4.0 of Attachment 5. Details of the analyses involved are provided in Appendix C and Appendix F of Attachment 5.

#### **D-9 Modify the Alignment**

Modifications to the alignment would reduce costs and potentially reduce downstream impacts.

#### **Response:**

The alignment has been adjusted somewhat to address cost and environmental concerns. Additional modeling performed since the DEIS demonstrates that downstream impacts are not very sensitive to alignment modifications, as stated in Attachment 5, Appendix C, Section C2.5.

#### **D-10 Reducing Cost**

Costs could be reduced by moving dirt in the winter, by seeding directly on top of the spoil banks without regard to saving black dirt, and renting the spoil banks for haying.

#### **Response:**

Cost reduction measures have been looked at throughout this planning process and will continue to be looked at; however, the smaller picture cost saving measures will be left until after the SDEIS is complete.

#### **D-11 Consider Extremely Large Flood Events**

The project should consider the possibility of an extremely large flood event.

#### **Response:**

To prevent overtopping of the tie-back levees for an extremely large flood event, flow will be directed west into the Sheyenne River basin for events less frequent than the 0.2-percent chance event. For an event approximately two times larger than the 0.2-percent chance event (approximately the Standard Project Flood (SPF) at Fargo), the maximum staging elevation is 925.2, which sends water over a levee set at elevation 923.0 along Cass County Road 17. The current report indicates that this will be 1.8 feet below the top of the tie-back levees protecting Fargo-Moorhead; the cost estimates have been adjusted to allow for an increase in freeboard from 1.8 to 3.0 feet. Extreme flood events will be studied in further detail as the study proceeds.

#### **D-12 Non-traditional hydrologic analysis**

Non-traditional hydrologic analysis methods must be fully explained, justified, and used consistently.

**Response:**

A summary of the hydrologic analyses carried out in support of the Fargo-Moorhead Feasibility Study is provided as Appendix A of the SDEIS. Appendix A is composed of 7 parts. The Appendix includes an executive summary that provides an overview of the hydrological analysis carried out and describes where within the Appendix certain aspects of analysis can be found. Each portion of the appendix also includes a preface describing what information is contained in that particular part of Appendix A.

A panel of experts was convened for an Expert Opinion Elicitation (EOE) in order to address non-homogeneity within the observed hydroclimatic data within the basin. EOE panel members recommended splitting the hydrologic record into a wet period and a dry period. This recommendation was approved by the USACE Hydrology Review Committee and was adopted for analysis. The rationale for doing this can be found in Appendix A-1.

A statistical test (known as the Pettitt test), was used to determine the break point between the wet and dry periods. The procedure involves performing a non-parametric hypothesis test on the difference between sample means for streamflow data in order to identify the break point. An explanation of how the Pettitt Test was applied to streamflow data collected at Fargo, ND can be found in Appendix A-1c on page 5. The results of the Pettitt test for the Fargo streamflow record are shown in Figure 3 of Appendix A-1c. The results support using year 1941 as the break point between the dry and wet periods. The resulting discharge-frequency curves for the full period-of-record for unregulated flows and the wet and dry periods are shown in Figure 4 on page 9 of Appendix A-1c.

The wet period (year 0) hydrology was used consistently in the analysis and design for all aspects of the diversion channel alternatives. The appropriate flood frequency description for any future year is a combination of the dry and wet frequency curves that respects the likelihood of each condition. The year 0 (100% wet) hydrology, year 25 (80% wet, 20% dry) hydrology and year 50 (65% wet, 35% dry) hydrology was used in the economic analysis of the alternatives. Explanation describing how the flow-frequency curves were combined in order to be more representative of future conditions can be found on page 25 of Appendix A-1c. The year 25 and 50 hydrology scenarios were used in the economic analysis to incorporate the possibility that the current wet trend could become dryer in the future. The year 0 hydrology was used to assess environmental and social impacts due to the diversion channel alternatives including downstream impacts. Analysis of the traditional full period-of-record hydrology is shown Appendix A-1a, but the period of record analysis described in Appendix A-1a was not adopted for either design or economics and is presented for information only.

**D-13 Storage Volume**

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-foot reduction at Fargo.

**Response:**

The analysis completed in the Fargo-Moorhead and Upstream study in 2005 was very conceptual and considered a range of hypothetical storage volumes between 200,000 and 400,000 acre-feet distributed throughout the watershed upstream of Fargo and Moorhead. No site-specific models were created. Professional judgment was used to estimate the effects this storage would have on the Red River hydrograph based on a variety of assumptions. The conclusion was that a very large storage volume (between 200,000 and 400,000 acre-feet) would have a relatively small impact on flood stages at Fargo and Moorhead. More information on how the storage volume was calculated can be found in the “Fargo-Moorhead and Upstream Feasibility Study Phase 1 Summary” dated September 9, 2005.

## **6.0 Comment Category E: Page Specific Comments**

### **E-1 Dry Cycles**

Some comments asked about the dry cycles, specifically one comment asked the following: “The DFEIS mentions that flooding from Fargo has increased over recent decades, but results from the Expert Opinion Elicitation on pg 85 states that 1 percent flows decrease from the present to the year 2060. Aren’t these statements contradictory?”

#### **Response:**

The Expert Opinion Elicitation results were that the Red River at Fargo has had wet and dry periods over the last several hundred years and that there is currently a wet period. The experts concluded that a dry period could reoccur. Paleohydrology analysis showed the basin has been wet about 65% of the time period and dry 35%. The project hydrology assumes that in 50 years there is a 65% chance of there being a wet period and 35% chance of dry. For 25 years out it is assumed there is an 80% chance of wet and 20% chance of dry. Thus the various frequency flood flows decrease over the next 50 years.

### **E-2 Downstream Mitigation**

Potential economic impact and mitigation issues are not included for increased flood stages downstream. Also, Appendix B Sec. B.8.1.3 states that more detailed downstream impacts are provided in Appendices D and E, but a search of those appendices did not provide that information.

#### **Response:**

The SDEIS Appendix B Section B.8.1.3 refers to Appendices D and E of Appendix B, not Appendices D and E of the SDEIS. Section 3.8.3.4.2 and Chapter 5 discuss the impacts both upstream and downstream, the downstream impacts have been minimized by the upstream impacts and mitigation is included for the upstream staging and storage areas as indicated in Section 3.13 of the SDEIS and Appendix G, Real Estate. The economic impact of the remaining up and downstream impacts is included in the economics analysis, Appendix C, and Section 3.8.2.2 of the SDEIS where they are identified as “induced damages” in the table.

### **E-3 Accuracy of Downstream Impact Maps**

A comment about the downstream maps asked the following: “I question the accuracy of the areas shown in red on Figs 39 and 41, (pages 158 & 160) that delineate additional flood area with the diversion project and existing for 50 and 100 year events. What detail of ground surface topography is currently available that will accurately delineate the extent of the additional flood area?”

#### **Response:**

The 2008 Red River Mapping Initiative LIDAR was used for these figures. The accuracy of this data is plus or minus 6 inches.

**E-4 Citations**

Final EIS list of citations should include USGS 2009b reference (pg. 127), USGS 2009a reference (pg. 128 & 129), and references for pg. 127 surviving “whooping crane” comment and pg. 127 surviving “gray wolves” comment.

**Response:**

Concur and have included the citations in the SDEIS.

## **7.0 Comment Category F: Coordination of Permits**

### **F-1 Required Permits for the Project**

Any construction that impacts highway right-of-ways will require coordination with DOT DE to obtain appropriate permits and risk management documents. A construction permit and Sovereign land permits would be required from the ND Office of State Engineers.

#### **Response:**

The Corps, the non-federal sponsors, or the construction contractors will obtain all applicable construction permits, Sovereign land permits and applicable permits from the DOT to address impacts to highway right-of-ways. Coordination with appropriate agencies is ongoing and will continue as impacts are identified and clearly laid out during design.

### **F-2 Clean Water Act (CWA) 404(b)(1)**

The information provided in the Clean Water Act (CWA) 404(b)(1) analysis does not fully support the conclusion that the ND 35K alternative (the tentatively selected preferred alternative) is the least environmentally damaging practicable alternative (LEDPA). This alternative impacts substantially more wetlands and riparian areas than the MN 35K alternative.

#### **Response:**

As described in the Clean Water Act (CWA) 404(b)(1) analysis, the MN35K plan (the FCP) is not a practicable alternative to the LPP (or the ND35K plan). During the course of the planning process, it became evident that local stakeholders strongly desired measures to reduce flood risk for the entire Metropolitan area, including the Red River of the North, as well as the Sheyenne, Wild Rice (ND), Maple, Rush, and Lower Rush rivers. For the DEIS, the non-federal sponsors identified the ND35K plan as a locally preferred plan (LPP) that would reduce flood risk for the both the Red and the five tributaries. In order to minimize downstream impacts, a revised LPP plan was developed with a nearly identical alignment; however, this revised plan incorporated upstream storage and a staging area that nearly eliminates downstream impacts. The revised LPP is the plan that, in the opinion of the non-federal sponsors, best meets the needs of the local community. The LPP provides flood stage reductions to a greater geographic area and for approximately 6,250 additional citizens than does the FCP. It achieves this result by reducing flood risk from the Sheyenne River and its tributaries in addition to the Wild Rice (ND) and Red rivers. This added level of risk reduction is not available from the FCP; the FCP is not a practicable alternative to achieve the overall project purpose of reducing flood risk from both the Red River and the five North Dakota tributaries.

### **F-3 EPA Recommendations**

The CWA 404(b)(1) analysis needs to be revised to include a complete description of the decision process which resulted in identification of the tentatively preferred alternative, ND 35K. This documentation should include descriptions of the alternatives analyses, practicability determinations, and consideration of local preferences for both the ND 35K and MN 35K diversion channel alternatives.

**Response:**

To address the concern that the CWA 404(b)(1) document does not include sufficient information to fully support the conclusion that the tentatively selected plan is the least environmentally damaging practicable alternative (LEDPA), additional information on the planning process has been incorporated into the CWA 404(b)(1) document. In order to facilitate agency and public review of the CWA 404(b)(1) document, the Corps elected not to incorporate lengthy redundant discussions from the Feasibility/EIS document and instead specifically reference sections of the Feasibility/EIS document for the reader to consult for additional information.

**F-4 Minnesota State EIS Process**

Section 3.12.4 titled 'Permits' should include the need for a state EIS. It is imperative that the federal and state EIS provide the safety information mentioned as well as adequate information to inform the state permitting process. At a minimum, this information must include that described as required in a 'Preliminary Report' under Division of Waters Rules 6115.0410 Sub. 3. A Dam Safety Permit from the DNR Division of Waters will also be required.

**Response:**

The Corps recognizes the need for a Minnesota State EIS for this project and has been coordinating with the Minnesota Department of Natural Resources and project sponsors for the development of this EIS. There have been meetings to discuss the project details, scoping of the project, and timing to start the state process. The intended plan is to initiate the process when the Final EIS is released to the public.

## **8.0 Comment Category G: Project Management**

### **G-1 Project Cost Sharing and Operation and Maintenance**

Those benefitting from the diversion need to be taxed. They also need to pay for the maintenance – indefinitely. Who, and at what cost, is going to maintain the project forever including the required bridges over the diversion channel?

#### **Response:**

The non-federal sponsors must enter into a Project Partnership Agreement with the Corps of Engineers to construct the Project. This agreement sets the required cost sharing of the Project between the non-federal sponsors and the federal government and requires that the non-federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs. It is currently anticipated that the non-federal sponsors will be the cities of Fargo and Moorhead. Mitigation required during project construction will be cost-shared. Mitigation required after the project is constructed and being operated and maintained by the non-federal sponsors will be the responsibility of the non-federal sponsors.

### **G-2 Participation in the Process**

The city of Harwood would like to be on record of being in favor of the concept of a North Dakota Diversion. However, the city would like one of its elected officials to be part of the process to insure that the method of paying for a North Dakota Diversion is fair and equitable to the citizens of Harwood and that the projected downstream effects of a North Dakota diversion are mitigated in a responsible and cost effective manner.

#### **Response:**

The non-federal sponsors, currently anticipated to be the cities of Fargo and Moorhead, are responsible for financing their local share of the study and future construction of the Project. Stakeholders may be involved in the process by attending public meetings and submitting their comments during the SDEIS comment review period. The downstream impacts have been nearly eliminated with the current LPP that stages and stores water upstream.

### **G-3 Policy**

The city of East Grand Forks recently submitted a project to the Corps for review and was told that the project could not raise the floodway elevation by more than 0.01 of one foot. Therefore, the City cannot understand how the Corps can propose a project that raises the City's flood profiles by over one foot without a proposed mitigation plan. During the design of our project the City understood that it could not negatively impact areas upstream or downstream of its project and a detailed study was undertaken to determine the impacts of the GF/EGF system. Therefore, the City cannot understand the reported impacts of the system without some form of mitigation for other areas of the Red River Valley.

**Response:**

The downstream impacts have been nearly eliminated with the current plan that stages and stores water upstream. Upstream and downstream effects of the tentatively selected plan (LPP) are included in section 3.8.3.4.2 Upstream and Downstream Effects. Corps policy only allows federal participation in measures that are economically justified or to address impacts that rise to the level of a taking of property under the Fifth Amendment of the U.S. Constitution. The non-federal sponsors have indicated that they will mitigate for upstream effects. Recommended mitigation of these effects are included in section 3.13.1.

**G-4 Future Funding**

In order to ensure funding for future modification of the project or additional mitigation to offset unidentified impacts, a commenter urged the local sponsors and the Corps to develop a trust fund or other mechanism to account for this work.

**Response:**

The suggestion is noted. The Corps will apply standard federal cost-sharing and budgeting rules in accordance with applicable law and policy.

## 9.0 Comment Category H: Miscellaneous

### H-1 Various Communities and Agencies Oppose the Diversion

Lee Township, Norman County, Mary Township, Georgetown/Perley Farmer's Elevator, City of Perley, Concerned citizens of Wild Rice Watershed District, Traill County, Halstad Township, and City of Halstad go on record of opposing the Fargo Moorhead diversion project as it is now proposed. The National Wildlife Federation opposes the Corps' proposed diversion channel.

#### Response:

Noted

### H-2 FEMA Requests

The information that FEMA will request for conditional approval required per 44 CFR 65.12(a) is (1) documentation of the legal notice to all impacted property owners, within and outside the community, explaining the impact of the proposed action on their property, (2) Concurrence of the CEO of all communities impacted by the proposed action, (3) a request for revision of the BFE determination, and (4) a request for floodway revision.

#### Response:

The Corps is continuing coordination with FEMA on implementation of the project and their requirements.

### H-3 Readability

It is distracting that most of the maps are at slightly different scales and positions. Maps are useful for making side-by-side comparisons.

#### Response:

Map sizing is specific to topic sizes will vary for readability.

### H-4 Concerns With DEIS

Some comments described overall concerns with the DEIS. Specific comments are listed below:

- The draft report is inadequate under the National Environmental Policy Act (NEPA).
- The EIS as it stands is not acceptable. It was hastily written and incomplete.
- The Diversion is the least planned, least studied, and most quickly pushed through project in the entire ACOE history.
- The Draft Feasibility Report seems short on facts, long on conjecture.
- The Corps ignores environmentally friendly alternatives in the DEIS. 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).

**Response:** Many changes have been made in the SDEIS. Many additional analyses have been performed and their results have been incorporated into the SDEIS. The Corps considered a range of alternatives as described in Appendix O of the SDEIS. Alternatives that provide

environmental benefits, such as wetlands and grassland restoration, were evaluated. Sections 8.4.2 and 8.4.3 of Appendix O contain more information on wetlands and grassland restoration measures

#### **H-5 Community supports FMM diversion**

The Chamber of Commerce of Fargo Moorhead supports building a 35K CFS diversion project that maximizes state and federal funding.

#### **Response:**

Noted

#### **H-6 Recommend MN 35K**

The U.S. Department of the Interior recommends that the MN 35K Diversion Channel Alternative be the selected alternative.

#### **Response:**

Noted

#### **H-7 Public Participation**

The public must be allowed to attend and voice opinions at all meetings and hearing pertaining to the proposed project.

#### **Response:**

There have been many public meetings open to all members of the public. Corps technical staff is available for questions and answers at these meetings. Additional public meetings will be scheduled for late spring/early summer 2011. The most up to date information regarding public meetings and participation is available online here:

[www.internationalwaterinstitute.org/feasibility](http://www.internationalwaterinstitute.org/feasibility).

#### **H-8 Page Specific Comments**

The North Dakota State Water Commission submitted comments for specific sections of the report. The comments are listed below:

- 1.5.2 – There are several non-federal studies ongoing in the watershed upstream of the study area, including flood storage on the Wild Rice River, Sheyenne River, Maple and Rush rivers.
- 1.5.3 – Other projects upstream of the study area that deserve mention include:
  - Three dams constructed on the upper portion of the Wild Rice River
  - Dead Colt Creek Dam on a tributary of the Sheyenne
  - The T-180 dam on a tributary of the Maple
  - Three dams on tributaries of the Maple River
  - Erie Dam located on the upper portion of the Rush River
  - Three dams located on Elm River

- 1.5.3.10 – It is stated that the Maple River Dam was proposed with 35,000 acre-feet of flood storage. It does not say that it was constructed to provide 60,000 acre-feet of storage
- 4.2.1.9.1 – There are channel weirs on the Maple and Wild Rice Rivers. There is also another channel weir located upstream of Mapleton.

**Response:**

The information provided has been incorporated into Chapters 1 and 4 of the SDEIS.

**H-9 Request for Devils Lake Study**

Some comments requested additional studies to better understand Devils Lake. Specifically the Corps received a comment requesting that impacts from the Devils Lake discharge be studied downstream of the Sheyenne and Fargo Diversion and a request that the Corps study the impacts of the release of Devils Lake and Diversion water to the Grand Forks and East Grand Forks flood risk management project.

**Response:**

The Corps is currently working on a number of efforts regarding Devils Lake and possible impacts of a natural overflow event. These efforts are beyond the scope of this study. However, it should be noted that due to the distance from Devils Lake to Grand Forks and East Grand Forks there would likely be little or no impact to the flood risk management project for those communities.

**H-10 Request for Documents**

Request that the full text of all studies, reports or documents referenced in the public comments, including their respective appendices, be included in the Corps' administrative record for the final Record of Decision and EIS and requests that these studies and reports be considered by the Corps decision-maker in their entirety.

**Response:**

All comments that have been received are documented in Appendix R and are part of the SDEIS. Any references to studies, reports, or documents are included in those and are part of the record; however, full text of those documents will not be printed.

**H-11 Request for GIS Data**

The Corps received a request for spatial GIS data showing the impacts of the increased crest predictions for the 100 year flood event in Grand Forks County. Specifically, a map that could be compared to FEMA's digital Flood Insurance Rate Map (FIRM) was requested.

**Response:**

This information will be provided as requested and can be found in Chapter 5 of the SDEIS.