

RESOLUTION NO. 4039

A RESOLUTION APPROVING AN AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND MILES CITY, MONTANA FOR THE MILES CITY, MONTANA SECTION 205 FEASIBILITY STUDY.

WHEREAS, the City of Miles City desires to engage the Department of the Army to assist in completion of a Section 205 Feasibility Study regarding the study of the Tongue and Yellowstone rivers and the flood plain within Custer County and Miles City;

AND WHEREAS, the responsibilities of the parties have been reduced to writing in the form of Section 205 Feasibility Study Agreement;

NOW THEREFORE, IT IS RESOLVED BY THE CITY COUNCIL OF THE CITY OF MILES CITY, MONTANA AS FOLLOWS:

1. The "AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND MILES CITY, MONTANA FOR THE MILES CITY, MONTANA SECTION 205 FEASIBILITY STUDY" attached hereto as Exhibit "A", and made a part hereof, is hereby approved and adopted by this Council.

2. The Mayor is hereby empowered and authorized to execute said Agreement on behalf of the City of Miles City, and bind the City of Miles City thereto.

SAID RESOLUTION FINALLY PASSED AND ADOPTED BY A DULY CONSTITUTED QUORUM OF THE CITY COUNCIL OF THE CITY OF MILES CITY, MONTANA, AT A REGULAR MEETING THIS 14th DAY OF MARCH, 2017.



John Hollowell, Mayor

ATTEST:



Lorrie Pearce, City Clerk

AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
MILES CITY, MONTANA
FOR THE
MILES CITY, MONTANA
SECTION 205 FEASIBILITY STUDY

THIS AGREEMENT is entered into this 24 day of MARCH, 2017, by and between the Department of the Army (hereinafter the "Government"), represented by the U.S. Army Engineer, Omaha District (hereinafter the "District Engineer") and Miles City, Montana (hereinafter the "Non-Federal Sponsor"), represented by the Mayor.

WITNESSETH, THAT:

WHEREAS, Section 205 of the Flood Control Act of 1948, Public Law 80-858, as amended (33 U.S.C. 701s) authorizes the implementation of small structural and nonstructural projects for flood control and related purposes;

WHEREAS, Section 105(a) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2215(a)), specifies the cost-sharing requirements; and

WHEREAS, the Government and the Non-Federal Sponsor have the full authority and capability to perform in accordance with the terms of this Agreement.

NOW, THEREFORE, the parties agree as follows:

ARTICLE I - DEFINITIONS

A. The term "Study" means the activities and tasks required to identify and evaluate alternatives and the preparation of a decision document that, as appropriate, recommends a coordinated and implementable solution for flood risk management in Custer County at Miles City, Montana, at the confluence of the Tongue and Yellowstone Rivers.

B. The term "shared study costs" means all costs incurred by the Government and Non-Federal Sponsor after the effective date of this Agreement that are directly related to performance of the Study and cost shared in accordance with the terms of this Agreement. The term includes, but is not necessarily limited to, the Government's costs for preparing the PMP; for plan formulation and evaluation, including costs for economic, engineering, real estate, and environmental analyses; for preparation of a floodplain management plan if undertaken as part of the Study; for preparing and processing the decision document; for

supervision and administration; for Agency Technical Review and other review processes required by the Government; and for response to any required Independent External Peer Review; and the Non-Federal Sponsor's creditable costs for in-kind contributions, if any. The term does not include any costs for dispute resolution; participation in the Study Coordination Team; audits; an Independent External Peer Review panel, if required; or negotiating this Agreement. The term also does not include the first \$100,000 of costs for the Study incurred by the Government, whether before or after execution of this Agreement.

C. The term "PMP" means the project management plan, and any modifications thereto, developed in consultation with the Non-Federal Sponsor, that specifies the scope, cost, and schedule for Study activities and tasks, including the Non-Federal Sponsor's in-kind contributions, and that guides the performance of the Study.

D. The term "in-kind contributions" means those planning activities (including data collection and other services) that are integral to the Study and would otherwise have been undertaken by the Government for the Study and that are identified in the PMP and performed or provided by the Non-Federal Sponsor after the effective date of this Agreement and in accordance with the PMP.

E. The term "maximum Federal study cost" means the \$1,500,000 Federal cost limit for the Study, unless the Government has approved a higher amount, and includes the first \$100,000 of costs for the Study incurred by the Government.

F. The term "fiscal year" means one year beginning on October 1st and ending on September 30th of the following year.

ARTICLE II - OBLIGATIONS OF THE PARTIES

A. In accordance with Federal laws, regulations, and policies, the Government shall conduct the Study using funds appropriated by the Congress and funds provided by the Non-Federal Sponsor. The Non-Federal Sponsor shall perform or provide any in-kind contributions in accordance with applicable Federal laws, regulations, and policies.

B. The Non-Federal Sponsor shall contribute 50 percent of shared study costs in accordance with the provisions of this paragraph and provide required funds in accordance with Article III.

1. After considering the estimated amount of credit for in-kind contributions, if any, that will be afforded in accordance with paragraph C. of this Article and the first \$100,000 of the costs incurred by the Government that are excluded from shared costs, the Government shall provide the Non-Federal Sponsor with a written estimate of the amount of funds required from the Non-Federal Sponsor to meet its share of shared study costs for the remainder of the initial fiscal year of the Study. No later than 15 calendar days after such notification, the Non-Federal Sponsor shall provide the full amount of such funds to the Government.

2. No later than August 1st prior to each subsequent fiscal year of the Study, the Government shall provide the Non-Federal Sponsor with a written estimate of the amount of funds required from the Non-Federal Sponsor during that fiscal year to meet its cost share. No later than September 1st prior to that fiscal year, the Non-Federal Sponsor shall provide the full amount of such required funds to the Government.

C. The Government shall include in shared study costs and credit towards the Non-Federal Sponsor's share of such costs, the costs, documented to the satisfaction of the Government, that the Non-Federal Sponsor incurs in providing or performing in-kind contributions, including associated supervision and administration, after the effective date of this Agreement. Such costs shall be subject to audit in accordance with Article VI to determine reasonableness, allocability, and allowability, and crediting shall be in accordance with the following procedures, requirements, and limitations:

1. As in-kind contributions are completed and no later than 60 calendar day after such completion, the Non-Federal Sponsor shall provide the Government appropriate documentation, including invoices and certification of specific payments to contractors, suppliers, and the Non-Federal Sponsor's employees. Failure to provide such documentation in a timely manner may result in denial of credit. The amount of credit afforded for in-kind contributions shall not exceed the Non-Federal Sponsor's share of shared study costs.

2. No credit shall be afforded for interest charges, or any adjustment to reflect changes in price levels between the time the in-kind contributions are completed and credit is afforded; for the value of in-kind contributions obtained at no cost to the Non-Federal Sponsor; for any items provided or performed prior to completion of the PMP; or for costs that exceed the Government's estimate of the cost for such item if it had been performed by the Government.

D. To the extent practicable and in accordance with Federal laws, regulations, and policies, the Government shall afford the Non-Federal Sponsor the opportunity to review and comment on solicitations for contracts prior to the Government's issuance of such solicitations; proposed contract modifications, including change orders; and contract claims prior to resolution thereof. Ultimately, the contents of solicitations, award of contracts, execution of contract modifications, and resolution of contract claims shall be exclusively within the control of the Government.

E. The Non-Federal Sponsor shall not use Federal Program funds to meet any of its obligations under this Agreement unless the Federal agency providing the funds verifies in writing that the funds are authorized to be used for the Study. Federal program funds are those funds provided by a Federal agency, plus any non-Federal contribution required as a matching share therefor.

F. Except as provided in paragraph C. of this Article, the Non-Federal Sponsor shall not be entitled to any credit or reimbursement for costs it incurs in performing its responsibilities under this Agreement.

G. In carrying out its obligations under this Agreement, the Non-Federal Sponsor shall comply with all the requirements of applicable Federal laws and implementing regulations, including, but not limited to: Title VI of the Civil Rights Act of 1964 (P.L. 88-352), as amended (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto; the Age Discrimination Act of 1975 (42 U.S.C. 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Army Regulation 600-7 issued pursuant thereto.

H. If Independent External Peer Review (IEPR) is required for the Study, the Government shall conduct such review in accordance with Federal laws, regulations, and policies. The Government's costs for an IEPR panel shall not be included in shared study costs or the maximum Federal study cost.

I. In addition to the ongoing, regular discussions of the parties in the delivery of the Study, the Government and the Non-Federal Sponsor may establish a Study Coordination Team to discuss significant issues or actions. The Government's costs for participation on the Study Coordination Team shall not be included in the shared study costs, but shall be included in calculating the maximum Federal study cost. The Non-Federal Sponsor's costs for participation on the Study Coordination Team shall not be included in shared study costs and shall be paid solely by the Non-Federal Sponsor without reimbursement or credit by the Government.

ARTICLE III - PAYMENT OF FUNDS

A. As of the effective date of this Agreement, shared study costs are projected to be \$2,347,622 with the Government's share of such costs projected to be \$1,173,811 and the Non-Federal Sponsor's share of such costs projected to be \$1,173,811. These amounts are estimates only that are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Non-Federal Sponsor.

B. The Government shall provide the Non-Federal Sponsor with quarterly reports setting forth the estimated shared study costs and the Government's and Non-Federal Sponsor's estimated shares of such costs; costs incurred by the Government, using both Federal and Non-Federal Sponsor funds, to date; the amount of funds provided by the Non-Federal Sponsor to date; the estimated amount of any creditable in-kind contributions; and the estimated remaining cost of the Study.

C. The Non-Federal Sponsor shall provide to the Government required funds by delivering a check payable to "FAO, USAED, OMAHA DISTRICT (G6)" to the District Engineer, or verifying to the satisfaction of the Government that the Non-Federal

Sponsor has deposited such required funds in an escrow or other account acceptable to the Government, with interest accruing to the Non-Federal Sponsor, or by providing an Electronic Funds Transfer of such required funds in accordance with procedures established by the Government.

D. The Government shall draw from the funds provided by the Non-Federal Sponsor to cover the non-Federal share of shared study costs as those costs are incurred. If the Government determines at any time that additional funds are needed from the Non-Federal Sponsor to cover the Non-Federal Sponsor's required share of shared study costs, the Government shall provide the Non-Federal Sponsor with written notice of the amount of additional funds required. Within 60 calendar days of such notice, the Non-Federal Sponsor shall provide the Government with the full amount of such additional funds.

E. Upon conclusion of the Study and resolution of all relevant claims and appeals, the Government shall conduct a final accounting and furnish the Non-Federal Sponsor with the written results of such final accounting. Should the final accounting determine that additional funds are required from the Non-Federal Sponsor, the Non-Federal Sponsor, within 60 calendar days of written notice from the Government, shall provide the Government with the full amount of such additional funds. Should the final accounting determine that the Non-Federal Sponsor has provided funds in excess of its required amount, the Government shall refund the excess amount, subject to the availability of funds. Such final accounting does not limit the Non-Federal Sponsor's responsibility to pay its share of shared study costs, including contract claims or any other liability that may become known after the final accounting.

ARTICLE IV - TERMINATION OR SUSPENSION

A. Upon 30 calendar days written notice to the other party, either party may elect at any time, without penalty, to suspend or terminate future performance of the Study. Furthermore, unless an extension is approved by the Assistant Secretary of the Army (Civil Works), the Study will be terminated if a Detailed Project Report is not completed for the Study within 3 years after the effective date of this Agreement.

B. In the event of termination, the parties shall conclude their activities relating to the Study. To provide for this eventuality, the Government may reserve a percentage of available funds as a contingency to pay the costs of termination, including any costs of resolution of contract claims, and resolution of contract modifications.

C. Any suspension or termination shall not relieve the parties of liability for any obligation previously incurred. Any delinquent payment owed by the Non-Federal Sponsor pursuant to this Agreement shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13 week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3 month period if the period of delinquency exceeds 3 months.

ARTICLE V - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to the parties. Each party shall pay an equal share of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VI - MAINTENANCE OF RECORDS AND AUDIT

A. The parties shall develop procedures for the maintenance by the Non-Federal Sponsor of books, records, documents, or other evidence pertaining to costs and expenses for a minimum of three years after the final accounting. The Non-Federal Sponsor shall assure that such materials are reasonably available for examination, audit, or reproduction by the Government.

B. The Government may conduct, or arrange for the conduct of, audits of the Study. Government audits shall be conducted in accordance with applicable Government cost principles and regulations. The Government's costs of audits for the Study shall not be included in shared study costs, but shall be included in calculating the maximum Federal study cost.

C. To the extent permitted under applicable Federal laws and regulations, the Government shall allow the Non-Federal Sponsor to inspect books, records, documents, or other evidence pertaining to costs and expenses maintained by the Government, or at the request of the Non-Federal Sponsor, provide to the Non-Federal Sponsor or independent auditors any such information necessary to enable an audit of the Non-Federal Sponsor's activities under this Agreement. The costs of non-Federal audits shall be paid solely by the Non-Federal Sponsor without reimbursement or credit by the Government.

ARTICLE VII - RELATIONSHIP OF PARTIES

In the exercise of their respective rights and obligations under this Agreement, the Government and the Non-Federal Sponsor each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other. Neither party shall provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights a party may have to seek relief or redress against that contractor.

ARTICLE VIII - NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or mailed by certified mail, with return receipt, as follows:

If to the Non-Federal Sponsor:

Samantha Malenovsky
Floodplain Administrator
City of Miles City
17 South 8th Street
Miles City, MT 59301

If to the Government:

District Engineer
U.S. Army Corps of Engineers, Omaha District
1616 Capitol Avenue Suite 9000
Omaha, NE 68102-4901

B. A party may change the recipient or address for such communications by giving written notice to the other party in the manner provided in this Article.

ARTICLE IX - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.


ARTICLE X - THIRD PARTY RIGHTS, BENEFITS, OR LIABILITIES


Nothing in this Agreement is intended, nor may be construed, to create any rights, confer any benefits, or relieve any liability, of any kind whatsoever in any third person not a party to this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer.

DEPARTMENT OF THE ARMY

MILES CITY, MONTANA

BY: 
John W. Henderson, P.E.
Colonel, Corps of Engineers
Omaha, District Engineer

BY: 
John Hollowell
Mayor, Miles City
Montana

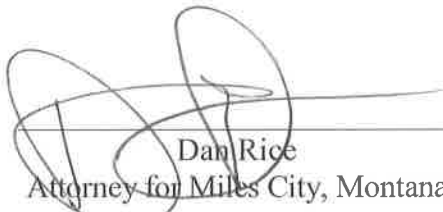
DATE: 24 MARCH 2017

DATE: 3-15-17

CERTIFICATE OF AUTHORITY

I, Dan Rice, do hereby certify that I am the principal legal officer of Miles City, Montana, that Miles City, Montana is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and Miles City, Montana in connection with the Miles City, Montana Section 205 Feasibility Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement, as required by Section 221 of Public Law 91-611, as amended (42 U.S.C. Section 1962d-5b), and that the persons who have executed this Agreement on behalf of Miles City, Montana have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this
15th day of MARCH 2017.


Dan Rice
Attorney for Miles City, Montana

CERTIFICATION REGARDING LOBBYING

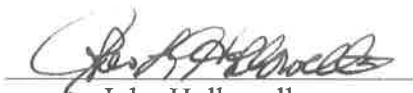
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



John Hollowell
Mayor, Miles City
Montana

DATE: 3-15-17

NON-FEDERAL SPONSOR'S
SELF-CERTIFICATION OF FINANCIAL CAPABILITY
FOR AGREEMENTS

I, John Morehead, do hereby certify that I am the City Treasurer of Miles City, Montana (the "Non-Federal Sponsor"); that I am aware of the financial obligations of the Non-Federal Sponsor for the Miles City, Montana Section 205 Feasibility Study; and that the Non-Federal Sponsor has the financial capability to satisfy the Non-Federal Sponsor's obligations under the Feasibility Cost Share Agreement for the Miles City, Montana Section 205 Feasibility Study.

IN WITNESS WHEREOF, I have made and executed this certification this 15th day of March, 2017.

BY: _____

TITLE: CITY TREASURER

DATE: _____

3/15/17



**US Army Corps
of Engineers**

Omaha District

DRAFT

Project Management Plan (PMP)

Miles City, Montana

U.S. Army Corps of Engineers

Section 205 Flood Risk Management Study

February, 2017

Table of Contents

<u>Paragraph</u>	<u>Page</u>
1. Forward and Project Scope	3
2. PDT Membership Information	7
3. Critical Assumptions and Constraints	7
4. Work Breakdown Structure	8
5. Funding	9
6. Schedule	10
7. Quality Control Plans and Objectives	10
8. Acquisition Strategy	11
9. Risk Analysis	11
10. Safety Plan	11
11. Change Management	12
12. Communication Strategy	13
13. Value Engineering Management	13
14. Closeout	14
15. Real Estate	14
16. Approvals	14
17. Attachments	15

1. FORWARD AND PROJECT SCOPE.

This Project Management Plan (PMP) represents a work plan to be used for the feasibility study phase for the Miles City Project, in Custer County, Montana. This PMP defines and documents the assumptions, scope of work, tasks, products and the level of detail required for this project. The PMP defines work tasks and products and provides the Omaha District management with a means for cost and schedule control, establishes the basis for changes and promotes both internal and external communications. The PMP is a working document and will be revised and modified by the Product Delivery Team, the Sponsor (the city of Miles City, Montana in Custer County) and the Project Review Board (PRB) as the project moves forward to completion.

1.1 PROJECT DEFINITION.

The Tongue and Yellowstone Rivers, which flow north, have a 5,397-square mile basin in northeastern Wyoming and southeastern Montana (Figure 1).

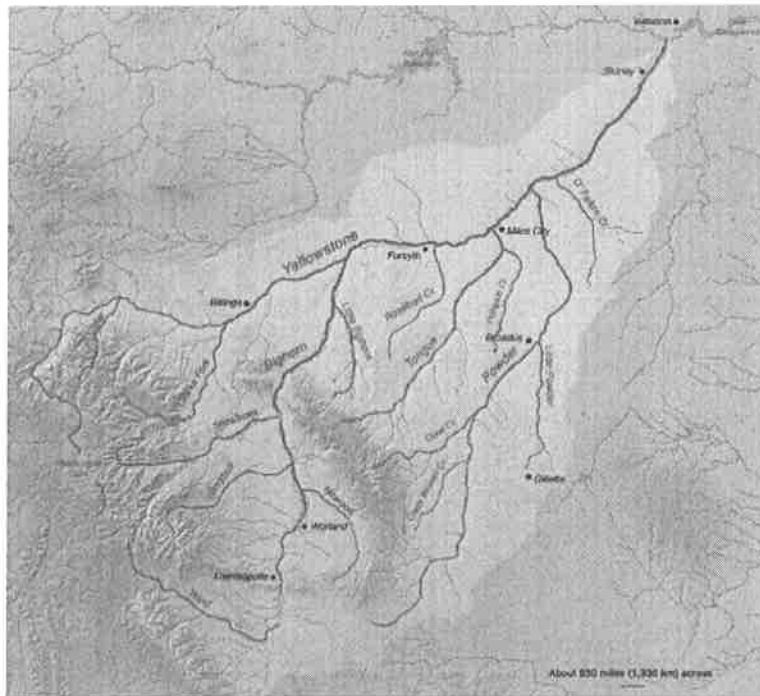


Figure 1. Map of Yellowstone River and Tongue River Basins

(Source:

<https://commons.wikimedia.org/wiki/File:YellowstoneRiverMap.jpg#media/File:YellowstoneRiverMap.jpg>)

The vast majority of development in the Miles City vicinity is located on the right banks of these two rivers. Scattered development is also located on the left bank of the Tongue River. The left bank of the Yellowstone River in the Miles City area is characterized by steeply sloping bluffs and any development is well out of the floodplain.

Prior to the revised Digital Flood Insurance Rate Map (DFIRM), an estimated 300 structures were in the 100-year floodplain. Based on the new DFIRM and the State of Montana's 2013 Multi-Hazard Mitigation Plan and Statewide Hazard Assessment, approximately 80 percent of the city is now within the 100-year floodplain, approximately 3,500 structures. Critical facilities which are located within the 100-year floodplain include both

the municipal water and wastewater treatment plants; one hospital, one nursing home, five schools, numerous churches, and a State of Montana fish hatchery. See Figure 2.



Figure 2. Inundation area for a 100-year flood event at Miles City as depicted in the updated Flood Emergency Management Agency (FEMA) DFIRM.

Miles City has been subjected to numerous floods from the Tongue and Yellowstone Rivers. Historically, the most severe flooding in Miles City has been caused by ice-affected flow conditions (i.e., floating ice cover, floating ice, or grounded ice jams). Nearly 60 percent of the 36 floods that have occurred in Miles City between 1888 and 2015 were reported as ice-affected. Twenty major ice jams occurred along the Tongue River, and the majority of those developed during the month of March.

Ice jams can form very quickly resulting in a rapid rise in water that can back up and cause flooding in adjacent and upstream areas. Ice jams can also break apart rapidly which can cause downstream flooding. In both instances, life safety can be at risk due to short warning times, depth of flood waters, ice and debris carried by floodwaters, and exposure to near freezing temperatures of the water itself. Bridges and other infrastructure that restrict the floodplain and river channel can contribute to ice jamming as they can restrict flow.

Snow melt from the Big Horn Mountains entering the Tongue and Yellowstone Rivers is another source of flooding in Miles City. Both the Tongue and Yellowstone Rivers rise in early spring as a result of snowmelt from the lower elevations in the basin and rise again in June because of snowmelt from higher elevations augmented by rainfall runoff.

Miles City, situated at the confluence of both the Yellowstone and Tongue Rivers, is threatened by flooding from both rivers and considered one of the most flood-prone communities in the state. Twenty three percent of all flood insurance policies in the state of Montana are located within Miles City.

In 1936, the Works Progress Administration constructed a levee along a portion of the Tongue and Yellowstone Rivers. This levee, which was subsequently extended both upstream and downstream by the local interests, has been flanked and overtopped during flood events. The study reach of the Tongue River and Yellowstone River is lined with non-engineered levees on the right bank. The levee has been built up and maintained over the years by the city. Ownership of the levee varies with the city owning portions of the levee and private landowners holding deeded real estate interests in the levee as well. The existing levee exhibits numerous

engineering and maintenance deficiencies, such as a history of erosion problems, mature trees on the levee and structure encroachments along the levee toe preventing it from being eligible for assistance under the USACE levee rehabilitation program authorized under P.L. 84-99.

The objective of the Feasibility Phase will be to confirm the Federal Interest by developing structural and non-structural flood risk reduction measures and combining them into feasibility-level designs (alternatives) for cost-benefit analysis. A central goal will be to identify a preferred plan based on National Economic Development (NED) Plan, Sponsor acceptability, life safety, and environmental stewardship. This PMP only covers the Feasibility Phase.

The objective of the subsequent Plans and Specification (P&S) phase is to prepare the plans and specifications necessary to construct the flood control solutions that were identified as parts of the Selected Plan during the Feasibility Study.

The objective of the final Design and Implementation (Construction) Phase is to build the project as designed during the P&S phase. Construction will be completed under Corps management and supervision by a contractor selected by an open and competitive bidding process.

1.2 SERVICES TO BE PROVIDED.

The Feasibility study is a detailed evaluation of the problems, opportunities and constraints and the evaluation of alternative methods of cost effective flood risk reduction plans. The design effort is comprehensive in nature, and will address the flood risk management issues and all socio-economic and environmental impacts related to the construction of the levee system. Construction of the project will provide the community with flood risk reduction.

1.3 KEY PRODUCTS.

A Feasibility Report will be prepared to confirm Federal Interest and recommend a feasible solution. The recommended alternative will be used in the preparation of plans and specifications detailing solutions to the flooding problem. The plans, specifications and documents related to bid preparation are the products of the Design phase of work. A completed functioning flood risk management project and operation and maintenance manuals are the products of the Implementation (construction phase).

1.4 AUTHORITY.

The authority for this project contained in Section 205 of the Flood Control Act of 1948, as amended, 33 U.S.C 701s. Section 103(a) of the Water Resources Development Act of 1986, Public Law 99-662, as amended, specifies the cost-sharing requirements applicable to the Project. Under Section 205 of the Flood Control Act of 1948, as amended, the Government may expend up to \$10,000,000 on a single flood control project. Under Section 221 of the Flood Control Act of 1970, Public Law 99-662, as amended, provides that the Secretary of the Army shall not commence construction of any water resources project, or separable element thereof, until each non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project of separable element. Under Section 103(m) of the Water Resources Development Act of 1986, Public Law 99-662, as amended, the non-Federal Sponsor does not qualify for a reduction of the maximum non-Federal cost share cost. Under these guidelines, the Government and the non-Federal Sponsor have the full authority and capability to perform according to the directives of the Cost Sharing Agreement.

1.5 LOCATION

Miles City, Montana, is located at the confluence of the Tongue and Yellowstone Rivers in the southeastern portion of the state. It is located approximately 128 miles east of the North Dakota border and 145 miles west of

Billings, Montana as shown on Figure 3. The project is located on the right banks of the Tongue and Yellowstone Rivers adjacent to Miles City, MT which has an estimated population of 8,569 per the 2012 U.S Census.

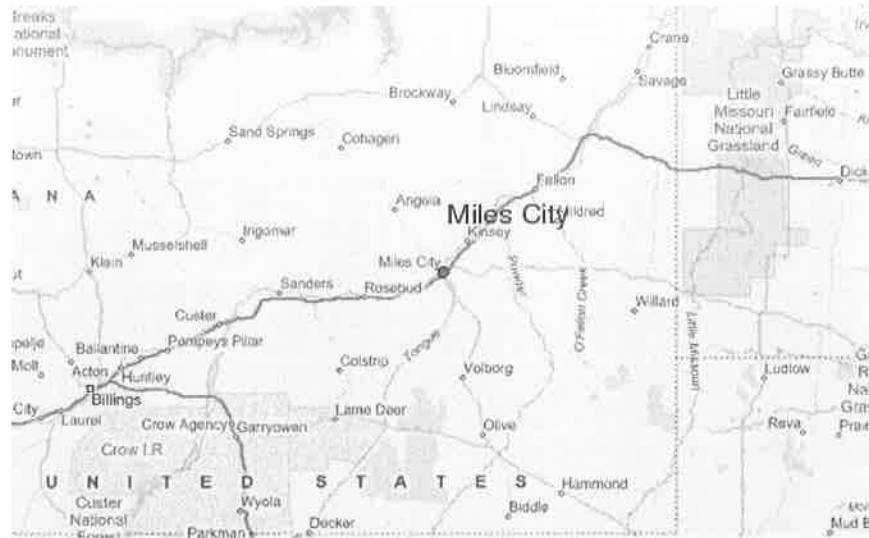


Figure 3. Location of Miles City, Custer County, MT

2. PRODUCT DELIVERY TEAM (PDT), SUPERVISOR and AD-HOC MEMBERSHIP

INFORMATION.

Table 1 reflects the current team members involved in this project.

Table 1. Current Project Team Members

Office	PDT Member	Title	
CENWO-PM-AP	Jarrett, Gwyn M NWO	Project Manager/Plan Form Lead PM	402-995-2717
CENWO-PM-P	Val Novak	Continuing Authorities Program Manager	402-995-2797
CENWO-PM-AC	Matt Vandenberg	Environmental Section	402-995-2694
CENWO-PM-AB	Patrick Nowak	Economist	402-995-2696
CENWO-PM-AB	Sandy Barnum	Lead Cultural Resource Specialist	402-995-2674
CENWO-ED-GB	Terry Matuska	Technical Lead - Civil Engineer	402-995-2234
CENWO-ED-HE	Nicole Shorney	Hydrologic Engineer	402-995-2345
CENWO-RE-C	Amanda Simpson	Real Estate Specialist	402-995-2837
CENWO-ED-HB	Rachel Shoemaker	Flood Plain Specialist	402-995-2306
CENWO-ED-HD	Laurel Hamilton	Hydraulics Engineer	402-995-2338
CENWO-ED-GS	Lynn Jenkins	Environmental Science Lead	402-995-2219
CENWO-ED-DF	James Osborn	Structural Design Engineer	402-995-2154
CENWO-ED-C	Gary Norenberg	Cost Engineer	402-995-2104
Office	Supervisor	Title	
CENWO-PM-AP	Johnson, Greg NWO	Plan Formulation Section Chief	402-995-2701
CENWO-PM-AC	Eric Laux	Environmental Resource Section Chief	402-995-2682
CENWO-PM-AB	Dave Brandon	Economic, Cultural Resource, Planning Quality Review Section Chief	402-995-2699
CENWO-ED-HE	Josh Melliger	Hydrology Section Chief	402-995-2343
CENW-RE-C	Rick Noel	Real Estate – Civil Chief	402-995-2832
CENWO-ED-HB	Tony Krause	Acting - Flood Plain Section Chief	402-995-2326
CENWO-ED-HD	Roger Kay	Hydraulics Section Chief	402-995-2342
CENWO-ED-GS	Marc Anderson	Chief Environmental Section	402-995-2285
CENWO-ED-DF	Wayne Boeck	Chief Structural Section	402-995-2151
CENWO-ED-C	Steve Kemp	Chief Cost Engineering	402-995-2103
CENWO-ED-C	Gary Norenberg	Cost Engineer	402-995-2104
Ad Hoc-			
Miles City	Samantha Malenovsky	City Flood Plain Administrator	406-874-8617
Miles City	John Hollowell	Mayor	406-234-3462

3. CRITICAL ASSUMPTIONS AND CONSTRAINTS. This project contains the following Assumptions and Constraints:

(Assumptions and constraints are very preliminary as the Feasibility Study has not begun)

3.1 ASSUMPTIONS – The following assumptions were made in developing the Project Objectives:

The study will include the following steps for the Tongue and Yellowstone Rivers:

1. Problems and Opportunities
2. Existing and Future without Conditions
3. Scoping meeting
4. Preliminary screening measures on the Tongue
5. Preliminary screening measures on the Yellowstone

The following steps (6-16) will be carried through on the Tongue River to complete feasibility on the Tongue River. Re-scoping may occur with the Sponsor based on linkage and Yellowstone Rivers to determine the path forward addressing the Yellowstone River, based on the first five steps and also to discuss the inclusion of the Conditional Letter of Map Revision (CLOMR) submittal on the Tongue River nearing the conclusion of the Tongue River feasibility report.

6. Plan formulation, evaluate, compare and recommend the plan selected on the Tongue River and the Yellowstone if later added
 7. Prepare Draft Report
 8. Supervisor Review (DQC)
 9. Agency Technical Review (ATR)
 10. ED-C (Cost MCX (Center of Expertise) coordination and certification) as part of ATR
 11. Independent External Peer Review (IEPR)
 12. Major Decision Milestone Briefing with Division
 13. Public review of report
 14. Revise report
 15. Submit report for approval
 16. Sign agreement to proceed into design and implementation.
- The goal of the project is to reduce flood risk for the Miles City, MT community and to identify a structural and/or nonstructural solution to minimize flood risk. Additionally, if the recommended alternative is a structural solution, the project would be constructed meeting the requirements of P.L. 84-99 and to assist the community with flood plain development according to the guidelines established under the National Flood Insurance Program (NFIP).

3.2 CONSTRAINTS: The following planning constraints were established as a framework in defining the selected Project Plan:

- Minimize potential impacts to cultural resources, wetlands and federally listed endangered species.
- Minimize the need for relocating commercial and industrial services, as well as residential structures.
- Minimize adverse environmental effects associated with any recommended project.
- Design measures shall provide a net reduction to life safety risks.

4. WORK BREAKDOWN STRUCTURE.

The Work Breakdown Structure (WBS) is a description of the scope of work into its component products and sub-products in a hierarchy of levels. A product at any level is made up of those products in the levels below it. The breakdown of the scope continues down to a level at which work can be assigned to a specific organization (a District branch or section). This generally corresponds to the lowest level of cost

account reporting. For contracted or in-kind work, the breakdown is similar, as each subproject, parent task and subordinate task needs to be specified and provided with an estimated cost.

A work breakdown structure of tasks and subtasks proposed for the Feasibility Phase is provided in Appendix 1. The work breakdown structure for the Design and Implementation Phase will be developed late in the Feasibility Phase, once the flood risk reduction measures and plans have been formulated.

5. FUNDING.

Prior to the signing of the FCSA, the initial part of the Feasibility Process includes completing the Federal Interest Determination which is 100% Federally Funded. Up to \$100,000 can be provided for this initial Feasibility Study Task which was approved on March 25, 2016.

In the Feasibility Study Phase (after the FCSA is signed), work integral to the project is presented in the Scope of Work (SOW) and cost estimate, Attachment 1 and Attachment 2. Work will be cost shared between the Federal Government (U.S. Army Corps of Engineers) and the Local Sponsor (Miles City, Montana). The Federal Government provides 50% of the total Feasibility Study Cost and the Sponsor provides cash or services equal to the other 50% of the cost. In the Design and Implementation Phase, the cost share breakdown changes to 65% Federal and 35% Sponsor funding. Typically the sponsor provides some work-in-kind in lieu of cash as well as real estate interests as part of their matching cost share.

Under the authority of Section 205 of the Flood Control Act, as amended, the Federal Government can provide up to \$10,000,000 for the project from the beginning of the Feasibility Phase through the completion of construction.

6. SCHEDULE and FUNDING.

This initial schedule, Table 2, was prepared for the Federal Interest Determination and modified upon approval of that document. The detail for the early part of the Feasibility Phase is greater than for subsequent portions of the Feasibility Study and for the Design and Implementation Phase.

Federal funding will be requested upon execution of the FCSA. Appropriation of federal funds to maintain the schedule will be determined by higher authority. The Sponsor has committed to making funds for the non-federal share available so the study may proceed to completion once initiated.

**Table 2
Schedule**

MILESTONE	DATE
Initiate Project	Dec 2015
FID Submission	March 11, 2016
FID Approval	March 25, 2016
Review Plan Developed	
PMP Developed	February 2017
FCSA Execution	March 2017
Existing Conditions & Future without Project	October 2017
Alternatives Milestone (CW261)	March 2018
TSP (CW262)	April 2018
Reviews, including IEPR Complete (CW250)	April, 2019
CAP MDM Briefing (CW263)	August 2019
Decision Document approved by CENWO (CW160)	October 2019
Decision Document approved by CENWD (CW260)	December 2019
PPA Execution	April 2020
Initiate D&I Phase	May 2020
Pre Award RE / Environmental Compliances Done	March 2021
Initiate Advertising	May 2021
Open Bids	June 2021
Construction Contract Award	July 2021
Project Completion	July 2022

7. QUALITY CONTROL PLAN AND OBJECTIVES.

This plan outlines the procedures (i.e., checks and reviews) that will be implemented to insure that the products meet the quality objectives provided above. A mandatory quality control review (QCR) or reviews is a critical element of the Corps quality control process. The details of the Quality Control and Review process are provided in the Review Plan, which is a separate document.

8. ACQUISITION STRATEGY.

The Omaha District performs the majority of Section 205 Flood Risk Management Studies and subsequent design work with in-house staff. Some of the existing conditions Hydrology, Hydraulic and Geotechnical Engineering work may be performed by an IDIQ during the Feasibility Study. The PDT and corresponding supervisory staff will evaluate each phase of this project on a case-by-case basis to determine the need for contracting support.

The acquisition strategy for the Construction Phase will be developed during the Design Phase in cooperation with Contracting Division and the Construction Division using recommended tools and processes (PASB, CAM, etc.).

9. RISK ANALYSIS.

Risk is the exposure to probability of something happening and the consequence of that event. Risk management seeks to reduce risk by identifying uncertainty and taking action to manage that uncertainty. In the context of the project goals, procedures are in place through this Project Management Plan (PMP) to assist in reducing the risk of uncertainty related to scope, cost estimates, schedule changes and study resources. These procedures will help to maintain schedule within cost limitations and under the project manager's span of control authority. Non-performance of a key project task by a member of the (Project Delivery Team) PDT is of concern, but if identified early on, can be remedied by contracting for the services. Contingency funds are also budgeted. A risk also exists in that either one of the signatories to the Project Partnering Agreement (PPA), for various reasons, may decide to terminate the agreement during any phase of work. This would result in wasted Federal resources, unless another partner can be located, or the costs recovered through negotiation. Controls that help reduce risk of project termination are frequent meetings and contacts with the sponsor, the monthly BCPERM and PRB meetings held at the Omaha District, the project managers working closely with the District, any consultants and local government, and vertical coordination meetings with HQ and NWD.

10. SAFETY PLAN.

10.1 SAFETY SUPPORT: The Omaha District PM will coordinate with the Omaha District Safety and Occupational Health Manager (SOHM). The SOHM is responsible for the district Safety and Occupational Health Program (SOHP). The SOHM is responsible for planning, organizing, overseeing, and evaluating the District SOHP, in conjunction with the PM. The SOHM or personnel from CENWO-ED-G reviews the Site Safety and Health Plan (SSHP), if required. The SOHM or staff conducts periodic safety surveys; inspections; and evaluations of all work and procedures associated with the project to include operational procedures, programmatic safety, occupational health requirements, environmental hazards, construction, public safety hazards, and personal protective equipment requirements. The SOHM ensures compliance with all applicable safety regulations and provides support to the PM for overall safety on the project site.

10.2 SAFETY REQUIREMENTS: Safety is our primary concern for the activities on-site. A Government representative is required to monitor contractor activities from a quality assurance viewpoint. This includes the contractor's safety program. Under the terms of the contract, FAR 52-212-3 Stop-Work Order clause of the basic contract, the Contracting Officer has full authority to require the contractor to take any steps deemed necessary for maintaining safe operating conditions.

The contractor is obligated by the terms of the contract to protect the lives and health of persons exposed to their operations and to safeguard property and equipment from accidental loss or destruction. All work will be performed in accordance with the safety and health provisions of the contract, EM 385-1-1 (US Army Corps of Engineers Safety and Health Requirements Manual), and federal state and local codes and standards. When a difference in standards exists, the most stringent standard applies.

In addition to being a contract requirement, a well-planned and conscientiously applied accident prevention program is essential to the efficiency, quality, and scheduling of work and the minimization of costs. The prime contractor is responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance; coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts; and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. Public safety is paramount. Sites must be secured from public access during construction.

Unsafe practices will not be tolerated. Reckless behavior or disregard of safety and health requirements will not be allowed to exist on Corps of Engineers projects. If any contractor employee endangers his own life, the lives of others, or property by disregard of safety and health requirements, the contractor shall be informed of the employee and his unacceptable attitude towards accident prevention. The contractor will be reminded of the contract requirements and be instructed to immediately resolve the problem.

When a Corps of Engineers employee identifies an immediate endangerment to life or health (imminent danger), a Stop-Work Order may be issued. Situations in this category include, but are not limited to, workers being crushed, buried, electrocuted, suffocated, thrown from moving equipment, falling, drowning, being blown up, etc. If any of the aforementioned safety concerns should arise, the following steps will be taken:

The Contracting Officer or Corps employees on-site will instruct the contractor to immediately remove workers from the area of danger or to desist from the dangerous operation or practice.

In the event a representative of the contractor is not at the site, the PM or on-site Corps employee will order the workers to extract themselves from the dangerous location or to cease the dangerous operation or practice. The PM or Corps employee on-site will ensure that the work is not resumed in the area of danger and that workers will not be involved in the dangerous operations or practices until recommendations for corrections have been fully complied with.

Defective equipment will not be operated until all deficiencies are corrected and the equipment meets inspection and testing requirements.

10.3 SAFETY EXPOSURE REPORTING: It is necessary that CENWO-SO receive monthly contractor man-hours so that we may determine our lost time frequency rates. This data must be received, telephonically, electronically, or by mail by the 5th of every month. The information needed is the number of man-hours worked by the prime and subcontractors at any particular project for the previous month. CENWO-SO needs only the total man-hours, not separated by contract.

11. CHANGE MANAGEMENT.

A procedure is necessary for defining how changes to project scope, schedule and budget can be made from the PPA and the PMP. Significant changes must have the approval of the project sponsor and the Corps. Changes or anticipated changes would be reported monthly to the sponsor.

In practice, most changes will be made with recommendations from the PDT, including the local sponsor. If there are no significant changes in scope, costs, and schedule, the project manager can approve the change. A modification to the PMP would be needed if the change is considered significant, with notable impact to scope, schedule or budget.

If there are changes that would result in an increase in total project cost or a delay in completion of the overall effort, the Corps will follow a procedure known as the Project Schedule and Cost Change Report (SACCR). After concurrence from the Project Management Team, the Corps PM will prepare the SACCR in concert with a program analyst from the Planning, Programs and Project Management Division. This provides a justification for the changes. Action is taken at the Omaha District and Northwestern Division project review boards. To be approved by the Corps at the District and the Division level, a SACCR must first be approved and signed by the project sponsor if the project is in a cost-shared phase. At the local level, the request for change and costs would be reviewed by the Steering Committee. In absence of concurrence on change in scope and schedule, the full Council or even the Executive Committee of the Flood Control Steering Committee, comprised of the city council and county commission, may need to be involved.

As indicated earlier, both the Corps and the sponsor at the Executive level (Miles City Mayor and Custer County Commissioner and the Omaha District Commander) have veto power over any proposed scope and cost changes that are perceived to be or might become controversial. This

provides both parties protection against commitments that would be unacceptable to either party; the intent is that issues would be resolved at the Project Team Level as much as possible. There will be monthly opportunities for thorough communication about potential issues at the Corps in Branch Chief Project Execution Review Meeting (BCPERM) and PRB meetings and at the sponsor level at regular agency meetings. Issues that cannot be resolved at the level of the Project Team would be raised to the Executive Office level. The Omaha District Commander would assign the Deputy to the Omaha District Commander, as the Corps representative. Any matter that could not be resolved at this level would first be raised to the NWD and possibly HQ level before any final decision would be made. During this time period, the sponsor would be welcome to participate in discussions and meetings to resolve any issues.

12. COMMUNICATIONS STRATEGY.

The study and design have been conducted with full and open communications within the Corps and between the Corps and the sponsors. The Corps will communicate monthly with the sponsor to address community interest and to alleviate concerns associated with the study risks, process, information and/or findings. The PDT holds periodic meetings to discuss and resolve issues, update project status, and review project reports, etc. In addition to the PDT meetings, the sponsor is updated periodically on the status of the project and receives financial information consistent with public law, regulations, and good business practices. The Corps' upper management is kept informed of the work status through reports to the BCPERM and PRB and at Quarterly Reviews with NWD. These reports are prepared by the Corps' PM and discuss accomplishment of project objectives, identify issues, and forecast changes to schedules and costs. Such internal reports are prepared monthly, quarterly, or annually, according to established District procedures. Fact sheets with condensed information about the project are maintained and updated periodically by the Corps' PM to provide background information to higher authority or to respond to other inquiries.

In addition to internal PDT communication, a priority for the project is to provide for public awareness and public participation. To facilitate public awareness for all ages, the community will utilize print and electronic methods for communication. Regular meetings will be held with local steering committees. Depending on project progress, community awareness meetings may be scheduled. Public awareness will include obtaining timely input from other federal and state agencies and interested local communities, residents and other stakeholders. This is accomplished through periodic public meetings and/or workshops, formal and informal interagency coordination, and by allowing all stakeholders the opportunity to review and comment on decision documents (e.g., the feasibility report).

A permanent project file for this project has been developed and maintained by the PM at the Omaha District in accordance with current District policies. This record file will include all formal correspondence, decision documents, and financial documents relevant to the project in electronic and/or hard copy format, as applicable.

13. VALUE ENGINEERING MANAGEMENT.

Value Management is a process to facilitate and encourage the understanding, consideration, and integration of the needs of all customers, PDT members, partners and stakeholders. Value management seeks the highest value for a project by balancing resources and quality and should be applied continuously throughout the life cycle of the project. Value Management is maintaining important functions in regard to efficiency, effectiveness and cost control during the project. A Value Engineering Study is often done during the early part of the Design and Implementation Phase. Reference EC 11-1-114 is used as a guide to value engineering.

14. CLOSEOUT.

The process covers closeout of the Plans and Specifications and Construction phases and its activities, including but not limited to completion of the design, fiscal completion, checking of contractor performance, and evaluations of the process. An Operation and Maintenance Manual is often prepared as a final task before closeout, and the relinquishment of the completed project to the local sponsor.

The PM is responsible for closeout; however, the required actions may require participation of the PDT members, especially for closeout of financial cost accounts. The closeout would also apply in situations where the project might be terminated. All outstanding obligations and commitments will need to be cleared. The sponsor's PDT member responsible for keeping financial records will assist the PM in carrying out an audit design cost expenditures, including funds used for contracted services and those for in-kind services. The PM shall also insure that all contracted services products have been accepted prior to making any final payments.

Omaha District procedures for closeout shall follow standard operation procedures. The amounts of Federal and non-federal costs will be determined and a balancing of expenditures based on the approved cost share ratio will be determined. The outcome will determine the direction and amount of any funds to be transferred between the sponsor and the Federal government.

15. REAL ESTATE. A Real Estate Plan (REP) will be prepared once the "footprint" of flood risk reduction measures is defined.

16. APPROVALS.

The PMP is valid when it has been reviewed and signed by the members of the PDT, their supervisors and the Sponsor. This PMP was prepared and approved by the PDT, supervisors and the Sponsor. See Attachment 3.

17. ATTACHMENTS.

17.1 Attachment 1: Scope of Work

17.2 Attachment 2: Cost Estimate

17.3 Attachment 3: Approval Sheet



**US Army Corps
of Engineers**

Omaha District

**Tongue River, Miles City Montana
Section 205
Flood Risk Management
Scope of Work and Cost Estimate**

February 2017

Attachment 1

INTRODUCTION

The purpose of the scope of work (SOW) is to describe the tasks that will be completed for the Miles City, MT Section 205 Flood Risk Management (FRM) study. Miles City is small eastern Montana city with approximately 8,758 residents (2014 Census Bureau), located at the confluence of the Yellowstone and Tongue Rivers, in Custer County, Montana. In order to clearly identify sources of flood risk the existing conditions analysis will evaluate combined flood risk from the Tongue and Yellowstone Rivers and preliminary measures will be identified for both rivers. At this stage, actual project alternatives will be evaluate for the Tongue River only, therefore the alternatives analysis included in this SOW are limited to the Tongue River. If the problem identification analysis finds that alternatives should also be evaluated for the Yellowstone River or various combinations for the two rivers, it may be desirable to re-assess the level of effort and cost for alternatives evaluation.

The general scope of this study includes all investigations and analysis required to prepare an integrated feasibility report and environmental assessment. This includes evaluating alternatives and determining the National Economic Development plan and any other reasonable alternatives, and recommending a plan. Also included is coordination with the sponsors and other stakeholders and public outreach to ensure that the study adequately considers and reflects local concerns and input. Work will be completed in accordance with applicable policy, guidance and requirements.

A description of the work and costs of the study are outlined below. The study costs reflect existing products, and prior work completed by the Omaha District and other agencies. Prior work included establishing the base flood elevations for a range of events, land use inventories, economic analyses, and overall flood problem identification. The majority of the planning and engineering work that is needed to complete the study involves evaluating flooding potential, formulating alternative plans, evaluating the effects of alternative plans, comparing alternative plans, and selecting the recommended plan for implementation.

Please note the accompanying scope and cost estimates assume labor performed at or slightly above current pay rates and only includes tasks known to be essential at this time. Some deviation may occur over the duration of the project's development. Such deviations would need to be coordinated with the study partners.

SUMMARY OF WORK AND COSTS

Below is a breakdown of proposed work and estimated costs. This information reflects tasks to be completed by the Corps of Engineers and projected work in-kind. The cost sheet parallels the summary of costs presented below. Descriptions of the work are presented by each discipline. Supplemental tasks that may be added are identified as "optional" and not included in the cost estimate. Optional items are identified at the conclusion of "Summary of Work and Costs" as "Supplemental Work".

PLAN FORMULATION AND PROJECT MANAGEMENT (PM-AA)

Formulating a flood damage reduction plan is the primary goal of the Feasibility Study and requires active involvement by the Planning Branch. A primary Plan Formulation task includes guiding the team to iterate through the 6 steps Plan Formulation Process which are noted as follows:

- 1) Specify problems and opportunities.
- 2) Inventory and forecast conditions and define the without project future condition.
- 3) Formulate alternative plans.
- 4) Evaluate the effects of alternative plans.
- 5) Compare alternative plans.
- 6) Select the recommended plan and prepare for the PED phase.

For this study the following steps will be implemented on the Tongue and Yellowstone Rivers:

1. Problems and Opportunities
2. Existing and Future Without Conditions
3. Preliminary screening of measures on the Tongue and Yellowstone Rivers
4. Plan Formulation of alternatives on the Tongue River
5. Evaluating the effects of alternative plans on the Tongue River
6. Comparing alternative plans on the Tongue River
7. Selecting the recommended plan for the Tongue River and prepare for the PED phase
8. Re-scoping based on linkage between Tongue and Yellowstone Rivers could occur following Step 3 that would also include the Yellowstone River in Steps 4-7. This option would be discussed if it is in the Federal interest and the sponsor so chooses.

Other Plan Formulation tasks include planning, conducting and documenting meetings; being involved in the public involvement process to comply with the National Environmental Policy Act (NEPA), District Quality Control (DQC), Alternative Technical Review (ATR), Independent External Peer Review (IEPR) and coordinating and preparing the draft and final feasibility report for publication.

Project management includes work to direct the progress of the feasibility effort. A primary Project Management task is defining the critical study path in order to lead the feasibility study forward in a timely fashion. Other Project Management tasks include necessary upward reporting through the District and Division (i.e. Branch Chief Project Execution Review (BCPERM), Project Review Board (PRB) and data calls), and coordination with the sponsor. The Project Management Plan (PMP) will be updated during the study as needed. It's anticipated that the study will be re-scoped after the preliminary screening of measures on the Tongue and Yellowstone Rivers is completed. Project management also includes study coordination team funds for senior Corps staff, tracking budgets, scheduling and managing project funds, and preparing milestone meetings.

The sponsor will be asked to provide input throughout the study. In addition to coordinating with

the Corps of Engineers, attending meetings integral to the study, as agreed upon, the sponsor will respond to requests related to plan formulation. It's also anticipated there will be miscellaneous Corps of Engineers requests related to technical information and emerging issues the sponsor will respond to. The sponsor will review the draft and final reports and attend Corps public meetings. The sponsor may be asked to assist in responding to ATR and IEPR comments.

Cost Estimate:

Corps of Engineers Plan Formulation: \$103,533.00

Corps of Engineers Project Management: \$150,699.00

Total: \$254,232.00

Projected Work in Kind: \$117,900.00

Total Plan Formulation/Project Management: \$372,132.00

PROGRAMS MANAGEMENT (PM-P)

The Planning, Programs, and Project Management Division assists the project team and sponsor with managing project funds within the USACE financial management system. A program analyst will be assigned to the project to assist with budgets documents, funding requests, scheduling funds, documentation for in-kind service, closing out the project, and a host of other daily activities. Estimated costs for this effort are shown below.

Cost Estimate:

Total Corps of Engineers Programs Management: \$33,200.00

HYDROLOGY (ED-HE)

Task 1. Review Previous Reports, Site Visit Summaries, Sponsor Provided Materials, Etc.

Collection and review of applicable existing data and reports that pertain to hydrology will be performed in order to properly understand the existing conditions. The storm sewer plans provided by Miles City and the previous Flood Insurance Study (FIS) Hydrology Appendix (*Miles City, Montana Hydrologic Analysis*, Revised Nov 2007) should be thoroughly reviewed at a minimum. A site visit was conducted on June 20, 2016. Meeting notes, field photos, and other team member notes will be reviewed.

Task 2. Update Discharge-Frequencies

Discharge-frequencies for the Yellowstone River at Miles City and the Tongue River at Miles City will be updated using the same methods used previously in *Miles City, Montana Hydrologic Analysis*. This will include all-seasons, open water, ice-affected, and combined discharge frequencies for both locations. This will also include a *Bulletin 17B* record extension for the

Yellowstone River using the Sidney, MT gage, if deemed necessary. Final peak discharge-frequencies will be recommended based on which curves fit the observed data the best (all-seasons/annual curves were the best fit in the previous study).

Task 3. Hydrograph Development

Balanced hydrographs will be developed for the 2-, 5-, 10-, 20-(or 25-, hydraulic and econ discretion), 50-, 100-, 200-, and 500-year peak discharges for the Tongue and Yellowstone Rivers. This will be done using HEC-SSP, and will require Volume-Duration analysis on the all-seasons daily data. If recommended peak discharges are based on something other than the all-seasons data, the recommended peak discharge frequency curve will be input in SSP for the 5-minute duration, but all seasons daily data will still be used for the other durations for simplicity.

Task 4. Coincident Frequency

The coincident frequency relationship between the Yellowstone River and Tongue River will be updated using the same method as in *Miles City, Montana Hydrologic Analysis* to update Table 8 from that report. This work may be a joint effort with Hydraulics, since more recent efforts to analyze coincident frequency utilized HEC-RAS.

Task 5. Update Stage-Frequencies

The stage-frequencies for the Yellowstone River at Miles City for both open water and ice-affected will be updated, following the same procedures used in *Miles City, Montana Hydrologic Analysis*.

Task 6. Formulation of Measures

Team workshops will be held to formulate measures for the Yellowstone and Tongue Rivers. Only preliminary measures will be formulated for the Yellowstone. It is assumed that only 1 alternative will be found and analyzed fully for the Tongue, consisting of a right bank levee and left bank non-structural measures. The levee may have 2-3 possible alignment alternatives that need to be considered. The Tongue selected measure(s) will be carried through to approximately 25-30% design completion.

Task 7. Climate Change Analysis

A climate change analysis will be performed in accordance with the latest guidance, currently *Engineering and Construction Bulletin (ECB) XX-2016* (Draft).

Task 8. Hydrologic Analyses Technical Review

An internal technical review of the various hydrologic analyses will be performed prior to the final report.

Task 9. Report Writing

Draft and finalize a report documenting assumptions, analysis, results, and conclusions. Report formatting and layout will be consistent with other team members' reports.

Task 10. Meetings, Coordination, and Travel

These tasks consist of internal coordination between Project Delivery Team (PDT) members throughout the study, and associated travel for meetings. Internal coordination meetings will be held as necessary, dependent on project status. In addition, vertical team coordination through the Hydrologic Engineering Branch Chief will be carried out after internal review and revision of the initial draft report as well as the final draft report. One trip to Miles City, MT was assumed for meetings with the sponsor and public.

Task 11. Address ATR, IEPR, and other Review Comments

Comments from various reviews will be addressed and the analyses and reports will be updated to reflect suggested changes.

Notes on Assumptions

No wind-wave analysis will be performed at this phase of the study. If a feasible project is found and moved forward, the wind-wave analysis will be performed during the design phase of the study.

Detailed interior drainage analysis will also be performed during the design phase of the study, on the final levee alignment only. Drainage structure locations and capacities will be determined during the design phase. If all interior drainage is directed away from the levee and towards the old abandoned Tongue River channel, drainage structures through the levee may not be necessary.

Task 12. Interior Drainage - Projected Work-in-Kind

An interior drainage analysis of the existing system will be performed to determine, at a minimum:

- a. The location of existing drainage structures/pipes through the levees (Tongue and Yellowstone) and their current condition (functioning or not)
- b. The location of probable drainage structures through the proposed levee alignment (few to none if all drainage is currently directed away from the levee and towards the old abandoned Tongue channel)
- c. Current drainage patterns for the City
- d. Existing ponding locations in the City for large events that exceed the storm sewer system capacity (such as a 100-year storm).

DELIVERABLES:

- a. Deliverables will be a map (GIS shapefile and report plate) with existing drainage patterns for the City (both storm sewer patterns and overland patterns for storms that exceed system capacity)
- b. A report/memorandum that explains:
 1. Modeling background
 2. Results for this task only (not the entire report for the system master plan)

3. Any proposed changes to the system that are likely to be implemented in the near future (less than 3 years) and will need to be considered as part of the existing condition for USACE's future efforts with this study.

Cost Estimate:

Corps of Engineers Hydrologic Costs: \$85,080.00

Projected Work in Kind: 5,600.00

Total Hydrologic Estimate: 90,680.00

HYDRAULICS (ED-HD)

Purpose

The purpose of this study is to characterize hydraulic impacts to evaluate flood risk management alternatives for the Tongue River at Miles City, MT. The hydraulic analysis to be performed under this study will generally consist of developing existing condition, future without-project, and future with-project water surface profiles. This modeling will then be evaluated for alternatives analysis and used in the design of flood risk reduction measures. The modeling developed and data collected under previous studies will be utilized to the fullest extent possible.

Required Study Tasks.

Task 1. Review H&H Studies and Verify Prior Data/Model Application.

Several hydraulic studies have occurred for Miles City, including a 2007 Flood Insurance Study (FIS), Miles City Emergency Action Plan for levee breaches, KLJ REPORT, and Yellowstone River Corridor Study. Review of available reports, observation data, surveys, GIS alignment files, cross sections, HEC-RAS modeling geometries, and other documentation will be applied to aid this study.

Task 2. Update Existing Conditions Steady HEC-RAS Model.

The previously developed hydraulic models will provide the baseline geometry to build upon during this study and be updated with LiDAR collected in 2012. Underwater channel data will be evaluated from previous models and merged into the extracted cross sections, if appropriate. Bridges surveyed by USGS in 2006 will be included; missing bridge data will be field verified where possible to ensure proper dimensions are entered in the model. The levee elevations along the Tongue and Yellowstone River will be obtained and incorporated. The area behind the levee will be modeled with two-dimensional computations to characterize the complex flow patterns.

Annual Chance Exceedance flood events will be obtained from the Hydrology analysis for this study for the 50, 20, 10, 4, 2, 1, 0.4, and 0.2-% annual chance exceedance events (2, 5, 10, 25, 50, 100, 250, and 500-yr Recurrence Intervals [R.I.].) Flow change locations and seasonal boundary condition discharges for the model will be established by a coincident flow analysis

between the Tongue River and the Yellowstone River. An ice analysis will evaluate the characteristics of the ice cover and ice jams to be incorporated into the model. The HEC-RAS model will be used to generate a profile for each flood event for each condition that could potentially yield the peak stage (e.g., open water summer flows and ice-cover winter flows.) A composite stage-frequency relationship will be calculated using the resulting profiles and Appendix F of Reference 1, “Guidance for Ice-Jam Analyses and Mapping.” The composite ice stage process will be required for each of the 8 profiles analyzed.

A composite ice stage will be calculated for the system with an “intact levee” and “breached levee” condition for the Tongue River. Levee breach formation times, geometries, locations, and related assumptions will be estimated in agreement with the Geotechnical Section analysis and may include multiple breach locations. Each breach will be initiated at peak stage and route flows through a two-dimensional grid representing the area of Miles City protected by the levees. Hydrographs for the various frequencies will be necessary to determine duration and recession of flooding.

Modeling outputs will include composite-stage water surface profiles along the Tongue and Yellowstone River, and depth grids and extents of inundations for the entire study area. Results will be produced for each breach location and flood event (i.e., each composite stage). Results will be provided to Economics and Flood Risk and Floodplain Management Sections as depth grids and water surface elevation grids for the study area. Assistance will be provided to support the HEC-FDA analysis.

Task 3. Model Structural Alternatives.

Areas of flooding which show damages will be evaluated for potential measures of flood risk reduction by modifying the Existing Conditions HEC-RAS model. Structural project features (e.g., levee/floodwall) will be coordinated between the design team and the Sponsor, with elevations being determined by the hydraulic modeling efforts.

Hydraulic modeling detail for structural alternatives will be sufficient for the 10% Design Level. Model outputs will include depth grids and water surface elevation grids for each alternative modeled. Channel water surface profiles for the modeled alternatives will be compared to the existing conditions profiles.

Calculations will be performed on anticipated project features to support the quantities and costs for each structural alternative (e.g., riprap and turf mat quantities or other hydraulic elements included in the final project).

Task 4 GIS Files.

GIS files including shapefiles and grids will be produced and modified to support the Existing Conditions and Alternative Measures analysis. Such effort will include creating of roughness and cross-section shapefiles, inundation boundaries, and proposed levee alignments.

Task 5 Analyze Future Without Project Condition.

An evaluation will be made to determine the expected future condition of the study area. In the event a change in hydrology or other stream and floodplain characteristic needs to be modeled, the HEC-RAS model will be modified accordingly.

Task 6 Comparison to FIS Model.

The design condition profiles will be compared with the FEMA FIS model to determine extents of change in the regulatory water surface. Cross sections will then be matched accordingly to allow for demonstration of model consistency.

Task 7 Report Writing. An appendix describing the hydraulic analysis will be prepared for the feasibility report. The appendix will include a detailed description of the modeling effort, maps, water surface profiles and any other pertinent results of the hydraulic modeling efforts. Internal reviews will be completed at multiple stages during the study process, and will be carried out in accordance with the Review Plan set forth in the Project Management Plan.

Task 8 PDT Meetings, Site Visits, and Coordination.

The hydraulic engineer will attend meetings with the PDT, sponsors, and public meetings. There may also be meetings to coordinate with other agencies, such as environmental agencies. In addition, it is anticipated one or more site visits will be made to provide on-site observations of bridges, culverts, embankments, or other hydraulic control elements which impact the study.

Task 9 Tentatively Selected Plan.

The tentatively selected plan will be identified by the PDT and Sponsor as the most cost-effective alternative. Support will be provided to arrive at the decision. Once identified, the tentatively selected plan, typically, the National Economic Development (NED) Plan, will be optimized by modifying the hydraulic model results to determine the most cost-effective protection-level (e.g., 75-yr or 250-yr protection). The optimized alternative will continue to 30% Design Level.

Cost Estimate:

Total Corps of Engineers Hydraulic estimate: \$213,812.00

FLOOD RISK AND FLOODPLAIN MANAGEMENT (ED-HB)

Section 1: Nonstructural/Flood Risk Adaptive Measures (FRAM) Analysis

The purpose of the nonstructural assessment is to complete a standalone nonstructural assessment. Additionally, the purpose is to assess nonstructural measures in combination with structural alternatives such as a levee. A detailed nonstructural assessment will be completed for the City of Miles City along the Tongue River and Yellowstone River floodplains for this study and result in a specific appendix. A Corps of Engineers' hydraulic engineer or certified

floodplain manager will be assigned to the study to perform Flood Risk and Floodplain Management activities.

Analyzing a nonstructural alternative as part of a Section 205 Study is a required part of a feasibility study. The nonstructural assessment will consist of the following tasks:

Task 1-Completing Structure Inventory. As part of the nonstructural assessment and the economic modeling, an inventory of structures will be collected. There are approximately 3,400 structures within the 0.2% ACE floodplain for the City of Miles City. This task will be complete along with the USACE Economics Section.

Task 2-Determine Costs for Floodproofing Buildings (Standalone). This alternative would be to provide nonstructural FRAM recommendations to the existing buildings along the left and right banks of the Tongue River and the right bank of the Yellowstone River. An evaluation for the 1% ACE flood event water surface elevations will be completed for each structure assessed.

Based on the types of buildings and the depths of flooding computed in the hydraulic analysis, the most technically feasible floodproofing methods will be determined as outlined in the Flood Damage Reduction Matrix. To determine the cost of a nonstructural alternative, cost for floodproofing structures will be determined for the residential and commercial buildings in this area.

Task 3- Determining Benefits of the Nonstructural Alternative. The structure inventory will be modified to reflect the nonstructural alternative. This information will be provided to Economics Section. The benefits for the nonstructural alternative will be based on the existing conditions damages determined in the economic analysis. The costs and benefits of the nonstructural alternative will be compared with those for the structural alternatives.

Task 4-Determine Costs for Floodproofing Buildings with Structural Alternative. A structural alternative may alter the flood elevations. In this task the nonstructural alternative would be assessed using the hydraulic analysis with a structural alternative modeled. Based on the types of buildings and the depths of flooding computed in the hydraulic analysis, the most technically feasible floodproofing methods will be determined. To determine the cost of a nonstructural alternative, cost for floodproofing structures will be determined for the residential and commercial buildings in this area.

Task 5- Determining Benefits of the Nonstructural Alternative with a Structural Alternative. The structure inventory will be modified to reflect the nonstructural alternative. This information will be provided to Economics Section. The benefits for the nonstructural alternative will be based on the existing conditions damages determined in the economic analysis. The costs and benefits of the nonstructural alternative will be compared to the modeled structural alternative's water surface elevations.

Task 6-Nonstructural Appendix Preparation. Following completion of the Formulation and Evaluation of Alternatives Phase, a report describing the nonstructural alternative and the associated costs and benefits will be developed. This report will be included as a technical appendix to the preliminary and final feasibility reports. Report preparation includes reviewing and responding to comments.

Task 7-Meetings and Coordination. The floodproofing specialist will participate in meetings with the PDT, sponsors, the public and other agencies as needed.

Task 8-Quality Assurance/Quality Control. This includes review of the nonstructural alternative analysis and products within the District.

Section 2: EO11988 Compliance Memo.

The FRFM office is responsible for coordinating the compliance with the requirements of Executive Order (EO) 11988 (Flood Plain Management). Executive Order 11988 is applicable to all planning, design, and construction civil works projects, activities under the operation and maintenance program, and to real estate program (ER 1165-2-26). This specific policy is referenced in ER1105-2-100, Planning Guidance Notebook, and can be found at the following link: <http://planning.usace.army.mil/toolbox/library/ERs/entire.pdf>.

The FRFM office will coordinate compliance and provide wording for NEPA documentation using the policies outlined in ER1165-2-26 or updated policy based on the recently issued Executive Order 13690.

Section 3: Coordination of Study Methods with USACE FRM Policies and FEMA's NFIP Criteria

The Flood Risk Flood Management (FRFM) Office will coordinate that the project delivery team to formulate alternatives that a compliant with USACE Policy and with FEMA policy. The applicable USACE Policies include ER 11-5-2-100, EC 1110-2-6067, and ER 1165-2-26. This office will also work with FEMA and their policy on 44CFR65.10.

Section 4: Life Loss Calculations using HEC-FIA.

USACE holds life safety paramount in all flood risk reduction projects. HEC-FIA will be used to complete a risk assessment on the alternatives proposed. The risk assessment includes impacts to life safety. The software uses input from structure inventory, depth of flooding and arrive time to estimate loss of life. The FRFM office will assist and support Economics in developing the structure inventory and coordinate with Hydraulics and Hydrology as necessary.

Cost Estimate:

Total Corps of Engineers FRFM estimate: \$82,608.00

GEOTECHNICAL ENGINEERING (ED-GA)

Task 1 – Probable Failure Point (PFP) and Probable Non-Failure Point (PNP) Analysis of Existing Levee. The traditional analysis of damage reduction due to a levee does not account explicitly for uncertainty that arises as a consequence of imperfect knowledge of how an existing levee will perform from a geotechnical standpoint. The component should be described and included in an assessment of levee performance for evaluation of the with-project condition, as it will have an impact on the stage-damage relationship.

A procedure for describing the uncertainty of geotechnical performance follows. The procedure is applicable for existing and new levees not maintained or constructed to federal levee standards. This procedure defines two critical elevations for each levee reach: the PFP and the PNP. The PNP is defined as the water elevation below which it is highly likely that the levee would not fail. The highly likely condition is the probability of non-failure equal to 0.85. PFP is the water elevation above which it is highly likely that the levee would fail, and again this is interpreted as probability of failure equal to 0.85. The two elevations and the corresponding probabilities thus define a statistical distribution of levee failure, and this distribution, in turn, can be incorporated in development of the stage-damage function and description of the overall uncertainty of that function. This work will be performed in accordance with EM 1110-2-1619, Risk-Based Analysis for Flood Damage Reduction Studies, dated 1 August 1996.

The information will be provided to the economist and used in damage modeling.

Task 2 – Soil Investigation and Testing. The General Design Memorandum MY-1 dated July 1978 will be used for subsurface information. Foundation conditions along the levee alignment were determined from 46 borings spaced at approximately 50-foot intervals. This will assist in determining the feasibility of reusing the identified material within a new levee and underseepage potential of the underlying soils. Hand augered borings into the existing levee will be performed during the site visit. If the project moves beyond feasibility to full design, an additional supplemental subsurface investigation may be required.

A review and reassessment of the soil borings will be performed and formal stick logs will be created from the original field logs. The original subsurface investigation will be checked to determine if it was performed in accordance with EM 1110-2-1913, Design and Construction of Levees, dated 30 April 2000.

The native shallow soils in the area of the levee will be researched through information gathered from the Natural Resources Conservation Service, United States Geological Survey, and the City of Miles City and their consultants. Results of this research will be incorporated into the feasibility report.

Task 3 – Alternative Analysis. The proposed levee will likely be setback from the river high bank in order to provide a levee section that meets the requirements of EM 1110-2-1913, Design and Construction of Levees, dated 30 April 2000. Alternate alignments and tie-off points will be reviewed and analyzed. Any constricted areas will be identified and solutions determined for path forward (floodwall, combination floodwall/levee, realignment, alternate alignment). Once the selected alternative is set on location and features, an optimization of the level of protection versus cost will be completed. This will involve the creation of a design and quantities for each. Depending on the relative difference in the project magnitude, the designs may be preliminary effort.

Task 4 – Analyzing Levee Underseepage & Stability. The existing and proposed levee alignments will be divided into reaches after the site visit and review of topo and soil information, previously mentioned report reviews and soil data gathering. The reaches will be created by defining similar features in each reach. The features will consist of similar foundation conditions, levee heights and cross section geometry. After receiving the level of protection top of levee profiles from the hydraulic engineer, the levee reaches will be analyzed to determine if underseepage potential exists. The computer program SEEP/W developed by Geo-Slope International will be used for the analyses. If inadequate Factors of Safety result, the next step will be to design seepage berms. Seepage analyses and berm design, if applicable, will be in accordance with EM 1110-2-1913, Design and Construction of Levees, dated 30 April 2000. The computer program SLOPE/W developed by Geo-Slope International will be used for the stability analyses. Stability analyses will be in accordance with EM 1110-2-1902, Slope Stability, dated 31 April 2003.

Task 5 – Adjust Cross Section and Design for Underseepage. Design of the seepage berms (if needed) will be in accordance with EM 1110-2-1913, Design and Construction of Levees, dated 30 April 2000. The most cost effective berm design that meets the exit gradient requirements of the referenced EM will be used.

Task 6 – Develop Drawings. Drawings will include the levee alignment delineated by an outline of the levee footprint, typical cross sections, profile, ramp plan & profiles, rights-of-way limits and locations of borings. Drawings will be CADD generated and in 11" x 17" format. Report preparation includes reviewing and responding to comments.

Task 7 – Calculate Quantities. The quantities for the existing levee and the proposed design section will be calculated and provided to the cost engineer. The quantities will be calculated using a spreadsheet and/or CADD software. Existing LiDAR data will be used to determine earthwork quantities. The local sponsor is responsible for locating a usable borrow area if one is required. Prior to and during the underseepage analysis, effort will be required to finalize details with the hydraulic engineer. There will also be coordination with the cost engineer during preparation of the construction estimate.

Task 8 – Review Utility Issues and Road Raises. Utility locations provided by others will be

reviewed to determine potential impact to project features and costs. Potential utility relocations will be identified and included in project cost estimates. If needed, preliminary road raise design(s) will be completed and will include typical cross sections and quantities.

Task 9 – Meetings and Coordination. The geotechnical engineer will participate in meetings with the PDT, sponsors, the public and other agencies as needed.

Task 10 - Report Preparation. A feasibility report will be prepared that documents the geotechnical analysis and conclusions in a technical format, which will be included as an appendix in the preliminary and final feasibility reports.

Task 11 - Quality Assurance/Quality Control. This includes review of all geotechnical analyses and products within the District (peer review, PDT review, Supervisor review). It also includes the evaluation of ATR comments provided in Dr. Checks, and evaluation of IEPR comments provided in Dr. Checks.

Cost Estimate:

Total Corps of Engineer Geotech estimate: \$140,651.00

STRUCTURAL ENGINEERING (ED-DF)

Structural support will include aiding other disciplines in project feasibility involving structures including bridges, drainage structures, new retaining walls, and other assistance as needed. New conceptual drawings and calculations for any potential new structures, which will include a retaining wall, are included in this cost estimate. An existing conditions write-up at the start of the project will be provided. Time for going to meetings and supporting the cost engineer is included with the cost estimate.

Cost Estimate:

Total Corps of Engineers Structural Engineering estimate: \$19,375.00

ECONOMICS (PM-AB)

PURPOSE

The Federal objective of water resources projects is to identify a plan that maximizes net contributions to national economic development (NED) consistent with protecting the nation's environment. To assess NED impacts associated with proposed plans, the economic analysis will include an evaluation of the annual benefits of plan alternatives compared to the annual cost. Potential flood risk reduction benefits accrue through reductions to physical damages to structures and contents, infrastructure and transportation costs and reduced non-physical losses like reduced emergency response and cleanup costs.

The first step for a U.S. Corps of Engineers (Corps) evaluation of the potential opportunity for flood risk reduction is to establish the baseline conditions and quantify the Without Project Conditions Expected Annual Damages (EAD). The Without Project Condition is the land use and related conditions that are likely to occur under existing improvements (or lack of improvements), laws and policies. There are several tasks required to complete this step including a detailed land use inventory, modeling of economic and engineering variables, and quantification of potential benefits that could accrue under various flood risk reduction scenarios. After the existing and future without-project conditions are assessed, project alternatives will be, evaluated, and compared, and a plan is selected and optimized that produces the greatest net economic benefits.

The following sections describe the economic tasks that will be completed for the Miles City Section 205 Study.

A. PROJECT MANAGEMENT PLAN

Major milestones for economics work, and the cost by economic resource associated with the milestones, are outlined in the economics cost estimate. In addition, a general description of the milestones and their components are briefly outlined in this scope of work.

B. LAND USE INVENTORY

The land use inventory task involves collecting land use and structure information for all parcels with the study area boundaries, typically defined by the 500 year floodplain boundary. The land use inventory will be completed through first gathering available assessor's data, identifying data gaps, and completing a land use survey to gather data gaps.

Typically, the land use inventory begins with gathering available structure information and available GIS data, such as the information available from the Montana Cadastral Framework which compiles public and private parcel information for each county in the Montana. Information included in a structure inventory are structure location and elevation, structure square feet, type of building material, and first floor elevation. Data requirements for the land use data set include structure type and size, construction material, structure depreciated replacement value, structure content value, appurtenant value, ground elevation, first floor elevation, and stationing with regard to the source of flooding.

Detailed structure data is organized in a land use database, from which the depreciated replacement cost for each structure is developed. The depreciated replacement cost is the cost of physically replacing (reconstructing) the structure while accounting for its remaining useful life. Oftentimes, there are several key commercial and public structures that are especially important to the calculation of potential benefits. Depending upon the agreement between the Corps of Engineers and the sponsor (Miles City), the sponsor may be called upon to answer questions or collect information to inform the land use inventory.

According to the Montana Multi Hazard Mitigation Plan and Statewide Hazard Assessment completed in 2013, over 3,400 structures (primarily residential) are at risk. This represents approximately 80 percent of the city. Additionally, a number of critical facilities are located within the .01 annual chance exceedance floodplain. Those include both the municipal water and wastewater treatment plants; one hospital, one nursing home, five schools, numerous churches, and a State of Montana fish hatchery.

C. DAMAGES BASELINE & FUTURE WITHOUT PROJECT CONDITIONS

Following completion of the structure inventory and related depth damage files, the data sets will be imported into a HEC-FDA study file for modeling. Hydrologic, hydraulics and geotechnical engineering data including water surface elevations for selected flood events, stage-discharge and discharge-frequency relationships, and levee geotechnical analysis for existing levees, with required uncertainty factors for each variable will be provided to the economist.

After HEC-FDA has been set-up with all required data and model runs completed, the economist will review results with the project team to ensure validity. Depending on PDT discussions, further refinement of data inputs and reaches may be needed, and additional runs of HEC-FDA required.

In addition to the tangible damages to businesses, homes and other physical property, flood inundation or the risk of inundation can lead to emergency costs and disaster relief costs. Historical data on emergency costs will be obtained from FEMA. Data from FEMA should include public assistance costs. Typical costs of disaster housing assistance and grant assistance for individuals and families will be gathered.

Flooding or even the threat of flooding and public safety concerns may cause road closures and detouring of traffic. Detours can last for the duration of actual flooding plus the time required for road cleanup and road repairs. As described in the National Economic Development Procedures Manual-Urban Flood Damage (IWR Report 88-R-2, March 1988), the cost of traffic disruption are based on the vehicle operating costs for the additional miles traveled due to the detour, as well as traffic delay costs for passengers.

Transportation infrastructure repair costs are calculated based on the length in miles of roads and streets that would be inundated given the various flood event depths. Identification of construction and repair costs for each segment of each street that could be impacted is not practical for an analysis of this nature. Therefore, the value of roads and streets are based on typical construction costs per mile, which are applied to the length in miles of each type of road. Repair and construction costs are typically gathered from local experts such as the Montana Department of Transportation or Miles City Public Works Department.

The results of the structures and contents, traffic and transportation infrastructure, and emergency costs are used to determine the existing and future without-project conditions. The future without-project condition will be compared to the alternatives to determine the benefits of

proposed alternatives.

D. STRUCTURAL ALTERNATIVES STRUCTURES & CONTENTS BENEFITS EVALUATION

The purpose of this task is to evaluate the alternative plans developed by the PDT (which includes the sponsor[s]) to identify the alternative plan that maximizes NED. It is assumed that three or fewer alternatives will be evaluated using HEC-FDA modeling focused primarily on the Tongue River. The evaluation consists of comparing the damages and impacts under the baseline condition with the damages and impacts of each alternative. The resulting damages reduced by each alternative represent the benefits.

E. STRUCTURAL ALTERNATIVES ALL BENEFITS EVALUATION

Benefits or reduced costs associated with other damage categories will be calculated by alternative, as well. All efforts will be made to incorporate other benefit categories in the HEC-FDA model to allow for uncertainty to be factored into the results. Other damage categories that will be included are transportation infrastructure damages and delays, emergency response and disaster relief, and national flood insurance administrative savings.

F. LIFE SAFETY/CONSEQUENCES EVALUATION

Miles City flooding could have substantial public safety impacts, potentially leading to life loss during a flood event. In order to evaluate this possible consequence HEC-FIA (Flood Impact Analysis) modeling will be completed. HEC-FIA evaluates consequences from events defined by hydraulic model output such as gridded data (e.g., depth and arrival time grids), evaluating potential for expected life loss from these hydraulic events, by utilizing data that characterizes population density and the population's ability to respond to flood events.

G. NONSTRUCTURAL ALTERNATIVES EVALUATION

The economist will work closely with the nonstructural team to assess nonstructural plans as a standalone alternative as well as in conjunction with other measures. This task involves supplying HEC-FDA results to the nonstructural team member who, in turn, adjusts structure characteristics to account for elevation changes and various floodproofing methods. Once the nonstructural team member finishes with structure edits, a new inventory is imported into HEC-FDA to analyze the resulting damages reduced.

H. NET BENEFITS COMPARISON / TRADEOFF ANALYSIS / PLAN SELECTION

Annual benefits for each alternative will be calculated. Benefits are calculated based on a reduction of damages to structures, contents, roads, streets and rail, related detour and delays, emergency costs and disaster relief. The difference between the future without condition EAD and the residual EAD for each alternative represents the damages reduced or the benefits for each alternative. Total costs are provided by Corps cost engineers, and average annual costs including interest during construction and operations & maintenance costs are estimated by the economist. Net benefits are calculated based on average annual benefits minus average annual costs for each alternative.

I. OPTIMIZATION

The alternatives and measures that contribute additional net benefits will be included and scaled to optimize net benefits to produce the National Economic Development (NED) Plan. If requested by the project sponsor, a Locally Preferred Plan will also be evaluated and compared.

J. RECREATION JUSTIFICATION

There is currently no indication that recreation features will be included in this analysis, therefore a recreation justification will not be included in the economics scope of work or cost estimate.

K. ENVIRONMENTAL JUSTIFICATION

There is currently no indication that environmental features will be included in this analysis, therefore an environmental justification will not be included in the economics scope of work or cost estimate.

L. SOCIOECONOMIC CONDITIONS

A summary of socioeconomic conditions will be included in the economics discussion. This may include discussion of impacts to low income or minority groups, as well as potential issues related to life safety. This discussion will be primarily qualitative in nature.

M. ECONOMICS APPENDIX

An 'economic appendix' will be prepared detailing the cost effectiveness/ incremental cost analysis and plan selection results. The economic appendix will include a review of the data collected and analysis completed for the without project, future without project and with project conditions.

N. OTHER DOCUMENTATION, PRESENTATIONS, IPRs OR PUBLIC INVOLVEMENT

At various milestones throughout the study schedule, the economics team member may provide summaries of current work and results for review by other Corps disciplines, the sponsor, vertical team reviews or for public meetings.

O. REVIEWS AND RESPONSES

DQC will be completed by both the supervisory economist and a subject matter economist. The economist will respond to comments and make revisions prior to the appendices moving to the next phase of review (ATR review). Subsequent reviews may involve comment and response, meetings, and revisions of the technical appendices.

P. CONSULTATION, REVIEWS, SUPERVISION AND ADMINISTRATION

It's assumed that PDT meetings will be held regularly as needed during study execution. These meetings will be in addition to the meetings required to work through specific plan formulation steps. Additional meetings for issue resolution, coordination, resourcing, workload leveling, change management, quality review, sponsor communication, and upward reporting are all anticipated.

Q. Structure Inventory - Projected Work in Kind

TASK 1. STRUCTURE INVENTORY.

The structure inventory data collection will require an assessment of all structures (residential and commercial) within the 0.2% ACE flood event boundary plus 1-foot buffer (approximately 3,500 structures) in Miles City, MT. Available data and records will be collected, and compared to structure inventory needs (required fields are provided in the example structure inventory database as listed under Task 1 below). Additional data will be collected in the field to complete the structure inventory that will be used in the HEC-FDA model and the nonstructural assessment for the Section 205, Miles City feasibility/environmental assessment report. There shall only be one complete structure inventory database, used by both the nonstructural assessment and economic analysis, therefore all necessary data for the analysis and assessment will be collected simultaneously.

A. STRUCTURE DATA COLLECTION FROM AVAILABLE SOURCES.

The Cadastral parcel data set will be used as the starting point for collecting available structure data. The GIS-based Cadastral Data Framework serves as a clearinghouse for obtain parcel-based property information for each county in the State of Montana. The Cadastral Data Framework stores information about public and private land ownership on a parcel-by-parcel basis, and is available for download either in a geodatabase/shape file format, or as metadata. The Montana Cadastral Framework data consists of tax parcels defined by the Montana Department of Revenue (DOR) which are joined to the DOR's Computer Assisted Mass Appraisal (CAMA) data—a database that records property ownership, property value, and other information about each parcel of land in the state.

The Miles City representatives will contact the Custer County Assessor to obtain all the necessary GIS-based structure data, or parcel data, if not downloadable from the Cadastral website. For example, the Cadastral Data may not include detailed structure information about public or municipal buildings.

Data requirements for the structure inventory data set include:

- structure ID
- occupancy type
- structure square footage
- garage
- construction material (exterior walls)
- number of stories
- basement status
- basement window height
- low openings (walk out basements or other)
- structure condition
- first floor elevation

- foundation type
- critical facility identification

It is anticipated that the majority of structure information required for the structure inventory will be available from the Cadastral data set and/or Custer County Assessors, and that field work will be required to fill in the missing data. A compiled excel file of only the structures within the 0.2% ACE flood event boundary plus a 1-foot buffer will be necessary for the field data collection.

Elevation certificates on file with the City will be collected as well. The first floor elevation, the ground elevation, and reported base flood elevation (BFE) from the elevation certificate is the information of interest. The compiled elevation certificates information shall be transferred into one excel file with one structure's relevant data in each row. This file will identify structure ID, location (exact coordinates and addresses are preferred; addresses will work if coordinates are not available), first floor elevation, ground elevation, reported BFE and elevation with datum. The structure ID will be unique and linkable to the assessor and/or Cadastral databases.

It is expected that the Task 1 deliverables of the Cadastral database, the Custer County Assessor database if collected, and the elevation certificates information be provided to USACE one month prior to field data collection.

B: FIELD DATA COLLECTION.

The field data collection team will consist of four (4) USACE personnel and two (2) Miles City representatives. The team will split into two groups of three (3). The Miles City representatives will provide two (2) cars, one for each group. The goal of two combined USACE and Miles City representatives groups is to complete the field data collection with efficiency.

The necessary field data collection will include the collection of the first floor elevation estimations, foundation types, basement window heights, and low opening situations. In addition, "ground- truthing" of selected assessor data variables will be completed. The attached excel spreadsheet presents an example of the input data per structure needed to complete the structure inventory during the field data collection, this spreadsheet does not include all of the necessary structure inventory information, just the information that may be collected during the field data collection effort.

Field data collection will consist of four (4) 10 hour days. 8 additional hours for any pre-field work and travel to and from the worksite (48 hours for each person)

Deliverables.

The four deliverables are:

1. Cadastral Database and the Raw Custer County Assessor Database if collected (Task A.)
2. Excel file in the format requested reflecting an inventory of all the structures within the

0.2% ACE flood even boundary plus a 1-foot buffer with the data requirements from (Task A.)

3. Elevation Certificates information in an excel format (Task A.)
4. Two vehicles and two participants in field audits (Task B.)

Period of Performance: Completion by June 9, 2017.

Cost Estimate:

Corps of Engineers Economics Estimate: \$262,990.00

Projected Work in Kind: \$18,720.00

Total Economics Work: \$281,710.00

CULTURAL RESOURCES (PM-AB)

For the purposes of this study, cultural resources are defined as prehistoric and historic archeological sites and traditional cultural properties. Cultural resources are defined as any site, building, district, structure, object, data, or material significant in history, architecture, archeology, or culture. Traditional cultural properties can generally be defined as properties that are eligible for inclusion on the National Register of Historic Places because of an association with cultural or spiritual practices and beliefs of a living community that are important in maintaining the continuing cultural identity of the community.

Task 1-Research. Perform a detailed research of records available, including those at the Montana Historical Society, to identify historic properties known to be located in the project area.

Task 2-Site Reconnaissance. Site visit and potential pedestrian survey.

Task 3-Coordination and Public Involvement. Complete Section 106 consultation with the Montana State Historic Preservation Office and any interested parties, including Indian Tribes. Participate in meetings with the PDT, sponsors, the public and other agencies as needed.

Task 4-Report Preparation. Prepare draft and final historic properties/cultural resource section of study report. Report preparation includes reviewing and responding to comments.

Task 5-Quality Assurance/Quality Control. Internal review of the cultural resources assessment.

Cost Estimate:

Total Corps of Engineer Cultural Resources Estimate: \$18,254.00

ENVIRONMENTAL RESOURCES ANALYSIS (PM-AC)

The Corps of Engineers Civil Works Program requires the implementation of National Environmental Policy Act (NEPA) as well as assuring compliance with other applicable environmental protection requirements. The NEPA process will be started with the preparation of an integrated Environmental Assessment (EA) within the Miles City Section 205 Flood Risk Management Feasibility Study. The steps below detail the tasks to be accomplished during plan formulation, mitigation plan development, and compliance with NEPA and associated environmental laws.

A Corps of Engineers senior environmental resources specialist/biologist from Planning Division, Environmental Resources and MRRP Plan Formulation Section (CENWO-PM-AC) will be assigned to the Miles City project delivery team to assist in the preparation of the feasibility study/environmental assessment (FR/EA). The biologist will be responsible for the conduct of the study in a manner that is in accordance with Corps environmental planning policies and practices, and in a manner that adequately complies with environmental statutes.

It is national policy that fish and wildlife resources conservation be given consideration in the formulation and evaluation of alternative plans. Current planning guidance specifies that the Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes and applicable executive orders. Protecting the Nation's environment is to be provided by first avoiding impacts, then minimizing impacts, and finally mitigating impacts associated with the alternative plans.

PROBLEMS AND OPPORTUNITIES

Task 1. Determine the Federal objective and the specific study planning objectives.

In cooperation with the Project Delivery Team (PDT), help to develop problem and opportunity statements that reflect the priorities and preferences of the Federal Government and the non-Federal sponsor. After the problems and opportunities are defined, define the study objectives and constraints that will solve the problems and achieve the opportunities.

INVENTORY AND FORECAST OF CONDITIONS

Task 2. Quantify and qualify important natural resources in the planning area, now and in the future in the absence of a plan. This task is a description of the existing environmental conditions (conditions as they currently exist) and the future environmental conditions (conditions that are forecasted to exist without the project); the baseline from which alternative plans' benefits are measured and impacts are assessed. Initial agency and PDT coordination, literature review, site visits, project team meetings, and surveys (e.g. endangered species,

vegetation, and wetlands) will be conducted throughout the planning process to determine the types of natural resources likely to be affected by alternative plans. Information gathered through these efforts will be used to prepare the Existing Conditions write-up.

In accordance with the Fish and Wildlife Coordination Act, the U.S. Fish and Wildlife Service (Service) and the Montana Department of Fish, Wildlife, and Parks (Department) will be requested to identify fish and wildlife concerns and available information and provide their views concerning the significance of fish and wildlife resources in a Coordination Act Report. The Corps must consult with the Service, who in turn will coordinate with the Department, to consider conservation of wildlife resources with the view of preventing loss of and damages to such resources as well as providing for development and improvement in connection with water resources development.

In accordance with the Endangered Species Act, the Service will be requested to provide information on any Federally-listed threatened or endangered species that may be in the planning area. Special surveys may be needed to determine the actual presence or absence of listed species.

FORMULATION OF ALTERNATIVE PLANS

A. Cooperate with the Project Delivery Team to develop Purpose and Need statements for the proposed action.

Task 3. Purpose and Need. Develop and provide rational statements that detail what the proposed action is to accomplish and describe the reasons the proposed project is necessary.

B. Lead Environmental Considerations in Formulation of Alternative Plans

Task 4. Development of alternative flood control plans. Provide a range of reasonable alternatives (structural or nonstructural) to achieve the planning objectives (within constraints) in conjunction with the project delivery team. Alternatives shall be formulated in consideration of the four criteria described in the P&G: completeness, efficiency, effectiveness, and acceptability.

SELECTING A PLAN

Task 5. Evaluate and compare alternatives, Select an Alternative Plans, and prepare a draft environmental assessment. Compare the approximate footprint of potential alternatives formulated to information gathered in Task 1 to assist in screening and refining alternatives and assessing trust resources benefits and impacts. Environmental resources gains and losses attributed to each preliminary alternative plan will be estimated. In accordance with NEPA, preparation of an Environmental Assessment (EA) will be conducted. An EA will be prepared on the environmental impacts of the no action alternative, the proposed action, and reasonable alternatives to the proposed action. Resources to consider could include, but are not limited to,

topography, geology, prime farmland, climate, hydrology, air quality, noise, vegetation, fish, water quality, wetlands, floodplain, wildlife (mammals, birds, amphibians, and reptiles), threatened and endangered species, cultural resources, and socioeconomics. For each resource and each alternative, future without-project conditions will be compared to future with-project conditions (utilizing information from Task 2) to determine any impacts/benefits. For alternatives not selected for detailed study, clear rationale will be provided to inform the decision maker and general public as to why the alternatives were dismissed. A matrix will be prepared which focuses on the differences between the alternative plans and will summarize, by resource, impacts or benefits. Where impacts or benefits are quantified, such as in acres or dollars, this will be included, or a scale of high/med/low or yes/no determination will be included. Formulating alternatives will consider avoidance, minimization, and mitigation of damages to significant resources. Any adverse environmental effects which cannot be avoided should the proposal or any of the alternatives be implemented will be documented and offset mitigation will be established (See task 6).

A discussion of the seemingly insignificant impacts of the proposed alternative, as well as other actions undertaken by other agencies in the study area, will be provided to assess cumulative impacts. The EA will be integrated into the feasibility report. The EA will include necessary information to inform the reader about the proposed project (cover sheet, table of contents, figures and tables, introduction, purpose and need, alternatives, existing conditions, environmental consequences, cumulative impacts, compliance with environmental statutes, public involvement, agency coordination, list of preparers, and appendices). Resource agencies will be coordinated with and full consideration will be given to reports and recommendations furnished by the Service and the Department regarding the formulation and evaluation of alternative plans, including mitigation; and any recommendations concerning the protection or conservation of endangered and threatened species. A Draft Feasibility Report/EA will be circulated internally for peer review and recommendations from Planning will be incorporated as appropriate. The Draft Report will be coordinated with the public through web-based access and public comments will be addressed following the public review. Supervisor oversight will be obtained and any final corrections to the document will be made before the Final Feasibility Report/EA is provided to the Decision Maker.

Depending on the analysis and conclusions of the EA, the appropriate documentation will be prepared for the decision maker's signature. A single alternative plan will be selected for recommendation from among all those that have been considered. The recommended plan must be shown to be preferable to taking no action (if no action is not recommended) or implementing any of the other alternatives considered during the planning process. A Finding of No Significant Impact Statement or Notice of Intent to proceed with an Environmental Impact Statement will be prepared.

ADDITIONAL TASKS NEEDED TO COMPLETE THE NEPA/EA PROCESS

Task 6. Development of environmental restoration/protection plan elements.

The need for any substantial mitigation will be estimated for each preliminary alternative formulated. The formulation of mitigation elements will include those which restore the environment to offset the impacts of alternatives in the planning area to a less degraded condition, to protect the environment from becoming degraded, or to take advantage of specific opportunities associated with the formulation of measures. Impacts for resources that require mitigation, and in kind mitigation of those resources will be documented with habitat modeling procedures, using cost effectiveness and incremental cost analysis processes will be used to determine most effective mitigation strategy. A detailed monitoring plan will be developed for the preferred alternative to ensure the success of the mitigation, as required.

Task 7. Assist in the conduct of an initial public meeting. The biologist will attend scheduled planning meetings, prepare and provide materials, attend organized public meeting and be available to present information and respond to questions. This effort will include providing information on the National Environmental Policy Act (NEPA) and a summary of environmental resources which could be impacted. This information will be included in the Environmental Assessment.

Task 8. Submittal of Biological Assessment to FWS. In accordance with the Endangered Species Act, preparation of a Biological Assessment (BA) is necessary. The BA will evaluate the effects of the proposal on Federally-listed threatened or endangered species. The BA will provide a project area and project description, identify listed or proposed species that may be present in the area, describe the current habitat conditions within the action area, and how the action may affect each protected resource, including a determination (no effect; may affect, but not likely to adversely affect; or may affect, likely to adversely affect) and rationale. A statement from the Service will be sought/obtained to determine if the Service concurs with the Corps rationale of affects.

Task 9. Prepare Clean Water Act 404(b)(1) Evaluation. In accordance with the Clean Water Act, preparation of a 404(b)(1) evaluation will be prepared. This evaluation will determine in writing the potential effects of any proposed discharges of dredged or fill material of any alternatives on the physical, chemical, and biological components of the waters of the US, including wetlands. This will include a description of the work to be performed, description and quantities of dredge and fill materials associated with construction of the recommended alternative (including earth-moving activities, placement of rock, channel features), and potential impacts to substrate, water quality, turbidity, water circulation, riparian vegetation, threatened and endangered species, fish and other aquatic organisms, other wildlife, habitat and special aquatic sites including wetlands, and human use characteristics. The 404(b)(1) evaluation will be shared with the State Department of Environmental Quality to obtain any necessary water quality certification.

Cost Estimate:

Total Corps of Engineers Environmental Resources Estimate: \$167,836.00

REAL ESTATE (RE-C)

This estimate covers Real Estate costs associated with the feasibility phase of the proposed Miles City – Tongue River flood risk management project. A project design footprint has not been established yet.

PROBLEM IDENTIFICATION:

This phase of the study forms the foundation of real estate mapping by gathering and analyzing all available real estate data that pertains to the project area. This data will consist of survey plats, subdivision plats, tax plats, flood plain maps, zoning maps, utility maps, city/county/state plats, deeds and any other existing ownership information that may be available. The appraisal data obtained at this time is to support all three appraisal approaches and will be used to develop the land cost estimate during the plan formulation phase and the gross appraisal in the project design phase. A site visit will be conducted by the real estate staff appraiser during this phase. A base map outlining real estate needs will be created and utilized throughout the entire study process.

PLAN FORMULATION:

This phase involves mapping each alternative being evaluated on the real estate base map. After analyzing the maps, other real estate data, project construction, and operation requirements; these results and determinations will be drafted into a narrative report containing the following information:

- The minimum real estate interest to be acquired
- The number of landowners impacted by the project
- The amount of land to be acquired (estimated acreages) and types involved in the study area (i.e. residential, industrial, commercial, etc)
- Potential Public Law 91-646 relocations and costs
- Any other real estate requirements needed for the project at this phase

PROJECT DESIGN:

When the selected plan has been identified and all project construction, operation and maintenance requirements have been obtained, real estate will concentrate its efforts on finalizing the real estate requirements and will develop a gross appraisal to finalize the real estate baseline cost estimate. The final real estate requirements and baseline cost estimate will be the subject of the real estate plan (REP). The REP will include information from the gross appraisal, costs associated with Public Law 91-646 relocation benefits, lands and associated costs for facility relocations, title work, administrative costs, acquisition timeline, and an attorney's opinion of compensability assessing the Non-Federal Sponsor's (NFS) land acquisition. The following describes the real estate work activities to be performed during the feasibility

phase of the proposed Miles City, Montana flood risk management project:

Task #1: Obtain necessary Rights-of-Entry (ROE) for Survey and Exploration

Provide legal access to privately owned and state owned property to collect data necessary for project planning and design as requested.

Tract Ownership Data will be obtained from Custer County Assessor's Office. The Realty Specialist will coordinate efforts with the county and work with the City to send out ROE's to affected landowners for their signature. The Realty Specialist will follow-up with the county and City as necessary. Once received, the ROE's will be reviewed by an Attorney for legal sufficiency. Real Estate Division will then notify the PDT that they can survey and explore the properties. *This estimate is based on preparing/obtaining permits from 50 landowners (dependent on chosen alternatives and preferred alternative).*

TASK #2: PREPARE REAL ESTATE COST ESTIMATES FOR ALTERNATIVES

Real estate costs are a part of the total project costs. The scope and format of the estimate is directed by Chapter 12, ER 405-1-12, dated 1 May 1998.

These estimates will be developed during plan formulation as requested by Planning, Programs and Project Management Division and/or Engineering Division, and upon receipt of preliminary design drawings.

An Appraiser will inspect the properties impacted by the project, perform market research, and estimate property value. The appraiser will then analyze the impact of the estate(s) to be acquired for project purposes and estimate land costs for each alternative. The appraiser will prepare an estimate of administrative costs associated with acquiring the impacted properties.

TASK #3: PREPARE GROSS APPRAISAL REPORT

In accordance with ER 405-1-12, a Gross Appraisal is required to estimate the costs of lands, easements, and rights-of-ways to be acquired by the sponsor for construction of the project.

The Gross Appraisal will be prepared once the tentatively selected plan has been determined and once the preliminary drawings and identification of environmental mitigation areas (if required) are received from Planning, Programs and Project Management Division and/or Engineering Division.

An Appraiser will inspect properties impacted by the project, research and verify comparable sales and estimate the value of the real estate interest to be acquired. The appraiser will write the Gross Appraisal Report in accordance with Chapter 4 of ER 405-1-12 and USPAP. The Gross

Appraisal is a stand-alone document that must be reviewed and approved by a Review Appraiser. Only after the estimate is approved, will it be included in any planning documents including the REP. The Review Appraiser reviews the REP once it is completed and ensures the information in the REP agrees with that of the Gross Appraisal.

Task #4: Produce Real Estate Plan (REP)

The REP provides authorization to acquire real estate necessary for project construction. The REP is required by Chapter 12, ER 405-1-12, dated 1 May 1998.

The REP will be prepared as an exhibit to the Feasibility Report once the tentatively selected plan has been determined and once the preliminary drawings and identification of environmental mitigation areas, if required, are received from Planning, Programs and Project Management Division and/or Engineering Division.

The REP sets forth the plan for acquiring real estate needed for the project. It includes information regarding the project, its impact on privately and state owned lands, the estates that will be acquired, the capability of the NFS to acquire the real estate, and costs associated with the acquisition. Realty Specialist gathers information from the PDT members, conducts discussions with the NFS, and writes the REP based upon the guidelines set forth in Chapter 12.

Realty Specialist, in consultation with the NFS, develops an acquisition schedule and acquisition costs for the selected plan. If the project will displace persons, businesses or farms, the Realty Specialist estimates the costs of relocating those persons in accordance with PL 91-646, title II.

TASK #5: LEGAL SUPPORT

Legal support is necessary throughout the study for legal consultation and review of various work products.

An attorney reviews various work products such as ROE's obtained for survey and exploration, the REP, and the NFS's capability assessment. An Attorney also prepares estates to be acquired for the project and assists in preparation of the PPA. The attorney addresses any legal issues that arise throughout the duration of the study.

TASK #6: REAL ESTATE SUPPORT MANAGEMENT

To keep abreast of the status and progress of the study and activities being undertaken by other elements of the District which may have an impact on Real Estate's budget, work performance, and schedules. To coordinate activities, provide real estate consultation to the PDT, attend meetings, travel to the site, and resolve real estate issues as necessary.

The Realty Specialist serves as the point of contact for Real Estate Division with the Project Manager, other district organizations, the PDT, and the Non Federal Sponsor (NFS). This person coordinates all real estate activities for the study including coordination with technical team members to prepare a study schedule and budget, managing real estate funds, attending PDT meetings, meeting with technical team members, coordinating real estate input for the study with the Project Manager and providing guidance to the NFS. They ensure real estate input is provided according to projected schedules and that work is performed within budgeted amounts and participates in the resolution of various technical or policy issues of a real estate nature with other District elements or with the PDT as necessary throughout the study. The Real Estate technical team member performs the following:

- a. Attend public meetings as necessary and review and address report comments when requested.
- b. Consult with the NFS to determine the lands, easements, and rights-of-way required for the construction, operation, and maintenance of the project, the borrowing of material, and the disposal of dredged or excavated material.
- c. Provide the NFS with general written descriptions, including maps, of the lands, easements, and rights-of-way the Government determines the NFS must provide.
- d. Present the NFS with a written notice to proceed with acquisition of such lands, easements, and rights-of-way.

PROJECTED WORK IN KIND

The sponsor may assist the Real Estate specialist in determining lands, easements and rights-of ways required for the construction, operation and maintenance of the project, the borrowing of material and the disposal of dredged or excavate material. The sponsor may assist in obtaining property legal descriptions and the necessary right of entry.

Cost Estimate:

Corps of Engineers Real Estate Estimate: \$115,178.00

Projected Work in Kind: \$35,075.00

Total Real Estate Effort: \$150,253.00

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE INVESTIGATION

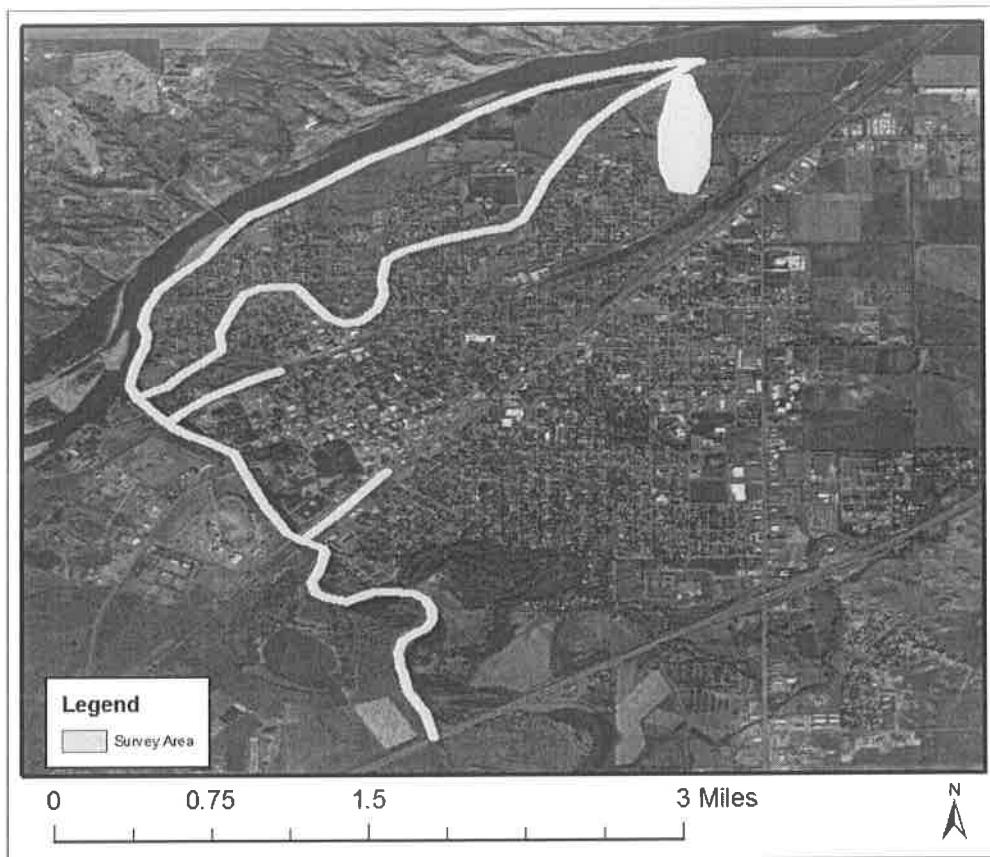
Corps of Engineers will review document submittal to insure compliance with regulations, guidance and laws.

Projected Work in Kind:

The Hazardous, Toxic, and Radioactive Waste (HTRW) investigation of the Miles City,

Montana Section 205 Study in Custer County, Montana will follow requirements provided in ER 1165-2-132, HTRW Guidance for Civil Works Projects. The objective of an HTRW investigation is to ascertain the presence of Recognized Environmental Conditions (RECs) as defined in ASTM E 1527-13. The study area for this HTRW investigation includes 200 feet on both banks of the Tongue River from upstream of Interstate 94 to the confluence of the Yellowstone River, 200 feet on the right bank of the Yellowstone River from upstream of the water treatment plant to downstream from the wastewater treatment plants, the Old Tongue River Channel and 200 feet on each side, and 200 feet on each side of portions of two railroads and that cross the Tongue River on the west side of town (see figure below). A search radius will extend from this study area in accordance with ASTM E 1527-13.

The HTRW investigation has four components: records review, site reconnaissance, interviews, and reporting. During the records review and site reconnaissance, the environmental professional(s) will identify any RECs of the site through evaluation of the historical use and observations of the current state of the property. Interviews with past and/or present owners, as well as state and/or local government officials, are to be conducted. A report will be prepared disclosing information about the services performed, findings, opinions, data gaps, references and sources, and conclusions made by the environmental professional(s) in such a way that the assessment could be reproduced by an environmental professional other than the one(s) who performed it.



Cost Estimate:

Corps of Engineers HTRW: \$3,200.00

Projected Work in Kind: \$33,500.00

Total HTRW Estimate: \$36,700.00

COST ENGINEERING

During the Feasibility Study, cost estimates will be prepared the primary tasks of structural and nonstructural flood control measures. The evaluation of the cost of tasks and structures is an integral part of computing the cost of potentially feasible solution options and the determination of the selected plan. Cost engineering staff will perform the Cost and Schedule Risk Analysis early in the study process, as described in the PMP which will involve the PDT to identify potential areas of risk throughout the project. The cost engineer will prepare a report detailing the outcomes

of the meeting. The cost engineer will work with appropriate disciplines to define quantities for alternatives and costs for structural and nonstructural options. MII reports will be developed for the alternatives and refined. Once the recommended alternative is identified, a Total Project Cost Summary will be completed. Coordination will occur with the Cost CX to obtain cost certification. The cost engineer will participate in reviews and respond to comments submitted in Dr. Checks as appropriate.

Cost Estimate:

Total Corps of Engineers Cost Engineering Estimate: \$50,232.00

VALUE ENGINEERING (ED-C)

The USACE VE Program demonstrates Corps cost effectiveness.

The basic thrusts of the program are to increase project value by proactively searching for and resolving issues through very open, short-term workshops, and to stretch precious taxpayer resources by providing the required function(s), most amenities, and the highest quality project(s), at the lowest life cycle cost.

The VE will employ a systematic approach to analyzing the functions of systems, equipment, facilities, services and supplies to ensure they achieve their essential functions at the lowest life cycle cost consistent with required performance, reliability, quality, and safety. Implementing the VE process on a problem typically increases performance, reliability, quality, safety, durability, effectiveness, or other desirable characteristics. The VE will take a systematic approach for attaining a return on investment by improving what the product or service does in relation to the money spent on it.

Cost Estimate:

Total Corps of Engineers Value Engineering Estimate: \$91,660.00

PUBLIC OUTREACH/INVOLVEMENT (PM-A)

Corps of Engineers Effort and Projected Work in Kind

In addition to internal PDT communication, a priority for the project is to provide for public awareness and public participation. To facilitate public awareness for all ages, the community will utilize print and electronic methods for communication. Regular meetings will be held with local steering committees. Depending on project progress, community awareness meetings may be scheduled. Public awareness will include obtaining timely input from other federal and state agencies and interested local communities, residents and other stakeholders. This is

accomplished through periodic public meetings and/or workshops, formal and informal interagency coordination, and by allowing all stakeholders the opportunity to review and comment on decision documents (e.g., the feasibility report).

The publication of quarterly newsletters and press releases, mutually agreed upon and reviewed, will be available to the public. There will be up to two information meetings held, if mutually agreed to be integral to the project. A review of the communication strategy will be conducted each year to assess the information effectiveness of the press, monthly Facebook posts, presentations and meetings. All information and presentation materials for information meetings will be reviewed by the Corps of Engineers.

Cost Estimate:

Corps of Engineers Outreach Estimate: \$10,000.00

Potential Work in Kind: \$109,250.00

Total Public Involvement/Outreach 119,250.00

SUPPLEMENTAL WORK

Flood Risk and Flood Management

Option 1: Conditional Letter of Map Revision (CLOMR) Development

The CLOMR can be completed during the feasibility stage or it could be completed during the design and implementation phase. An estimate of cost related to the CLOMR is not included in this proposal. After discussing the Scope of Work and cost estimate, Miles City can provide direction on their preferred approach.

If a structural flood damage reduction measure is found to be feasible and is selected as the feasibility study plan, a CLOMR will be developed. A CLOMR is required when modifications occur in the existing floodplain due to placement of structural measures which could alter the depth of flooding or physical location of the floodplain. The CLOMR will be submitted to FEMA either at the end of the feasibility study or during the design and implementation process to initiate the process of having the digital flood insurance rate maps changed to reflect the proposed federal project. The final map modifications, commonly referred to as the Letter of Map Revision (LOMR) will be developed during construction and submitted to FEMA after construction has been completed, to ensure all project changes have been captured in the as-built drawings and operations and maintenance manual of the completed project.

Option 2: Floodplain Management Plan Development

Section 202; Flood Control Policy, subsection (c) of WRDA 1996, requires the development of a Floodplain Management Plans (FPMP). These plans are to be developed and in-place within one year after signing the project partnering agreement. In essence, the FPMP is a document developed by the non-Federal sponsor and the Corps' project development team. The FPMP assures that the integrity of the Federal project will not be diminished during the life of the project and that impacts of future flood events in the project area have been reduced. The FPMP will address potential measures, practices, and policies to reduce loss of life, injuries, damages to property and facilities, public expenditures, and other adverse impacts associated with flooding and to preserve and enhance natural floodplain values. Because the FPMP can be completed during the feasibility stage or it could be completed during the design and implementation phase an estimate of cost is note included in the current proposal.

SECTION 205
Miles City - Tongue River
WBS AND FEASIBILITY STUDY COST ESTIMATE
Feb-17
Value Engineering

LABOR COSTS				
Task #	Description	Cost	In-Kind	Total
A	Pre-Workshop			
1	A-E Contract Admin	\$ 8,336	\$ -	8,336
2	Review of project docs	\$ 5,840	\$ -	5,840
B	Workshop			
1	Travel to Omaha	\$ 3,650	\$ -	3,650
2	Attend & Participate 4 day workshop	\$ 47,871	\$ -	47,871
3	Return Travel	\$ 3,650	\$ -	3,650
C	Post-Workshop			
1	Prepare Draft report	\$ 4,760	\$ -	4,760
2	Address Draft report review questions	\$ 3,924	\$ -	3,924
3	Prepare Final VE study report	\$ 1,460	\$ -	1,460
	Subtotal Tasks	\$ 79,491	\$ -	79,491
	Section S&A @ 6%	\$ 4,769	\$ -	4,769
	Subtotal Labor	\$ 84,260	\$ -	84,260
OTHER COSTS				
Task #	Description	Cost	In-Kind	Total
1	Travel (ATR Lead, 2 Tech, 1 Admin)	0	\$ 0	7,400
2		0	\$ 0	-
3		0	\$ 0	-
	SUBTOTAL OTHER	0	0	7400
TOTAL COST		\$	\$ -	91,660

Section 205
Miles City - Tongue River
WBS AND FEASIBILITY STUDY COST ESTIMATE
(February 2017)

Work Item	Cost Estimates \$			
	Total	Corps Labor	In-Kind	Contract
Cultural Resources Assessment*	\$ 18,253	\$ 18,254	\$ -	\$ -
Economic Studies	\$ 281,710	\$ 262,990	\$ 18,720	\$ -
Environmental / NEPA	\$ 167,836	\$ 167,836	\$ -	
Geotechnical Engineering Studies	\$ 140,651	\$ 140,651	\$ -	\$ -
HTRW Baseline Level 1 Study	\$ 36,700	\$ 3,200	\$ 33,500	\$ -
Hydraulic Engineering	\$ 213,812	\$ 213,812	\$ -	
Hydrologic Engineering	\$ 90,680	\$ 85,080	\$ 5,600	\$ -
Nonstructural / Floodplain (FRFM)	\$ 82,608	\$ 82,608	\$ -	\$ -
Plan Formulation / PM	\$ 347,132	\$ 234,232	\$ 112,900	\$ -
Project Cost Engineering	\$ 50,232	\$ 50,232	\$ -	\$ -
Programs Management	\$ 33,200	\$33,200		
Public Involvement	\$ 119,250	\$ 10,000	\$ 109,250	
Real Estate Studies	\$ 150,253	\$ 115,178.00	\$ 35,075	
Structural Engineering Analysis	\$ 19,375	\$ 19,375	\$ -	\$ -
Value Engineering	\$ 91,660	\$ 91,660		
Agency Tech Review -Draft and Final	\$ 75,000	75,000		
ATR and IEPR Charge/ review	\$ 25,000	\$ 20,000	\$ 5,000	
IEPR AND RESOLUTION	\$ 150,000			\$ 150,000
Contracting Office	\$ 13,000	\$ 13,000		
SUBTOTAL	\$ 1,956,351	\$ 1,636,307	\$ 320,045	\$ 150,000
Contingency (20%)	\$ 391,270			
ESTIMATED STUDY COST	\$ 2,347,622			
50 -50% Cost share -IEPR =	\$ 1,173,811			

SECTION 205
Miles City - Tongue River
WBS AND FEASIBILITY STUDY COST ESTIMATE
Feb-17
Cultural

LABOR COSTS

Task #	Description	Cost	In-Kind	Total
1	Literature and Records Search	\$ 2,886	\$ -	\$ 2,886
2	Survey/Site Visit	\$ 1,443	\$ -	\$ 1,443
3	Existing Condition Analysis	\$ 2,886	\$ -	\$ 2,886
4	Alternatives Analysis	\$ 2,886	\$ -	\$ 2,886
5	Draft Report (including SHPO coord)	\$ 2,886	\$ -	\$ 2,886
6	Internal Review	\$ 1,443	\$ -	\$ 1,443
7	Final Report	\$ 1,443	\$ -	\$ 1,443
		\$ -	\$ -	\$ -
	Subtotal Tasks	\$ 15,873	\$ -	\$ 15,873
	Section S&A @ 15%	\$ 2,381	\$ -	\$ 2,381
	Subtotal Labor	\$ 18,254	\$ -	\$ 18,254

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1			0	\$ -
2		0	0	\$ -
3		0	0	\$ -
	SUBTOTAL OTHER	0	0	0

TOTAL COST	\$ 18,254	\$ -	\$ 18,254
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Miles City - Tongue River
WBS AND FEASIBILITY STUDY COST ESTIMATE
Feb-17

ECONOMIC FEASIBILITY EVALUATION

LABOR COSTS

Task #	Description	Cost	In-Kind	Total
1	Land Use Inventory	\$ 22,440	\$ 18,720	\$ 41,160
1.1	Damages Baseline & Potential Maximum Project	\$ 43,040		\$ 43,040
1.2	Structural Alternatives Structures &Contents Benefits Eval	\$ 20,800		\$ 20,800
1.3	Structural Alternative All Benefits Evaluation	\$ 17,920		\$ 17,920
1.4	Life Safety/Consequences Evaluation	\$ 36,800		\$ 36,800
1.5	Non-Structural Alternatives Evaluation	\$ 10,080		\$ 10,080
1.6	Net Benefits Comparison/Trade Off Analysis/Plan Selection	\$ 10,320		\$ 10,320
1.7	Optimization	\$ 7,200	\$ -	\$ 7,200
1.8	Recreation Justification	\$ -	\$ -	\$ -
1.9	Environmental Justice	\$ -	\$ -	\$ -
1.1.0	Socio Economics Impact	\$ 6,000		\$ 6,000
1.1.1	Economics Appendix	\$ 8,000		\$ 8,000
1.1.2	Other Documentation, Presnetation, IPR, Public Involvement	\$ 4,000	\$ -	\$ 4,000
1.1.3	Reviews and Responses	\$ 15,000	\$ -	\$ 15,000
1.1.4	Consultation	\$ 15,400	\$ -	\$ 15,400
	Subtotal Tasks	\$ 217,000	\$ 18,720	\$ 235,720
	Section S&A (20%)	\$ 43,400	\$ -	\$ 43,400
	Subtotal Labor	\$ 260,400	\$ 18,720	\$ 279,120

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1	Travel	1500	0	\$ 1,500
2	Vehicle	250	0	\$ 250
3	Perdiem	840	0	\$ 840
	SUBTOTAL OTHER	2590	0	\$ 2,590

TOTAL COST	\$ 262,990	\$ 18,720	\$ 281,710
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SECTION 205
Tongue River - Miles City
WBS AND FEASIBILITY STUDY COST ESTIMATE
Feb-17
ENVIRONMENTAL, BIOLOGY & NEPA

LABOR COSTS				
Task #	Description	Cost	In-Kind	Total
1	Problems and Opportunities	\$ 928	\$ -	\$ 928
2	Inventory and Forecast	\$ 22,736	\$ -	\$ 22,736
3	Develop Purpose and Need Statement	\$ 1,856	\$ -	\$ 1,856
4	Develop Initial Set of Alternatives	\$ 2,320		\$ 2,320
5	Selecting a Plan	\$ 33,872	\$ -	\$ 33,872
6	Development of Environmental Restoration Plan	\$ 13,920	\$ -	\$ 13,920
7	Prepare and Attend Public meetings	\$ 9,280		\$ 9,280
8	Biological Assessment	\$ 4,640		\$ 4,640
7	Clean Water Act 404b1 Evaluation	\$ 4,640	\$ -	\$ 4,640
8	Consider FWS and IDNR Recommendations	\$ 8,000	\$ -	\$ 8,000
9	Formulate Specific F&W Mitigation	\$ 20,000		\$ 20,000
	Fish and Wildlife Coordination Act (MIPR and Planning			
10	Aid Letter)	\$ 15,000		\$ 15,000
11	District QA/QC	\$ 6,500		\$ 6,500
12	ATR&IEPR (24 hours each)	\$ 5,568		\$ 5,568
	Subtotal Tasks	\$ 143,692	\$ -	\$ 143,692
	Section S&A @ 15%	\$ 21,554	\$ -	\$ 21,554
	Subtotal Labor	\$ 165,246	\$ -	\$ 165,246
OTHER COSTS				
Task #	Description	Cost	In-Kind	Total
1	Travel	1500	0 \$	1,500
2	Vehicle	250	0 \$	250
3	Perdiem	840	0 \$	840
	SUBTOTAL OTHER	2590	0	2590
	TOTAL COST	\$ 167,836	\$ -	\$ 167,836

Section 205
Miles City - Tongue River
WBS and Feasibility Study Cost Estimate
Feb-17

GEOTECHNICAL EVALUATION IN FEASIBILITY

LABOR COSTS

Task #	Description	Cost	In-Kind	Total
1	PFP and PNAnalysis of Existing Levee	\$ 20,640	\$ -	\$ 20,640
2	Soil Investigation and Testing	\$ 8,376	\$ -	\$ 8,376
3	Alternative analysis	\$ 8,280		\$ 8,280
3	Analyzing Levee Underseepage & Stability	\$ 7,906	\$ -	\$ 7,906
4	Adjust Cross section and Design for Underseepage	\$ 10,158	\$ -	\$ 10,158
5	Develop Drawings	\$ 8,888		\$ 8,888
5	Calculate Quantities	\$ 4,968		\$ 4,968
6	Review Utility and Road Issues	\$ 2,216	\$ -	\$ 2,216
8	Meeting and Coordination	\$ 13,700	\$ -	\$ 13,700
9	Report Preparation	\$ 7,970	\$ -	\$ 7,970
11	ATR/IEPR	\$ 12,128		\$ 12,128
12	District QA/QC	\$ 7,813		\$ 7,813
	Subtotal Tasks	\$ 113,043	\$ -	\$ 113,043
	Section S&A @ 20%	\$ 22,609	\$ -	\$ 22,609
	Subtotal Labor	\$ 135,651	\$ -	\$ 135,651

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1	Travel	2800	0 \$	2,800
2	Vehicle	500	0 \$	500
3	Perdiem	1700	0 \$	1,700
	SUBTOTAL OTHER	5000	0	5000

TOTAL COST	\$ 140,651	\$ -	\$ 140,651
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Section 205				
Miles City - Tongue River				
WBS and Feasibility Study Cost Estimate				
Feb-17				
HTRW BASELINE STUDY (Environmental Condition of Property)				
LABOR COSTS				
Task #	Description	Cost	In-Kind	Total
1	Scope and estimate plan			
2	Coordination Meetings / Administration		\$ -	
3	Site Visit		\$ -	
4	Trip Report		\$ -	
5	Database Searches / Review		\$ -	
6	Followup Communications		\$ -	
7	Draft Report		\$ -	
8	Review and Respond to Comments			
8	Final Report			
9	Contractor HTRW work on items 1-9 above	\$ -	\$ 33,500	\$ 33,500
10	Technical Review of Contractor Products	\$ 3,200	\$ -	\$ 3,200
	Subtotal Tasks	\$ 3,200	\$ 33,500	\$ 36,700
	Subtotal Labor	\$ 3,200	\$ 33,500	\$ 36,700
OTHER COSTS				
Task #	Description	Cost	In-Kind	Total
1	Plane Ticket			\$ -
2	Vehicle		0	\$ -
3	per diem			\$ -
4	GPS		0	\$ -
5	County Property Documents		0	\$ -
	SUBTOTAL OTHER		0	0
	TOTAL COST	\$ 3,200	\$ 33,500	\$ 36,700
	COE Review		\$ 33,500	
Assumptions:				
	Two (2) people will do site reconnaissance.			0
	3 days, 10 hour days (includes on-site and travel).			0
				0
				0
CONTRACTABLE TASKS AFTER FY 14				
Task #				
1			\$ -	
2			\$ -	
3			\$ -	
	Contract Product Estimate		\$ -	
	Labor related to Contracting			
	ALL CONTRACTS THROUGH STUDY		\$ -	

Section 205 Miles City - Tongue River WBS and Feasibility Study Cost Estimate Feb-17				
HYDRAULIC ENGINEERING IN FEASIBILITY				
Task #	Description	Cost	In-Kind	Total
1	Review H&H Studies and Verify Prior Data/Model Application	\$ 7,760	\$ -	\$ 7,760
2	Develop existing conditions Steady HEC-RAS Model Geometry		\$ -	-
	GeoRas features with new lidar	\$ 2,520	\$ -	\$ 2,520
	Merge bathymetry	\$ 1,680		\$ 1,680
	Import into HECRAS	\$ 210		\$ 210
	HECRAS features (banks, ineffective, n values)	\$ 1,680	\$ -	\$ 1,680
	HECRAS structures (bridges, levee lateral stages)	\$ 2,520		\$ 2,520
	Inflows (8 profiles) and known stages	\$ 420		\$ 420
	Unsteady Stability trouble shooting	\$ 4,200		\$ 4,200
	Open water modeling	\$ 3,360		\$ 3,360
	Calibration	\$ 1,940		\$ 1,940
	Comparison to FIS	\$ 2,040		\$ 2,040
	Sensitivity	\$ 1,680		\$ 1,680
	Ice data collection and analysis	\$ 4,200		\$ 4,200
	Ice modeling (ice cover, ice jam, 8 profiles each)	\$ 6,720		\$ 6,720
	Ice composite updating along Tongue River (8 profiles)	\$ 4,200		\$ 4,200
	Ice composite calculations 2 - 500 year	\$ 4,200		\$ 4,200
	BREACHED LEVEES			
	Determine breach location and characteristics	\$ 2,520		\$ 2,520
	Model lateral structure with levee breach	\$ 420		\$ 420
	Identify hydrograph through breach	\$ 840		\$ 840
	Lateral structure to determine overtopping flow losses	\$ 420		\$ 420
	2D AREAS			
	Update 2D geometry	\$ 4,200		\$ 4,200
	Model 2D area with stage hydrographs at boundary	\$ 5,040		\$ 5,040
	PRODUCT RESULTS			
	Mapping products	\$ 4,200		\$ 4,200
	Profile comparisons	\$ 840		\$ 840
	Draft report	\$ 2,520		\$ 2,520
	Reviews and revisions	\$ 5,240		\$ 5,240
3	Future Without Project Conditions	\$ 970		\$ 970
4	Alternatives (2 levee alignments)	\$ 42,200		\$ 42,200
5	Tentatively Selected Plan and Optimization	\$ 20,260		\$ 20,260
6	PDT Meetings	\$ 7,440		\$ 7,440
7	Public Meeting Prep and Attendance	\$ 4,200		\$ 4,200
8	Response to Public Review	\$ 2,700		\$ 2,700
9	Design Needs	\$ 3,360		\$ 3,360
10	Report	\$ 5,240		\$ 5,240
11	ATR and IEPR	\$ 8,400		\$ 8,400
	Subtotal Tasks	\$ 170,340	\$ -	\$ 170,340
	Section S&A 24%	\$ 40,882	\$ -	\$ 40,882
	Subtotal Labor	\$ 211,222	\$ -	\$ 211,222
OTHER COSTS				
Task #	Description	Cost	In-Kind	Total
1	Plane Tickets	1500	\$	1,500
2	Vehicle	250	0 \$	250
3	per diem	840	\$	840
	SUBTOTAL OTHER	2590		2590
	TOTAL COST	\$ 213,812	\$ -	\$ 213,812

Section 205
Miles City - Tongue River
WBS and Feasibility Study Cost Estimate
Feb-17

HYDROLOGIC ENGINEERING IN FEASIBILITY

Task #	Description	Cost	In-Kind	Total
1	Review Previous Reports & Other Materials	\$ 2,400	\$ -	\$ 2,400
	Update Discharge Frequencies	\$ 16,000	\$ -	\$ 16,000
	Hydrograph Development	\$ 4,000	\$ -	\$ 4,000
	Coincident Frequency	\$ 4,000	\$ -	\$ 4,000
	Update Stage Frequency	\$ 4,000	\$ -	\$ 4,000
	Formulation of Measures	\$ 5,600	\$ -	\$ 5,600
	Interior Drainage Analysis	\$ 600	\$ 5,600	\$ 6,200
	Climate Change Analysis	\$ 4,000		\$ 4,000
	Hydrologic Analysis Technical Review			
	Draft Report	\$ 5,600		\$ 5,600
	PDT Review	\$ 1,600		\$ 1,600
	ATR/IEPR	\$ 8,000		\$ 8,000
	Final Report	\$ 4,000		\$ 4,000
	Meetings	\$ 8,000		\$ 8,000
	Travel	\$ 2,400		\$ 2,400
	Subtotal Tasks	\$ 70,200	\$ 5,600	\$ 75,800
	Section S&A @ 20%	\$ 14,040		\$ 14,040
	Subtotal Labor	\$ 84,240	\$ 5,600	\$ 89,840

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1	Plane Ticket	1500		\$ 1,500
2	Vehicle	250	0	\$ 250
3	per diem	840		\$ 840
	TOTAL COST	\$ 85,080	\$ 5,600	\$ 90,680

SECTION 205
Miles City - Tongue River
WBS AND FEASIBILITY STUDY COST ESTIMATE
Feb-17
FLOODPLAIN & NONSTRUCTURAL FLOOD RISK REDUCTION

LABOR COSTS

Nonstructural FRAM Analysis and Report

Task #	Description	Cost	In-Kind	Total
1	Developing and Verifying Structure Inventory	\$ 11,300		\$ 11,300
2	Determine Costs for Standalone Nonstructural	\$ 4,400		\$ 4,400
3	Determining Benefits of the Standalone Nonstructural Alternative	\$ 4,400	\$ -	\$ 4,400
4	Determine Costs for Nonstructural with Structural Alternative Determining Benefits of the Nonstructural Alternative with a	\$ 4,400	\$ -	\$ 4,400
5	Structural Alternative	\$ 4,400		\$ 4,400
6	Report Preparation	\$ 4,550	\$ -	\$ 4,550
7	Meetings and Coordination	\$ 4,000		\$ 4,000
8	Quality Assurance/Quality Control	\$ 4,000	\$ -	\$ 4,000
Subtotal Tasks		\$ 41,450	\$ -	\$ 41,450
Supervision and Administration (S&A) @ 15%		\$ 6,218	\$ -	\$ 6,218
Subtotal Labor		\$ 47,668	\$ -	\$ 47,668

EO11988 Compliance and Coordination with USACE FRM, NFIP, state and

Task #	Description	Cost	In-Kind	Total
1	PDT Meetings, Sponsor Meetings, Conference Calls, and etc	\$ 6,500	\$ -	\$ 6,500
2	Compliance Research, Documentation and Memo Development	\$ 6,500		\$ 6,500
3	Quality Assurance/Quality Control	\$ 1,000	\$ -	\$ 1,000
Subtotal Tasks		\$ 14,000	\$ -	\$ 14,000
Section S&A 15%		\$ 2,100	\$ -	\$ 2,100
Subtotal Labor		\$ 16,100	\$ -	\$ 16,100

Assist with HEC-FIA Analysis and Report

Task #	Description	Cost	In-Kind	Total
1	FIA Model Setup	\$ -	\$ -	\$ -
2	FIA Analysis (Calculating Life loss for existing conditions)	\$ 1,500	\$ -	\$ 1,500
3	FIA Analysis (Calculating Life loss for with-project conditions)	\$ 1,500	\$ -	\$ 1,500
4	Quality Assurance/Quality Control	\$ -	\$ -	\$ -
5	Report Preparation	\$ -	\$ -	\$ -
Subtotal Tasks		\$ 3,000	\$ -	\$ 3,000
Section S&A @ 15%		\$ 450	\$ -	\$ 450
Subtotal Labor		\$ 3,450	\$ -	\$ 3,450

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1	Travel (two trips)	\$ 4,800		\$ 4,800
2	DQC, ATR, IEPR (20 hours per review)	\$ 8,000	0	\$ 8,000
SUBTOTAL OTHER		\$ 12,800	0	\$ 12,800
TOTAL COST		\$ 80,018	\$ -	\$ 80,018

1	Plane Ticket	1500	\$	1,500
2	Vehicle	250	0 \$	250
3	per diem	840	\$	840
Subtotal		\$ 2,590	\$	2,590
TOTAL COST		\$ 82,608	\$ -	\$ 82,608

Section 205
CITY OF MILES CITY, MONTANA
FEASIBILITY STUDY COST ESTIMATE (Optional Tasks during Feasibility)
AUGUST 2016

FLOOD RISK AND FLOODPLAIN MANAGEMENT SECTION
NONSTRUCTURAL ASSESSMENT AND FLOOD RISK MANAGEMENT

LABOR COSTS

CLOMR Submittal to FEMA

Task #	Description	Cost	In-Kind	Total
1	Hydraulic Computer Model Development for FEMA Submission	\$ -	\$ -	\$ -
2	Report Preparation	\$ -	\$ -	\$ -
3	Mapping	\$ -	\$ -	\$ -
4	Assembling of documentation for FEMA Submission	\$ -	\$ -	\$ -

5	Comment Response Coordination	\$	-	\$	-
6	Meetings	\$	-	\$	-
7	Quality Assurance/Quality Control	\$	-	\$	-
	Subtotal Tasks	\$	-	\$	-
	Supervision and Administration @ 15%	\$	-	\$	-
	Subtotal Labor	\$	-	\$	-
Floodplain Management Plan					
Task #	Description	Cost	In-Kind	Total	
1	Plan Report Development	\$	-	\$	-
2	Meetings and Coordination	\$	-	\$	-
3	Quality Assurance/Quality Control	\$	-	\$	-
	Subtotal Tasks	\$	-	\$	-
	Section S&A / QC @ 15%	\$	-	\$	-
	Subtotal Labor	\$	-	\$	-
OTHER COSTS					
Task #	Description	Cost	In-Kind	Total	
1	Travel 2 Days		0	\$	-
2	DQC, ATR, IEPR (20 hours per review)	\$	-	0	\$
3	Contingency (15%)	\$	-	0	\$
	SUBTOTAL OTHER	\$	-	0	0
	TOTAL COST (Optional Tasks during Feasibility)	\$	-	\$	-
	Grand Total		\$	-	\$

Section 205
Miles City - Tongue River
WBS and Feasibility Study Cost Estimate
Feb-17

PLAN FORMULATION

LABOR COSTS

Task #	Description	Cost	In-Kind	Total
1	NEPA Feasibility Meetings and Reporting (Salak)	\$ 4,000	\$ -	\$ 4,000
2	Corps Upward Reporting Meetings (BCPERM, PRB, etc.)	\$ 8,000	\$ -	\$ 8,000
3	Prepare and Update Budget Documents	\$ 5,340		\$ 5,340
4	Study Correspondence and Documentation	\$ 5,000		\$ 5,000
5	Scheduling & 2101s	\$ 5,340	\$ -	\$ 5,340
6	PDT Meetings (Attendance, Agendas and Minutes)	\$ 12,000	\$ 10,000	\$ 22,000
7	Public Involvement Planning, Coordination, Respond to comm	\$ 15,000	\$ 5,000	\$ 20,000
	Miscellaneous COE requested -Sponsor Provide Information			
8	and Respond to inquiries	\$ -	\$ 66,900	\$ 66,900
9	Lead Plan Formulation and Analysis thru 6-step process	\$ 35,000	\$ 8,000	\$ 43,000
10	Review Plan Preparation & Reviews	\$ 5,000	\$ -	\$ 5,000
11	Updating Project Management Plan	\$ 8,000	\$ 3,000	\$ 11,000
12	Formulation	\$ 20,000	\$ 2,000	\$ 22,000
13	Draft Feasibility Report	\$ 15,000	\$ 9,000	\$ 24,000
	Reviews: prepare, schedule, manage, respond to comments			
14	(DQC, ATR, IEPR)	\$ 20,000	\$ 5,000	\$ 25,000
15	Revise Draft Feasibility Resport/Final Report	\$ 10,000	\$ 3,000	\$ 13,000
16	Preparation of PPA	\$ 8,000	\$ -	\$ 8,000
17	Scope of Work for Contractor	\$ -	\$ -	\$ -
18	Technical Review of Contractor Products	\$ 2,000		\$ 2,000
19	3 Public Meetings (scoping, draft report, final report)	\$ 5,000	\$ 1,000	\$ 6,000
20	Rescoping	\$ 5,000	\$ 5,000	\$ 10,000
	Subtotal Tasks	\$ 187,680	\$ 117,900	\$ 305,580
	Section S&A @ 15%	\$ 28,152		\$ 28,152
	Subtotal Labor	\$ 215,832	\$ 117,900	\$ 333,732

OTHER COSTS

Task #	Description	Cost	In-Kind	Total
1	Travel	10,000	0	\$ 10,000
2	Printing Draft & Final Reports	2500	0	\$ 2,500
		0	0	\$ -
	SUBTOTAL OTHER	12500	0	12500

TOTAL COST	\$ 228,332	\$ 117,900	\$ 346,232
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1	Plane Ticket	15000	\$	15,000
2	Vehicle	2500	0	\$ 2,500
3	per diem	8400		\$ 8,400
	Subtotal	25900		25900

TOTAL	\$ 254,232	\$ 117,900	\$ 372,132
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Section 205
Miles City - Tongue River
Feb-17
Programs Management

The Planning, Programs, and Project Management Division assists the project team and sponsor with managing project funds within the USACE financial management system. A program analyst will be assigned to the project to assist with budgets documents, funding requests, scheduling funds, documentation for in-kind service, closing out the project, and a host of other daily activities.

Estimate

\$33,200

Section 205 Study
Miles City - Tongue River
1-Feb-17
Cost & General Engineering Branch

LABOR COSTS					
Task #	Description	Cost	Hours	In-Kind	Total
1	Site Visit/Scoping Meeting/PDT Meetings	\$ 130	32	\$ -	\$ 4,160
2	Work with ED-G & ED-DF to define quantities for Alternatives	\$ 130	32	\$ -	\$ 4,160
3	Develop MCACES for Alternatives	\$ 130	48	\$ -	\$ 6,240
3	Develop MCACES for Non-structural Alternatives	\$ 130	16	\$ -	\$ 2,080
4	Work with Designers to refine MCACES Selected Plan	\$ 130	16	\$ -	\$ 2,080
5	Develop Cost and Schedule Risk Analysis	\$ 130	16	\$ -	\$ 2,080
6	Develop Cost Appendix	\$ 130	18	\$ -	\$ 2,340
7	Coordinate with Cost DX in Walla Walla for Review	\$ 130	38	\$ -	\$ 4,940
8	Funding for Cost CX to complete review	\$130	40		\$ 5,200
9	Participate in Reviews (PDT, DQC, ATR, IEPR)	\$ 130	80	\$ -	\$ 10,400
10	Scope of Work for Contractor	\$ 130	0	\$ -	\$ -
11	Technical Review of Contractor Products	\$ 130	0	\$ -	\$ -
Subtotal Tasks			336	\$ -	\$ 43,680
Subtotal			336	\$ -	\$ 43,680
Section S&A / QC @ 15%				\$ -	\$ 6,552
Subtotal Labor		\$ -		\$ -	\$ 50,232
OTHER COSTS					
Task #	Description	Cost		In-Kind	Total
1	Vehicle				
2	Per Diem, site visit				
3	Travel				
SUBTOTAL OTHER		0		0	\$ -
TOTAL COST					\$ 50,232

Section 205
Miles City - Tongue River
Public Involvement
Feb-17

Task #	Description	Corps	Hours	In-Kind	Total
1	Quarterly News Letters		72	\$ 8,750	
2	Quarterly Press releases (two new stories and 2 notices mutually agreed upon		48	\$ 6,500	
3	2 information mtgs mutually agreed upon		360	\$ 50,000	
4	1 Public Communication Strategy		30	\$ 3,500	
5	Monthly Facebook Posts		48	\$ 2,500	
6	PR/Gov/Agency Coordination Team		48	\$ 18,000	
7	NEPA Requirements	\$ 10,000			
	Power Point PPT mutually agreed upon			\$ 20,000	
	SUBTOTAL			\$ 109,250	
7				\$ -	
	TOTAL	\$ 10,000		\$ 109,250	\$ 119,250

Section 205
Miles City - Tongue River
WBS and Feasibility Study Cost Estimate
1-Feb-17
Real Estate

TASKS	COST/TASK		# UNITS	COST/UNIT
REAL ESTATE PLAN				
MEETINGS	4500.00	CORPS	50.00	90.00
RIGHT-OF-ENTRIES	7200.00	CORPS	80.00	90.00
FINAL ROW MAP*	5400.00	CORPS	60.00	90.00
LANDS & ESTATES	1800.00	CORPS	20.00	90.00
ESTIMATE/STRUCTURE *	17100.00		190.00	90.00
ESTIMATE/GROSS APPRAISAL *	4500.00	CORPS	40.00	112.50
ESTIMATE/GROSS APPRAISAL *	14000.00	CORPS	100.00	140.00
APPRAISAL REVIEW*	2500.00	CORPS	20.00	125.00
REAL ESTATE MANAGEMENT	7200.00	CORPS	80.00	90.00
ATTORNEY'S OPINION	5200.00	CORPS	40.00	130.00
REAL ESTATE PLAN	13500.00	CORPS	150.00	90.00
CONSULT/REVIEW R.E.P.	1500.00	CORPS	10.00	150.00
TRAVEL	4800.00	CORPS	48.00	100.00
COORDINATION	4320.00	CORPS	48.00	90.00
REVIEWS (DQC/ATR/IEPR)	5040.00	CORPS	56.00	90.00
S&A 15%	14028.00	CORPS	0.15	
TOTAL COST OF REP	\$ 112,588.00			
Plane Ticket	1500			\$ 1,500
Vehicle	250		0	\$ 250
per diem	840			\$ 840
	\$ 2,590.00			
Total Federal	\$ 115,178.00			
REAL ESTATE PAYMENTS	COST/TASK		#UNITS	COST/UNIT
NFS ADMIN	5000.00	SPONSOR	100.00	50.00
NFS LEGAL	2500.00	SPONSOR	50.00	50.00
OBTAIN ROE'S	23000.00	SPONSOR	46.00	500.00
	0.00	CORPS	0.00	0.00
	0.00	CORPS	0.00	0.00
20% QA	4575.00	SPONSOR	0.15	0.00
TOTAL PAYMENTS	\$ 35,075.00			
TOTAL R.E. COST	\$ 150,253.00			

Section 205 Miles City - Tongue River WBS and Feasibility Study Cost Estimate Feb-17				
FEASIBILITY STUDY LEVEL STRUCTURAL ENGINEERING				
LABOR COSTS				
Task #	Description	Cost	In-Kind	Total
1	Write narratives for existing conditions	\$ 1,500	\$ -	\$ 1,500
2	Write narrative and perform calculations	\$ 1,800	\$ -	\$ 1,800
3	Conceptual Drawings	\$ 3,200	\$ -	\$ 3,200
4	Create 1 plate - road closure	\$ 2,000	\$ -	\$ 2,000
6	Attend Meetings	\$ 800	\$ -	\$ 800
8	Support Cost Engineer	\$ 1,500	\$ -	\$ 1,500
9	VE Study	\$ 2,400	\$ -	\$ 2,400
10	Site Visit	\$ 2,400	\$ -	\$ 2,400
11	Review and respond to comments	\$ 1,000	\$ -	\$ 1,000
	Subtotal Tasks	\$ 16,600	\$ -	\$ 16,600
	Section S&A 10%	\$ 1,660	\$ -	\$ 1,660
	Subtotal Labor	\$ 18,260	\$ -	\$ 18,260
OTHER COSTS				
Task #	Description	Cost	In-Kind	Total
1	Plane Ticket	750	0	\$ 750
2	Vehicle	125	0	\$ 125
3	Perdiem	240	0	\$ 240
	SUBTOTAL OTHER	1115	0	1115
	TOTAL COST	\$ 19,375	\$ -	\$ 19,375
CONTRACTABLE TASKS FY 14				
Task #				
1				0
2				0
3				0
	Contract Product Estimate			0
	Labor related to Contracting			
CONTRACTABLE TASKS AFTER FY 14				
Task #				
1		\$ -		\$ -
2				\$ -
3				\$ -
	Contract Product Estimate			\$ -
	Labor related to Contracting			
	ALL CONTRACTS THROUGH STUDY			\$ -