



CITY OF MILES CITY AGENDA

*Regular Council Meeting
City Council Chambers*

*September 23, 2014
7:00 p.m.*

CALL TO ORDER PLEDGE OF ALLEGIANCE ROLL CALL

1. APPROVAL OF COUNCIL MINUTES/COMMITTEE MINUTES

- | | | |
|----|---------------------------|-----------|
| a. | City Council Meeting | 9/9/2014 |
| b. | Finance Committee | 9/4/2014 |
| c. | Flood Control Committee | 9/4/2014 |
| d. | Flood Control Committee | 9/10/2014 |
| e. | Public Safety Committee | 9/16/2014 |
| f. | Human Resources Committee | 9/17/2014 |

2. SCHEDULE MEETINGS

3. REQUEST OF CITIZENS & PUBLIC COMMENT

Alan Hulse, MMIA, RE: Special Events Insurance/Liability

4. APPOINTMENTS: None

5. PROCLAMATIONS: None

6. STAFF REPORTS

City Attorney Dan Rice: Update on Water Court

7. CITY COUNCIL COMMENTS

8. MAYOR COMMENTS

9. COMMITTEE RECOMMENDATIONS

Finance Committee: 9/4/14 -- Land Lease at Water Treatment Plant (Jim Dighans) (Tabled in Committee)

Public Safety Committee: 9/16/14 – Recommend Approval of Proposed Police Department Policies, with Amendments

10. BID OPENING: None

BID AWARDS: None

11. **PUBLIC HEARINGS**

- A. **ORDINANCE NO. 1275:** An Ordinance Changing The Zoning Of Tract A Of Document #153542, Envelope 500b, And Located Within Section 11 Of Township 7 North, Range 47 East, M.P.M., From Agriculture District Zone To General Commercial Zone, And Providing For A Hearing Thereon (*Request from Brad Certain on Highway 59 South*)

12. **UNFINISHED BUSINESS**

- A. **ORDINANCE NO. 1275 (*Second Reading*):** An Ordinance Changing The Zoning Of Tract A Of Document #153542, Envelope 500b, And Located Within Section 11 Of Township 7 North, Range 47 East, M.P.M., From Agriculture District Zone To General Commercial Zone, And Providing For A Hearing Thereon (*Request from Brad Certain on Highway 59 South*)

13. **NEW BUSINESS**

- A. **ORDINANCE NO. 1277:** An Ordinance Amending Ordnances 1073 And 1262 And Revising " Administration Rules Of The City Of Miles City Water And Sewer Services, Accounts, Delinquencies And Termination"
- B. **Confirmation of Firefighter Eric Hartse**
- C. **Request for Small Donation for Retirement Gift for Alec Hanson,** Montana League of Cities and Towns
- D. **Council Review, Revisions and Recommendations on the Draft of the *Tax Increment Finance District Urban Renewal Plan*** prior to public meeting
- E. **RESOLUTION NO. 3743:** Resolution Relating to Financing of Certain Proposed Projects; Establishing Compliance with Reimbursement Bond Regulations Under the Internal Revenue Code
- F. **RESOLUTION NO. 3744:** A Resolution Approving A Real Property Lease Agreement Between The City Of Miles City And The U.S. Department Of Veterans Affairs For RSVP Offices
- G. **RESOLUTION NO. 3745:** A Resolution Revising City Of Miles City Personnel Policies Regarding Employment Anti-Discrimination Practices, And Recruiting And Hiring
- H. **RESOLUTION NO. 3746:** A Resolution Creating A Sick And Vacation Leave Donation Policy Within The City Of Miles City Personnel Policies
- I. **RESOLUTION NO. 3747:** A Resolution Adopting Findings Of Fact And Approving The Amended Plat For The Purpose Of Boundary Line Relocation Of Lots 1-3 In Block 8 Of The Jackson & Arnold Addition To The City Of Miles City (*Request from Val Dyba*)
- J. **Council Decision to Initiate an Investigation into the Floodplain Administrator,** to Determine Whether Charges for Removal are Appropriate, Pursuant to MCA 7-4-4113

14. **ADJOURNMENT**

Public comment on any public matter that is not on the agenda of this meeting can be presented under Request of Citizens, provided it is within the jurisdiction of the City to address. Public comment will be entered into the minutes of this meeting. The City Council cannot take any action on a matter unless notice of the matter has been made on an agenda and an opportunity for public comment has been allowed on the matter. Public matter does not include contested cases and other adjudicative proceedings

APPROVAL OF COUNCIL MINUTES

AND

COMMITTEE MINUTES

- | | | |
|----|----------------------------------|------------------|
| a. | City Council Meeting | 9/9/2014 |
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| c. | Flood Control Committee | 9/4/2014 |
| d. | Flood Control Committee | 9/10/2014 |
| e. | Public Safety Committee | 9/16/2014 |
| f. | Human Resources Committee | 9/17/2014 |

REGULAR COUNCIL MEETING September 9, 2014
7:00 p.m.

CALL TO ORDER

The Regular Council meeting was held Tuesday, September 9, 2014, in the City Hall Conference Room at City Hall, 17 S. 8th Street, Miles City, Montana. Mayor C.A. Grenz called the meeting to order. Council Members present were Roxanna Brush, Mark Ahner, Dwayne Andrews, Ken Gardner, Susanne Galbraith, Sheena Martin, John Hollowell and Jerry Partridge.

Also present were Public Works Director Scott Gray, City Attorney Dan Rice, Interim Fire Chief/Battalion Chief Cameron Duffin, Police Chief Doug Colombik, Grant Writer/Planner in Training Dawn Colton, and City Clerk/Minute Recorder Lorrie Pearce.

PLEDGE OF ALLEGIANCE

Mayor Grenz led the Council in the Pledge of Allegiance.

APPROVAL OF COUNCIL & COMMITTEE MINUTES

City Council Minutes: 8/26/2014

** *Councilperson Galbraith moved to approve the minutes of the Regular Council Meeting of August 26, 2014, seconded by Councilperson Brush and passed unanimously, 8-0.*

SCHEDULE MEETINGS

- Human Resources Committee: 6:00 Wednesday, September 17
- Public Safety Committee: 6:00 Tuesday, September 16
- Special Planning Board: 6:00 Thursday, September 11
- Flood Control Committee: 6:00 Wednesday, September 10

REQUEST OF CITIZENS & PUBLIC COMMENT

John Ungaretti from Solestone Reimbursement Services presented a year end overview of collections for the ambulance service. He said the collections are improving, but there still a few problem that Solestone is working on.

- Veterans Association taking 8-14 months to pay. Solestone has met with them twice to discuss the situation.
- New West Health Care purchased new software and it's taken them about 10 months to get invoices paid in full. Some of this has been resolved; there has been an improvement with claims being paid.
- Medicare claims are not being signed, and a claim can't be sent in for payment until it is. Solestone is sending the claims to the patient's home address for signature.
- Non emergent transport forms are not being signed off by the physician. Solestone will present to the hospitals a new form deleting from the title *non emergent*.
- 73.68% net collection is slightly below average; he would like to see 80% to 85%, but it is up from 60.89% billed in 2013.

He added that he will be working with the Miles City ambulance crew tomorrow for further education.

Mayor Grenz asked who is responsible to get the signatures. Mr. Ungaretti said it is basically the paramedic's responsibility to get them. As far as the physician's sign-off sheet, it is the hospital's responsibility. Further education with the ambulance department and the hospital will help.

APPOINTMENTS

None

PROCLAMATIONS

None

STAFF REPORTS

Report on the TIF District: Steve Zeier of Zeier Consulting, LLC on behalf of Connie Muggli, Historic Preservation Officer

- A draft will be included in the 9/23/14 council packet for Council approval. When approved it will be ready to present to the public in late September or early October
- The schedule was amended because of health issues on one of the major players involved.
- Halfway through the project, and on budget.

City Clerk **Lorrie Pearce** reminded everyone that this Friday is City Hall's 100th year celebration, and hoped all Council members would attend.

CITY COUNCIL COMMENTS

Mark Ahner

- Asked City Attorney Rice to report on the water rights status at the next meeting

John Hollowell

- Asked if anything is being done with the salvage yard on the 3100 block of Box Elder. Mayor Grenz said that he will discuss the situation with Police Chief Colombik.
- Moved that, at the next council meeting, a Council decision to initiate a Council investigation into the Floodplain Administrator's position. He felt there was a lot of misinformation, and there was a lot more to the situation than what was stated in the initial investigation. He felt that the City is about to go into a 40 million project, and would like to know how deep the misinformation goes.

** *Councilperson Partridge called for a vote on the question. On roll call vote, it passed unanimously, 8-0.*

** *Councilperson Hollowell moved to place on next Council meeting agenda, that the City Council conduct its own investigation into the Floodplain Administrator's position, seconded by Councilperson Partridge. After a long discussion and on roll call vote, the motion passed unanimously, 8-0.*

MAYOR COMMENTS

Mayor Grenz reminded everyone there is a Housing Solution hearing in Billings on September 15, 2014.

STANDING COMMITTEE RECOMMENDATIONS

Public Services: 8/7/14

- a. Recommend approval of Walleyes Unlimited improvement plans at Spotted Eagle

Duncan Bartholomew represented the Walleyes Unlimited and said they would like to improve the west side of the lake at Spotted Eagle with a focal area

for education and promoting activities at the site. The design has been stamped and approved by an engineer. The Bureau of Land Management has designed the project and it is archeologically accurate. The design would be approximately 27 feet in diameter, made of cement with a tepee added on top. It would also have handicap access from the road area to the structure.

Dennis Schroeder also representing Walleyes Unlimited, explained the plaques are provided by BLM and would have the history of Spotted Eagle on them. Also in that area would be a life-sized plasma cut steel structure of a moving camp.

Councilperson Ahner asked if Walleyes Unlimited is looking at replacing the bathroom in that area. Mr. Bartholomew said that they are going to replace the bathroom and that would be the third and last bathroom to replace. Councilperson Ahner also asked where the cement benches would be placed. Mr. Bartholomew replied that there will not be benches at this time because of money restraints. But they are still planning on placing benches in strategic areas around the lake.

Councilperson Gardner asked if this was to honor the Native American heritage. Mr. Schroeder said it is to bring both cultures together.

Mayor Grenz on behalf of City Council thanked Walleyes Unlimited for all its hard work.

*** Councilperson Partridge moved to approve Walleyes Unlimited's improvement plan, seconded by Councilperson Galbraith. On roll call vote, the motion passed by unanimous consent, 8-0*

Human Resources: 8/18/14

b. Recommend approval of Recruitment and Selection Policy

Councilperson Brush stated that Human Resources Committee looked over the policy with Payroll/Human Resource Officer Billie Burkhalter page by page. It comes before the Council with a unanimous recommendation by the Human Resource Committee to approve.

Councilperson Andrews wanted to recognize the Human Resource Officer for the excellent job and work completed on the revision.

*** Councilperson Brush moved to approve the Recruitment and Selection Policy (section one) of the Personnel Policy, seconded by*

Councilperson Gardner. On roll call vote, the motion passed by unanimous consent, 8-0.

BID OPENING

None

BID AWARDS

None

PUBLIC HEARINGS

None

UNFINISHED BUSINESS

RESOLUTION NO. 3741: A Resolution Authorizing The City Of Miles City To Enter Into A State-Local Disaster Assistance Agreement With The State Of Montana For The Purpose Of Accepting A Hazard Mitigation Grant To Assist In Funding The City's Flood Control Assessment

Councilperson Ahner had several concerns:

1. Exhibit A. States county instead of city, and was wondering if that was a concern.
2. Exhibit A, Item number 14. Asked if the reimbursement is for work being paid to the contractor by the City. Grant Writer/Planner in Training Colton said yes.
3. Exhibit A, Item number 23. Asked if the project was Federal Davis-Bacon wages. Grant Writer/Planner in Training Colton said yes, because it is a Federal grant.
4. Exhibit C. He is confused as to what this agreement would be for. Grant Writer/Planner in Training Colton said that KLJ has added an addendum to their \$187,000 flood study to conduct flood mitigation assistance. They will add a portion to the county's pre disaster mitigation plan that deals with Miles City specifically. KLJ had already gathered a large amount of information that will go into the mitigation plan, so the City added the addendum asking for a grant of \$21,500. She said the City of Miles City's letter is a little deceiving, because the match for the \$21,500 is 25%, which will come out of the cash that the City will pay KLJ for contracted work on the entire flood study. It was put into the grant as presented because their software would not accept the budget amounts. It is technically not costing the City more money to add the addendum for the flood mitigation.

5. Exhibit A, Item number 24. Asked what the project is. Grant Writer/Planner in Training Colton said it was the entire flood study. Specifically, they were worried about the addendum, which is the flood mitigation study.

****** *Councilperson Galbraith moved to approve Resolution 3741, read by title only and seconded by Councilperson Gardner, it was then passed unanimously, 8-0. **Resolution No. 3741 was adopted.***

NEW BUSINESS

- A. **Ordinance No. 1278:** (First Reading) A Ordinance Revising Section 11-77 Of The Code Of Ordinances Of The City Of Miles City, Montana, Adopting The 2012 international Fire Code, And notice Of Intent

****** *Councilperson Hollowell moved to approve Ordinance No. 1278, read by title only and seconded by Councilperson Brush. After a brief discussion and on roll call vote, the motion passed by unanimous consent, 8-0. **Mayor Grenz referred the Ordinance to Public Safety for review.***

Approval of August Claims

****** *Councilperson Galbraith moved to approve August claims, seconded by Councilperson Hollowell. After discussion, the motion passed by unanimous consent, 8-0. **August claims were approved.***

ADJOURNMENT.

****** *Councilperson Ahner moved to adjourn the meeting, seconded by Councilperson Brush and passed unanimously, 8-0.*

The meeting was adjourned at 8:25 p.m.

C.A. Grenz, Mayor

**Lorrie Pearce
City Clerk**

Finance Committee Meeting September 4, 2014

The **Finance Committee** met Thursday, September 4, 2014, at 5:00 p.m. in the City Hall Conference Room. Present were Committee Members Sue Galbraith, Sheena Martin, John Hollowell and Dwayne Andrews. Also present were Samantha Malenovsky Floodplain Administrative/Auto Cad/Assistant PWPV, Connie Muggli Historic Preservation Officer, Dawn Colton Grant Writer/Planner in Training, C.A. Grenz Mayor, and Recorder/City Clerk Lorrie Pearce.

Request of Citizens

None

Review Land Lease at Water Treatment Plant/Jim Dighans

There was concern from Committee Member Andrews and Chairperson Galbraith that the combination of cattle with the water plant, art center and park would not be a great idea. They thought the smell would be inappropriate.

* * *Committee Member Hollowell moved to recommend to Council approval of the land lease to Jim Dighans, there was no second.*

REVIEW REVOLVING LOAN FUND GRANT FROM CDBG-ED

Historic Preservation Officer Muggli explained how the CDBG-ED grant works.

- City would be responsible for the initial set up, including a public meeting.
- The business that is applying for the grant money would be responsible to put the loan application packet together.
- Business proposal would be presented to Council in a form of a Resolution.
- Once the Resolution is approved by Council, the application would be sent to the Department of Commerce, and they would be responsible to review, and approve the grant.
- The revolving loan fund grant from CDBG-ED is separate from, and in addition to any CDBG grants available.
- \$400,000 available to each Montana City each year.
- Would need a letter of support from Southeastern Montana Development Corporation.
- Grants awarded would be based on jobs created up to \$25,000 per job, \$5000 for employee training, and a minimum of 51% jobs to benefit low and moderate income persons, and a 1:1 match, which would be the loaners' responsibility.
- City of Miles City would apply on behalf of multiple businesses up to the \$400,000 with an interest rate of 2%.

- Eligible activities would include loans to businesses for acquisition, construction, installation, or rehabilitation of commercial and industrial buildings, facilities, equipment, or working capital. Also, considered eligible activities are, customized employee training, TIP districts, and building infrastructure such as water, sewer, streets or sidewalks in support of businesses.
- Up to 8% of the total CDBG-ED funding is allowed for local government to pay for administrative services.
- Repayment from CDBG-ED loan could be retained by the City of Miles City, which in turn could be put back into the community.

City Clerk Pearce asked who would be responsible to lead the grant process. Officer Muggli said she would. City Clerk Pearce said that she would be a little hesitant to have the money from the repayment and interest come back to the City, and was concerned that the City would become a bank. Officer Muggli replied that she will talk with City Attorney Rice and see if the City of Miles City is structured correctly to adopt this process.

Committee Member Hollowell asked who would be responsible for the repayment of the loan. Officer Muggli replied that the City of Miles City would make that decision during the application process.

- * * *Committee Member Hollowell moved to recommend to Council approval of accepting the CDBG-ED revolving loan fund grant. The motion was seconded by Chairperson Galbraith and, on roll call vote, passed unanimously 4-0.*

Review Resolution No. 3741: A Resolution Authorizing The City Of Miles City To Enter Into A State-Local Disaster Assistance Agreement With The State Of Montana For The Purpose Of Accepting A Hazard Mitigation Grant To Assist In Funding The City's Flood Control Assessment

Grant Writer/Planner in Training Colton explained that the grant would be an addendum to the flood study grant. This grant would help update Custer County Multi-hazard Pre-disaster Mitigation Plan, which does not specifically address the entire area for the City of Miles City. Custer County's plan only addresses Custer County. By accepting this grant, the study being completed by KLJ will cover all areas needed in Custer County. The grant has a 25% match, which has already been covered by invoices paid to contractors.

- * * *Committee Member Hollowell moved to recommend to Council approval of Resolution No. 3741. The motion was seconded by Committee Member Andrews and, on roll call vote, passed unanimously 4-0.*

Review Ordinance No. 1277:

Pulled from agenda

Adjournment

There being no further business, Committee Member Hollowell moved to adjourn the meeting, seconded by Committee Member Andrews. The meeting was adjourned at 5:40 p.m.

Respectfully Submitted:

Chairperson Susan Galbraith

City Clerk Lorrie Pearce

Flood Control Committee September 4, 2014

The **Flood Control Committee** met Thursday, September 4, 2014, at 6:00 p.m. in the City Hall Conference Room. Present were Committee Chairperson John Hollowell, Committee Members Dwayne Andrews and Ken Gardner. Also present was Floodplain Administrator Sam Malenovsky, Councilperson Sue Galbraith, EAP Coordinator/Dam Safety Outreach Adam Powers, Mayor C.A. Grenz and Recorder HR/Payroll Officer Billie Burkhalter. Sheena Martin was excused.

1. Request of Citizens/Public Comment

-None.

2. Discussion of Letter of Map Amendment (LOMA) in the floodway for Milwaukee Park Addition, Block 4, Lots 1-6 and 17-22 (on Truscott Street)

Floodplain Administrator Malenovsky explained to the Committee that for certain letter of map revisions a "Community Acknowledgement" form is needed, such as in the case of Kathy Doeden's property. Administrator Malenovsky would need to sign off on this form to allow Mrs. Doeden to proceed in getting a LOMA in the floodway. Administrator Malenovsky presented the Committee with the packet that would be presented to FEMA. She then questioned the Committee if they wanted to have input on these situations prior to her signing the Community Acknowledgment form. Administrator Malenovsky stated the fill and one of the structures were done pre-FIRM (Flood Insurance Rate Map) and done correctly in the 1970's. Mrs. Doeden stated she is not below BFE (Base Flood Elevation) in certain areas of her land, as shown on the survey report, and has had HKM Engineering prepare the application.

Committee Member Andrews and Gardner both stated that they did not have a problem with the Floodplain Administrator signing the Community Acknowledgment form as everything has been done correctly and is pre-FIRM. Chairperson Hollowell instructed Administrator Malenovsky to proceed.

3. Discussion on Joint Project with Silver Jackets Concerning an Emergency Action Plan for Levee and Table Top Exercises.

Adam Powers, EAP Coordinator / Dam Safety Outreach introduced himself to the Committee and explained that his expertise is in emergency preparedness and creating emergency action plans. He explained the Silver Jackets program is essentially a combination of Federal, State and local partners. They have a wide breadth of coordination activities that they try to incorporate in dealing with mitigation of flood problems throughout the state. Part of their job is to find out who is the best agency to take the lead on a project in a community and to move projects forward.

EAP Coordinator Powers stated that Miles City's biggest concern is that the levy system is not certifiable between the CORP and FEMA, which results in rate increases. He explained the Project Assessment for Miles City will take years but, in the meantime, his department and the Silver Jackets want to work on lowering insurance rates in the community. Part of this process is to get points towards the Community Rating System (CRS). One way to do this is to create an Emergency Action Plan (EAP) for the levy system. This plan would pinpoint potential failures in the levy, determine what critical infrastructure would be impacted, establish evacuation zones, and implement notification and warning systems. The final portion of the plan would be to conduct a walk-through exercise for the Community.

To start the process of the EAP, he has submitted an application to the Corp of Engineers for its assistance in mapping scenarios of a levy breach. The EAP would also incorporate numerous other agencies, such as the Department of Natural Resources (DNRC), County Emergency Management, and the Local Emergency Planning Committee (LEPC). Administrator Malenovsky stated that she also plans on involving the Program for Public Information (PPI), along with Public Works Director Scott Gray, Public Utilities Director Al Kelm and Planner-in-Training Dawn Colton.

Administrator Malenovsky stated implementing this Emergency Action Plan would be well worth the City's time, and effort. It would not require any additional funding from the City, only the employees time.

Committee Member Andrews stated the Floodplain Administer has always done very well in building CRS points for the City, and questioned how many points this would be worth. Administrator Malenovsky explained that between the levy system and having a floodplain response plan, it would be around 600 points. She further stated that this would get Miles City to the next level, plus another 100 points. Administrator Malenovsky stated Miles City is currently a "Class 8", but she will be submitting more information this month to the Insurance Services Office (ISO), which she believes will bring Miles City to a "Class 7."

Administrator Malenovsky explained to the Committee that along with the Flood Assessment Study, they are also looking into conducting a Hazard Mitigation Plan (HMP,) which is separate from an Emergency Action Plan. Mr. Powers explained that there are significant differences between a Hazard Mitigation Plan and an Emergency Action Plan. The Hazard Mitigation Plan comes down to what actions a City can take to create mitigation measures, and reduce or eliminate the hazard. The Emergency Action Plan is an operation based plan and establishes what action a community is going to take to shore up water if there is a failure.

Administrator Malenovsky explained both plans will give the City CRS points to lower flood insurance rates.

4. Committee Members' Comments

-None.

5. Adjournment

****** *Committee Member Andrews moved to adjourn the meeting, seconded by Committee Member Gardner and passed unanimously, 3-0.*

There being no further business, the Committee adjourned at 6:35 p.m.

Respectfully Submitted,

Flood Control Committee Chairperson

Billie D. Burkhalter, Recorder

John Hollowell, Chairperson

Flood Control Committee

September 10, 2014

The **Flood Control Committee** met Wednesday, September 10, 2014, at 6:00 p.m. in the City Hall Conference Room. Present were Committee Chairperson John Hollowell, Committee Members Dwayne Andrews, Ken Gardner and Sheena Martin. Also present was Floodplain Administrator Sam Malenovsky, Councilperson Partridge, Councilperson Galbraith, KLJ Engineer Project Manager Carl Jackson, KLJ Lead Engineer Joel Paulsen, KLJ Government Relations and Financing Specialist Molly Sullivan and Recorder HR/Payroll Officer Billie Burkhalter.

1. Request of Citizens/Public Comment

-None.

2. Discussion with KLJ

a) Public Meeting

There was discussion concerning the second public meeting that had been set for October 2nd, 2014. It was decided that the Committee and Representatives from KLJ did not want to proceed without the attendance of the Floodplain Administrator, as they require her input. The public meeting will be scheduled at a later date.

KLJ Project Manager Carl Jackson stated for the record that Administrator Malenovsky has been engaged in this whole process a 1000%, she did a very thorough review of their draft report and her input has been invaluable.

b) Flood Mitigation Feasibility Report

- *Pages 1-81 of the Flood Mitigation Feasibility Report – Draft are attached. To obtain the full report please log on to:*

["www.milescityfloodassessmentstudy.com"](http://www.milescityfloodassessmentstudy.com)

KLJ Engineer Joel Paulsen, explained the "Flood Mitigation Feasibility Report" is very preliminary in nature and emphasized that the study is not intended to be an engineering report. The Flood Mitigation Feasibility Report is a decision making document that contains public and agency input that will aid the City Council in making a decision with moving forward with a flood control solution for Miles City.

Engineer Paulsen briefly highlighted the following information in the report:

Flood Vulnerability:

- Miles City is the #1 ice jam capital in the lower 48 States.
- There are two principle areas that are causing the ice jam to occur:
 1. The Tongue River thaws before the Yellowstone River, when the confluences come together the Tongue River ice starts backing up against the Yellowstone River ice. The ice does not allow water to flow; this will cause the water level to rise very quickly and significantly. This is the biggest concern due to the limited amount of time there is to intervene and break down the ice jam.
 2. The second location is down stream of Miles City, where the river has been constricted by development. When looking at an aerial view of the Yellowstone River it gets very skinny around Miles City. Then when it spreads out downstream there is a geological change in that the bank goes from sand to a hard pan that does not erode away. The water velocity is lowering and everything is settling out of the stream of water. Ice jams then start to build up in the shallow areas. Fortunately, the Yellowstone River has a much larger floodway than the Tongue River, so it does not rise as rapid but there is still a significant risk.

Data Collection:

- Engineer Paulsen explained one of the biggest pieces of data that was beneficial to their report was gaining access to the GIS data from the Corp of Engineers. They used a model that was originally created by the CORP, and input it into their prospective alternatives to analyze the hydrologic effect. What they found was very encouraging as there is very little upstream impacts or downstream impacts for doing a project in Miles City.

Flood Mitigation Alternatives:

- Engineer Paulsen explained the report outlines several different alternatives for flood mitigation in Miles City.
 1. Do Nothing
 2. LOMAs – Letter of Map Amendments
 - Administrator Malenovsky stated there are approximately 140 LOMA that have been filed, which is a lot for a town.
 3. Letter of Map Change by using a 2D model
 4. Reconstruct Levee System 100-Year Flood
 5. Reconstruct Levee System 500- Year Flood

4. Committee Members' Comments

Committee Member Andrews stated that the only thing that is going to sell this to the people in Miles City is that they need to feel that they are going to get a very significant reduction in their flood rate premiums. They are going to have to be convinced that this is going to be an effective economic way to reduce costs.

5. Adjournment

KLJ Engineer Project Manager Carl Jackson stated that he really appreciated the Committees feedback and involvement in this process. If they have any questions or concerns to not hesitate to contact his firm. Engineer Jackson stressed how important this is to Miles City and how important it is to bring a good product to the citizens.

*** Committee Member Andrews moved to adjourn the meeting, seconded by Committee Member Gardner and passed unanimously, 4-0.*

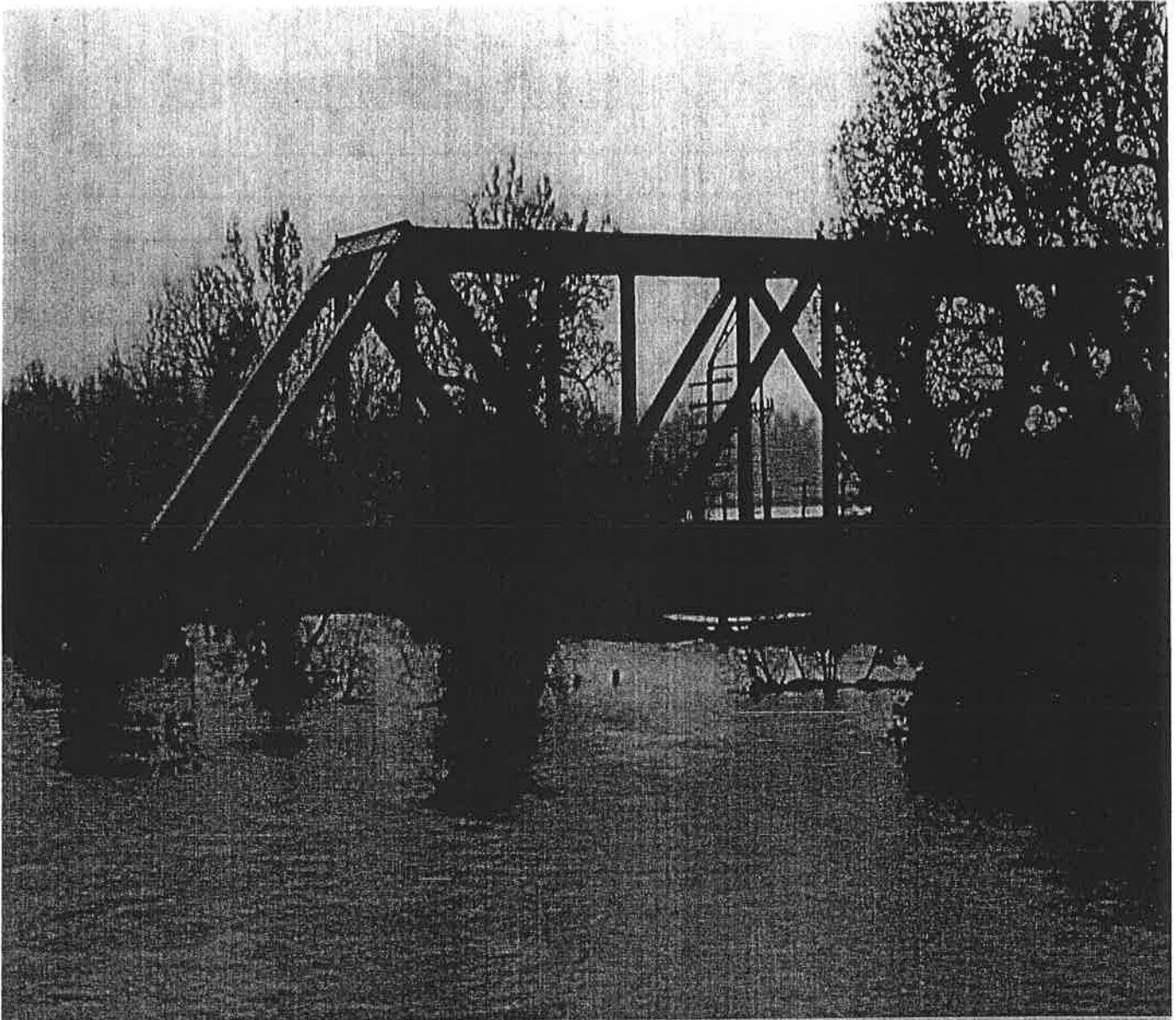
There being no further business, the Committee adjourned at 8:00 p.m.

Respectfully Submitted,

Flood Control Committee Chairperson

Billie D. Burkhalter, Recorder

John Hollowell, Chairperson



Flood Mitigation Feasibility Report

Prepared for Miles City, MT

DRAFT

8/29/14



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Appendices

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Appendix 4: 2014 Soil Bore Logs from Existing Levee

Appendix 5: Cost Estimate for New Levee

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BFE	Base Flood Elevation
CDBG	Community Development Block Grant
CLOMR	Conditional Letter of Map Revision
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
DNRC	Montana Department of Natural Resources and Conservation
EA	Environmental Assessment
EIS	Environmental Impact Study
Elev.	Elevation
EPA	Environmental Protection Agency
FDPA	Flood Disaster Protection Act
FEMA	General Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FT	Feet
GDR	Geotechnical Data Report
GIS	Geographic Information System
HEC-RAS	Hydrologic Engineering Center River Analysis System
HFIA	Homeowners Flood Insurance Affordability Act
HMGP	Hazard Mitigation Grant Program
HUD	US Department of Housing and Urban Development
LCR	Levee Certification Report
LiDAR	Light Detection and Ranging
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision
LP III	Log-Pearson Type-III
MDT	Montana Department of Transportation
NAIP	National Agricultural Imagery Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGVD29	National Geodetic Vertical Datum of 1929
NPDES	National Pollution Discharge Elimination System
NWI	National Wetlands Inventory
NRCS	Natural Resource Conservation Service
O&M	Operations and Maintenance
OPC	Opinion of Probable Cost
PMR	Physical Map Revision
PRP EE	Preferred Risk Policy Eligibility Extension
ROW	Right-of-Way
SCS	Soil Conservation Services
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office

T&E	Threatened and Endangered
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WPA	Work Progress Administration
WSEL	Water Surface Elevation

Summary

Miles City, MT has recognized a need to development a Flood Mitigation Feasibility Report for the Yellowstone and Tongue Rivers to assess flood risks and floodplain regulator issues. They retained the consulting engineering firm of KLJ, Inc., to assist them in determining feasible alternatives to decrease flood risk and reduce the regulator burden on the community. Recently there has been increased pressure from the community to develop a solution to ease the financial burden for residents of Miles City and surrounding areas of Custer County who are mapped in the SFHA, consideration was given to alternatives that would remove the affected properties from the SFHA. The major effort of this study was centered on the area, looking downstream along the rivers, contained by the right overbank of the Tongue River from the golf course north to the confluence of the Tongue River and the Yellowstone River, the left overbank of the Tongue River from the Old Milwaukee Railroad Bridge to the confluence of the Tongue River and the Yellowstone River, and the right bank of the Yellowstone River from the water plant to the eastern city limits, a distance of approximately 5.5 miles.

The results of this report indicate there is significant risk of flooding, principally induced by ice-jams at the confluence of the two rivers and just downstream of the eastern city limits. However, multiple solutions to mitigate and minimize flood risk and reduce the regulator burden are identified as feasible possibilities. The alternatives producing the highest cost benefit (in relation to reduced flood insurance premiums) as well as having the largest decrease of flood risk are structural flood control projects along the right bank of the Tongue and Yellowstone Rivers as well as the city water plant. The most current modeling of the two rivers was completed by the United States Army Core of Engineers (USACE), which was reported in the 2007 FIS. This model was obtained by KLJ and multiple structural flood control elements were added for each proposed structural alternative to assess upstream, downstream, and floodway impacts. The plan developed by this report contains recommendations for channel improvements, hydraulic structural improvements and flood control levee embankments.

This study is intended to be of a preliminary nature. A broad overview and preliminary structural analysis of levee and floodwalls, as well as hydraulic structures was performed and the preliminary results were noted. Because the analysis was not detailed enough for design purposes, exact

conclusions should not be finalized on the basis of these results alone. However, this report is intended to give high level cost, schedule, and scope of the feasible alternatives.

KLJ has laid out 5 alternatives, with each alternative having varying degrees of benefits and costs. The 5 alternatives reviewed by KLJ gives the City a broad range of potential options to consider to alleviate regulator economic burdens as well as potential decreasing the risk of severe flooding.

1 Introduction

A Flood Mitigation Feasibility Report for Miles City and surrounding developed areas of Custer County was conducted by KLJ, Inc. (KLJ). This flood mitigation study involved assessing the flood mitigation need, identifying a range of flood mitigation alternatives, conducting a screening of alternatives and soliciting public involvement and input.

1.1 Study Area

Miles City, MT is located at the confluence of the Yellowstone and Tongue Rivers in Custer County, eastern Montana as shown in Exhibit 1 in Appendix 1. The Yellowstone River has its headwaters at Yount Peak in the Absaroka Mountain Range outside the southeast boundary of Yellowstone National Park. It then flows northeasterly through Montana and into North Dakota to its confluence with the Missouri River in McKenzie County, as shown in Exhibit 2 in Appendix 1. The Tongue River is a tributary to the Yellowstone, whose headwaters start in the Big Horn Mountains in Wyoming. The Tongue River flows north through eastern Montana until meeting with the Yellowstone River at Miles City. The principal area of focus for the study is shown in Exhibit 3 in Appendix 1. While the Study is centered about Miles City, areas upstream and downstream were considered to assess impacts of the proposed alternatives.

1.2 Historic Notes

The USGS and USACE have documented a long history of flood events at Miles City. There have been 19 recorded flood events since 1882, with 8 being major floods resulting in documented property and infrastructure damage. The two most damaging floods occurred in 1929 and 1944, and the high water marks are indicated in Exhibit 4 in Appendix 1. In 1936, an embankment was constructed by the WPA to protect against a flood equal to the 1929 peak (Department of the Army U.S. Army Engineer District, Omaha, 1978). Additional embankments have been added by local interests in 1950 and 1974 as well. However, during the 1944 flood, the WPA embankment failed and was overtopped and undermined in multiple locations as indicated in Exhibit 6 Appendix 1. It is estimated that the damages from the 1944 flood event were equivalent to \$3.3 million in current dollars. In 1948, the *“Study of the Yellowstone River Basin and its Tributaries”* was prepared by the USACE. Within the report, the USACE recommended a local flood protection project at Miles City due to the extreme risk of ice jam flooding at the confluence of the two rivers. Documents show that the public support for the project could not be gained and the USACE subsequently placed the project in an inactive status in 1961. In 1969, the USACE initiated a restudy due to renewed local interest. The restudy was complete in 1974 and reaffirmed the authorized levee plan from 1948. An update to the 1974 restudy was completed in 1979 and the USACE

began design on a flood protection project. Additionally, in 1979 the FEMA published its FIS and issued Miles City's first effective FIRM which indicated a large portion of the community as being in the 100-year flood plain and approximately 80% of the community contained in the 500-year flood plain. Exhibits 4, in Appendix 1, shows the historical FIRM. The effective FIRM map was changed in 2010 due to updated river hydraulics and better topographic maps. A comparison shows that the historic FIRM has less inundation during a 100 year flood event, then the current FIRM as found in Exhibit 5 in Appendix 1.

With the implementation of the new FIRM Exhibit 5 in Appendix 1, all mortgage lending to property indicated in the SFHA was required to have a flood insurance policy through the NFIP. Even though the embankments along the river provide some level of flood protection, they fail to meet Federal requirements for levee embankments and are not considered when mapping the 100 year floodplain. As the USACE progressed with its design in 1979 to construct certified Federal levee's, Miles City was unable to acquire the proper ROW for the project and in 1983 the USACE placed the project in inactive status. Additional efforts to engage the USACE have occurred between 1983 and 2013, but for various reasons the project remains inactive.

In 1996, the USACE, at the request of the City, surveyed the WPA embankment and local extensions to determine if the existing embankment could be included in the Public Law 84-99 Rehabilitation Assistance Program. This program provides funding from the federal government to repair flood control structures after a flood event. However, due to numerous design deficiencies noted by the USACE, the existing embankments were determined to be ineligible.

The USACE completed revisions to the effective FIS in 2007. The revisions included new BFE and flood boundaries developed using composite probability including ice-affected flow conditions on the Yellowstone and Tongue Rivers. The embankments in Miles City cannot be certified in accordance with FEMA's requirements and they were not considered as providing protection from the base flood. Subsequently, FEMA utilized the 2007 Flood Insurance Study to update the effective FIRM map which caused additional areas that had not been in the SFHA to now be included. This change, as well as the changing NFIP flood insurance rates, has created a current state of public discontent in regards to flood control & flood insurance. This discontent has led to the commission of this flood mitigation feasibility report in order to provide accurate and up-to-date information to the local flood control committee. With this information, the committee will be able to make an informed recommendation to the Miles City, City Council for an alternative to increase public safety and decrease the negative effects of floodplain regulations and flood insurance upon the community.

1.3 Historic Flooding

Miles City, as it lies at the confluence of two large, perennial rivers, experiences flooding events regularly. Based on data from the USGS, during the past five years, the Yellowstone River has risen above flood stages on five separate occasions. Flooding events have been well-documented as explained in the 2007 Flood Insurance Study. All costs are expressed in historic dollar figures.

Past Floods

Major floods have occurred in Miles City in the following years: March 1882, March 1888, March 1892, February 1899, June 1918, March 1928, March 1929, and March 1944. Fairly complete information is available on the floods of 1929 and 1944, but no known records of earlier floods are available other than newspaper accounts, old photographs, and verbal accounts of old residents. Minor floods have occurred in Miles City in March 1904, May 1909, March 1912, and September 1923. The records on minor floods are incomplete and studies of flood damages are based on old photographs, newspaper accounts, and verbal accounts of old residents. In the history of all past floods, available information indicated that loss of life due to floods has not been encountered at Miles City.

Flood of March 1882

The only record of the major flood of 1882 is a photograph hanging in the Olive Hotel at Miles City. This shows water flowing through Main Street at an estimated depth of two feet and considerable deposits of heavy ice at the intersection of Main and Fifth Streets. This would indicate that the major portion of the then existing town was inundated with estimated damages of \$2,500. There is a little doubt that an ice jam at the mouth of the Tongue River was the cause of the flood.

Floods of March 1888, March 1892, and February 1899

There are no factual records of these major floods. An estimate of the flood damages based on pictures of these floods, topography of the city, and development of the city gives the following flood damage estimates. March 1888-\$5,000, March 1892-\$10,000, and February 1899-\$30,000. Newspaper accounts mention water flowing down Main Street which indicates a flood of somewhat smaller magnitude than the area flooded in March 1882. All three floods were caused by ice jams at the mouth of the Tongue River.

Flood of March 1904

On March 10, 1904 an ice jam at the mouth of the Tongue River backed water up Main Street to as far as 8th Street intersection, damaging a few frame business buildings and flooding a number of homes. The reported damages resulting from this minor flood are \$5,000.

Flood of May-June 1909

The minor flood of 1909 resulted from snowmelt in the mountains and rains in late May and early June. The Tongue and Yellowstone Rivers were at flood stages but no damages were reported in newspaper accounts so it was assumed the extent of damages is about \$2,000 caused by flooding of a few homes on "The Island". Newspaper files indicated previous to the flood stage of the Yellowstone that Miles City had anticipated a serious flood with extensive damages.

Flood of March 1912

A minor flood caused by an ice jam and high water in the Tongue River Valley was reported in March 1912. Very little damage was reported at this time. The estimated amount of damage for this flood was \$1,000 resulting from the inundation of several basements.

Flood of June 1918

The major flood that occurred during June 1918 was caused by a rapid melting of snow in the mountains resulting in extremely high water in the Yellowstone River. The water overflowed its banks into the old channel of the Tongue River and inundated approximately 85 buildings on "The Island" and area adjacent to the old Tongue River Channel. Damages to personal property, buildings, and extra living costs to families forced to leave their homes was estimated to have been \$20,000.

Flood of September 1923

Heavy rainfall in the upper Tongue River Basin caused high water in the Tongue River which resulted in a minor flood. Very little damage was reported. The area flooded was on "The Island" and was of shorter duration than the flood of 1918. Estimated damages of \$5,000 caused by flooding of basements and some low buildings on "The Island" were reported.

Flood of March 1928

An ice jam formed in the Yellowstone River in March 1928 and caused a major flood over the area of "The Island" and the area adjacent to the old Tongue River Channel. The water in most places did not reach the first floors but did flood all basements and damaged foundations. The area inundated in this flood is the same as in the flood of June 1918. With 144 residences damaged in the 1928 flood and 85 residences damaged in the flood of June 1918 at an estimated \$20,000, it is therefore estimated that the damages of this flood were approximately \$38,000.

Flood of March 1929

During January and February of 1929, severe cold weather was experienced at Miles City and ice formed to a depth of about 51 inches on the Yellowstone River. The weather moderated about 1 March and rains up to 0.5 inch fell throughout the Tongue River Valley between 1 March and 5 March. An ice jam formed at the mouth of the Tongue River against the thick ice still in place on the Yellowstone River. The resulting flood was

of major proportions with water backed up a mile southeast of the Northern Pacific R.R. About 50% of the better residential area south and east of Northern Pacific R.R. was inundated. The water rose to a depth which covered the first floor of buildings on "The Island" and low ground were reported flooded to the depth of the eaves. The area between the Northern Pacific and C.M.S.P. & P.R.R was flooded as far as 4th Street. There were approximately 300 residences, a church, and a large school building flooded. The estimated damage from this flood is \$51,600 including damages to residences, buildings, pavements, sewers, and all public property. The city water pumphouse was reported sheared off by ice cakes in this flood.

Flood of March 1944

Rapidly melting snow in the lower reaches of the Tongue River in March 1944 caused the ice to break up and gorge against firm ice on the Yellowstone. Ice gorged on 19 March 1944 along the Yellowstone from a point below State Highway #22 Bridge to the mouth of the Tongue River. The levee built in 1936 was to protect against a flood equal to the 1929 flood intensity. Backwater from the ice jam flowed around the north end of the levee inundating "The Island" area. The water continued to rise, reaching a crest on 20 March causing 4 breaks in the existing levee. Water also flowed through a 222 foot gap in the levee which was never finished because of right-of-way difficulties. The following areas were inundated before flood waters receded: city park, ball park area including large cabin camp, area from 4th Street to Tongue River, area from River Street to old Tongue River Channel, small areas on the east side of old channel on Tongue River, and "The Island".

The flooded area of the city is about the same as for the flood of 1929 except the residential district east of the Northern Pacific R.R. was not flooded in 1944, as the ice jam was concentrated further down the Yellowstone River. Sandbags were placed on the C.M.S.P.&P. spur on 3rd Street prevented inundation of the business district as crest elevations brought the water just to the rails of the spur. During the ice jam, the water rose as much as 38 inches an hour. The breakup of ice in the Yellowstone River was facilitated by the dropping of approximately fourteen 250 pound demolition bombs on the downstream end of the ice jam. Damages consisted of flooding basements and first floors of houses, flooded business property, settling of pavement cracked floor at water plant, inundated county and state highway shops and yard, damage to levee, cost of evacuation and relief of families. A survey of Miles City by Fort Peck District showed that 206 residences, seven businesses, and one small farm were damaged at an estimated cost of \$103,900. (Engineers U. A., 2007)

Additional Floods have occurred in 1949, 1971, 1972, 1974, 1978, 1979, 1994, 1995, 2003, 2004, 2007, 2008, 2011 and 2012.

Figure 1: 1881 Flood in Miles City, Montana (Montana's Flooded Past, 2011)



Figure 2: 1944 Flood in Miles City (Montana's Flooded Past, 2011)



Figure 3: Garfield School 1944 (Montana's Flooded Past, 2011)



Figure 4: Ice Jam 1944 (Montana's Flooded Past, 2011)



Figure 5: Pleasant Street Flooding 1944 (Montana's Flooded Past, 2011)



Figure 6: Milwaukee Railroad Bridge

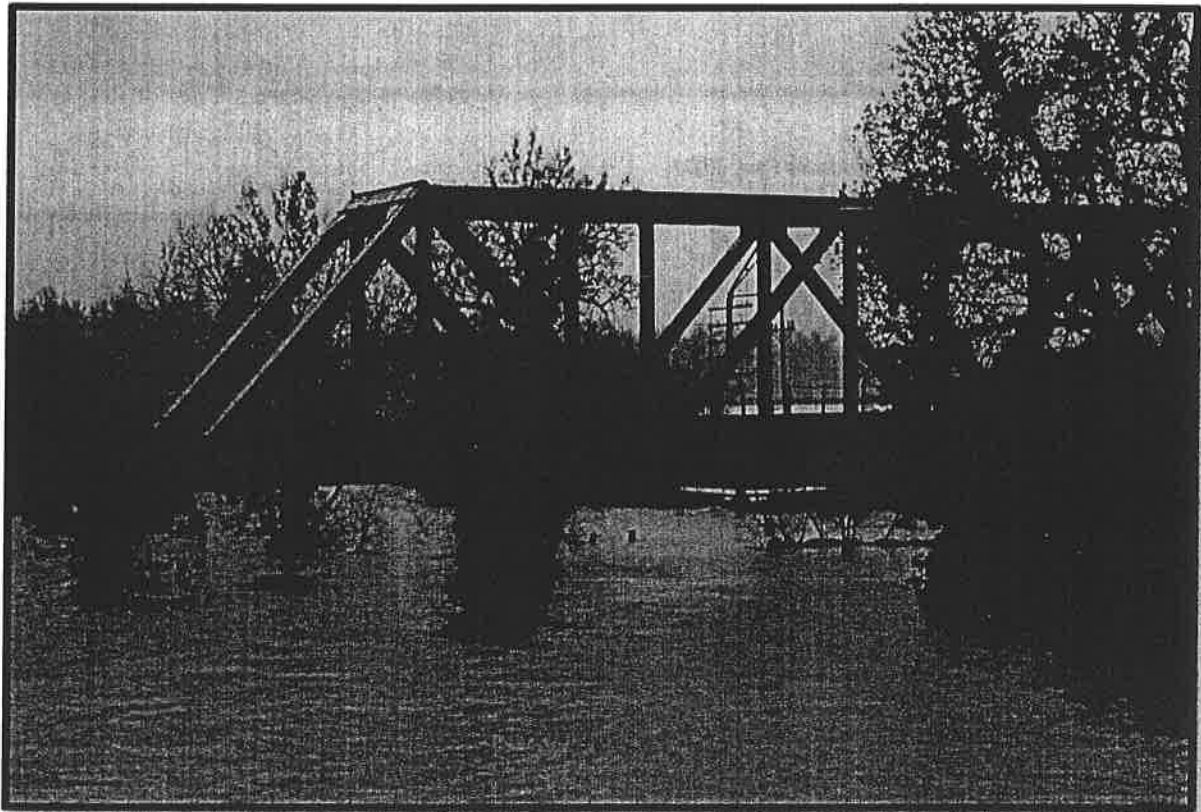


Figure 7: Eroded BNSF railroad embankment during the flood of 2011 (Fitzgerald, 2011)

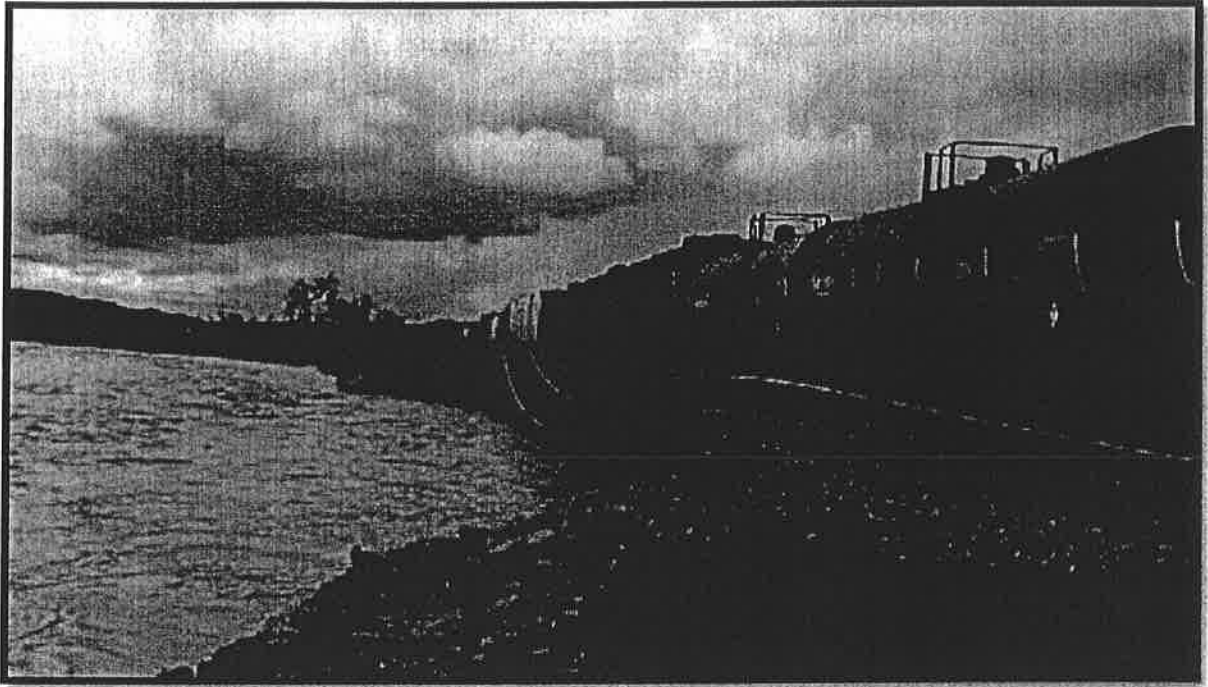
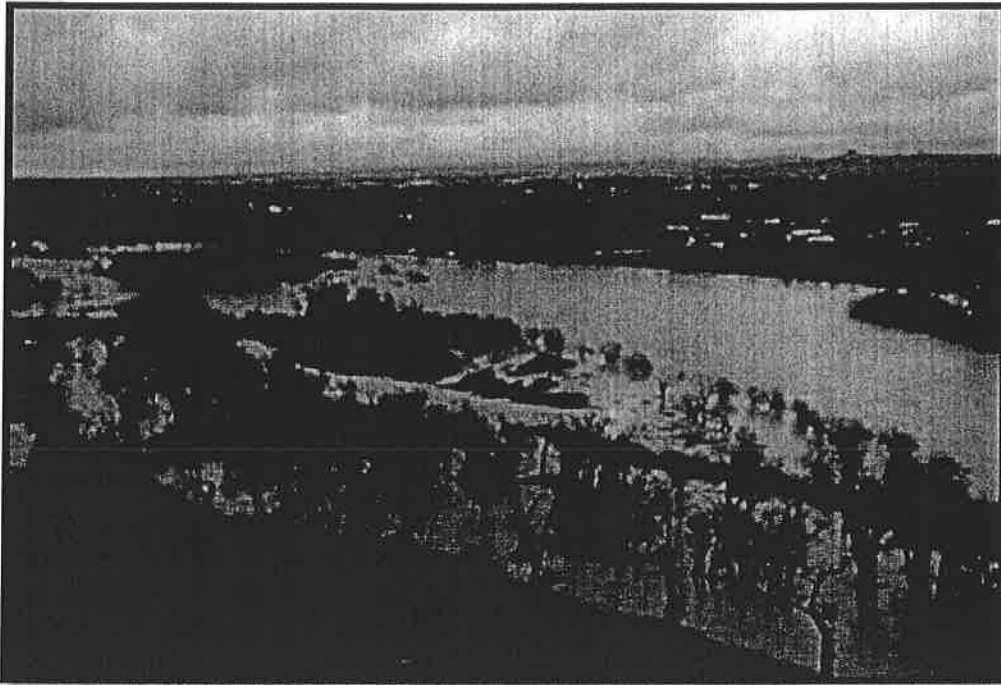


Figure 8: Road overtopped with water near Miles City during the flood of 2011 (Hartman, 2011)



Figure 9: Yellowstone River flooded during the flood of 2011 (Hartman, 2011)



2 Flood Vulnerability

Miles City, MT is located within the natural floodplain at the confluence of the Yellowstone and Tongue Rivers. Drainage basin characteristics for each river vary significantly. For example, the Yellowstone drains an area of approximately 48,000 mi² while the Tongue collects drainage from approximately 5,000 mi². The Tongue is controlled by reservoirs while the Yellowstone flows uncontrolled. The State of Montana updated its Multi-Hazard Mitigation Plan and Statewide Hazard Assessment in November (Division, 2014) 2010. This plan accumulated historic data on flooding within Miles City as well as projected the economic and social effects of a 100-year flood event. Statistics from the State Hazard Mitigation Plan are contained in the discussion below.

2.1 Physical Flood Risks

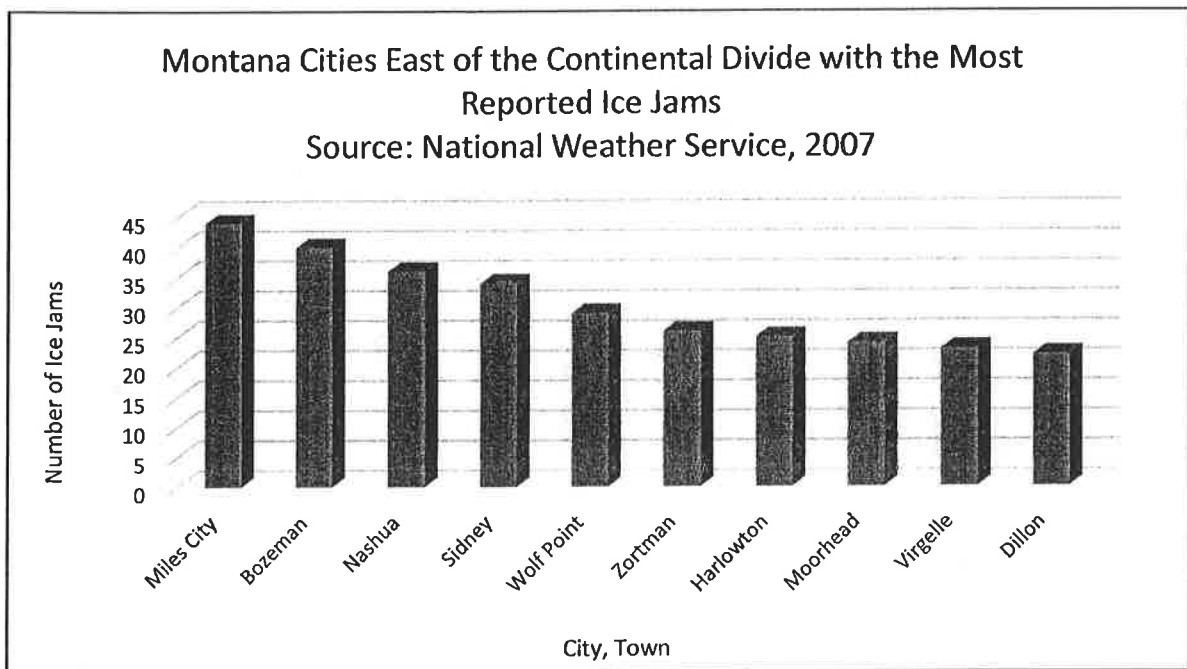
Flooding becomes a risk when communities develop within natural floodplains. If floodplains remained undeveloped, only the most significant and rare events would cause major damage. Flood risk also depends on numerous physical features and local conditions specific to Miles City. Some of the major local conditions that increase the risk of flooding include:

- High incidence Ice jam locations
- Bank Erosion/Water Velocity
- Geomorphology
- Snow Melt and Precipitation
- Floodplain Encroachment

2.1.1 Ice Jamming

Ice jamming occurs when there is prolonged cold periods followed by warm periods that cause the ice to break up on a flowing body of water and restrict the flow of water within a channel. The restriction cause water to back up behind the ice jam at sometimes rapid rates. According the State Multi Hazard Mitigation Plan, Montana has 1,473 recorded ice jams, the most of any lower 48 state. The plan also states that Miles City has the most recorded ice jams (45 in recorded history) of any city in Montana. This makes means Miles City has the highest recorded number of ice jams in the contiguous United States. Figure 11 is a graph depicting Montana’s top ten cities for ice jams.

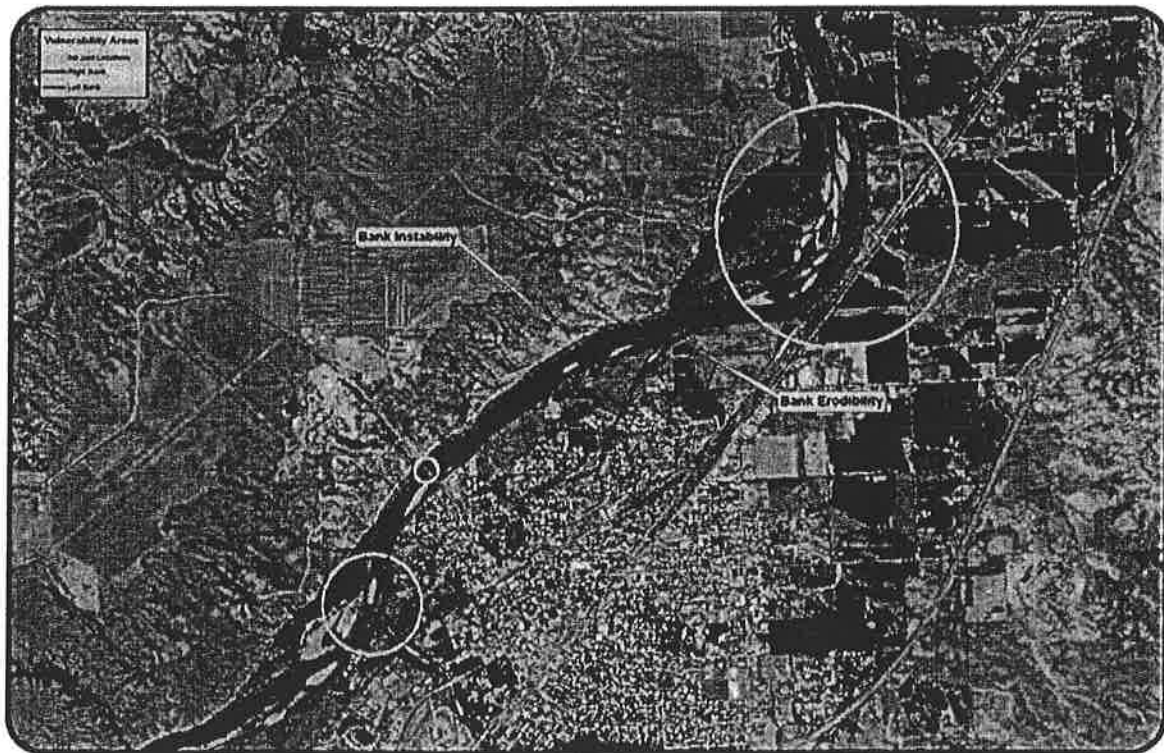
Figure 10: Top Ten Cities in Montana for Ice Jams



Frequent ice jams have been observed on both the Tongue River and the Yellowstone River. The locations indicated on Figure 10 are the most common areas for ice jamming to occur. The confluence of the Tongue and the Yellowstone Rivers presents the highest threat. Many instances of the Tongue River ice breaking up before the Yellowstone have been observed. This causes the ice to block up against the Yellowstone ice and cause the water surface to rise quickly upstream of the confluence. An additional

location is the area just downstream of Miles City where the river channel widens and shallows. Within this area the water velocity and depth of the Yellowstone reduces and allows ice to slow down and restrict flow. The flow restriction causes a backup of water along the Yellowstone and upstream on the Tongue. The Highway 59 bridge over the Yellowstone also has had reported ice jamming issues. All these locations pose significant concern when analyzing the potential flood risk for Miles City.

Figure 11: Vulnerability Map



2.1.2 Bank Erosion and Flood Plain Encroachment

In 1913, the Tongue River Channel through Miles City was shortened approximately 3 miles by the elimination of some bends and the construction of a cut-off to a new point of the existing confluence with the Yellowstone River. These channel improvements, which were accomplished by the Milwaukee Railroad in conjunction with the City, tend to lower open water stages on the Tongue River but have little effect on ice jam floods. The old Tongue River Channel can be seen in Figure 12.

Figure 12: Old Tongue River.



After the elimination of the original channel, the city developed in the floodplain up to the extent of the right bank of the Yellowstone. When the WPA embankment was constructed, see Exhibit 7 in Appendix 1, the river channel was constricted by it. This effectively narrowed the river channel and focused the river into a smaller space, which causes the floods to rise faster, reach greater heights, have a greater velocity, and reach downstream areas faster than if the river were left to its natural floodplain. The resultant increase in velocity raises the potential that bank erosion and embankment damage can occur. These effects were observed and documented during the 1944 flood event. Several areas of the WPA embankment suffered breaches and damage which resulted in the inundation of the old Tongue River channel and surrounding neighborhood. The USACE also has documented damages through the history of the existing embankments "There are several instances where the levee has been undercut and eroded throughout its lifetime" (Department of the Army U.S. Army Engineer District, Omaha, 1978). Exhibit 6 in Appendix 1, shows the locations and the resulting flood damage to the embankment.

Future flood mitigation alternatives should consider proper bank stability, erosion protection or expansion of the floodway adjacent to Miles City. Additionally, north of the Highway 59 Bridge, a significant portion of the western bank of the Yellowstone River (approximately 7 acres of land) sloughed off into the river in the summer of 2011. A narrow part of the river's channel became even narrower. Two aerial photographs of the same area are shown below (Figures 13 and 14). The first image is from aerial photography from the Yellowstone River Corridor Study, taken in 2011. The second is a photograph taken in 2013 from the USDA, as part of the NAIP. As evidenced by the 2013 image, the landmass is slowly eroding away, but continues to block a significant portion of the river channel. A sand bar is forming as well. Water velocities will remain high during periods of flooding for as long as the river is constricted between the landmass and the existing levee system. It is likely that the existing embankment will need to be repaired in this location more often than other locations.

Figure 13: 2011 Aerial Image of Riverbank Failure (Yellowstone River Corridor Study, 2011)

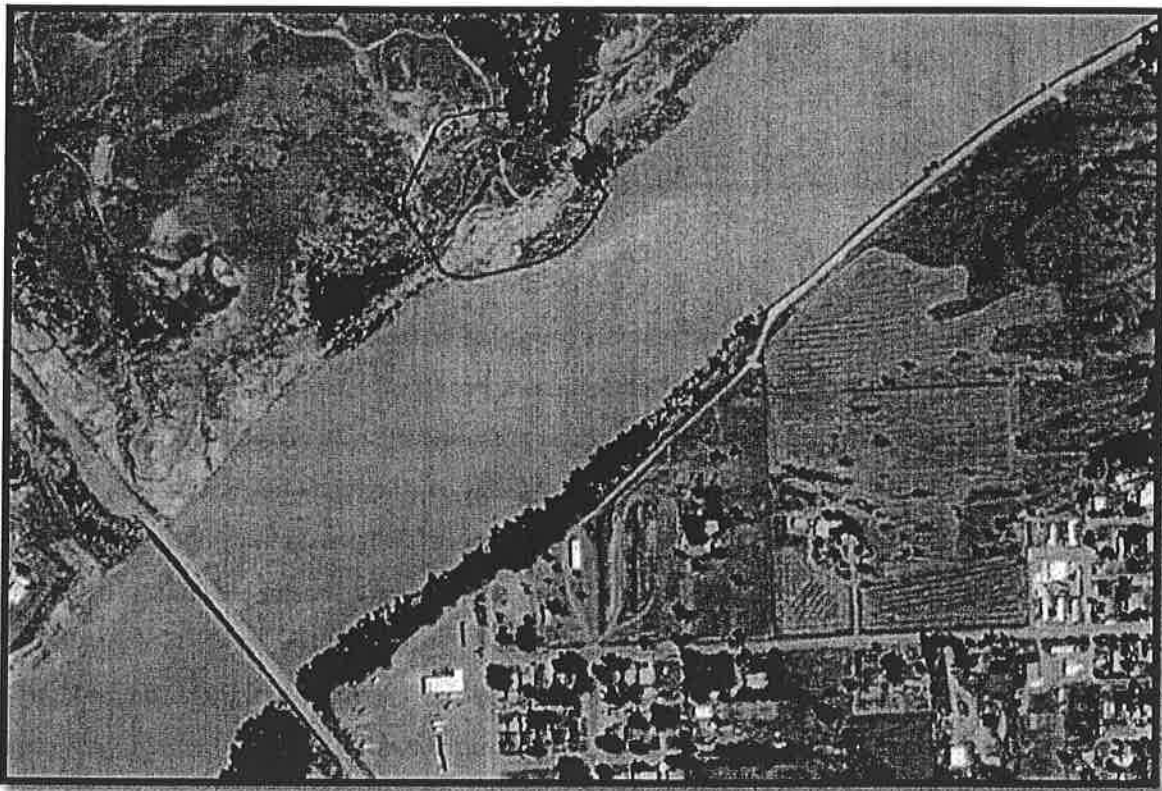


Figure 14: 2013 Aerial Image of Riverbank Failure (NAIP 2013)



2.1.3 Geomorphology

Miles City is located in the unglaciated Missouri Plateau region of the Great Plains Physiographic Province.

This region is characterized by broad, terraced river valley and relatively high interstream uplands which have been progressively dissected and eroded by drainage courses. Overburden materials in the river valleys are primarily recently deposited alluvial clay, silt, sand and gravel deposits. Bedrock is the Fort Union formation of Paleocene age, consisting of sand stone, siltstone and clay shale. (Department of the Army U.S. Army Engineer District, Omaha, 1978)

A review of the USGS Soil Survey also indicates that the soil under Miles City consists of varying formations of silt, sand and gravel deposits (Service, 2014).

These soils have high hydraulic conductivity which allows for groundwater to move and equalize very quickly. This has been observed by the large amount of homeowners with basements that experience seepage during high rainfall events and flooding.

Generally, given the soil types there is a high probability of underseepage that occurs under the existing embankments. This results in a higher risk of embankment failure from erosion of soil, also known as “soil piping” of the underlying soils.

Existing soil bore data was also collected by the USACE but cannot be found due to a building fire where the data was located. This data is referenced in a USACE report discussing proposed levee design:

Forty-six exploratory borings, ranging in depth from 10 to 40 feet, were drilled along the proposed site. Most borings were drilled through the existing levee fill through a relatively impervious natural surface soil blanket. Overburden materials from the borings were primarily alluvial clay, silt, silty, and gravelly sand, and sandy gravel. Lean clay, gravelly clay, or clayey silt deposits we encountered at the surface in the majority of the borings. The gravel in the underlying aquifer ranged in size from fine to course. Although no cobbles or boulders were seen in the borings, they may be present in this stratum. Free water was encountered in most borings. The depth to water varies from 2 feet to 15 feet. Eight borings were drilled to bed rock. The depth to rock varied from about 15 feet to 35 feet. (Department of the Army U.S. Army Engineer District, Omaha, 1978)

KLJ received 13 boring samples from the MDT that were taken along the Tongue River during the Main Street bridge reconstruction. See Appendix 3 for logs of the 13 borings. The bore samples were taken from a relatively small area along the Tongue River, as they were used for a bridge project. The borings show the soil mainly consists of clayey silt, silty sand, and coarse sand and gravel, above the bedrock of silt stone and sandstone.

KLJ also performed six additional soil bores at locations indicated in Exhibit 7 in Appendix 1, to independently verify the solid substrate. The logs of these borings can be seen in Appendix 4. The soil classification matches the information reviewed by the USACE and the MDT and substantiates comments received during the first public meeting and from discussions with contractors and residents in Miles City regarding the large amount of seepage during river flood events.

Generalized soil conditions were developed for representative sections along the river banks. The upper-40 feet of borings were reviewed to determine the Soil type; this was anticipated to be the primary zone of influence for levees and structures (non-bridge structures). The generalized soil profiles were divided among the seven types as listed: sand, sandy gravel, gravelly sand, silt, sandy silt, siltstone and sandstone. A typical soil bore consisted of either fill or topsoil followed by some type of silty soil, such as sandy silt, silty clay, silty sand, silt and clayey silt. The silt layer was then followed by a layer of sand and then gravel. Finally the bed rock was reached and was either siltstone or sandstone. The depth of the bores ranged from 5.9 feet to 131.9 feet deep, with an average of 51.3 feet. The water table depth ranged from 9.8 feet to 24 feet. Based on high hydraulic conductivity of sandy material, underseepage is a primary concern within the river bank area. Without control, underseepage in pervious foundations beneath levees may result in excessive hydrostatic pressures beneath an impervious top stratum on the landside, sand boils (caused when water pressure wells up through sand) and piping of material beneath the levee itself can occur. Underseepage problems are most acute where a pervious substratum underlies a levee, and extends both landward and riverward with a relatively thin top stratum on the landside of the levee. Principal seepage control measures that can be used to mitigate underseepage are cutoff trenches, riverside impervious blankets, landside seepage berms, pervious toe trenches, and pressure relief wells.

2.1.4 Snow Melt and Precipitation

Precipitation and flow monitoring have been studied in detail in both the FIS, Yellowstone River and Tongue River at Miles City, Custer County Montana (USACE 2007) and the Stream flow Statistics for Unregulated and Regulated Conditions for Selected Locations on the Yellowstone, Tongue, and Powder Rivers, Montana 1928-2002. Most of the flooding issues within the city occur during the spring snowmelt runoff combined with ice jamming. Historically, the flooding problems associated with the June snowmelt from the higher elevations in the basin have been minimal; however, the combination of June snowmelt paralleled with a high rainfall has the potential of serious flooding and should be recognized.

2.1.5 Vulnerable Infrastructure

Based on the current FIRM, schools, nursing homes hospitals, businesses and residential homes would potentially be inundated during a 100-year flood. These locations are displayed in Exhibit 8 in Appendix 1 below.

In the event of a flood, emergency measures may need to be taken to protect these buildings in order to provide continuous service. Flood hazard data was obtained from FEMA-generated Hazus analysis of

flooding in Custer County. The flood scenario was for a simulated 100-year flood, and FEMA estimates approximately \$16,000,000 worth of damage to the existing building stock with a majority of the damage occurring within Miles City (Division, 2014). There are also numerous state facilities (i.e. Fish, Wildlife & Parks, Labor & Industry...) within the Miles City flood hazard zones that are vulnerable to flood damages and losses, with the total value of these local owned or state leased facilities have an approximate cumulative economic value of \$5,500,000 (Division, Mt.gov, 2014).

3 National Flood Insurance Program

“100-Year Flood” is a shorthand expression for a flood that has a 1 in 100 chance of being exceeded in any given year. This may also be expressed as the 1% annual chance exceedance flood, or “1% annual chance flood” for short. Similarly, a 200-year flood has a 1 in 200 (or 0.05%) chance of being exceeded in any given year.

In 1968, the NFIP was designed to reduce future flood losses through local floodplain management and to provide protection through flood insurance for property owners against potential losses.

As part of the NFIP, FIRMs are developed to show properties located within a SFHA. SFHAs are defined as the area that will be inundated by the flood event having a 1-% chance of being equaled or exceeded in any given year. The 1-% annual chance flood is also referred to as the base flood or 100-year flood. The mapped area for the 1-% annual chance flood is commonly referred to as the 100-year

floodplain. Miles City, MT has effective FIRMs and currently there are approximately 3,650 parcels contained within the SFHA.

3.1 Local Flood Insurance Impacts

Flood insurance premiums can be a significant impediment to the continued growth of a city. Excessive premium costs will discourage new businesses and residents from purchasing land in the floodplain. The costs of premiums have been increasing, and will continue to rise. On July 6, 2012, the Biggert-Waters Flood Insurance Reform Act of 2012 was signed into law. The main driving point of the Biggert-Waters Act was the extension of the NFIP until September 30, 2017. This law also amended the National Flood Insurance Act of 1968 and the FDPA of 1973. The Biggert-Waters Act slowly phases out flood insurance subsidies by incrementally increasing premiums until they reach the full actuarial cost. This will affect the Pre-FIRM (a building for which construction or substantial improvement occurred on or before December 31, 1974, or before the effective date of an initial Flood Insurance Rate Map) Zone A, “grandfathered”, and PRP EE policies and the Post-FIRM (a building for which construction or substantial improvement occurred after December 31, 1974, or on or after the effective date of an initial Flood

Insurance Rate Map, whichever is later) PRP EE policies. However, in spring 2014 congress passed the HFIA which reversed some of the changes to the NFIP introduced by the Biggert-Waters Act. The HFIA provides refunds for people who have had large flood insurance rate increases due to the sale or purchase of a home; it also caps the average annual premium increase at 18 % and allows subsidies for insurance rates that are based on current flood maps.

Currently Miles City, MT stands as the largest flood insurance policy holder in the state. The community represents approximately 23 % of all flood insurance policies within Montana. 91 percent of policies in Miles City are Single Family policies. This is consistent with the Montana statistics, where the state average is 87 %. The total number of insurance policies in place for Miles City as of December 2013 is 1,312. These are policies that are within city limits; there are also numerous policy holders in surrounding developed areas of Custer County. Based on preliminary analysis, a new levee system may have the potential to remove almost all parcels in the floodplain that it would protect.

%%%%The current annual premiums the policies holders within Miles City pay is approximately \$625,000 per year for flood insurance premiums. The numbers are calculated from data obtained from FEMA and averages are shown in Table 1.

Table 1: Average Miles City Flood Insurance Rates

Miles City, MT Flood Insurance Policies as of December 2013				
Policy Type : Single Family	Policies Pre-FIRM	Annual Premium	Polices Post-FIRM	Annual Premium
ZONE A	316	\$ 723.00	11	\$ 670.00
Grandfather	126	\$ 176.00	23	\$ 342.00
PRP EE	581	\$ 346.00	48	\$ 383.00
PRP	79	\$ 311.00	6	\$ 365.00
Total	1102	\$ 476,239.00	88	\$ 35,810.00
Policy Type : 2-4 Family	Policies Pre-FIRM	Annual Premium	Polices Post-FIRM	Annual Premium
ZONE A	9	\$ 868.00	0	N/A
Grandfather	9	\$ 71.00	2	N/A
PRP EE	14	\$ 344.00	4	N/A
PRP	1	\$ 414.00	1	N/A
Total	33	\$ 13,681.00	7	N/A
Policy Type : Other Residential	Policies Pre-FIRM	Annual Premium	Polices Post-FIRM	Annual Premium
ZONE A	4	\$ 577.00	1	N/A
Grandfather	1	N/A	1	N/A
PRP EE	2	N/A	1	N/A
PRP	1	N/A	1	N/A
Total	8	\$ 2,308.00	4	N/A
Policy Type : NON-Residential	Policies Pre-FIRM	Annual Premium	Polices Post-FIRM	Annual Premium
ZONE A	25	\$ 1,348.00	4	\$ 544.00
Grandfather	25	\$ 1,963.00	6	\$ 407.00
PRP EE	5	\$ 1,113.00	4	\$ 884.00
PRP	0	N/A	0	N/A
Total	55	\$ 88,340.00	14	\$ 8,154.00

Table 1 above shows the number of polices broken down by policy type (e.g. Single Family, Non-residential, etc.). These are split into two categories: the Pre-FIRMs and the Post-FIRMs. They are then

further categorized by policy classifications: Zone A, Grandfathered, PRP EE and PRP. In Miles City, the overwhelming majority of policies are single family homes, Pre-FIRM. The rates for these could increase %in the future depending upon changing Federal regulations. This could be a substantial increase in total yearly premiums. If a proposed flood control project were to move forward and provide protection from the 100-year event, the premiums that Miles City residents pay would be significantly decreased and the requirement for mandatory flood insurance policies would be waived.

4 FEMA Levee Accreditation Requirements

For the levee to be recognized as providing the 1%-annual-chance level of flood protection on NFIP maps, protection systems must meet, and continue to meet, the minimum standards set forth in Title 44 of the CFR Section 65.10 for the following three categories:

- Design
- Operation
- Maintenance

4.1 Design Criteria

For levees to be recognized by FEMA, evidence that adequate design and sound engineering practices have been followed must be provided. Minimum requirements for the following categories must be met

- a. Freeboard
- b. Closures
- c. Embankment protection
- d. Embankment and foundation stability
- e. Settlement
- f. Interior drainage

4.2 Operation Criteria

A formal plan of operation, including specific actions and assignments of responsibility by individual name or title, must also be developed for each system. Minimum requirements for the following categories must be met in the operation plan:

- a. Documentation of flood warning system
- b. Formal plan of operation
- c. Periodic operation of closures
- d. Internal drainage plan, including manual backups
- e. Periodic inspections

4.3 Maintenance Criteria

A formal plan of maintenance must be officially adopted, and a copy of the plan provided to FEMA by the owner of the levee system. Minimum requirements for the following categories must be met:

- a. Activities to be performed
- b. Frequency of their performance
- c. Person by name or title responsible for their performance

4.4 Levee Certification

If appropriate documentation is certified by a Registered Professional Engineer to show that a levee system meets these three categories, FEMA will "accredit" the levee system and will revise the effected FIRM panel to show the impacted area landward of the levee system as having a moderate flood risk. FEMA will label the levee-impacted area as Zone X (shaded). Flood insurance is not mandatory in Zone X areas.

5 Coordination and Input

Stakeholders had opportunities to provide input several times throughout the Feasibility Study. Meetings, emails, phone conversations, a project website, email newsletters, press releases and written communication were all utilized as a conduit between stakeholders and KLJ throughout the process of the study. Much of the daily contact was on an informal basis, including obtaining data and sharing information. Press releases, media briefings, public meetings and major agency briefings were handled via a more formal process.

5.1 Miles City

The primary stakeholders for this Study are the residents of Miles City and the surrounding community. Throughout the Study, KLJ coordinated with Miles City public works staff, the Flood Control Committee, The Mayor and General Council. The public input process, as part of the Miles City Flood Control project, is a critical component in reaching a realistic, feasible and palatable long-term solution for the community. Public input has been actively sought, through multiple mediums, on an ongoing basis throughout the duration of this study.

5.2 Project Website

A project website was established as a primary communication tool and platform to allow the public access to maps, reports and other important project-related content. The website also features a comments section where site visitors can express their opinions on the flood assessment study. A slideshow of Miles City photos was also compiled and shared on this site. This site has been updated as

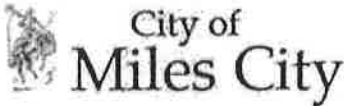
additional project information has become available and will continue to be updated as the project progresses (see Figure 15 for website example). For further information on the project website, visit www.milescityfloodassessmentstudy.com.

Figure 15: Miles City Study Website



5.3 Press Release

In preparation for the initial Miles City Flood Assessment Study public input meeting, the following press release was drafted and published in the Miles City Star. This method of public communication was used to access and educate the largest Miles City audience in regard to the March 6, 2014 upcoming public meeting.



**City of
Miles City**

Contact Sam Malenovsky
Telephone 406-234-3493
Email smalenovsky@milescity-mt.org
Website Milescity-mt.org

FOR IMMEDIATE RELEASE
February 26, 2014

MILES CITY FLOOD PROTECTION

Public Information Meeting

Miles City, MT, February 26, 2014— Miles City will be hosting a public information meeting related to the flood assessment study on Thursday, March 6, 2014 from 6:00-8:00 at Miles Community College, room 106-107. Drop by for a few minutes or the entire session. The consultant team invites the public to work alongside engineers and city staff to gain an understanding of the potential flood issues and impacts facing Miles City.

6:00 pm Overview of Flood Control History and Current Plan
6:45 pm Word Breakout Sessions
7:45 pm Closing and Next Steps

If you would like more information about this topic, please contact Sam Malenovsky at 406-234-3493 or email at smalenovsky@milescity-mt.org.

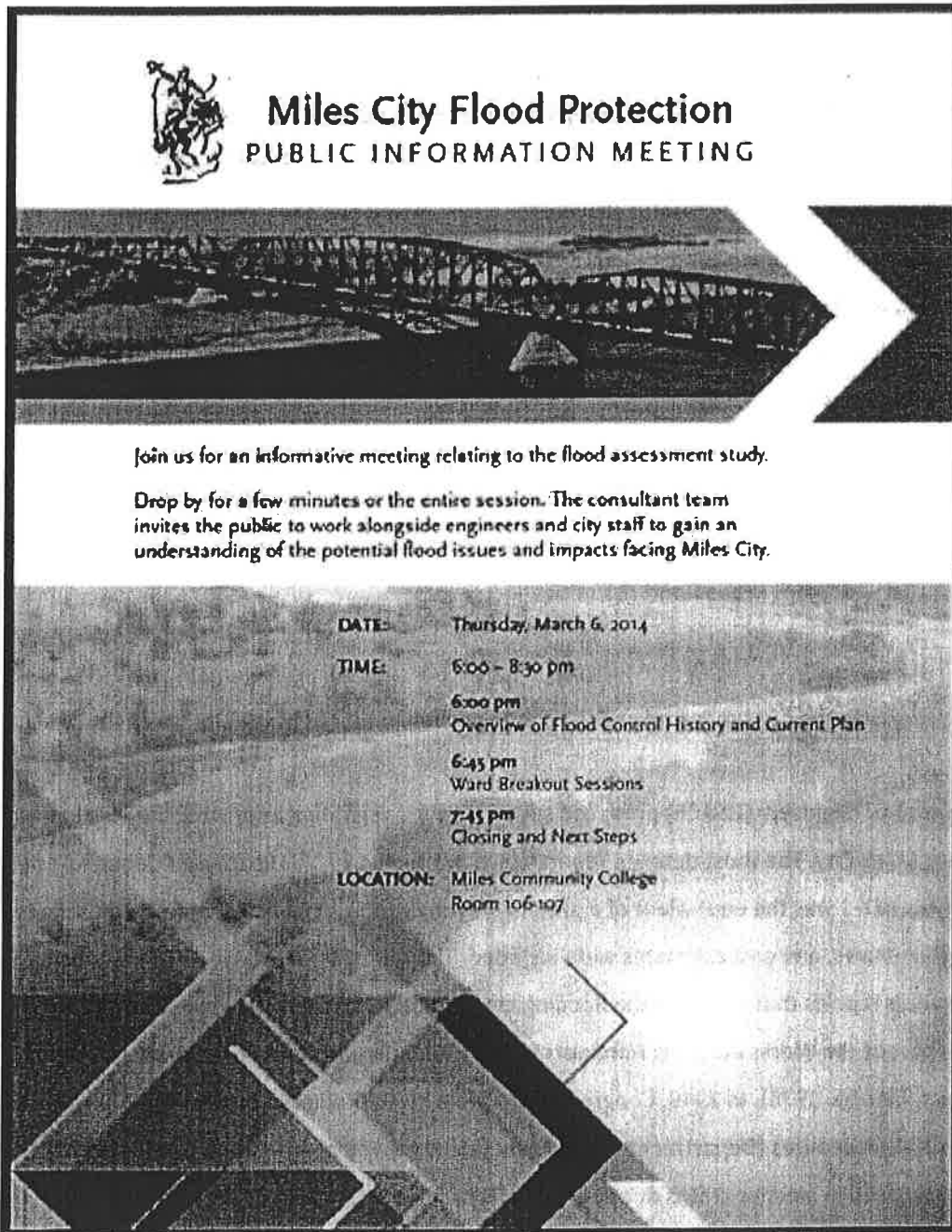
Media Outlet Instructions

Dear Media Representatives:

With a short publication timeline for this meeting, Miles City would appreciate it if you could publicize this event daily between now and the date of the event as your media channels allow.

5.4 Informational Flyer

In addition to the press release discussed above, an informational flyer was also produced and distributed to raise awareness of the March 6, 2014 public input meeting. This promotional piece was shared around the community and resulted in helping to generate an outstanding turnout at the public input meeting.



5.5 Public Input Meeting

The initial Miles City Flood Assessment Study public input meeting was designed to serve as a discussion platform, through which engaged residents had the opportunity to voice their questions, concerns and suggestions for the project moving forward. The meeting began with a welcome from Council president and Flood Control Committee Chairperson, John Hollowell, followed by a brief project introduction from Floodplain Administrator Sam Malenovsky. Carl Jackson, Joel Paulsen and Molly Sullivan of KJ then proceeded to lead the meeting participants through a facilitated discussion on the project purpose, technical details of the study and also discussed possible pending federal policy implications.

Given the diverse areas impacted in Miles City, ward breakout sessions were held following the general session outlined above. This meeting format allowed for a free-flow discussion amongst residents, community officials and the KJ consulting team.

Following the ward breakout sessions, all participants regrouped as a whole for a final question and answer session. KJ had several city and ward maps available at the public input meeting to facilitate conversations throughout the evening.

City staff and KJ consultants were pleased by the overwhelming turnout and general success of this initial Miles City Flood Assessment Study public input meeting. A follow-up meeting will be held in September 2014 to present the findings of the Miles City Flood Assessment Study and hone in on details relating to potential next steps in the flood risk mitigation process.

6 Data Collection

This section summarizes the data collected and used in the development of Miles City feasibility study.

6.1 Past Reports

The US Army Corps of Engineers (USACE) produced several reports regarding improving the existing levee protecting Miles City. The most detailed report was published in 1978. The *Phase I General Design Memorandum No. MY-1* was the equivalent of a pre-engineering report. A levee alignment was selected from several alternatives, and cost estimates were included. The report published in 1978 essentially reaffirmed previous reports that analyzed the flooding concerns in Miles City. The levee was initially constructed as part of the Works Progress Administration in 1936 (Department of the Army U.S. Army Engineer District, Omaha, 1978). In 1949, Congress approved a levee project to protect Miles City via USACE Section 204 procedures (Department of the Army U.S. Army Engineer District, Omaha, 1978). This project was placed in inactive status due to a lack of local interest. A restudy report was ordered in 1969 and completed in 1974. The reports produced by the USACE show that the construction of a new levee system along the Tongue and Yellowstone Rivers have a benefit to cost ratio that is greater than

one. That is, the monetary value of the benefits of the levee are greater than the monetary costs of the levee system. The data and concepts contained in the reports produced by the USACE were used as a starting point for this Study.

6.2 Hydraulic Models

The USACE's HEC-RAS (river modeling software) model of the Yellowstone and Tongue Rivers at Miles City was used to estimate water surface elevations throughout the corridor. The consultant team obtained a copy of the model and subsequently rebuilt and calibrated it in order to analyze the effects of the alternatives considered in Section 7.

6.3 As-Built Drawings

Utility drawings, showing water and sewer locations, were obtained from Miles City and used to evaluate infrastructure impacts from the alternatives. Other critical infrastructure drawings obtained include Miles City street plans, and plat maps within the community.

6.4 Geographical Information System (GIS)

The majority of the digital information for the Project is in GIS format. ERSI's ArcMap 10.1 mapping software was used to display and analyze the data. Property information including boundaries, property identification numbers, and ownership information was obtained from Miles City. The data set included parcel information which was used to approximate properties impacted by project alternatives. A table of affected properties was intersected with the City Assessor's property valuation table to compute property acquisition costs through the city. LiDAR survey of the City and County were used as preliminary elevations during project development. This was used in place of field surveying due to cost restriction for the feasibility study. For complete design of any flood control alternative, higher level of accuracy for elevations will need to be obtained.

6.5 Geotechnical Analysis

The purpose of the geotechnical analysis was to provide reasonable geotechnical parameters for the preliminary design of project features. The geotechnical analyses included a review of the existing geotechnical conditions found along the project alignment; evaluation of typical soils and properties; evaluation of seepage at levees and structures; evaluation of slope stability and settlement of levees; and settlement of the floodwalls, closure structures and pump stations. This analysis will provided useful for the preliminary analysis of under-seepage controls at levees and floodwalls and for cost estimating of foundations. The geotechnical design and recommendations are based on available information provided during initial review of the project alternatives and not considered detailed enough for final design. Further investigation and detailed review is required for final design of all of the levees and

structures discussed. Additional geotechnical information will allow for design of the project features based on conditions at each of the particular locations.

7 Model Hydrology and Hydraulics

7.1 Hydrology

For this study, all hydrology and associated peak flows were taken from the 2007 FIS Study, produced by the USACE and published by FEMA.

Flows used in the USACE model were determined by using USGS flow gages. Within Miles City, there is a flow gaging station located on the Yellowstone River approximately 0.8 miles downstream of the confluence of the Tongue River and several hundred feet upstream of the State Highway 59 Bridge. The Tongue River gaging station is immediately downstream of the Interstate 94 Bridge.

7.1.1 Yellowstone River

Seventy-three years of record were used to determine discharge-frequency estimates for the Yellowstone River. The LP-III method was followed to determine peak discharges. Peak flows from a USGS gaging station located in Sidney, MT were used as to supplement Miles City data, and extend the period of record, following the procedures established in Appendix 7 of Bulletin 17B (Survey, 1981), Guidelines For Determining Flood Flow Frequency published by the US Department of the Interior.

Seasonal discharge-frequency curves were also developed for the Yellowstone River. This was necessary since peak flood stage caused by ice may exceed peak stages caused by higher summer flows without ice. Peak flows were separated into ice-affected (winter) and non-ice-affected (summer) groupings. Mean daily flows with an instantaneous peaking factor of 1.05 were used to determine both seasonal curves. Peaking factors are determined by comparing highest recorded flows with the daily mean flows. Finally, a summer and winter composite discharge-frequency curve was generated that takes into account peak flows from both the ice-affected and non-ice-affected conditions. The composite looks as a probability of the summer vs. winter flooding. The all season record analysis flows without regard to which season they occur in. The extension then also uses data from the downstream gage to extend the period of record.

USACE determined the peak flows as shown below in Table 2. From their analysis, the USACE determined that the 17B Extension of Record discharge-frequency curve should be used for analysis of the Yellowstone River, as it most accurately reflects historical flow data.

Table 2: Yellowstone River Hydrology from FIS

Flood Event	Summer (cfs)	Winter (cfs)	Summer and Winter Composite (cfs)	All-Season (cfs)	17B Extension of Record (cfs)
2-Year	52,300	14,900	55,000	51,000	54,200
5-Year	67,409	24,200	70,000	66,300	70,300
10-Year	76,000	31,900	82,000	75,400	81,800
20-Year	83,300	40,700	91,000	83,600	91,000
50-Year	91,700	54,400	100,000	93,400	101,000
100-Year	97,500	66,700	105,000	100,000	111,000
500-Year	109,000	104,000	125,000	116,000	128,000

7.1.2 Tongue River

The method of analysis to determine peak flows in the Tongue River was similar to the procedures used to determine discharge-frequency curves for the Yellowstone River. The Tongue River has 66 years of record for analysis. The LP-III method was again used to generate the discharge-frequency curves.

Ice-affected and non-ice-affected conditions were analyzed using average daily peak flows with an instantaneous peaking factor of 1.31 as recommended by the USACE. The LP-III method was followed for the seasonal discharge-frequency curves, and a composite discharge-frequency curve was developed.

USACE determined the peak flows as shown below in

Table 3. From their analysis, the USACE used the All-Season discharge-frequency curve for further analysis, as it matched historical flows most accurately.

Table 3: Tongue River Hydrology from FIS

Flood Event	Summer (cfs)	Winter (cfs)	Summer and Winter Composite (cfs)	All-Season (cfs)
2-Year	2,750	1,590	3,610	3,350
5-Year	4,970	3,970	6,180	6,080
10-Year	6,600	6,240	8,610	8,270
20-Year	8,250	9,220	10,900	10,700
50-Year	10,500	14,500	16,000	14,200
100-Year	12,200	19,500	20,000	17,200
500-Year	16,400	65,900	33,000	25,400

7.1.3 Coincident Analysis

The USACE also evaluated the effect of simultaneous peak flows occurring on the Yellowstone and Tongue Rivers. Based on USACE analysis, the peak events area correlated. The coincidental flows experienced in the Yellowstone are shown below in

Table 4. This occurs when the Tongue River is experiencing its peak flow, as determined above. The analysis showed that the coincidental flows are less than the calculated Bulletin 17B extended flows; the USACE did not use them for the FIS and we did not consider them further for any future analysis.

Table 4: Coincident Yellowstone River Flow from FIS

Flood Event	Summer (cfs)	Winter (cfs)	17B Extension of Record (cfs)	Coincidental with Tongue Peak (cfs)
2-Year	52,300	14,900	54,200	26,900
5-Year	67,409	24,200	70,300	43,700
10-Year	76,000	31,900	81,800	54,900
20-Year	83,300	40,700	91,000	65,500
50-Year	91,700	54,400	101,000	78,800
100-Year	97,500	66,700	111,000	88,500
500-Year	109,000	104,000	128,000	110,000

7.1.4 Stage-Frequency Analysis

Though peak flows tend to occur during the non-ice-affected summer conditions, peak stages will typically occur during the ice-affected winter conditions. This is due to ice blocking a significant portion of the river channel that otherwise would be used for conveyance. Table 5 below displays the stage-frequency curves for ice-affected and open-water conditions. For comparison, the flood stage for the Yellowstone River occurs at 10 feet (USGS, 2014).

Table 5: Winter versus Summer Peak Stage on Yellowstone River from FIS

Flood Event	Ice-Affected Yellowstone River Stage	Open-Water Yellowstone River Stage
5-Year	12.4	12.5
10-Year	15.6	13.6
25-Year	18.7	14.5
50-Year	20.9	15.1
100-Year	23.3	16.0

7.1.5 Model Flows

The flows selected for final modeling are a combination of river gage hydrology and statistical analysis. As shown above, the peak summer flow is greater than peak winter flows; however, it does not accurately represent the 100-year peak stage. In order to remedy this, a composite flow profile was generated. This was accomplished by analyzing the probability of exceedance of a given stage, based on winter and summer stage-frequency curves. Once the composite stage-frequency curve was developed, flows were matched to the 100-year stage. This increased the 100-year flow used for stage analysis in the Yellowstone River from 111,000 cubic feet per second to as much as 160,000 cubic feet per second. The peak flow passing through the Tongue River likewise increased from 17,200 to as much as 37,000 cubic feet per second. To be clear these 100-year flows are not 160,000 or 37,000 on the Yellowstone and Tongue Rivers. Rather those are the flows that result in the equivalent 100-year flood stages. That should be produced with concurrent 100-year flows and ice jams.

7.2 Hydraulics

The Hydrologic Engineering Center's River Analysis System (HEC-RAS) model was used to analyze inundation along the Yellowstone River, the Tongue River and through Miles City.

7.2.1 Model Geometry

The HEC-RAS model is divided into five reaches: one for the Yellowstone, one for the Tongue, and three to model the three different hypothetical breaches in the Tongue River levee. The locations of the breaches in the levee were chosen by the USACE to represent theoretical worst case scenarios. Three breaches were selected because the embankments from the two railroads that pass through town (Transco Railway Products and Burlington Northern Santa Fe) act as quasi-levees, dividing the city into three areas. Surveyed cross-sections were used to determine channel geometry and flow paths.

7.2.2 Model Scenarios

Seven different analyses were done to determine the floodplain and floodways in Miles City. Five analyses determined the floodplain, and two determined the floodways. Two of the floodplain scenarios modeled the Tongue and Yellowstone Rivers with their levees intact, and three scenarios modeled the Tongue River with its levees breached.

7.2.3 Model Flows

For the purpose of the FIS, the 100-year flow is the most significant event. Floodplains and floodways are delineated based on the 100-year event. As discussed above, flows through the Yellowstone and

Tongue Rivers were artificially increased in order to match the composite stage-frequency curve. These higher flows were used in the FIS to determine the floodplain and floodway. Flow through the Yellowstone varies from 130,000 to 160,000 cubic feet per second, and flow through the Tongue varies from 30,000 to 37,000 cubic feet per second.

7.3 Feasibility Study Modeling

The FIS hydrology was retained in this study. However, the FIS flows do not provide the stage discharge curve used by the USACE due to the heavy influence of ice. As the alignment of a potential levee changes, it is necessary to revisit this step in the hydrology & hydraulic analysis. In a procedure similar to the methodology the USACE used, the given river gage hydrology was modified to simulate higher stages due to ice blockages. However, artificially increasing flows in order to match given river stages would only reflect the existing conditions. To more accurately model proposed modifications, the depth of ice cover was altered to match the profile generated from the USACE HEC-RAS model that produced the FIS and FIRMs. Since the 100-year flow rate and depth of ice coverage is independent of channel geometry, any modifications can be made without recalibrating flow to match river stages.

The ice thickness varied from cross-section to cross-section, ranging from zero feet to as many as five feet. On average, 0.22 feet of ice was added to the Yellowstone, and 2.69 feet of ice was added to the Tongue. The new profile generated from the ice-affected hydrology matched the final FIS profile at each cross-section to within 0.5 feet. On average, the new hydrology increased the river profile by 0.04 feet. Two miles were added to the upstream end of the Yellowstone River in order to determine the effects of levee improvements. Additional cross-sections were determined from terrain data obtained from the USACE Yellowstone River Corridor Study. Flow was assumed to be constant; there are no significant tributaries between the most upstream end of the USACE model, and the additional two miles. USACE determined roughness coefficients were used for both in channel flow and overbank flow. No additional culverts or bridge crossings were modeled. Differences between the existing conditions and proposed conditions were considered negligible or non-existent two miles upstream of Miles City. This suggests that reconstructing a new levee may have little to no effect on the land upstream of Miles City, but further model refinement will be needed to confirm this.

8 Flood Mitigation Alternatives

KUJ put together five alternatives that will allow the City to choose the one they feel best meets their needs. Each alternative, with the exception of Alternative #1, will provide varying degrees of relief

from flood insurance premium costs and the last two alternatives will significantly decrease the risk of flood damage in Miles City. KLJ has also provided recommendations on what we feel provides the greatest cost to benefit ratio.

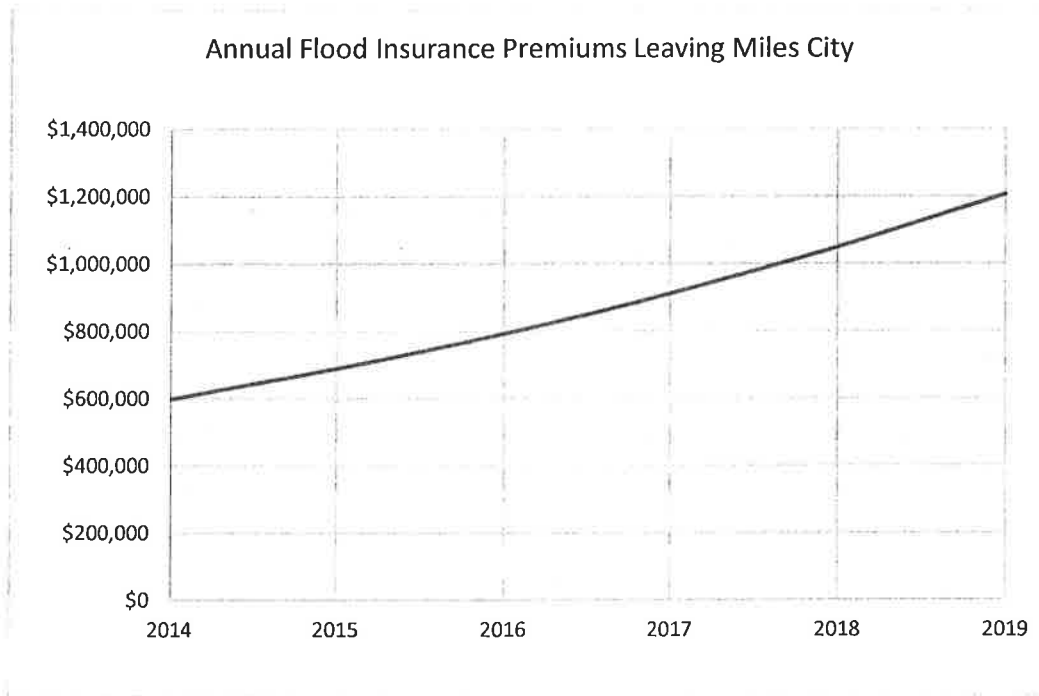
8.1 Alternative #1 Do Nothing

If it is determined that all other proposed alternatives either do not address the City's concerns, or are too costly, the City may choose to not pursue additional flood mitigation measures. Flood insurance premiums would need to be paid, and emergency flood fighting and repair measures to the existing levee should be expected. Miles City, collectively, is currently paying more than \$600,000 annually for flood insurance (see Section 3.0 for additional information regarding flood insurance). The majority of these policies were first established prior to the most recent FIRM being approved. As the majority of the pre-FIRM policies are based upon a lower water surface elevation contained in the previous FIRM, it should be expected that insurance rates will increase dramatically when replacement policies take effect. Ultimately, FEMA is moving toward having all flood insurance rates set to the full risk rate over time. Based on the Biggert-Waters Reform Act of 2012, which has since then been amended by the Homeowner Flood Insurance Affordability Act of 2014, flood insurance policies that are paying below full-risk premiums may increase annually by more than 15 %. Figure 16 below displays a 15 % annual increase for Miles City's \$600,000 worth of flood insurance premiums. After five years the insurance premiums will have reached their approximate full actuarial rates; by this time the insurance costs have more than doubled, with the total amount leaving the city annually exceeding \$1.2 million.

KLJ recommends that taking a no action approach should be a non-alternative due to the continued financial hardship for the residents of Miles City. Additionally, the magnitude of the flood risk as described in the effective FIRM is extremely significant. With more than 75% of the City contained within the floodplain, the risk seem too high to consider taking no action.

8.1.1 Opinion of Probable cost

Figure 16: Potential Annual Flood Insurance Premiums Leaving Miles City, Based on 10 Percent Increase in Annual Premiums



8.2 Alternative #2 LOMAs

A LOMA is an official amendment, by letter, to an effective NFIP map, LOMAs establish a buildings location in relation to the SPFHA. LOMAs are issued because a property has been inadvertently mapped as being in the floodplain, but is actually on natural high ground above the BFE. LOMAs may be used if the City decides to forgo an accredited levee project. Certain parcel owners would be able to apply for LOMAs in areas they feel have been misrepresented by the effective FIRMs. As seen in Exhibit 9 in Appendix 1 (Map of LOMAs), the current number of effective LOMAs is 146. There is potential for more LOMAs relieving some homeowners of the need for flood insurance. In order for a LOMA to be granted, an elevation certificate must be prepared for the property, and the structure in question. The certificate must be certified by either a Professional Engineer, or a Licensed Land Surveyor (Federal Emergency Management Agency, 2013). Once the elevation certificate is obtained, the LOMA procedure is relatively straightforward. If FEMA determines elevation of the lowest ground adjacent to the structure is higher than the floodplain elevation, a letter will be issued that will waive the flood insurance requirements for the owner of the buildings. If the full parcel is surveyed and shown to be higher than the BFE, then the

full parcel can be removed. LOMAs could be applied for as a temporary measure to alleviate the burden of flood insurance while a larger project is pursued, or LOMAs could be applied for in conjunction with a larger project. However, while LOMAs may be effective for a small number of people, they will not solve the larger problem of the uncertified levee.

8.2.1 Letter of Map Amendment Issues

A LOMA is a letter from FEMA stating that an existing structure or parcel of land - that is on naturally high ground and has not been elevated by fill - would not be inundated by the base flood. The number of parcel owners this will help is relatively small and the burden of flood will still be a possibility even with a LOMA.

Certain areas of the FIRM map have a significant number of LOMAs issued by FEMA. It appears that additional LOMAs may be granted for the same areas. Exhibit 8 shows the locations of the current effective LOMAs and the areas within the City with the possibility of future LOMAs. These locations were estimated using the best publically available LiDAR data. It should also be noted that a LOMA is not guarantee of no paying flood insurance. However the lender still has discretion to require flood insurance

8.2.2 Opinion of Probable cost

The cost of pursuing LOMAs would be minimal to the City; it would be the responsibility of the owner of the property to pay for the required elevation certificate necessary for a LOMA. An official elevation certificate costs anywhere from a few hundred to one thousand dollars for the certificate alone, and another several hundred for the surveying firm to process the LOMA paperwork.

8.3 Alternative #3 Letter of Map Change by using 2D model

8.3.1 The Current FEMA Model

The current FEMA floodplain map for Miles City was developed by the USACE using the HEC-RAS. This model takes great care to consider the interaction of the Yellowstone and Tongue Rivers including ice jams. The model also considers levee failures of the existing uncertified Tongue River levees. Flow from these levee failures consist of high peak flows that generally flow to the northeast across the city where the flow must accrue enough to overtop the Yellowstone River levee prior to returning to the river system. Separate failure locations along the Tongue River are run in roughly parallel directions toward the Yellowstone River resulting in most of the city being placed in the 100-year floodplain. The BFE

elevation resulting from these separate failure locations within the model causes steps from one failure channel to the next, resulting in large variability in BFEs.

8.3.2 The Evolution of Modeling Techniques and Why It Matters

With the evolution of computer power has also come an ability to more accurately model complex water systems. A typical river has a single flow path, however, when that water leaves the river and crosses overland to another river, its path is subject to engineering judgment. The engineer often had to decide the path and model the impacts. If multiple parallel paths exist, this can lead to inconsistent results between the paths. Recent developments in modeling, in the form of two dimensional models, allow for the software to choose the path and to allow it to even change over time. This provides a more accurate and consistent answer. In floodplain mapping, this may make a significant difference in the map.

8.3.3 One vs. Two Dimensional Modeling

The early HEC-RAS model software could only model a steady state flow, which is a flow that does not change over time. The Miles City model, as well as most FEMA models, are constructed in this manner. The current software can model a full hydrograph, or the dimension of time. However, it can still only model one dimension of space. Put simply, the engineer decides the centerline of the river or overland flow path. Water will not flow left or right but only along the designated path. Water is generally not allowed to freely flow between parallel paths. In addition, if the path chosen is incorrect, the actual flow of the water will also be incorrect. The two dimensional model solves this problem. Similar to HEC-RAS, it can model the full hydrograph or dimension of time. But unlike HEC-RAS, it models the full floodplain as a network of grid cells. This allows water to take any direction from one cell to an adjacent cell. In a real sense, the water chooses its path based on topography and obstructions placed in the floodplain. If allowance is made for time, the path taken can change over the course of the flood.

8.3.4 Modeling Complex Flow Paths

To achieve the full power of the two dimensional (2D) model, river and overland models are merged. This is done within the XPSWMM software produced by XP Solutions. The river model is created within HEC-RAS. Cross-sections are trimmed at the edge of the floodplain or other natural high ground. The model is imported into XPSWMM. The floodplain surface is then added as well as the active grid network to create overland portion of the model. The two are then connected by an interface line which allows water to flow freely between the two models. Once water enters the overland model, it is

allowed to take any path necessary to return to the river systems. XPSWMM is approved by FEMA for 2D modeling of floodplains.

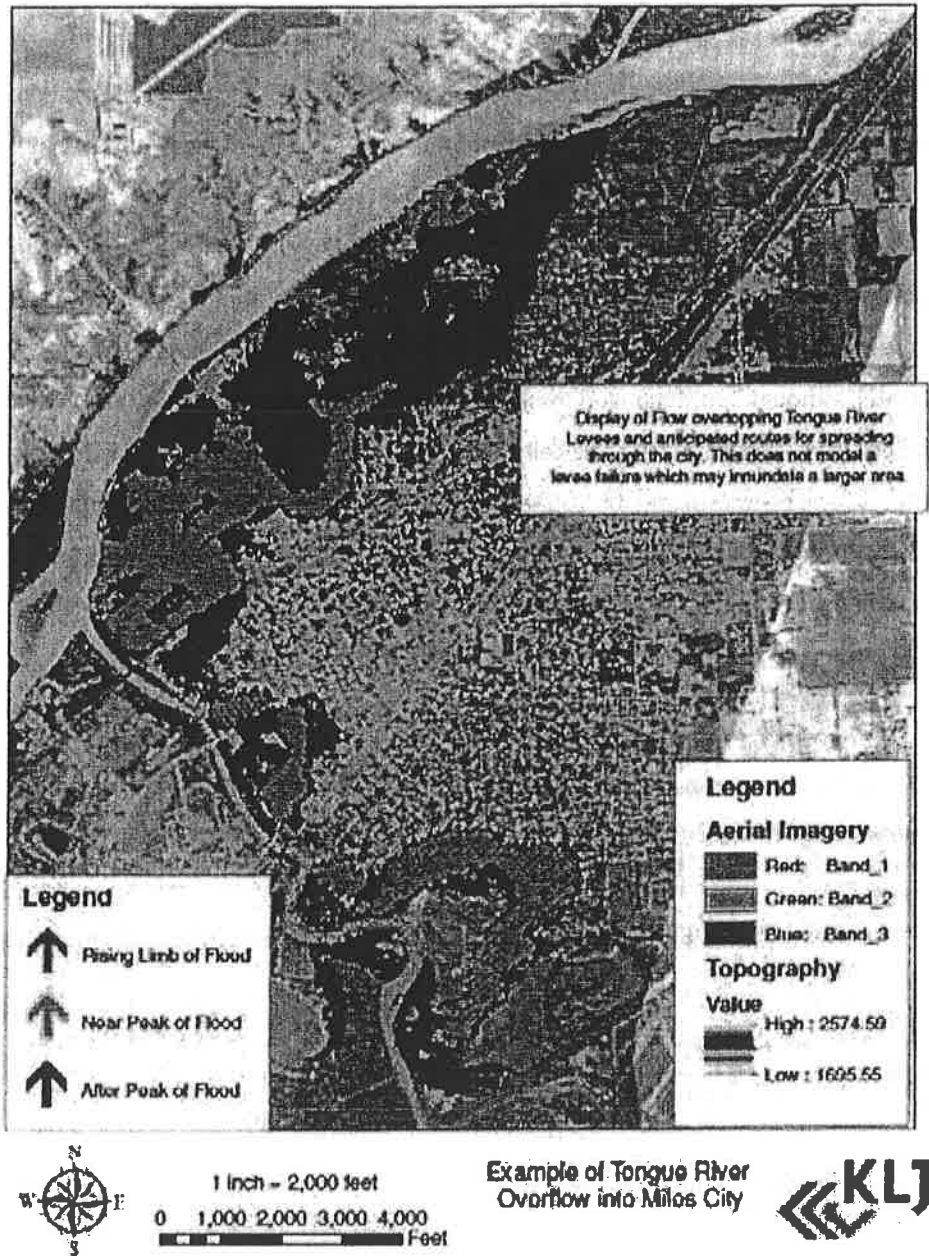
8.3.5 Sample Two Dimensional Model of Miles City

A sample model was created for Miles City. This model was created solely to demonstrate the complexity of flow paths in Miles City. This model was similar but not exactly like the FEMA model. Additional flow was added to the Tongue River to ensure it would overflow the levees and spill east into the city. Inundation west of the Tongue River was largely ignored. Figure 17 is a map showing the area of flow over time. The flow is shown as color-coded arrows. Blue arrows represent the initial overflow as the flood begins. Green arrows represent the areas of flow near the peak of the flood. Black arrows represent the flood after the peak but while water is still spilling over the levee. This example is based on overflow of the Tongue River levee and not a levee breach. As such, the flows and inundation areas are smaller than predicted by the USACE in the current FEMA map. However, the flows do help to illustrate the power of the 2D model to show anticipated flood routes. Areas of flooding include old oxbows and the old river channel near the Yellowstone River. These are areas that residents would expect flooding to occur and validates the power of the 2D model.

8.3.6 Modeling Levee Breaches

As stated above, Figure 17 does not represent a levee breach. As part of a remapping process, it would be necessary to map levee breaches.

Figure 17: Model of Tongue River Overtopping Levee



Note: this is a sample model intended only to show flow paths in Miles City are complex. Do not assume this shows a proposed floodplain.

A breach would be modeled by causing a portion of the existing levee to rapidly erode to ground level. These breaches would cause high peak flows and areas of greater inundation. However, it is expected

that flow paths would still naturally turn north towards the low areas of town rather than northeast as predicted by the current HEC-RAS model.

8.3.7 Assumptions and Limitations

Inherent in the modeling are several assumptions and limitations. It is not practical to completely redo the flow frequency distribution which governs the amount of flow in the river for a current event. Nor is it practical to redo the stage flow downstream boundary condition created by the USACE to simulate ice jam conditions. Finally, the three breaches assumed by the USACE would still be modeled. All of these assumptions provide an initial flow in the river, a downstream tail water condition and a flow through the city. However, the 2D model would still remap the areas on inundation that occur due to these levee breaches. The 2D model, although more detailed than the 1D model, still has limitations. Water will flow from grid cell to grid cell; thus, the size of the grid cell will dictate the precision of the mapping. It is anticipated that grid cells will be approximately 100 feet by 100 feet in size which is sufficient to map the inundation while maintaining a stable model. It will also be necessary to extend the model upstream to capture any areas of impact due to any changes made by the city.

8.3.8 Which FEMA Process

With the new 2D mapping, either a LOMR or a PMR would be required. The difference lies in the extent of the map changes. The first changes a portion of the map, and the second replaces the current map altogether. Guidelines and Specifications for Flood Hazard Mapping Partners¹ states that a Physical Map Revision is required if more than one FIRM panel is covered, significantly more area will be mapped into the floodplain, or if increases to the BFEs are expected. It is anticipated the scope of the 2D modeling would cover multiple FIRM panels, thus requiring a PMR. Apart from the question of 2D modeling, a new certified levee system near the existing alignment would raise BFEs on the rivers meeting the third condition. In that case, a PMR would be required.

8.3.9 Physical Map Revision Process (Diagram)

The attached figure provides a flow chart for determining if a PMR will take place

Figure 18: Flood Hazard Mapping Work Flow

Guidelines and Specifications for Flood Hazard Mapping Partners [April 2003]

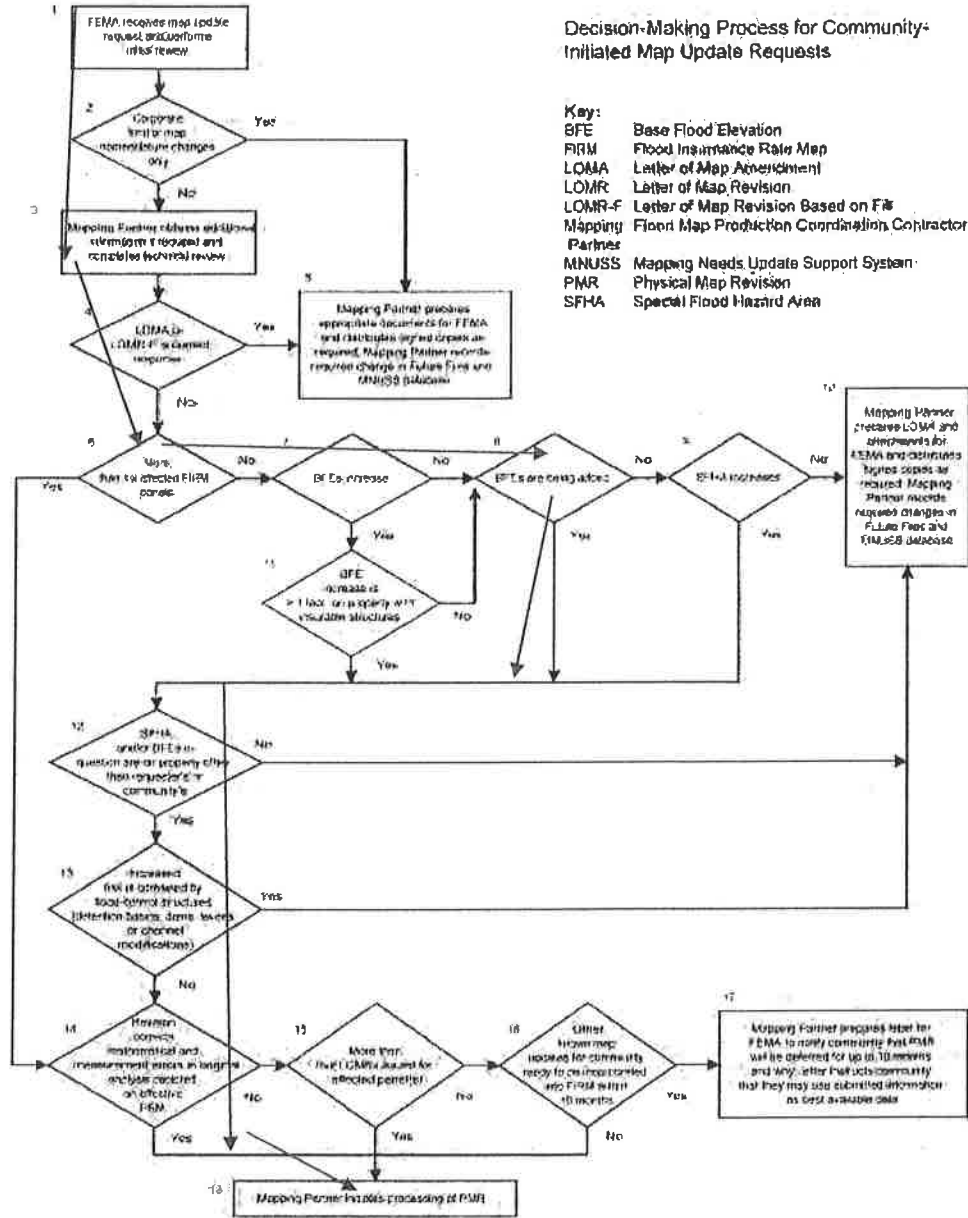


Figure 2-1. Standard Map Revision Decision-Making Flowchart.

8.3.10 Physical Map Revision Process

Regardless of the ultimate format, LOMR or PMR, the process begins with a decision by the City on the alternative. When sufficient detail is ready, a CLOMR will be sent by the city to MTDNR and FEMA. This will start the process and the decision of the ultimate process. It is expected the PMR process will be used, but FEMA may decide on the LOMR process. The CLOMR action will cause a decision on the process to take place. After completion of the work, a LOMR or PMR will be submitted. After technical review (typically 90 days on a LOMR, longer on a PMR) the map returns to the community. A 90-day appeal process is initiated. Upon completion of those 90 days, and answering of all technical questions, the map can be adopted. It is expected the overall process will be one year or more.

8.3.11 Currency of Data

Data for the project submitted to FEMA must be within the past seven years. LiDAR from the Yellowstone Study is 2007 vintage. Worst case scenario would require update of this data.

8.3.12 Opinion of Probable cost

2D modeling is more labor intensive than 1D modeling. There are also additional data requirements for 2D modeling. In order to pursue 2D modeling, new bathymetry (river soundings), and potentially new LiDAR will be required in order to meet federal requirements for floodplain mapping. Construction and calibration of the model will take more effort than a 1D model would have, and it should be expected that if 2D modeling is pursued, the process for new maps to be accepted by FEMA may be a drawn out process.

Survey (1D/2D) River Modeling	Est. Days	Est. Cost
Survey to extend river cross-sections upstream two miles	5	\$15K
Reacquisition of LiDAR of project area, LiDAR collection*	1	\$35K
Reacquisition of LiDAR of project area, survey control*	6	\$12K
Reacquisition of river topography*	8	\$25K
Subtotal	18	\$87K
Survey Internal Drainage	Est. Days	Est. Cost
Survey of storm sewer system	20	\$48K
Construction of internal drainage map	6	\$7K
Subtotal	26	\$55K
Integrated 1D/2D Mapping	Est. Days	Est. Cost
Model Creation and Calibration	50	\$60K
Levee Failures	10	\$12K
Alternatives	10	\$12K
Inundation Mapping	10	\$12K
Subtotal	80	\$96K
Internal Drainage Modeling	Est. Days	Est. Cost
Creation of Internal Drainage Network	20	\$24K

Coincidental Hydrology	2	\$2.4K
Troubleshooting and Final Model	8	\$9.6K
Inundation Mapping	5	\$6K
Subtotal	35	\$42K
FEMA Submittals	Est. Days	Est. Cost
Initial CLOMR Submittal	5	\$6K
PMR Submittal	15	\$18K
Resubmittals, response to FEMA	15	\$18K
Delivery of final maps and documents	5	\$6K
Subtotal	40	\$48K
Total	199	\$328K

8.3.13 Anticipated Timeline

Upon completion of survey, base model completion and calibration should take three months.

Alternatives, if any, will be an additional two weeks per alternative. Internal drainage will be concurrent with river modeling. Inundation mapping will be one month. Initial submittal to FEMA will be one month. FEMA review and resubmittals will be approximately four months. This will allow for preliminary mapping to be available in approximately nine months. Assuming a 90-day appeal process, one year is expected benefited properties

It is uncertain what percent of properties would be affected by this map change. Additional preliminary modeling would be required to achieve any valid estimation.

8.4 Alternative #4 Reconstruct Levee System 100-Year flood

This alternative is the reconstruction of the City levee system following a similar alignment to the existing levee system. Final design will determine the ultimate alignment; however, the levee would be offset from its current position due to geotechnical parameters. This offset will also aid in lowering the river velocity within the channel to mitigate damage to the west side of the levee. Tentative alignment is shown in Figure 19.

Figure 19: Preliminary Levee Alignment



Approximately 60 parcels will be impacted by the new levee. However, it is not likely that all 60 houses will need to be purchased and demolished; it is more likely a significant number of easements will need to be acquired to provide space for the levee while reducing the number of homes that would be relocated. The potential flood risk in Miles City is very high due to unique physical and seasonal features, KLJ recommends a levee be designed for at least the 100-year flood. However, changing governmental regulations, potential changes to levee certification standards, i.e., BFE changing, can all lead to a future 100 year BFE that is higher than the effective FIRM map of today. With this in mind, KLJ strongly recommends the 500-year flood as the basis for the freeboard of any proposed levee. Both the 100 year and the 500 year levee options represent a significant cost to the community, both for the construction and annual maintenance cost after construction has been completed. However, it addresses all the pending issues. Of the five alternatives represented, only options #4 and #5 provide certified flood protection and removal from the floodplain. Both 100-year and 500-year alternatives were analyzed, and designing for the 500-year flood results in an additional one to two feet, in terms of levee height, when compared to constructing a levee designed to 100-year flood event.

8.4.1 Proposed Future Flood Mitigation Alignments and Typical Cross-Section

In order for a levee to meet FEMA requirements in terms of flood protection, it must meet certain design criteria established in CFR Section 65.10. The most important criteria, in terms of affecting design and quantity of materials required, are

- Freeboard
- Closure Structures
- Embankment Protection
- Interior Drainage

A levee designed to minimum certification standards must have three feet of freeboard at the base flood. That is, the crown of the levee must be at least three feet higher than the BFE. Closure structures occupy a relatively small area of the levee, and thus will not have a significant effect on the quantities of fill material used to construct the levee. Embankment protection will consist of either riprap, or concrete armor to prevent undercutting and erosion during periods of high flow. Finally, interior drainage is concerned with managing the seepage of water below the levee during high river stages, and dealing with runoff from rain events during outfall closure. Underseepage is a concern that must be addressed, because saturated soils have a fraction of their dry, compacted strength. Without designing to control underseepage, the risk of levee failure increases substantially.

A typical cross-section of the levee was determined by calculating the BFE, adding three feet of freeboard, and offsetting the current levee by approximately 75 feet landward. A 10-foot wide crown width was assumed, with a 4:1 side slope. An additional 15 feet of access right-of-way was also included on the landward side; this must be provided to ensure access for emergency flood fighting measures.

The typical levee cross-section, showing the average riverward and landward heights, may be seen in Figure 20. Based on meeting the existing BFE, the tallest portion of the levee will be approximately halfway between the Tongue and Yellowstone confluence and the wastewater treatment facility. Measured from the river side it will be approximately 17 feet tall. On average the entire levee system, measuring from the riverside height of the levee, will be slightly more than 11 feet tall.

On average, the new levee will be approximately 1.5 feet higher than the existing embankment. Based on the existing BFE, it appears that only locations that the existing levee meet or exceed the three-foot freeboard requirements are the areas immediately adjacent to the highway and railroad bridges, where they tie into the higher ground of the embankment. The levees surrounding the water treatment plant

just barely meet the BFE and a deficient in meeting freeboard requirements. The levees surrounding the wastewater treatment facility do meet and exceed freeboard requirements; additionally, preliminary review of the bore samples show that the levees most likely will not meet the seepage criteria for levee certification. Therefore, for our analysis purposes we did not account for alteration/modification, replacement of the existing embankment at that location was considered.

The typical section of the levee includes a toe-drain on the landward side of the levee to collect water that seeps under the levee. Without controlling underseepage, sand boils will develop, which could result in localized flooding, erosion or even levee failure. The toe-drain could be either tied into the existing storm sewer system, or will be collected and conveyed to a lift station. Further investigation will be needed when examining the possibility of connection toe-drain to existing storm sewer, this can be done during project design, Landward berms were not considered as an underseepage control mechanism, as the minimum suggested width of an underseepage berm is 150 feet, based on USACE standards (US Army Corps of Engineers, 2000).

8.4.2 Cumulative Hydraulic Impacts

Offsetting the new levee from the current embankments alignment will allow for a wider area of conveyance. This will result in lower water velocity in the vicinity of the levee. This will cause less erosion and undercutting, leading to a lower likelihood of levee failure, and lower repair and maintenance costs. Based on a preliminary model of the theoretical levee, upstream and downstream hydraulic effects of the new levee (in terms of water surface elevation) are negligible within a mile of Miles City. Channel velocities are reasonable, and should not increase erosion either upstream or downstream.

8.4.3 Existing Embankment

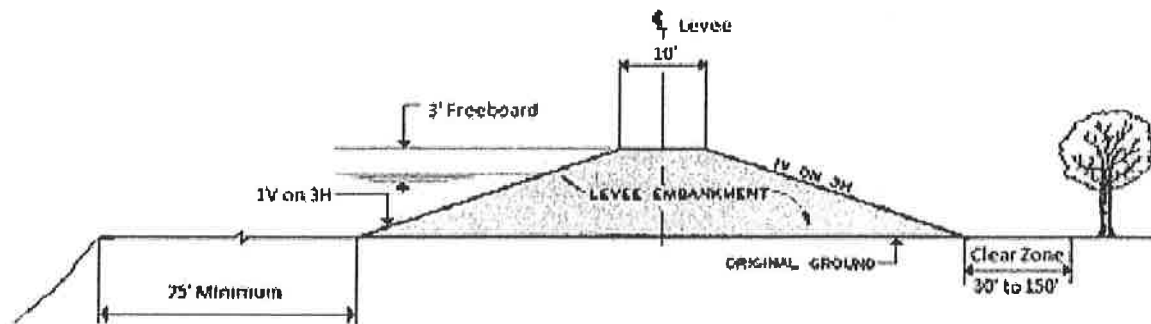
Miles City's existing earthen embankment systems have been maintained and added to since construction in 1936 by the WPA. During a flood in 1944, the embankment failed in several locations. USACE "Analyses of the levee height and structural condition have shown that it is inadequate in both respects" (Department of the Army U.S. Army Engineer District, Omaha, 1978). The public has access to the river on areas through certain portions of the embankment's length; however, a majority of the embankment was constructed on privately owned land and public access to the river is prohibited.

8.4.4 Preliminary Design of Levee

The typical levee cross-section developed for the project is shown in Figure 20. The levee cross-sections must have a minimum side slope of at least 3 horizontal to 1 vertical (3H: 1V). A 3:1 slope is the steepest

slope that can be conveniently traversed with conventional mowing equipment and walked during inspections. The width of the levee crown depends primarily on roadway requirements and future emergency need that would provide access to normal maintenance operations and flood fighting operations. Minimum widths of 10 to 12 feet are commonly used with wider turnaround areas provided at specified intervals; these widths are about the minimum feasible for construction using modern heavy earthmoving equipment and should always be used for safety concerns. The project levee height through Miles City and surroundings areas averages approximately 11 feet, including a minimum of 3 feet of freeboard for the design flood event. The typical levee layout also includes a clear zone (30 to 150 feet) beyond the landside toe of the levee for seepage control measures, inspection and maintenance access. The preliminary engineering also took into consideration the levee and channel bank stability. In areas of the alignment where the levee is in close proximity to the river channel, a 75-foot offset was used between the riverside toe and the river channel. The levee offset will vary based on changes incorporated during project design.

Figure 20: Typical Levee Cross-Section

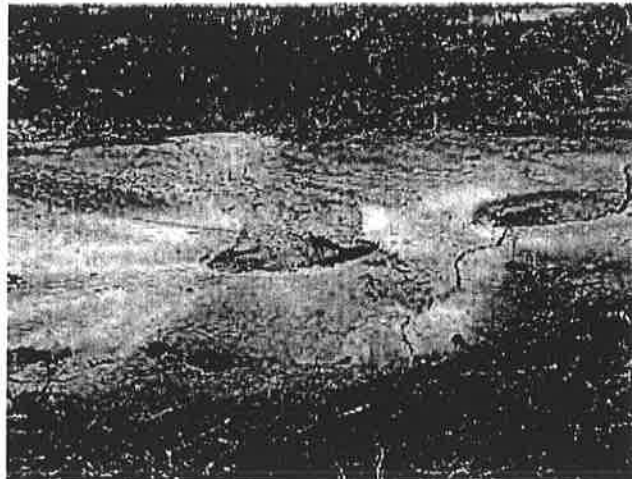


8.4.5 Levee Seepage Analysis

The levee seepage analysis is a very important part of the levee design process, because groundwater levels have significant effect on the levee's stability. The high rates of seepage can result in levee boils (sand boils), or internal erosion of soils in the foundation or toe on the landside of the levee. This can jeopardize the integrity of levee or lead to levee failure. Preliminary levee seepage analysis shows that the pervious soils conditions along the river channel may cause significant seepage issues, and

preventative measures for levee seepage will be necessary. The preventative measure recommend by the USACE was the use of “landside berms”, along with “relief wells” and a “pump station”. Upon preliminary analysis by KLJ we assumed the use of landside berm incorporated with perforated pipe surrounded by sand drain to allow flow to pipe, with relief wells and a pump station were used to calculate preliminary design cost. Seepage analysis will need to be more thoroughly conducted during the project design, to determine the most practical and cost effective design.

Figure 21: Sand Boil Example Due To High Seepage Rate



8.4.6 Structural Design

The preliminary structural engineering for this study consisted of stability analyses and size estimating for major structures and components for features identified for the project. Structural features include floodwalls, closure structures (roadway) and interior drainage structures.

The objective of structural engineering was to determine the feasibility of design in order to establish enough preliminary design analysis to develop quantities for a baseline cost estimate. The detailed design of these features was not developed for this report. For features such as floodwalls, pump stations, closure structures, the overall sizes, lengths and cost was determined from previous project experience of similar arrangement.

8.4.6.1 Floodwalls

The floodwalls would be used as a barrier for flood flows where space constraints prevent the use of levees. For the purpose of determining floodwall costs, a standard reinforced-concrete cantilever T-wall was assumed for this project. This is the most common type of flood wall, and was the consideration for our design.

The cross bar of the T serves as a base and the stem serves as the water barrier. When founded on earth, a vertical base key is sometimes used to increase resistance to horizontal movement. If the wall is founded on rock, a key is usually not provided. Where required, the wall can be supported on piles. A sheet pile cutoff can be included to control under seepage or provide scour protection for the foundation. T-type walls may be provided with a horizontal or sloped base. (Engineers D. o., 1989)

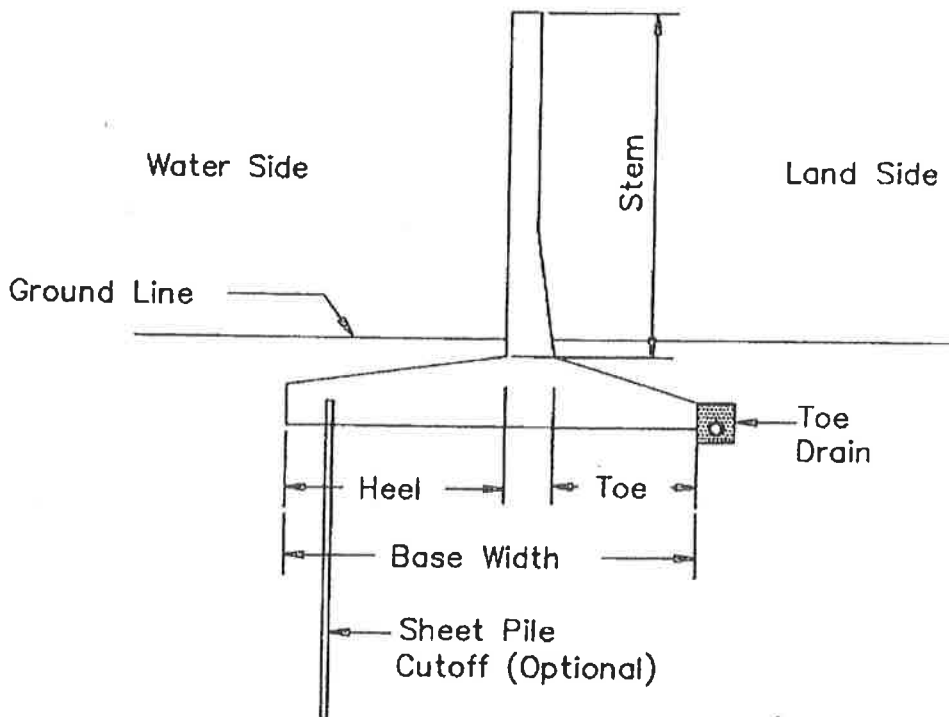
Cantilever T-type flood walls have shallow-footing base slab and a vertical stem extending above ground to the design water elevation (including 3 feet of freeboard). Due to material along the river bank being pervious, a steel sheet pile cutoff is assumed along the upstream edge of the heel of the base slab, extending into the foundation to control seepage along with a toe-drain along the toe side of the levee as seen in Figure 22.

8.4.6.1.1 Floodwall Seepage

Uncontrolled seepage below rigid structures, such as floodwalls, can lead to instability and failure of structure. Under-seepage beneath floodwall structures will need to be analyzed in detail during the design phase to define the steps need to determine the critical seepage, developed from the head conditions representing the minimum base length of the foundation.

Additional preventative measures such as steel sheet pile cutoffs along with toe drain and trenches on the landside edge of levee may also need to be incorporated into the design, in order to collect the water and route into a seepage collection system as illustrated in Figure 22.

Figure 22: Typical T-type Floodwall Cross-Section



8.4.7 Interior Flood Risk Reduction System Assessment

The interior drainage of the Miles City storm water system does not appear to be sufficient, and would need to be redesigned to provide sufficient drainage as stated by USACE:

The Interior drainage structures on the existing levee are not of proper design or adequate size. The interior drainage structures on the new levee would be considerably larger and more efficient. Improved interior drainage would mean less ponding, and a reduction in the threat of vector-borne diseases. The non-Federal interest would also be required to retain existing ponding areas behind the levee for temporary storage of interior storm runoff during flood stages on the Tongue and Yellowstone Rivers.

(Department of the Army U.S. Army Engineer District, Omaha, 1978)

Preliminary assessment of the project's need for internal drainage infrastructure focused on the sizing of pump stations for the interior 1-percent-annual-chance rain event and assumed simultaneous design flows in the Yellowstone and Tongue Rivers (i.e., blocked gravity outfalls). Internal drainage must be addressed with the construction of a new levee in order to prevent flooding from large precipitation events coinciding with periods of high flow on the river. Internal drainage will consist of the levee's groundwater seepage system, urban storm sewer system, natural channels, stormwater ponds and lift stations. These components should be optimized to work together to provide adequate storage volume and discharge capacity to prevent internal flooding and prevent SFHA from being mapped internal to the levee system.

It is likely that existing lift stations will either need to be renovated or replaced. It is estimated that four lift stations along the levee will be necessary to handle the coincidental precipitation event. The size and cost of the lift stations will be governed by required discharge rates. Lift station cost could be minimized by providing additional stormwater storage area. This would allow for smaller pumps to be used. For the purposes of this report, it was assumed that the existing Old Tongue River Channel would be re-graded in a way to minimize localized flooding along the old river bed as well as the use of the old wastewater lagoons. In order to compensate for the storage that was removed, a large stormwater pond would need to be constructed somewhere near the wastewater treatment facility and the old lagoons would provide an inexpensive option for retention. This would likely result in one large lift station to handle the majority of the runoff from Miles City, and three smaller lift stations that would handle smaller, localized areas as well as the water collected from the levee's groundwater seepage system. Pending soil boring

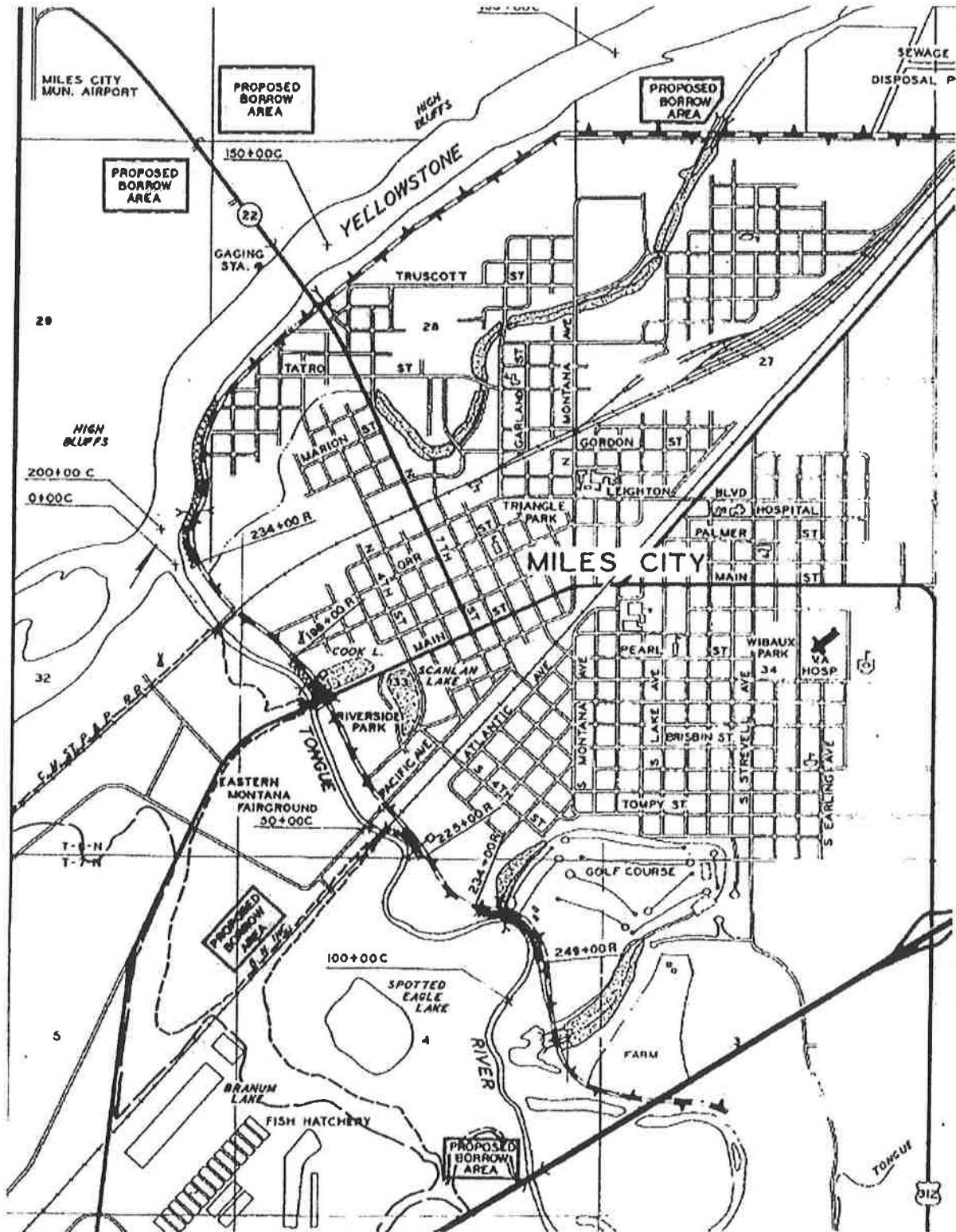
results, the excavated material from the proposed stormwater pond within the Old Tongue River Channel may be used as borrow material to construct the levee system.

8.4.8 Borrow Sources

An office review of available topographic, soil and geological maps, aerial photographs, historical boring logs and well data, and information on existing engineering projects was made as part of the project. This data was used to establish a starting point for future detailed borrow source investigations, and to provide a basis for estimating costs associated with obtaining borrow for levee construction. An extensive investigation into potential borrow sources is beyond the scope of this report. Borrow source investigation will be a key component of future final design tasks. A summary of potential borrow sources is discussed in the paragraphs below.

Preliminary geotechnical bore data shows portions of the existing levee may be able to be used as on-site borrow due to the content of this material. The existing levee use is dependent on further inspection of geotechnical properties of the levee material. Potential borrow sources generally consist of existing pits within the area, but new sources are also proposed. It should be noted that the potential borrow sources identified are preliminary in nature and a detailed subsurface investigation, consisting of test pits, soil borings and lab testing will be required to characterize and quantify available materials. In addition, environmental and cultural resource clearance may be needed to be obtained, along with any easements or ownership required to secure use of the site. Areas best suited as borrow sites are current farmland, upland pastures and areas with little vegetation (e.g. wooded, brushy or heavy vegetation). Figure 23 shows proposed borrow sites that were listed in USACE 1978 Phase I general design study (Department of the Army U.S. Army Engineer District, Omaha, 1978). Figure 23 calls out various potential borrow locations. The borrow site located near the wastewater treatment plant has potential to not only be used as a borrow pit, but also as a detention pond for stormwater runoff during times of high river levels. Pending further geotechnical analysis, this source would save money due to location of borrow and the second use of depleted borrow area, once the project is completed. The extra saving for the dual usage was not included in the OPC due to the unknown nature of the available material at this proposed borrow location; therefore, if this option is viable the cost will adjust accordingly.

Figure 23: Proposed Borrow Sites



Other potential borrow sites can be seen in Exhibit 8 in Appendix 1, showing the various soil types around Miles City. These soil types are from the SCS/NRCS soil hydro group classifications. The map areas of potential interest will be the purple areas, consisting of Marvan silty clay, Maris silty clay and Marvan-Vanda silty clay. These soils have a hydro group classification of D, meaning they have a very low infiltration rate.

8.4.9 Setback Recommendation

The setback recommendation for the levee system is a minimum of 75 feet due to the instability and erosion of the right channel bank (looking down stream). This setback will alleviate constriction within the channel, which in turn will lower velocities. Lowering the channel velocity will reduce the channel embankment erosion and reduce the need for channel embankment protection (i.e. riprap). The reduction of embankment protection reduced project costs substantially. Further geotechnical evaluation will need to be performed to determine if the elimination or reduction in the embankment erosion control is viable.

8.4.10 Preliminary Flood Mitigation Review-Property Set Back

The initial review using the existing levee alignment to construct a certified levee will substantially impact the residents in Miles City. There are approximately 3,600 parcels within and about Miles City that are affected by the FEMA floodplain.

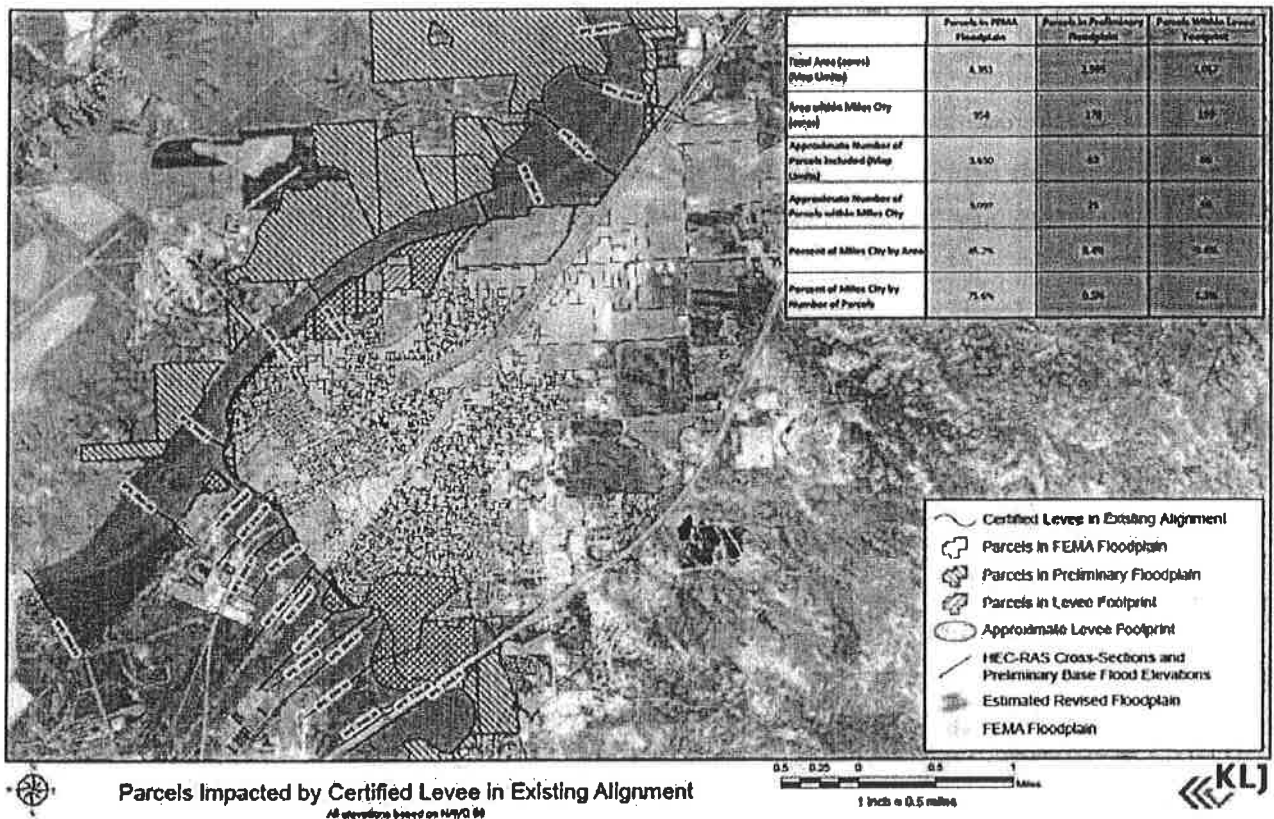
With a certified levee, the majority of residents in Miles City will not be required to carry flood insurance. A preliminary look shows that the number of homes that can be removed from the FEMA floodplain is enough to quantify the benefits the certified levee system would have for Miles City, and its surrounding area.

The most significant impact of this alternative would be the elimination of flood damages to the existing development throughout the floodplain. The alternative would improve the safety and well-being of thousands of families and hundreds of business within the 500-year floodplain. Similarly, future development of Miles City would have a reduced risk of flood loss.

The adverse impacts of this alternative include preliminary calculations that show approximately 65 properties that will be affected by the levee construction, and approximately 60 properties that would still be in the preliminary floodplain. The amount of land affected by the alternative is approximately

200 acres. This is due to the levee footprint and set back distance for structures, along with 175 acres that would remain in the preliminary floodplain. Figure 24 shows the affected parcels.

Figure 24: Affected Parcels



Without a certified levee, urban development within the existing floodplain would require flood proofing as high as eight feet above the natural ground surface in some areas. This will likely discourage commercial or residential development of this area.

8.4.11 Opinion of Probable Cost of Levee

This OPC is intended to provide information for consideration during decision-making and planning at this feasibility-level stage of the Miles City Study. After preliminary alternative evaluations and alignment revisions were presented during the city meetings, further design was completed and quantity takeoffs and real estate acquisitions have been estimated for the project. The cost estimate is of a level of detail intended to evaluate the feasibility of the project as defined at this time. The estimated costs will change based on final design, and alternative selected by Miles City.

8.4.11.1 Basis of Cost

The cost estimates and associated information in this section are intended to provide background information to understand the basis for the development of the OPC, based on the proposed alignment at this time. Costs are based on analysis and assumptions consisting primarily of the following:

- Material cost quotes obtained from local suppliers.
- Preliminary quantity estimation related to earthwork associated with levee construction.
- Assembly of reference unit cost data from recent regional bid tabulations, similar flood risk reduction projects, published cost data and other typically observed costs.
- Quantity calculations based on analysis, preliminary design and drawings included in this report.
- Referenced categorical cost breakdowns of similar feasibility-level and EIS-level cost estimates, as performed by USACE and others, including more than 20 recent regional and national projects with relevant project scopes emphasizing flood control, levee, pump station and transportation work elements.
- Acquisition costs are based on estimated pre-flood assessed values of affected properties.
- For more defined project features, deterministic methods are used to estimate costs based on quantity takeoffs and estimated unit costs for assemblies and individual components.
- For less defined project features, qualitative methods are used where project unknowns limit the degree to which feature quantities can be itemized, counted or measured. In some of these cases, allowances are included to estimate the cost typically required for such work.

8.4.11.2 OPC Breakdown

Preliminary cost estimates were developed for the following elements directly associated with the project:

- Infrastructure modifications
- Ecological mitigation
- Roads, road raises, railroads and bridges
- Channel improvements and hydraulic structures
- Levees, floodwalls and closure structures
- Interior flood damage reduction systems (pumping stations)
- Recreation facilities
- Cultural resource investigations and mitigation

Preliminary cost estimates were also developed for the following items required for the overall project, but not associated with specific elements:

- Lands and easements
- Planning, engineering and design
- Permitting and regulatory approvals
- Construction management

8.4.11.3 *Project Features*

Project costs have been estimated for the following three zones: Water Treatment Plant (WTP), Waste Water Treatment Plant (WWTP) and Miles City. The following in Table 6 is a summary of key project features in these zones. This list is not inclusive. For a full breakdown of project features included in the OPC, see Appendix 5.

Table 6: Project Features for Levee Zones

Category	Item	Units	WTP Reach ¹	WWTP Reach ¹	Miles City Reach ¹	Total Project ¹
Flood Risk Reduction Features	Length of Levee	Feet	4,200	7,700	20,000	32,000
	Length of Floodwall	Feet	0	0	2,000	2,000
	Number of Pump Stations	Each	0	1	3	4
	Channel Reconstruction	Feet	0	0	14,000	14,000
Municipal Infrastructure	Sanitary Sewer	Feet	0	450	0	450
	Water main	Feet	0	2,100	0	2,100
	Road	Feet	0	0	1,600	1,600

¹ Lengths are rounded to the nearest 100 feet.

8.4.11.4 *Estimated Cost*

An OPC was developed for the project in accordance with the methodology, basis of cost, cost breakdown and project features summarized above. There appears to be sufficient space to utilize full cross section levee embankments at the WTP and the WWTP. No Floodwalls are anticipated at these locations.

Table 7: Opinion of Probable Cost

Cost Breakdown/Element	Opinion of Probable Cost
Mobilization/Demobilization	\$1,430,000
Infrastructure Modifications	\$201,000
Roads, Road Raises, and Railroads	\$186,000
Channel Improvements and Hydraulic Structures	\$1,630,000
Levees, Floodwalls and Closures	\$11,989,000
Interior Flood Damage Reduction Systems (Pumping Stations)	\$1,400,000
Estimated Construction Costs ^{1 2 3 4}	\$6,000,000
Lands and Easements ⁵	\$6,030,000
Planning, Engineering and Design	\$3,600,000
Construction Management	\$2,400,000
Estimated Total Project Cost ^{1 2 3 4}	\$32,400,000

¹ Includes contingency (for additional information see Appendix 4).

² Includes cost of all levee sections.

³ This is a feasibility-level cost estimate based on feasibility-level design alternatives, alignments, quantities and unit prices. Costs will change with further design.

⁴ Does not include temporal escalation costs, operation and maintenance costs.

⁵ Regardless of funding mechanism selected, land acquisition and easement costs will always be part of the local share of the project.

8.4.11.5 OPC Considerations

The OPC was developed based on feasibility-level designs, unit prices that are benchmarked against 2013 and 2014 regional prices for similar construction scopes and engineering judgment. This feasibility-level OPC is intended to correspond to a Class 4 estimate, characterized by 10-15% design completion (per ASTM E 2516-06 and USACE EI 01D010 9/1/97). The OPC is based on feasibility level design alternatives, alignments, quantities and unit prices. Costs will change with further design. A contingency of 20 % for construction costs and 10 % for lands and easements has been established for the OPC based on referenced projects and published references. Time-value of money escalation costs are not included. Operation and maintenance costs are not included.

The OPC is a point estimate within an estimated accuracy range. The accuracy range is based on professional judgment considering the level of design completed, the complexity of the project, and the uncertainties in the project as scoped. This accuracy range is not intended to include costs for future scope changes that are not part of the project as currently scoped, or risk contingency. Future cost

estimates should incorporate construction schedule and time-value of money escalation, and consider uncertainties associated with these elements. A construction schedule is not available at this time. The OPC is considered a feasibility-level construction estimate, and has been developed on the basis of similar projects and the consulting team's experience and qualifications. The OPC will change as more information becomes available and further design is completed. Given the level of project definition, uncertainty exists related to the limited design work completed to-date including, but not limited to, uncertainties associated with quantities, unit prices and design detail. In general, it can be anticipated that as the future level of project definition increases, the uncertainty associated with these items will decrease.

As the consulting team has no control over the eventual cost of labor, materials, equipment, services furnished by others, the contractor's methods of determining prices, competitive bidding or market conditions, and the consulting team cannot and does not guarantee that proposals, bids or actual construction costs will not vary from the OPC.

8.5 Alternative #5 Reconstruct Levee System 500-Year

Analysis of level of protection for the 500-year flood will have greater beneficial impact than the 100-year flood protection. Flood protection from the 500-year flood would remove Miles City from the SFHA Zone X on the FIRMs. Zone X areas are identified in community flood insurance studies as areas with moderate or minimal hazard from the principal source of flood. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled by inadequate internal drainage systems. Flood insurance is available in participating communities, but is not required by regulation in this zone. The toe of levee elevation difference between the 100 and 500-year flood events on average is approximately 0.6 feet. The benefits provided by a 500-year flood protection is considered the plan most preferred due to the cost versus benefit. The cost can be seen in the OPC below and the benefit is the higher level of protection that will be provided for Miles City and its surrounding community. The majority of the levee design will not significantly change due to the relatively small increase in levee height from the 100-year to the 500-year flood protection. The basic construction of the levee for protection from a 500-year flood event will not change, however material volumes will increase. Although due to the increased height of the constructed levee, the levee footprint (width) will widen due to the increase in levee height. This larger footprint will have a larger impact on the area adjacent to the levee, thus requiring an increase in the amount of right-of-way that will need to be acquired.

8.5.1 Opinion of Probable Cost

The major change between the 100-year and 500-year levee protection is the quantity of fill required for construction.

This OPC is intended to provide information for consideration during decision-making and planning at this feasibility-level stage of the Miles City Study. After preliminary alternative evaluations and alignment revisions were presented during the City meetings, further design was completed and quantity takeoffs and real estate acquisitions have been estimated for the project. The cost estimate is of a level of detail intended to evaluate the feasibility of the project as defined at this time. The estimated costs will change based on final design and alternative selected by Miles City.

8.5.1.1 Estimated Cost

An OPC was developed for the project with the same methodology, basis of cost, cost breakdown and the project features summarized in section 8.4.

Table 8 Opinion of Probable Cost

Cost Breakdown/Element	Opinion of Probable Cost
Mobilization/Demobilization	\$1,530,000
Infrastructure Modifications	\$201,000
Roads, Road Raises, and Railroads	\$186,000
Channel Improvements and Hydraulic Structures	\$1,630,000
Levees, Floodwalls and Closures	\$12,985,000
Interior Flood Damage Reduction Systems (Pumping Stations)	\$1,400,000
Estimated Construction Costs ^{1 2 3 4}	\$6,200,000
Lands and Easements ⁵	\$6,030,000
Planning, Engineering and Design	\$3,680,000
Construction Management	\$2,500,000
Estimated Total Project Cost ^{1 2 3 4}	\$33,840,000

¹ Includes contingency (for additional information see Appendix 4).

² Includes cost of all levee sections.

³ This is a feasibility-level cost estimate based on feasibility-level design alternatives, alignments, quantities and unit prices. Costs will change with further design.

⁴ Does not include temporal escalation costs, operation and maintenance costs.

⁵ Regardless of funding mechanism selected, land acquisition and easement costs will always be part of the local share of the project.

9 Environmental Consideration

This section provides an overview of the environmental factors considered during preliminary levee alternative analysis. With preliminary review, the currently known environmental considerations in the study reach do not appear to present significant impediments to the project or project features. Due to the potential for the pursuit of federal funding, environmental analysis under the National Environmental Policy Act (NEPA) would need to be completed. Due to the large size of the preliminary project alignment, interconnectivity of project areas, requirement of federal permits, potential affects on wetlands, river channel and economic impacts to communities, the project will require at least an Environmental Assessment (EA); though it is very likely an Environmental Impact Statement (EIS) would be required due to the level of potential impact. The studies will need to take place because of the location of the project being within the 100-year floodplain. Large, complex projects such as the Miles City Levee Protection Project have many levels of environmental, community, historic/cultural and economic impacts that may be both beneficial and damaging.

There will be a need for continued dialogue with the agencies and jurisdictional representatives, as well as the stakeholders. This will allow for additional insight on approaches to minimize the environmental impacts as well as in cooperating features that may lessen the impact caused by the project. This project has the potential to increase the social and economic values through recreational benefits, like improved recreational access along the study reach. The potential to increase recreational values from the existing conditions will need to be further evaluated during the project's design phase.

9.1 National Environmental Policy Act (NEPA)

NEPA was enacted in 1970 with the purpose of requiring federal agencies to consider significant environmental impacts arising from projects under agency jurisdiction. Another main purpose of NEPA is to provide public participation in the project decision making process.

NEPA requires that potential environmental, social and economic impacts of proposed project be analyzed for all major federal projects that affect "the quality of the human environment." Most projects having federal participation, permitting or approval may be enough to make a project a "major federal action," which can result in private projects also being required to perform a widespread environmental review.

An EA is conducted to define the project requirements, potential environmental effects and alternative actions. The EA provides the project information needed for evaluating the environmental impacts and

determining whether an EIS must be prepared. If a federal permitting agency decides that an EIS is likely to be required due to project scope, scale or potential impacts, an EA can be used as a scoping document to define the information that should be included in an EIS.

9.2 Wetlands

A preliminary office review of wetlands concluded that additional investigation of wetlands via a field delineation is needed. This assumption is reinforced by the USACE's environmental statement:

A wetland area exists near the downstream end of the proposed project along the Yellowstone River. This wetland is an old channel of the Tongue River, and usually has about 5 acres of surface area. Its primary source of water is ground water supplemented by runoff from a northern sector of Miles City. (Department of the Army U.S. Army Engineer District, Omaha, 1978)

9.3 Cultural Resources

Cultural resources are defined as evidence of past human activity that includes pioneer homes, buildings or old roads; structures with unique architecture; prehistoric village sites; historic or prehistoric artifacts or objects; rock inscription; human burial sites; and earthworks, such as battlefield entrenchments, prehistoric canals or mounds. These cultural resources will need to be reviewed during the environmental review of the project area before construction could commence.

10 Permitting and Regulatory Considerations

The following sections provide a brief description of the potential permitting responsibilities for the Miles City Flood Protection project. Table 9 provides a brief, non-comprehensive listing of major permitting and regulatory considerations; there are other minor permits that will need to be acquired.

Table 9: Major Required Permits and Approvals

Agency	Permit Approval	Reason
Federal		
US Army Corps of Engineers (USACE)	Section 404 Individual Permit	Impacts to waters of the United States including wetlands
	Section 10 Individual Permit	Impacts to navigable water
	Section 106 Consultation	Condition of federal permit (USACE permit)
US Fish and Wildlife Service (USFWS)	Section 7 Consultation	Condition of federal permit (USACE permit)
Federal Emergency Management Agency (FEMA)	Conditional Letter of Map Revision Letter of Map Revision	Modifications within the 100-year floodplain
	Levee Certification	To demonstrate that the levees meet 44CFR65.10
State		
Department of Natural Resources and conservation (DNRC)	Environmental Assessment	Condition of Funding
	Floodway Permitting	DNRC approval requirement for changes to a Floodway
Montana Department of Environmental Quality (DEQ)	NPDES Construction Stormwater Permit	For construction activity disturbing one or more acres
	Section 401 Certification	Water quality certification ensures that federally permitted activities are in compliance with water quality standards
Montana—Office of the Engineer	Construction Permit	Construction of levees
	Sovereign Lands Permit	Project involves potential dredging and filling
Montana Department of Transportation (MDT)		Working within DOT ROW

10.1 Federal Agencies

10.1.1 FEMA

FEMA is responsible for reviewing impacts to the 100-year flood elevation. For alternatives that include work within the 100-year floodplain, FEMA may require completion of a no-rise certificate or a CLOMR, followed by a LOMR. A CLOMR and LOMR would be necessary to demonstrate that the project does not increase the BFE. The placement of a levee could potentially impact BFEs and floodway boundaries. In this case, submittal of the CLOMR will likely trigger a request for a PMR, for which a new floodplain and flood way map will be required. FEMA has criteria for certifying that flood risk reduction projects

provide a specific level of protection against the base flood event. FEMA reviews documentation provided by the levee owner, demonstrating that the levee has been certified by a professional engineer and meets current design criteria. Following a review of submitted documentation, FEMA will map areas protected by a levee as moderately at risk (Zone X) on flood insurance rate maps.

10.1.2 USACE

The USACE issues permits for work within navigable waters (i.e., below the ordinary high-water line for the Yellowstone and Tongue Rivers) or within jurisdictional wetlands. The USACE reviews and approves modifications to the existing levee system. The project described in this report will likely be considered a major action with the potential for significant impact on the quality of the human environment. As a result, the project will require USACE approval under Section 10 of the Rivers and Harbors Act of 1899 and under Section 404 of the Clean Water Act. An environmental review will need to be conducted to meet the requirements of the National Environmental Policy Act of 1969, National Historic Preservation Act of 1966, and Council of Environmental Quality Regulations Endangered Species Act of 1973, Section 404 of the Clean Water Act, and other applicable laws and regulations. Under NEPA, applicable projects are assessed in relation to the environmental conditions of the area and the impact that alternatives would have upon those environmental conditions. It has always been the intent of the NEPA process to ensure that informed decision making, with respect to the environment, occurs when considering the need for a project and its alignment and design. The NEPA document will assess the impacts of the proposed action and reasonable alternatives, identify and evaluate mitigation alternatives, and discuss potential environmental monitoring. Coordination with responsible federal, state and local agencies; the general public; interested private organizations and parties; and any other affected party will assist in the determination of significant environmental issues and resources. The NEPA document will be a valuable tool to help guide and refine the design process. The information compiled will be valuable when completing the required Section 404. Early coordination with other agencies and the public is an essential part of the project development process. This coordination can help in determining the appropriate level of documentation required and in shaping discussion related to project purpose and need. It will also help in identifying the NEPA and permit requirements of other agencies, the range of alternatives, impacts to resources, possible mitigation measures and opportunities for environmental enhancement.

10.1.2.1 Section 404 Permitting

10.1.1 Because the project involves work in navigable waters, it will also require federal permitting under Sections 401 and 404 of the Clean Water Act. This permitting is achieved by completing

a Joint Application for Proposed Work in Streams, Lakes and Wetlands in Montana. This joint application goes to several state and federal agencies and facilitates a more timely review process than applying for permits from each agency separately. It is recommended that the public interest and technical evaluation data required for a Section 404 permit and/or a Section 10 permit be compiled concurrently with the technical evaluation and environmental protection compliance data required for a Section 408 permit. This will facilitate a timely, concurrent USACE review.

10.2 State and Local Regulator Considerations

A construction permit from the Montana Office of the State Engineer will need to be obtained before implementing the project. Local permitting considerations include municipal and county permits. The construction contractors will be responsible for acquiring all local licenses/permits required to comply with state and municipal laws, codes and regulations (road, borrow, construction, etc.), before starting construction activities. The contractor will also need to acquire the national NPDES permit from the DEQ.

11 Levee Certification Requirements

The levee certification process is the technical finding for floodplain mapping purposes. To be part of the NFIP, there must be reasonable certainty that the levee protecting the area will contain the base flood (as flood being the 1% annual chance exceedance, sometimes referred to as the 100-year flood event). The certification findings can be completed by a federal agency with levee design and construction qualifications (USACE) or by a Registered Professional Engineer.

11.1 Roles and Responsibilities

Miles City has jurisdiction over the floodplain and is responsible for seeking levee certification. Miles City may perform the certification analysis, or may request to have the technical determination done by others. However, the certification must be done by a registered Professional Engineer. Levee certification is not done by FEMA; they are the recipients of the levee certification determination document as outlined in 44 CFR 65.10. If they agree with the findings, FEMA will then accredit the levee and the associated FIRMs will show that the flood hazard area is protected from a 100-year flood event.

11.2 Levee Certification Technical Guidance

The overall approach used to define the flood hazard and the elements used when assessing the 1% annual chance exceedance flood. The evaluation elements will include the definition of the exceedance criteria, design and construction details, O&M status and plans, residual risk and emergency response

plans. Each section in the LCR it will detail references and guidance documents used, other sources of information and professional state-of-the-practice documents. These sections will define the elements to establish whether or not the levee system is in accordance with the NFIP levee system requirements. Below is a list of the major factors that will need to be completed in order to be considered during the levee evaluation process.

- O&M Plan
- NFIP levee system evaluation field inspection
- Flood hazard characterization
- Capacity exceedance/failure criteria
- Levee height assurance determination
- Closure structures and devices
- Embankment protection from current or wave action
- Seepage/underseepage analysis
- Embankment and foundation stability
- Settlement
- Seismic analysis (where appropriate)
- Construction records and quality control testing
- Performance records
- Major maintenance and rehabilitation
- Interior drainage
- Residual risk and public safety
- Encroachments
- Ice issues
- Other applicable unique design criteria

12 Summary of Flood Mitigation Study

Five alternatives were analyzed both quantitatively and qualitatively. Doing nothing lacks any form of benefit and does nothing for the inherent risk the flooding situation presents to life and property damage. LOMAs may be implemented on their own, or in conjunction with a larger project. However, LOMAs would only benefit a small portion of the property owners within the floodplain, and the owners would be liable to pursue this alternative on their own. 2D modeling has the potential to remove a

portion of properties from the floodplain by more accurately depicting the flow of a 100 year flood event. However, remapping using a 2D model through FEMA’s procedures has the potential to be a long, laborious process. Finally, constructing a new 100-year or 500-year levee will remove the majority of parcels out of the floodplain. However, these are by far the most expensive alternatives, and will take several years’ worth of design, construction, and administrative work before the levee is certified, and the City is removed from the floodplain.

12.1 Expected Timeline

Table 10 below lists the five alternatives in order of how long it is anticipated for the selected alternative to go into effect. Naturally, doing nothing can be implemented immediately. LOMAs are typically processed by FEMA within 60 days. Once a LOMA is issued, flood insurance may be immediately canceled. 2D modeling, as previously discussed, is significantly more labor intensive than 1D modeling. This statement holds true for data gathering, model construction, model calibration and model review. As 2D models are the exception rather than the norm, it should be expected that a 2D model for Miles City will take several years to construct and be approved by FEMA. Finally, constructing a certified levee will take several years of design and construction, in addition to the procedures that must be followed to certify a levee.

Table 10: Expected Time to Implement Alternative

Alternative	Expected Time to Implement (years)
#1 Do Nothing	0
#2 LOMAs	1
#3 2D Modeling	4 to 7
#4 100-Year Certified Levee	5 to 7
#5 500-Year Certified Levee	5 to 7

12.2 Benefit-Cost Analysis

The effectiveness of the five alternatives were studied using a benefit-cost analysis. This analysis compares the present value of the benefits associated with the implementation of a project to the present value of its costs, in terms of today’s dollars. For example, when approximating future flood insurance premiums, both increase in policy cost and inflation rates are taken into account. The Benefit to Cost Ratio is a convenient tool to determine whether or not a project’s benefits are greater than its costs. For a project to be beneficial, its benefit to cost ratio must be greater than one. If it is less than one, the project is more costly than beneficial. Table 11 below shows the present values of benefits,

costs, and the benefit to cost ratio for the five alternatives. Based on the input values selected, the new levee has the highest benefit to cost ratio, and thus is the project, in this instance, that has the highest benefit to Miles City. 2D Modeling also has a benefit to cost ratio greater than one, signifying that it too would have a positive effect on Miles City. However, the benefit to cost ratio for both the Do Nothing and LOMAs alternatives is almost non-existent. There are no benefits to the Do Nothing alternative, and the benefits for the LOMA alternative are insignificant when looking at the entire city.

Table 11: Benefit-Cost Analysis for Five Alternatives

Benefit-Cost Analysis Parameters	
Current Collective Annual Premiums	\$625,000.00
Number of Flood Insurance Policies in Miles City	1312
Average Policy Premium	\$476.37
Expected Annual Rate of Increase in Flood Insurance	10%
Annual Inflation Rate	3%
Period of Analysis (years)	30
Do Nothing	
Present Value of Benefits of Doing Nothing	\$0.00
Present Value of Costs of Doing Nothing	\$55,258,238.36
Benefits - Costs	-\$55,258,238.36
Benefits: Costs	0.00
LOMAs	
Possible Number of Policies Removed	100
Cost per LOMA	\$ 1,500
Total Cost of LOMAs	\$ 150,000
Present Value of Benefits of LOMAs	\$4,211,756
Present Value of Costs of LOMAs	\$51,196,482.39
Benefits - Costs	-\$46,984,726.41
Benefits: Costs	0.08
2D Modeling	
Number of Policies Removed	750
2D Modeling Cost	\$328,000
Years until FEMA Approval	2
Present Value of Benefits of 2D Modeling	\$21,567,205
Present Value of Costs of 2D Modeling	\$19,347,042
Benefits - Costs	\$2,220,162.42
Benefits: Costs	1.11
100-year Certified Levee	
Number of Policies Removed	1275
Local Share of New Levee Cost	\$32,360,000
Years until FEMA Approval	6

Present Value of Benefits of New Levee	\$49,503,328
Present Value of Costs of New Levee	\$38,114,910
Benefits - Costs	\$11,388,417.48
Benefits: Costs	1.30
500-year Certified Levee¹	
Number of Policies Removed	1275
Local Share of New Levee Cost	\$33,360,000
Years until FEMA Approval	6
Present Value of Benefits of New Levee	\$49,503,328
Present Value of Costs of New Levee	\$39,354,910
Benefits - Costs	\$10,148,417.48
Benefits: Costs	1.26

¹This benefit: cost ratio only takes into consideration insurance premiums vs. levee cost, therefore the 500-year protection appears to have a lower B:C ratio than the 100-year levee, which, when other factors are considered, would not be the case.

The recommended plan was considered by formulating three primary plan objectives: to reduce or eliminate flood damages to existing developments, to minimize the impact of any remaining flood hazards, and to prevent the creation of new flood hazards following implementation of the selected plan. When considering the alternatives, many factors were taken into account. Alternative #5 is the recommended choice for Miles City, MT; the benefits of this alternative are more significant than the other two alternatives. The majority of homes will be removed from the floodplain, and the number of homes with mandatory flood insurance policies will significantly decrease. The long-term effects of Alternative #5 will outweigh the short-term cost of the project. During design and construction of Alternative #5, residents may independently pursue LOMAs to reduce personal cost while the project is under construction. This may be a viable alternative for some citizens to decrease their immediate costs, as the proposed construction timeline will likely be several years.

12.3 Future Considerations

When looking at Miles City as a whole, the massive number of flood insurance policies mandated is a symptom of the overall problem: the decertified levee. Of the five alternatives, only reconstruction of the levee will solve the problems; LOMAs and 2D Modeling treat the symptoms, while doing nothing ignores the problem entirely. If any of the three alternatives besides levee reconstruction is selected, flood fighting measures will continue as they have for the past 80 years. The decertified levee will continually need to be repaired, and Miles City is at greater risk for a catastrophic flooding event. As the majority of properties within Miles City are in the floodplain, new construction and renovations to existing structures will not be allowed without a permit, based on Montana state law. No construction whatsoever is allowed for properties within the floodway.

Constructing a new levee will help mitigate risk. It is important to note that no flood control structure will eliminate risk entirely. The chances of failure of a new levee, however, would be significantly less than the current structure in place. That is not to say the new levee will be maintenance-free. In order to continue to benefit from the certified status, the levee must meet the minimum standards of USACE inspectors on an annual basis. This includes items such as, but not limited to, proper vegetation, functional closure devices and levee integrity, to name a few. In short, the levee must be properly maintained to continue, according to FEMA, to provide flood protection.

13 Conclusion

The USACE has evaluated alternatives for protection besides building a levee, coming to this conclusion:

I have evaluated alternatives solutions to the flood problems at Miles City. Upstream reservoirs would not eliminate ice-jam flooding. Channelization of the Tongue and Yellowstone Rivers would cause significant adverse environmental impacts and would cause only a partial reduction in the threat of ice-jam flooding. Flood proofing or relocation of the flood plain structures would involve most of the structures in Miles City, would cause major social impacts, and would not be economically or socially feasible.

(Department of the Army U.S. Army Engineer District, Omaha, 1978)

The goal of this flood mitigation study was to review the FIRM mapping and determine if the appropriate protection steps can be taken to remove the at-risk properties from the 100-year floodplain. Information from this study will assist local decision makers, city and public in prioritization of the future protection needs, financial planning and public outreach.

To determine the flood management features necessary for acceptable flood risk reduction and to define the land needs and costs associated with developing a Miles City Feasibility Flood Protection project, the following activities were performed:

1. Reconnaissance of the project area and research of existing geotechnical, hydrologic and hydraulic information, and available transportation and infrastructure engineering data
2. Development of a preliminary project configuration including levee and floodwall alignments, heights and ground contact zones (footprints), incorporating measures identified as priorities by the stakeholders for meeting flood protection goals
3. Identification of relevant regulatory requirements and consideration of these aspects in plan development

4. Preparation of drawings, maps and preliminary design descriptions
5. Preparation of a Preliminary Engineering Report, including cost estimate, with sufficient detail to be used as the basis for a final design
6. Solicitation of stakeholder input throughout the process

Due to the scope of the study it is intended only as a conceptual level design. As a result, additional detailed design (survey, soil borings, etc.) will be required prior to implementing any of the proposed projects details. Any numbers used in this document are an approximate estimation for representative purposes, and should not be taken as finalized.

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Public Safety Committee Meeting September 16, 2014

The Public Safety Committee met Tuesday, September 16, 2014, at 6:00 pm in the City Hall Conference Room. Present were Chairperson Mark Ahner and Committee Members Sue Galbraith, Jerry Partridge and Roxanna Brush. Also present were Police Chief Doug Colombik, Interim Fire Chief/Captain Cameron Duffin and Committee Recorder/Deputy City Clerk Connie Watts.

Chairperson Ahner brought the meeting to order.

REQUESTS OF CITIZENS

Spencer Haynes, 86 Agate Drive, addressed the Committee regarding a letter he had sent to Chairperson Ahner and copied to Police Chief Doug Colombik. Mr. Haynes runs a mobile landscaping business and drives many streets in Miles City every day. He expressed concern about obstructions, including bushes and trees, that **are interfering with visibility at many intersections around town.**

Chief Colombik responded that Captain Reddick has recently sent out over two dozen letters regarding shrubbery, public nuisances and other obstructions. He said the Police Department works on this problem all the time; they are very busy and shorthanded, but are doing the best they can. When a letter is sent out, the property owner is normally given 10 days, and the majority of people do rectify the problem within that time period.

Mr. Haynes also spoke about the **traffic congestion around schools**, and complained that some schools do not have 15 mph signs, and/or the 25 mph signs that indicate an end to the 15 mph speed limit.

Chief Colombik said he has doubled the patrols around schools this year, and he circles the schools himself, also. As for the signs, Mr. Haynes could not remember exactly where he noticed the signs were missing. He will contact Chief Colombik with that information.

Chairperson Ahner said this was addressed by the Council some time ago, and asked Chief Colombik to check with Public Works to see if all the signage is in place.

Chairperson Ahner asked Mr. Haynes to visit with him again if he does not see improvement in the intersections that he mentioned.

REVIEW ORDINANCE NO. 1278:

An Ordinance Revising Section 11-77 Of The Code Of Ordinances Of The City Of Miles City, Montana, Adopting The 2012 International Fire Code, And Notice Of Intent

** *Committeeperson Brush moved to recommend approval of Ordinance No. 1278, seconded by Committee member Galbraith.*

Interim Fire Chief Duffin explained that the most recent fire codes adopted are 2009, and 2012 is the most recent edition. The State Fire Marshal's Office adopted the 2012 Codes a few months ago; Cities cannot adopt them until the State does.

* *Committeeperson Brush's motion then passed by unanimous consent.*

POLICE DEPARTMENT POLICIES

Chief Colombik said he has been working on revising and updating the policies for some time, and they are now ready to be reviewed by the Committee. Attorney Rice has reviewed and approved the policies.

- a. **WEAPONS:** This is an updated policy that includes some new additions, including updated minimum qualifying standards.

Chairperson Ahner asked whether there is a separate policy concerning securing weapons, e.g. in an officer's parked vehicle. He was concerned about someone breaking into the vehicle if an officer were to leave it parked and unattended for a time. *Chief Colombik will make this addition.*

- b. **Veterans' Administration:** This needs to be added to the PD policy. The City has a contract with the VA which states that, in return for the Police Department using the space, officers will conduct security checks of all exterior doors and the nurses' station and lock up the hospital in the early evening. He also mentioned that the contract itself will likely be updated soon; the current contract was effective in 2000, after the PD moved to its current building in 1999.

Chairperson Ahner noted that, on the last page of the VA Policy, it states "The Chief of Police shall then review the check sheet daily." He suggested the words, "or the Chief's designee" be added, as the current version puts the Chief in the position of always being totally responsible for that duty. *Chief Colombik will make this addition.*

- c. **TASER:** This is also an updated policy that includes a few revisions. The policy presented is recommended and suggested by MMIA. The most significant revision is prohibiting shooting the taser at an individual's chest. In the event he or she has a pacemaker, the taser could cause the device to fail, resulting in a heart attack.

Chairperson Ahner noted the policy specifies "Taser X26." He suggested it simply read "Taser," since the policy would not have to be changed if the PD upgrades its equipment. *Chief Colombik will make this change.*

- d. **SOCIAL MEDIA:** This is a new policy, the purpose of which is to provide guidelines concerning the personal use of social media when it references the Miles City PD. Interim Chief Duffin felt this policy should be in the City Policy manual, as well. Committee Member Brush, Chairperson of the Human Resources Committee, will mention it at the next HR Committee meeting.
- e. **SPECIAL TACTICAL SITUATIONS:** This is a new policy with basic guidelines for a major incident. Its purpose is to provide guidelines that establish general procedures for handling special tactical situations that may be comprised of unusual operational activities and problems, including hostage situations, armed barricaded persons, sniper incidents, aggravated suicide attempts and other tactical problems.
- f. **MENTAL ILLNESS OR DISABILITY INTERVENTION:** This is a new policy detailing recommended responses involving persons with suspected mental illness, for suicide intervention, and how and when to take individuals into protective custody.

Councilperson Galbraith suggested the language also address individuals with “special needs and/or disabilities,” as well as those with mental illness. *Chief Colombik will make that change.*

- g. **LOST AND FOUND:** This is a new policy, the purpose of which is to establish the handling, return, destruction and sale of lost or abandoned property.

*** Councilperson Galbraith moved to recommend approval of the above Police Department Policies, with amendments. Committee member Brush seconded the motion, which then passed unanimously, 4-0.*

ADJOURNMENT

*** Having no more business to come before the Committee, Committee Member Galbraith moved to adjourn the meeting, seconded by Committee Member Brush and passed unanimously, 4-0. The meeting was adjourned at 7:25 p.m.*

Respectfully Submitted:

Public Safety Committee Chairperson:

Connie L. Watts, Recorder

Chairperson Mark Ahner



Miles City Police Department
2420 BRIDGE STREET
MILES CITY, MT 59301 - 406-234-6273 Fax: 406-234-4270
Doug Colombik Chief of Police



7/31/2014

To: Mark Ahner

From: Chief Colombik

Ref: Public Safety Review of Policies

Dear Mark,

I have several policies that need reviewed by the Public Safety Committee. City Attorney Dan Rice has reviewed these already and I need to add them to our MCPD policy book. Dan advised me that the Public Safety Committee will need to advise the Mayor that the policies have been reviewed and accepted. These are the policies:

Weapons: This is an updated policy that included some things that we needed to add.

VA: We need to add the VA to our policy book as we have a contract with them to stay in their building.

Taser: This is an updated policy with a few changes.

Social Media: This is a new policy that needs added as a result of all the social sites many younger officers regularly use.

Special Tactical Situations: This would be a new policy with basic guidelines for a major incident.

Mental Illness Intervention: This is a new policy

Lost and Found: This is a new policy.

WEAPONS

1. General:

- All police department personnel must adhere to any local, state or federal laws existing or enacted in the future regarding firearms.
- Displaying weapons while under the influence of alcohol or narcotics will not be tolerated.

2. Handgun:

- All full time Officers on the Department are required to carry the sidearm issued by the department while on duty.
- All full time Officers will be issued a department owned handgun to use while on duty. Handgun will be issued with no less than 3 magazines.
- All reserve Officers, while on duty, shall carry their personally owned handgun. The handgun shall be approved by the department armorer and/or department firearms instructor. It must be a LE/MilSpec quality, serviceable handgun chambered in either 9x19, .40 S&W or .45 ACP.
- All uniformed Officers shall carry a minimum of 2 additional magazines, carried in magazine pouches designed for that purpose.
- Handgun must be carried in duty ready condition while on duty. One round chambered and magazines loaded to full capacity.
- Modifications other than addition of grip tape or grip sleeves shall be pre-approved and performed by the department armorer. Addition of weapon mounted lights shall be approved once armorer or firearms instructor verify handgun functions with said added light.

3. Patrol Rifle:

- The department may issue full time Officers Patrol Rifle. Department issued rifles, shall be issued with a minimum of 2 magazines.
- Full time Officers have the option of providing personally owned rifles for use while on duty. The rifle shall be subject to prior approval by the department's armorer and/or firearms instructor.
- LE/MilSpec quality red dot style optics or magnified optics shall be permitted or issued. Magnified optics shall be no more than four times magnification (4x) unless approved by the department armorer or firearms instructor.
- Weapon mounted flashlights shall be permitted.
- Modifications other than addition of optics or lights to the rifle shall be approved and performed by the department armorer.
- Rifles shall be carried in patrol ready condition unless deployed. In the patrol ready condition, chamber of the rifle shall be empty, hammer forward and loaded magazine in mag well. *Chamber shall be empty!* If entering PD with rifle, rifle shall be empty, magazine removed and bolt locked to rear.
- Reserve Officer will need prior approval from the Chief for use and qualification with a Patrol Rifle. The Reserve Officer's rifle will need approval from the department's armorer and firearms instructor.

4. Patrol Shotguns:
 - Patrol vehicles shall be equipped with a Department owned Remington 870 shotgun.
 - Full time Officers have the option of providing personally owned shotguns for use while on duty. The shotgun shall be subject to prior approval by the department's armorer and/or firearms instructor.
 - LE/MilSpec quality red dot style optics shall be permitted or issued.
 - Weapon mounted flashlights shall be permitted.
 - Patrol Shotguns shall be chambered in 12 gauge.
 - Shotguns shall be kept in patrol ready condition. Magazine loaded, chamber empty and hammer forward.

5. Off Duty/Back-up guns:
 - The carry of back-up guns and/or off duty is highly encouraged.
 - Personally owned weapons should be of quality, serviceable design and chambered in a center-fire cartridge.
 - Off Duty carry shall not be permitted when alcohol is consumed.

6. Special Purpose Weapons:
 - Circumstances may require the use of specialized weapons (i.e. door breaching shotgun, precision rifle), the use of these weapons shall be evaluated on a case by case basis and approved as required.

7. Ammunition:
 - All full time Officers, while on duty or off duty, shall carry or use the duty round issued by the department in the department issued handgun, rifle and shotgun, other than target practice.
 - Reserve Officers, Off Duty or Back up guns, when carrying a handgun chambered in a round not provided by the department, shall provide a round that is factory loaded with an expanding style projectile from a reputable manufacture and is subject to prior approval by the department's armorer and/or firearms instructor.
 - The Department armor shall issue training ammunition on a monthly basis upon request to full time Officers.

8. Maintenance:
 - All weapons shall be clean and in excellent operating order at all times.
 - Basic field strip cleaning, lubricating and inspection of duty weapons shall be the responsibility of the individual officer.
 - Detail cleaning and inspection shall be performed by the department armorer on a regular basis.
 - In the event that department issued weapon becomes non-operational, it shall be returned to the armorer for repair and a temporary replacement weapon shall be issued.

9. Qualification:

- All Officers, full and reserve, shall qualify with the duty, back-up guns carried while on duty and/or off duty (optional) handgun, patrol rifle and patrol shotgun twice a year.
- Any Officer failing to meet the minimum qualification with the duty handgun, shotgun or rifle will be given thirty (30) days grace period to meet the qualification or will be relieved of duty without pay until said officer is able to meet the qualifications. Officer shall be given no more than 3 attempts in passing the qualification any given day. Remedial training will be conducted. Then makeup qualification will be conducted. Failing to pass the qualification after 6th attempt. Officer will continue the relief of duty until Chief decides on course of action.
- All qualifications with duty weapons shall be with duty ammunition. Reserve Officers shall be responsible for their qualification ammunition.
- Qualifications with back-up guns and off-duty weapons shall be with the intended carry ammunition. Up to 3 off-duty/backup weapons may be qualified with.
- Minimum qualification passing score is 90%.



Miles City Police Department

2420 BRIDGE STREET

MILES CITY, MT 59301 - 406-234-6273 Fax: 406-234-4270

Doug Colombik Chief of Police



VA POLICY

The Miles City Police Department and VA Montana have a contract that became effective 07/24/2000. The guidelines require that Miles City Police Officers conduct routine checks on all exterior doors as well as to lock up the hospital in the early evening. This will include 24 hour weekend and holiday surveillance of the hospital.

1. The afternoon shift supervisor shall assign the duty of VA lockup to an officer on his/her shift. The VA lock up will begin by conducting a routine check on the nurses in the Community Living Center. The officer will then do a walkthrough of each level of the old hospital. Once the floors have been cleared, the officer will then lock the front entrance doors as well as the side doors of the hospital. The north facing door, number 20 (smokers door) will remain unlocked as the employees will be using that door for break/smoking purposes. Door #9, the Community Living Center, will also remain unlocked. The afternoon lockup shall occur between 6:00 pm and 7:00 pm, Monday through Friday each week. If an officer is on a call for service, then that officer will attempt to lock up the VA as soon as possible once the call has been cleared.
2. The night shift supervisor shall assign the duty of VA exterior door checks during the night. There shall be two (2) exterior door checks every night of the week. The first exterior check shall be conducted between 10:00 pm and 1:00 am. The second check shall be done after that and before 6:00 a.m. The officer checking on the VA at night shall conduct a physical check of the doors. If an officer finds a door unlocked or open, he shall respond to the Community Living Center, and check on the safety of the employees. The officer will check on the rest of the building then lock the door which was found open.
3. On weekends, officers will conduct exterior checks on the VA twice during the dayshift and once during the afternoon shift. These will be physical checks. The night shift shall conduct two checks on the hospital. A physical check will consist of an officer walking around the hospital and checking each door to make sure they are locked as well as to observe any windows that may be broken or anything else on the hospital grounds that may be out of place.
4. On holidays, the officers will follow the weekend VA checks as stated in paragraph #3. If officers continue to find some doors left open while conducting their checks, they shall report the information to the Chief of Police, who will then relay the information to the responsible VA official.
5. All officers who conduct VA checks shall log their initials, date and time on the VA Hospital Check Sheet located in the Police Department. The Chief of Police shall then review the check sheet daily.

TASER X26-Electronic Control Device (ECD)

Purpose

The purpose of this policy is to provide guidelines to officers in the proper deployment, care, and use of the Taser X26 - Electronic Control Devices.

Policy

Deployment of the Taser X26 - Electronic Control Device constitutes an intermediate or medium use of force. Officers should use the amount of force, which is reasonable and justified under the circumstances and necessary to make an arrest or gain control of a situation. The Taser X26 - Electronic Control Device falls into the category of non-lethal force. Non-lethal, however, is not synonymous with non-excessive; all force, lethal and non-lethal, must be justified by the need for the specific level of force employed. The Taser X26 - Electronic Control Device is not substitute for deadly force when the situation escalates and the use of deadly force is justified.

Training Required

Officers who intend to carry and/or use department issued Taser X26 - Electronic Control Devices must first complete a recognized and approved training course. To continue to use and carry the Taser X26 - Electronic Control Device, ongoing training and familiarization with the deployment and application of the device is required by the department for every officer.

Authorized Electronic Control Devices

1. The police department will document and record the serial numbers of all Taser X26 - Electronic Control Devices within its inventory.
2. Training records will also be kept to document those officers authorized to carry and use police department issued Taser X26 - Electronic Control Devices.
3. Alterations or Modifications – No changes, alterations, modifications, or substitutions shall be made to Taser X26 - Electronic Control Devices, cartridges or department issued holsters.

Carrying The Taser X26 Electronic Control Device

1. Officers may only carry and use agency authorized Taser X26 - Electronic Control Devices.
2. Belt Holsters for the Taser X26 - Electronic Control Device shall be worn opposite of the officer's firearm in a cross-draw position.
3. Upper Leg Holsters may also be worn in order to carry the Taser X26 – Electronic Control Device.
4. Chest holsters may also be worn in order to carry the Taser X26 – Electronic Control Device.
5. All holsters used to carry the Taser X26 – Electronic Control Device should be positioned on an officer's body to avoid confusion between the officer's firearm and the Taser X26 – Electronic Control Device.

6. Prior to the deployment of the X26 – Electronic Control Device, officers are required to visually and physically confirm that the device selected is in fact the X26 – Electronic Control Device and not their firearm.

Inspections, Tests & Repairs

1. Officers who intend to carry the X26 – electronic Control Device during their shift should first inspect the device and its cartridges for damage.
2. The device should also be turned on to ensure that it has a functioning charge.
3. If the officer intends to test fire the device to ensure that it is in working order, the officer should first remove the cartridge from the front of the device in order to activate it safely. The device should then be pointed in a safe direction towards the ground away from the officer and others.
4. If the device is inoperable or if it malfunctions, it should be submitted to the department command for examination and repair.
5. All repairs shall be completed by a police department authorized armorer or vendor. Repairs to a Taser X26 - -electronic Control Device shall be documented and a record shall be maintained by the police department.

Guidelines For Use And Deployment

The following procedures provide guidance in the proper use, deployment and application of the Taser X26 – Electronic Control Device.

1. The Taser X26 – Electronic Control Device temporarily overrides the command and control systems of the body to impair muscular control. The Taser X26 – Electronic Control Device delivers an electrical charge cycle. The operator has the ability to shut the device off, this ending the charge cycle. Pulling the trigger additional times will reactivate the 5 second charge cycle. The Taser X26 – Electronic Control Device can be discharged by two different methods:
 - a. Probe Method – When a cartridge is inserted in the front of the Taser X26 – Electronic Control Device and it is discharged, two small probes attached to wires are expelled from the device by use of nitrogen gas. When the probes penetrate clothing or skin, electrical contact may be made between the probes impairing muscular control between the probes. There are several different cartridges, which vary in wire length in determining the distance to target.
 - b. Touch-Stun Method – When there is no cartridge inserted in the front of the Taser X26 – electronic Control Device and it is discharged, an electrical charge will be generated between the two metal probes at the front of the device. The device can then be placed against an individual's skin in order to make contact.
2. Because the Taser X26 – Electronic Control Device constitutes an intermediate or medium use of force, officers must be justified by the objective factors of the situation to employ such a level of force. Officers must consider the following before deploying or discharging the Taser X26 – Electronic Control Device:

- a. The severity of the crime at present must be serious enough to support and justify the level of force (Is the offense a misdemeanor or felony and/or a violent or non-violent crime?)
- b. The suspect must pose an immediate threat to the safety of the officers or others. The Taser X26 – Electronic Control Device should be used only against suspects who are exhibiting active aggression or who are actively resisting in a manner that, in the officer's judgment, is likely to result in injuries to themselves or others.
3. The suspect must be actively resisting arrest or attempting to evade arrest by flight. The Taser X26 – Electronic Control Device should never be used against an unarmed non-aggressive, passive suspect. Note that the potential for injury is greater if a suspect is tasered while running. The fact that the suspect is just fleeing from officers should not be the sole justification for using the Taser X26 – Electronic Control Device against the suspect.
4. Are there other less intrusive tactics available to affect the arrest?
5. The type of ground surface. (Because of the location, is there greater potential for injury when the suspect falls?)
6. Verbal warnings are not required, however they are recommended in most instances in an attempt to gain compliance to avoid actual discharge of the device. Warning a suspect that he/she will be tasered if they do not comply may initiate compliance from the suspect. In certain situations, surprise deployment without verbal warning may be necessary to subdue a suspect to prevent them from immediately hurting themselves or others; or to prevent the suspect from grabbing and/or using a weapon against themselves or others.
7. When officers discharge the Taser X26 – Electronic Control Device they shall allow the device to discharge for one complete standard charge cycle (five seconds). The officers should be giving verbal commands to the suspect upon deployment. Officers should then attempt hands-on control tactics during and immediately after the charge cycle in an attempt to restrain and handcuff the suspect. When the first charge cycle has ended, officers must evaluate the situation before reactivating an additional charge. Immediately after being tasered, suspects may appear non-compliant with verbal commands due to disorientation and the lack of muscle control caused by the Taser. Officers should use this brief time period to handcuff the suspect. If the suspect continues to actively resist arrest, an additional charge may be necessary. Officers must understand that multiple applications or continuous cycling of longer than 15 seconds (whether continuous or cumulative) may increase the risk of serious injury or death and should be avoided. Note that officers can shut the device off during any charge cycle to stop the charge cycle and decrease the suspect's exposure to the device's charge.
8. Preferred Target Areas of the Body – when a suspect is facing away, officers should aim for the back center mass of the suspect and avoid targeting the head and neck area. When the suspect is face on, officers should aim at the lower torso, trying to avoid the chest and genital area.

Use on Persons In Restraints Or In Custody

1. After deploying the X26 – Electronic Control Device, medical personnel from the Miles City Fire Department shall be summoned to the scene at the officer's request. Medical personnel shall assess the areas of the suspect's body where the Taser and/or Taser probes entered and/or made contact. Injuries sustained during the fall or during the custodial arrest shall also be examined and assessed and treated by medical personnel.

2. If the injuries warrant further treatment or if the suspect requests further treatment at the hospital, the suspect shall be transported by ambulance to the hospital. Medical treatment shall not be refused for anyone who requests it.
3. Probe Removal – Medical personnel summoned to the scene or medical personnel at Holy Rosary Hospital shall remove the probes from the suspect's body and administer the necessary medical treatment.
4. When the probes are removed by medical personnel, officers should inspect the probes to ensure that the entire probe, including the barb, has been removed.
5. Suspects who have been tasered, exhibiting the following signs should be examined and monitored by medical personnel at the hospital:
 - a. Suspects who are unconscious or unresponsive.
 - b. Suspects who appear highly intoxicated or under the influence of a narcotic.
 - c. Suspects who are highly agitated or acting irrational.
 - d. Suspects with elevated or irregular breathing.
 - e. Suspects who appear extremely over heated or they are sweating profusely.
 - f. Suspects who claim that they have a heart condition.
 - g. Suspects who have chest pain or are claiming further injury or pain.
 - h. Any suspect receiving multiple charge cycles, 3 standard charge cycles or more in excess of 15 seconds.
6. Suspects who have been tasered and who are now in the custody and care of the police department; should be monitored closely by officers until they are turned over to detention staff or medical personnel.
7. Detention staff must be informed that the suspect was controlled by the use of the X26 – Electronic Control Device.

Photographs

1. Photographs should be taken of Taser contact sites and/or probe impact sites; as well as any other related injuries as soon as possible.

Handling Of Spent Probes and Cartridges (Biohazards)

1. Spent probes shall be treated as biohazards. With the use of gloves, the spent probes should be placed point down into the expended cartridge bores and secured.
2. Officers shall also try to collect the "Afids" expelled from the Taser cartridge.
3. The "Afids," spent cartridges and spent probes should be considered evidence and department's Evidence Handling Procedures should be adhered to.

Elevated Risk Factors

1. Officers should be cognizant of certain dangers associated with the use of and the incapacitating effects of the X26 – Electronic Control Device. In recognizing the inherent elevated risk factors, officers should refrain from using the X26 – Electronic Control Device under the following circumstances:
 - a. When Flammable liquids/fumes or explosives are present.

- b. When the suspect is in an elevated position and the fall may result in death or serious bodily injury.
- c. When the suspect is seated in, driving a motor vehicle.
- d. When the suspect is actively running or fleeing.
- e. When the suspect is pregnant or appears pregnant.
- f. When the suspect is in or near a body of water.
- g. When the suspect is a young child.
- h. When the suspect is elderly or appears frail.
- i. When the suspect is amongst others and there is no clear line of sight.

Use On Animals

The X26 – Electronic Control Device may be deployed on an animal when the animal:

- a. Is threatening or attacking a person, including officers or another animal; or
- b. Needs to be controlled for the reason of public peace and safety, preservation of property, or other legitimate purpose; or
- c. Poses an active threat to officers in their efforts to perform their duties.

Use History

After using the X26 – Electronic Control Device, the device should be turned into command staff to download the Taser event. The Taser event shall then be downloaded and maintained by the department. A use history report will also be maintained by the police department in accordance with record retention policies. Use history reports will be generated upon the occurrence of the following:

- a. When the X26 – electronic control Device is used against any suspect or animal.
- b. Any claim of excessive force by use of the X26 – electronic Control Device.
- c. Hospitalization of the suspect following the use of X26 – Electronic Control Device.
- d. The death of a suspect following the use of the X26 – Electronic Control Device.
- e. In the event the X26 – Electronic Control Device is repaired or is no longer utilized.
- f. Semi-annually.

Accidental Cartridge Discharge

In the event of an accidental cartridge discharge, officers shall promptly notify their immediate supervisor.

Prohibited Uses

The X26 – electronic Control Device shall not be used:

- a. Punitively.
- b. In touch-stun mode as a prod or escort device.
- c. To rouse an unresponsive, unconscious, impaired or intoxicated person.
- d. For horseplay or clowning around in an unprofessional manner.

- e. To experiment on a person or allow a person to experience the effects unless authorized by the department during training or demonstrations.
- f. Against non-aggressive, passive suspects.
- g. Against suspects who have committed minor offenses.
- h. Against suspects who are not posing an immediate threat towards the safety of officers or others.
- i. Against suspects who are just running and/or fleeing from police.

Records And Use By Officers

After deploying and using the X26 – electronic Control Device against suspects and/or animals, officers must complete an officer statement as well as a Taser Use Report explaining and documenting the event. The officer statement and Taser Use Report will then be submitted to the officer's immediate supervisor.

The department shall maintain records, documenting and tracking the use of its X26 – Electronic Control Device by officers.

The department will review incidents and track the use of all of its X26 – Electronic Control Devices to ensure the department policy is being adhered to. When policy infractions are suspected and/or inconsistencies are detected the department shall conduct an investigation to determine what actions should be taken by the department.

Social Media

Purpose

The purpose of this policy is to provide guidelines concerning the personal use of social media when it references the Miles City Police Department. This policy is not meant to address one particular form of social media in general, as advances in technology will occur and new tools will emerge.

This policy does not prohibit and will not be interpreted or enforced in a manner which could interfere with, restrain, or coerce employees from engaging in activities protected by the National Labor Relations Act, including concerted activities, discussion of wages, benefits, and other terms and conditions of employment.

Policy

Personnel shall not use any form of social media or social networking in any way that discredits themselves or their departments, or otherwise impairs their ability or that of other officers or the department to provide fair, impartial and unbiased law enforcement services to the community. An officer's ability to perform his or her duties is dependent upon the respect and confidence communities have for the officer and law enforcement in general. Officers must conduct themselves in a manner consistent with the integrity and trustworthiness expected of them by the public. Any online activity that has the effect of diminishing the public's trust and/or confidence in this department will hinder the efforts of the department to fulfill its mission. Law enforcement officers, by virtue of their position, are held to a higher standard than the general members of the public, and their online activities should reflect such professional expectations and standards. As such, this policy provides information of a precautionary nature as well as prohibitions on the use of social media by department personnel.

Definitions

Social Media: A category of Internet-based resources that integrate user-generated content and user participation. This includes, but is not limited to social networking sites (Facebook, MySpace), micro-blogging sites (Twitter, Nixle), photo and video sharing sites (Flickr, Youtube), wikis (Wikipedia) blogs, and new sites.

Social Networks: Online platforms where users can create profiles, share information, and socialize with others using a range of technologies.

Procedures

1. Department personnel are free to express themselves as private citizens on social media sites to the degree that their speech does not impair working relationships of this department for which loyalty and confidentiality are important, impede the performance of duties, impair discipline and harmony among coworkers, or negatively affect the public perception of the department.
2. Employees are expected to exercise good judgment and demonstrate personal accountability when choosing to participate on social-networking sites.

3. Employees should not represent themselves in a public forum in any manner that reflects a lack of good moral character, post any material on the Internet that brings discredit to, or may adversely affect the efficiency or integrity of the department.
4. As public employees, department personnel are cautioned that speech on or off-duty, made pursuant to their official duties-that is, that owes its existence to the employee's professional duties and responsibilities-is not protected speech under the First Amendment and may form the basis for discipline if deemed detrimental to the department. Department personnel should assume that their speech and related activity on social media sites will reflect upon their office and this department.
5. Employees should not post, transmit, or otherwise disseminate any confidential criminal justice information or any other information to which they have access as a result of their employment without the express written consent of the Chief of Police or his or her designee.
6. For safety and security reasons, department personnel are cautioned not to disclose their employment with this department nor shall they post information pertaining to any other member of the department without their permission. As such, department personnel are cautioned not to do the following:
 - a. Display department logos, uniforms, or similar identifying items on personal web pages.
 - b. Post personal photographs or provide similar means of personal recognition that may cause them to be identified as a peace officer of this agency. Officers who are, or who may reasonably be expected to work in undercover operations, shall not post any form of visual or personal identification.
7. When using social media, department personnel should be mindful that their speech becomes part of the worldwide electronic domain. Therefore, adherence to the department's code of conduct is required in the personal use of social media. In particular, department personnel are prohibited from the following:
 - a. Speech containing obscene or sexually explicit language, images, or acts and statements or other forms of speech that ridicule, malign, disparage, or otherwise express bias against any race, religion, or protected class of individuals.
 - b. Speech involving themselves or other department personnel reflecting behavior that would reasonably be considered reckless or irresponsible.
8. Engaging in prohibited speech noted herein, may provide grounds for undermining or impeaching an officer's testimony in criminal proceedings. Department personnel thus sanctioned are subject to discipline up to and including termination of office.
9. Department personnel may not divulge information gained by reason of their authority; make any statements, speeches, appearances, and endorsements; or publish materials that could

reasonably be considered to represent the views or positions of this department without express authorization.

10. Department personnel should be aware that privacy settings and social media sites are constantly in flux, and they should never assume that personal information posted on such sites is protected.
11. Department personnel should expect that any information created, transmitted, downloaded, exchanged, or discussed in a public online forum may be accessed by the department at any time without prior notice.

Special Tactical Situations

Policy

Purpose

The purpose is to provide guidelines that establish general procedures for handling special tactical situations that may be comprised of unusual operational activities and problems including hostage situations, armed barricaded persons, sniper incidents, aggravated suicide attempts and other tactical problems.

Policy

It is the policy of the Miles City Police Department to respond to special tactical situation incidents in a manner that will promote resolve to the particular situation that includes the minimization of injuries and the preservation of life of all persons involved, all in an effort to apprehend those persons responsible for criminal conduct.

Definitions

“Inner Perimeter”- means a containment area immediately surrounding the situation location that minimizes and controls movement of a suspect within that area. The inner perimeter should be sufficiently large to present no immediate danger to persons within the area but should be as small as possible to ensure that control and management can be maintained.

“Outer Perimeter”-means a large containment area that completely surrounds the inner perimeter and prohibits unauthorized vehicular and pedestrian traffic from reaching the inner perimeter. The outer perimeter should be positioned in a manner to afford protection and safety to anyone outside the outer perimeter boundaries.

“Control Zone”-means the space between the outer perimeter and the inner perimeter. Officers manning the outer perimeter will allow authorized persons into the control zone for restricted purposes as designated by the officer in charge.

“Traffic Control Points”-means key intersections or other locations that restrict all unauthorized vehicular traffic from reaching the boundaries of the outer perimeter.

“Field Command Post”-means a temporary location used as the on-scene command center to coordinate the activities of all operational personnel. The field command post will be placed outside the inner perimeter, preferably inside the control zone, and will include the actual command post facility and a controlled area utilized for assembly and parking. Either a vehicle or another suitable structure may be used as a field command post.

“Administrative Command Post”-means a temporary location used as an assembly point for the on-scene commander for the purpose of administrative control of the situation. Telephone service is mandatory.

Response to Tactical Situations

Procedural guidelines are designed to prevent or minimize confusion in assuming command and initiating control procedures.

When possible these variables should be considered when confronted with a complex tactical and/or life-threatening situation such as a hostage or barricaded suspect incident, including:

- a. The mental state of the suspect
- b. The physical condition of the hostage
- c. The suspects stated objectives and motivations
- d. The involvement and proximity of bystanders
- e. Location

This agency will not grant immunity or pay ransom to neutralize a hostage situation.

When a suspect has barricaded himself and does not hold a hostage, the agency should attempt all reasonable measures to affect capture by use of non-lethal means consistent with the offense and the safety of agency personnel and by-standers.

Deployment of Force

Time is a benefit and shall be made to work to the advantage of this agency. Thoughtful coordinated response is essential.

Officers should adhere to the Miles City Police Department's policy on Use of Force.

Personnel should maintain strict firearm discipline. Should an individual officer come under attack by the suspect, or if the suspect attacks or attempts to attack the hostage with force, it is not required that an officer wait for instruction to protect themselves or the hostage.

Only those specifically qualified should employ specialized weapons and equipment.

Officer Responsibility

For the effective coordination of responding forces, it is essential that our personnel not engage in individual action unless forced to do so.

Strict compliance with the directions of the on-scene commander regarding reporting locations, deployment, response routes, traffic and pedestrian controls, and other appropriate instructions must be adhered to by all persons involved with these situations.

Command and Control

The senior officer in the first unit on the scene will have command and control of the situation until relieved by an officer of higher rank.

The on-duty supervisor should deploy arriving officers promptly and efficiently to effect containment as soon as possible.

Command and control should not automatically be relinquished to a superior, nor should the superior assume control until each is certain that all available information relating to the incident is thoroughly explained and understood, and to the maximum extent possible, all personnel understand that command and control is being transferred and to whom.

Field Command Operations

The officer with command and control should implement the following steps:

- a. Establish an inner perimeter to contain the suspect. This may be accomplished by making certain the units at the scene are in the best positions possible to effectively contain the site. These officers may serve as an arrest team should the suspect surrender or exit unexpectedly;
- b. Establish an outer perimeter and traffic control points to control vehicular and pedestrian traffic;
- c. Locate and establish, or determine a location for a command post away from the objective structure;
- d. Locate and establish a staging area for responding personnel and supporting agencies away from the command post but within the outer perimeter;
- e. Establish a communications network and request frequency restriction for continuous communication with deployed personnel;
- f. Attempt to secure maps, aerial photos, assignment sheets and related materials.

Notification

When any officer of the Miles City Police Department becomes aware of the existence of a special tactical situation the officer should:

- a. Request sufficient personnel to contain the effected area;
- b. Notify the on-duty supervisor at the earliest possible opportunity;
- c. Periodically update the supervisor.

The on-duty supervisor should ensure notification of the Miles City Police Department administration.

Communications with suspects

The on-duty supervisor should attempt to establish communication with any and all suspects until negotiators arrive, whereupon they may delegate the task.

Evacuations

Outer containment personnel should be assigned to evacuate affected residences or bystanders.

A log should be kept of the residences evacuated as well as those who refuse to evacuate.

Injured victims should be evacuated when appropriate measures can be taken to protect the rescuers should they come under further attack.

MILES CITY POLICE DEPARTMENT
POLICY

MENTAL ILLNESS OR DISABILITY INTERVENTION

Section 1. Responses Involving Persons With Suspected Mental Illness.

1. Purpose. The purpose of this policy is to establish procedures for responding to incidents involving persons suspected to suffer from mental illness.
2. Mental Illness Defined. Mental illness is a medical condition that disrupts a person's thinking, feeling, mood, ability to relate to others, and daily functioning. These conditions often result in a diminished capacity for coping with the ordinary demands of life.
3. Upon receiving a call involving a known person with a suspected or diagnosed mental illness, or upon encountering a person whom the officer believes to be suffering from a mental illness, the officer should request that dispatch:
 - a. assist in determining whether there have been previous incidents involving the person,
 - b. attempt to determine whether the person is reliant on medication and whether they are taking medication as prescribed, and
 - c. attempt to contact friends or family members of the person who may be able to assist law enforcement.
4. Upon arrival or encounter with a person suspected to be suffering from a mental illness, the officer should assess the situation, and determine whether the person presents a danger of death or bodily injury to self or others. Officer safety should not be compromised simply because the officer is dealing with a person who may be suffering from a mental illness.
5. While interacting with a person suspected to be suffering from a mental illness, the officer should remain calm and manage their own emotions, remain helpful and professional as appropriate to the situation, move slowly, maintain a positive attitude toward the person, remain conscious of the officer's body language, advise the person what the officer is going to do prior to doing it when practical, and speak simply and briefly. The officer should also do the following:
 - a. look for a medical alert bracelet on the person and inquire as to what information is on the bracelet;
 - b. indicate to the person a willingness to understand and help the person; and
 - c. be honest with the person.
6. While interacting with a person suspected to be suffering from a mental illness, the officer should avoid certain tactics and behaviors. The officer SHOULD NOT:
 - a. Move suddenly

- b. Give rapid orders
 - c. Shout
 - d. Force discussion
 - e. Maintain direct eye contact
 - f. Touch the person, unless necessary
 - g. Crowd the person
 - h. Express anger, impatience or irritation
 - i. Assume that a person who does not respond cannot hear
 - j. Use inflammatory language (crazy, psycho, mental)
 - k. Challenge delusional or hallucinatory statements
 - l. Mislead the person
 - m. Try to change the person's beliefs
 - n. Threaten the person
7. If no probable cause for arrest exists, the officer should attempt to refer the person to a mental health professional, and release the person to family, friends or some other support network when possible.
 8. If the officer believes the person is in imminent danger of death or bodily harm, or a threat of the same to others, the person shall be taken into protective custody in accordance with the department's protective custody policy.
 9. A person who may have a mental illness may be arrested for a criminal offense when probable cause has been established. When a person arrested is suspected of having a mental illness, the arresting officer should brief the booking officer as to the charges and should advise the booking officer about the suspected mental illness.
 10. If a person suspected to be suffering from a mental illness is in imminent danger of death or bodily harm, and has committed a criminal offense, the officer should take the person into protective custody rather than arrest the person, unless the type of criminal offense requires arrest, based on the facts of the crime committed and the resources available.
 11. A written report is required for every call for service where the person is suspected to have a mental illness. The report should include the following, as applicable: information from dispatch; the type of call for service; the officer's observations upon arrival and in investigating the call, to include all signs, symptoms, behaviors and characteristics observed by the officer which led the officer to believe the person suffered from a mental illness; information gathered from friends, family, and witnesses; probable cause of an arrest has been made, as well as the elements of the crime arrested for; how the person was transported; where the person was transported to; whether restraints were used; and position of the person during transport.
 12. The investigating officer's report shall be reviewed by the officer's immediate supervisor. The supervisor shall consult with a mental health professional about the incident if the supervisor, in his or her discretion, feels that such consult is reasonably necessary based

on the investigating officer's report and any follow up discussion with the officer about the incident.

Section 2. Suicide Intervention.

1. When interacting with a person, regardless of suspected mental illness, officers should look for warning signs of suicide and be prepared to respond to persons who may be suicidal.
2. The following are some of the typical warning signs of suicide:
 - a. A person threatening to hurt or kill themselves, or talking of wanting to hurt or kill themselves;
 - b. Someone looking for ways to kill themselves by seeking access to firearms, pills or other means;
 - c. Someone talking or writing about death, dying or suicide, when these actions are out of the ordinary for the person;
 - d. Hopelessness;
 - e. Rage, uncontrolled anger, seeking revenge;
 - f. Acting reckless or engaging in risky activities, seemingly without thinking;
 - g. Increased alcohol or drug use;
 - h. Withdrawing from friends, family and society;
 - i. Anxiety, agitation, unable to sleep or sleeping all the time;
 - j. Dramatic mood changes;
 - k. No reason for living, no sense of purpose in life;
 - l. Feeling trapped, like there is no way out;
3. Suicide is preventable, and most suicidal individuals do want to live, but are unable to see alternatives to their problems. Most suicidal persons give definite warnings of their suicidal intentions, but others are either unaware of the significance of these warnings or do not know how to respond to them.
4. When interacting with a person who may be suicidal, the officer should be direct, and talk openly and freely about suicide. The officer should ask if the person is thinking about committing suicide. The officer should be willing to listen to the person, and be non-judgmental. Do not debate whether suicide is right or wrong, or lecture about the value of life. The officer should never dare the person to commit suicide in response to a person's threat to commit suicide. The officer should not allow the person to swear them to secrecy, rather, the officer should indicate that they will help the person find help, and then assist the person in obtaining professional help.
5. If the officer believes that the person is in imminent danger of death or bodily harm, the person should be taken into protective custody as discussed in the policy covering the response to individuals with mental illness.

Section 3. Protective Custody.

1. When an emergency situation exists, an officer may take any person who appears to have a mental disorder and to present an imminent danger of death or bodily harm to the person or to others or who appears to have a mental disorder and to be substantially unable to provide for the person's own basic needs of food, clothing, shelter, health, or safety into custody only for sufficient time to contact a professional person for emergency evaluation. If possible, a professional person should be called prior to taking the person into custody. MCA 53-21-129.
2. When an officer has taken a person into protective custody, the officer shall transport the person to the Emergency Department at Holy Rosary Healthcare, and shall notify hospital staff of the detention and request an evaluation as soon as possible.
3. The officer shall only detain the person for sufficient time to complete an evaluation, and shall keep the person in the officer's custody until the evaluation is completed, or unless sooner released. The person may not be placed in a detention center or jail during this period of custody.
4. Unless the person has completed a criminal offense which will result in arrest, the person should be released once the evaluation is completed, unless further detention is deemed necessary by the professional performing the evaluation.
5. If further detention is deemed necessary by the professional, the officer and the department shall maintain custody of the individual until the following business day.
6. If the professional person authorizes the release of the individual, and there is probable cause that the person has committed a criminal offense, the officer may then place the person under arrest and transport the person to the detention center for booking.

MILES CITY POLICE DEPARTMENT
POLICY

LOST AND FOUND

1. Purpose. The purpose of this policy is to establish the handling, return, destruction and sale of lost or abandoned property.
2. Found Property. Property which is deposited with the police department shall be logged upon receipt. The following information should be recorded when possible: Name, address and phone number of finder; date deposited; name of owner or suspected owner, if known; location the item was found; description of the item. If the found property is a firearm, the firearm shall be entered into NCIC as a recovered firearm.
3. Retention of Found Property. All property other than firearms shall be retained for not less than 90 days. Firearms shall be retained for the remainder of the year found, or the year entered into NCIC if later than the year found, plus two years.
4. Notification of Owner. If it can be determined who the owner of the property is, the department shall attempt to contact the owner via phone, mail, or other reasonable means. If the department is unable to make contact with the owner, the owner of the property will be deemed unknown. The notification shall indicate that the person has 30 days to claim the property, or else the property will be disposed of.
5. Claim to Property. The owner of property must present valid identification when claiming the property, and must be able to describe the property in sufficient detail to indicate with reasonable certainty that they are the owner of the property.
6. Disposition of Property.
 - a. Cash. If cash is not claimed by a person identified to be the owner within 90 days, the department shall notify the finder in writing that they may retrieve the cash within 30 days. If the finder does not claim the cash within 30 days, the cash shall be deposited with the City Treasurer and placed in the General Fund.
 - b. Identification, Credit Cards, Etc. ID cards, credit cards, and similar items shall be destroyed after 90 days if not claimed.
 - c. Personal Property. Personal property of de minimis value which is not claimed within 90 days shall be donated to St. Vincent de Paul in Miles City, Montana. Personal property which the Chief of Police determines to be of substantial value may be sold at public auction, and the proceeds deposited with the City Treasurer to be placed in the General Fund.
 - d. Firearms. When the owner of a firearm is unknown or is unable to be located, and after the firearm has been entered in NCIC as recovered for the remainder of the year found (or entered), plus two years, and if the firearm is legal for a private citizen to own, then the firearm shall be sold in a commercially reasonable manner to a local licensed firearm dealer. The proceeds from such sale shall be

deposited with the City Treasurer and placed in the General Fund. If the firearm is not the type of firearm that is legal for a private citizen to own, then the firearm shall be destroyed.

7. **Illegal Items.** Any item, other than firearms, which are not legal to be owned by a private citizen, shall be destroyed immediately and shall not be subject to the procedures established by this policy.

Human Resources Committee

September 17, 2014

The **Human Resources Committee** met Wednesday, September 17, 2014, at 6:00 p.m. in the Conference Room at City Hall. Present were Chairperson Roxanna Brush and Committee Members Mark Ahner and Ken Gardner. Committee Member Sheena Martin was excused. Also present was Public Works Director Scott Gray, Program Assistant/Historic Preservation Officer Connie Muggli and Committee Recorder HR/Payroll Officer Billie Burkhalter.

1. Request of Citizens

-None.

2. Committee Member Comments

Chairperson Brush stated at the Public Safety Committee meeting that the Police Department had brought forward for adoption a new policy on "Social Networking and Websites" It was discussed that this policy should be made City wide. She has discussed this with HR Officer Burkhalter and has been advised that it will be placed in an updated section in the personnel policy manual.

3. Update position description

- **Planner-in-Training/Grants Administrator**

Director Gray stated when evaluating the current Planner-in-Training/Grants Administrator it was noted that the position description referenced the "Montana Sanitation in Subdivisions Act (MSISA)" this is a duty of the Miles City Sanitarian, and should not be in this position description. Director Gray is requesting any reference to the MSISA be deleted.

There was discussion concerning the content of the current position description and it was decided that the HR Officer and the Planner-in-Training/Grant Administrator would review it and bring back to the Committee an updated description.

*** Committee Member Ahner moved to approve the updated position description of the Planner-in-Training/Grants Administrator as presented, with the deletion of any reference to the Montana Sanitation in Subdivisions Act (MSISA). Motion, seconded by Committee Member Gardner and, on roll call vote, motion passed unanimously 3-0.*

4. Approval of new position description

- **Program Assistant/Historic Preservation Officer**

Historic Preservation Officer Muggli presented the Committee with a letter from

Kathy Doeden, Chairperson of the Miles City Historic Preservation Commission. The letter stated that the Commission supported the combination of the positions of Program Assistant and Historic Preservation Officer and supported the new position description.

Preservation Officer Muggli stated she did agree with the information contained in the proposed position description.

Director Gray clarified for the Committee that this position would focus on General Fund grant projects and the Planner-in-Training/Grants Administrator would focus on Water/Sewer grant projects.

*** Committee Member Ahner moved to approve the Program Assistant/Historic Preservation Officer position description as presented. Motion seconded by Committee Member Gardner and, on roll call vote, motion passed unanimously 3-0.*

5. Approval of new position description

- **Laborer/Mechanic**

Director Gray explained to the Committee that he had been approached by the former Fire Chief concerning the possibility of having a mechanic in the Public Works Department perform oil changes and other maintenance work on emergency vehicles. This would save the Fire Department the costs of contracting out this type of labor. Director Gray explained that currently the mechanics in his department do work on police vehicles. This labor is billed to the Police Department, and any purchases for those vehicles are made on the Police Department credit card. This same format would be used in working on Fire Department vehicles.

Director Gray stated that initially the Public Works Department needed another employee, and he had budgeted for a Laborers position, which was approved by the City Council. Taking into consideration the need for the Fire Department to use a mechanic, he worked with Human Resources to put a position description together combining the Laborer and the Mechanic. This employee would work 75% of the time in the Public Works Department and the other 25% would be working on Fire Department vehicles.

Committee Member Ahner questioned the section of the position description that states "Supervision Received: Daily assignments of duties from the Public Works Director, Public Works Foreman and Shop Mechanic Foreman". He explained that his concern is that this employee would have three different bosses depending on their duties. His recommendation would be to clarify this in stating that daily assignment of duties will be under the direction of the Public Works Foreman and duties performed as mechanic will be under the direction of the Shop Mechanic Foreman.

Chairperson Brush questioned, first, if Director Gray would be able to find someone who would have the ability to do all of the duties contained in the position description and, second, what the pay would be for this type of position. Director Gray responded

that most of the employees in his department wear a lot of different hats, whether that is because they have been trained or already have that background. He clarified that the mechanic would not be overhauling engines, and new vehicles would be diagnosed in a factory, as the department did not have the equipment to do that. As far as pay, City Attorney Rice had been contacted and his recommendation was to split the salary 75% Laborer wage and 25% Mechanic wage. The wage will be built off the salary survey base using the above formula.

*** Committee Member Ahner moved to amend the Laborer/Mechanic position description to read as follows: under "Supervision Received: Daily assignments of duties from the Public Works Foreman and, when working as a mechanic, directed by the Shop Mechanic Foreman. Motion seconded by Committee Member Gardner, and motion passed unanimously 3-0.*

*** Committee Member Ahner moved to approve the amended the Laborer/Mechanic position description. Motion seconded by Committee Member Brush, motion passed unanimously 3-0.*

6. Review and Recommendation:

- **Sick and Vacation Donation Policy**

HR Officer Burkhalter explained that she is still currently in the process of updating the Leave Section of the personnel policy manual, but there was a need to have this individual policy come before the Committee. She explained that currently the City does not have a Sick or Vacation Leave Donation policy, but she has reviewed the States policy and numerous other policies from other Cities and put this together. The City Attorney has approved this policy with a recommendation to proceed to this Committee.

Chairperson Brush clarified that donation of sick time or vacation would not be at the donating employee's pay rate. HR Officer stated the policy did address this and the donation would be based on hours and not on the rate of pay.

Committee Member Ahner stated that using the word "hours" instead of "credits" would help clarify the policy. The Committee and HR Officer Burkhalter agreed.

*** Chairperson Brush moved to recommend to City Council to approve the "Sick and Vacation Leave Donation" policy with the following amendment: remove the word "credits" and replace with "hours". Motion seconded by Committee Member Ahner, motion passed unanimously 3-0.*

7. Adjournment

*** Committee Member Ahner moved to adjourn the meeting. The motion was seconded by Committee Member Gardner and passed.*

The meeting was adjourned at 7:10 p.m.

Respectfully submitted,

Billie D. Burkhalter, Recorder

Chairperson Roxanna Brush

Agenda Item #6

STAFF REPORTS

Agenda Item # 6

Connie Watts

From: dzrice@gmail.com on behalf of Dan Rice
Sent: Thursday, September 11, 2014 11:32 AM
To: Connie Watts; Lorrie Pearce
Subject: Fwd: Water Papers

Connie,

Would you please hard copy this for Council and the Mayor?

Thanks much.

----- Forwarded message -----

From: **W.G. Gilbert, III** <wggilbert3@yahoo.com>
Date: Thu, Sep 11, 2014 at 10:41 AM
Subject: Re: Water Papers
To: Dan Rice <dzrice@milescity-mt.org>

Hi Dan

My intention is to file a Verified Motion to Amend and Supplement the Statement of Claim as it is now before the Water Court. This Verified Motion will be accompanied by affidavits from our knowledgeable persons. The Affidavits and motion will be tailored to address the DNRC remarks and comments in such a manner that DNRC will most likely be persuaded to either evidence their satisfaction with the explanation or withdraw their comments that are obstructing us. I am optimistic (perhaps I should say cautiously optimistic) that when we submit our filings the attorneys representing the Tribe, BIA etc will be satisfied that the actual water use situation is not one that requires them to continue their "objections" to the claim and we will then be able to conclude the matter. Usually this is accomplished by a stipulation or withdrawal of objections.

Best Regards
Duke

COMMITTEE RECOMMENDATIONS

- A. Public Safety Committee, 9/16/14:
Recommend Approval of Police Department Policies, with Amendments

- B. Finance Committee: 9/4/14:
Land Lease at Water Treatment Plant (Jim Dighans) *(Tabled in Committee)*

Please see Committee Minutes under Agenda Item #1

