FEDERAL EMERGENCY MANAGEMENT AGENCY
FINDING OF NO SIGNIFICANT IMPACT
Fleshman Creek Flood Mitigation Project
Park County, Montana
April 30, 2010

BACKGROUND

Park County has applied through the State of Montana Disaster and Emergency Services for funding through the Department of Homeland Security, Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation Program. This assistance would be used to reduce flood damages along a 2 mile reach of Fleshman Creek by upgrading existing culverts, performing channel augmentation, and restoring wetlands and habitat along the Creek.

The City of Livingston (Livingston) is located in Park County in southwestern Montana, on the Yellowstone River, approximately 60 miles north of Yellowstone National Park. Fleshman Creek, a tributary of the Yellowstone River, flows through developed areas of Livingston. Its headwaters begin west of Livingston in the Bangtail Mountains and it has a total watershed of approximately 23.6 square miles. Hydrologic studies for Fleshman Creek completed between 1955 and 2005 concluded that it represents a flood risk to residences, businesses, and public properties located along the creek within Livingston. Three major flooding events have been documented on Fleshman Creek that, based on the 2008 Consumer Price Index, had damages ranging from approximately $500,000 to over $1 million in 2008 dollars. In addition to posing a flood risk, Fleshman Creek has become a degraded stream within the city limits of Livingston, with poor water and habitat (riparian and aquatic) quality, and steadily increasing annual maintenance costs. During the planning process, Park County was encouraged to take a holistic approach to restoring Fleshman Creek to a more natural and flood resistant state. Based on these suggestions, Park County established the following restoration goals for the creek:

- Mitigate/minimize risk to property and life associated with flood hazards;
- Improve water quality;
- Increase water quantity;
- Restore aquatic and riparian habitat; and
- Enhance the creek as a community resource and public amenity (Park County 2009).

DESCRIPTION

The Proposed Action project area, known as Reach 2, extends approximately from the intersection of East Clark Street and South M Street upstream to the Yellowstone River diversion pipe (outfall). The goal is to mitigate flood hazards by increasing the channel capacity of the creek, while rehabilitating the creek channel and associated riparian zone. In addition to reducing flood risk, there are several benefits associated with the Proposed Action, such as improving

water quality, restoring aquatic and riparian habitat, and enhancing the area as a public amenity. The Proposed Action would upgrade culverts at six street/road crossings; install hydrodynamic separators at storm water outfalls to enhance gravity separation of suspended storm water pollutants; enhance, create, or modify wetlands along the creek channel; and increase the sinuosity of the creek. The project would also include channel augmentations, bank stabilization and revegetation, and relocation of utilities. These features are described in more detail below.

New Hydraulic Structures

Undersized culve1ts would be replaced at six street/road crossings along the creek. In addition, the restoration design plan would involve resetting the culvert elevations to redistribute the channel gradient throughout the project reach. The Proposed Action would employ ConSpan type culverts ranging in size from 12-foot x 6-foot to 20-foot x 5-foot. These structures were selected because they provide an economical solution that would support stream restoration processes along the project reach, including sediment transport, elimination of woody debris jams, and a significant enhancement of the existing flood conveyance capabilities.

Enhancing/Creating/Modifying Wetlands

The Proposed Action calls for the creation and/or modification of three types of wetlands:

- Existing wetland/riparian fringe along the creek and the Sacajawea Lagoon (Lagoon) edge would be modified as part of active channel restoration, and would be revegetated using native herbaceous and woody wetland species.
- A channel-wide treatment wetland would be constructed within the narrow section of the creek upstream of the Lagoon.
- Storm water outfalls to the stream would be modified to include new hydrodynamic separators and treatment wetlands, or bio-swales.

Channel Augmentations

The primary goal throughout the project reach is to increase channel sinuosity and decrease width/depth ratio. In most areas, the existing actively flowing channel would be narrowed and existing channel areas would be reestablished as active floodplain/wetlands/riparian areas. Channel geometry would be designed based on existing physical and infrastructure constraints and desired geomorphic ratios (sinuosity, width/depth ratio, entrenchment). The design would establish riffle/pool spacing, meander wavelength, radius of curvature, and belt width based on these multiple requirements and on existing conditions in each stream segment. The desired morphology is classified as a “Type E” stream based on the Rosgen stream classification system. Type E streams have entrenchment > 2.2, width/depth ratio < 12, sinuosity > 1.5, and slope < 2 percent. The restoration design would also involve setting new culvert elevations and redistributing channel gradient or slope throughout the project reach. This would effectively eliminate the excessively flat reaches where sediments accumulate, and would improve both

flow and sediment conveyance throughout the entire reach. The total length of the channel is expected to increase by approximately 1,755 feet.

Bank Stabilization

The Proposed Action would incorporate the strategic use of coir (coconut) fabric to allow for creation of steeper bank angles and critical cover features. After channel alterations are complete, the project would also incorporate other bank stabilization/erosion prevention methods, such as Best Management Practices (BMPs), and would revegetate disturbed area with native herbaceous and woody species to reduce sediment loads in the creek.

Utility Relocations

Livingston's water main and Northwestern Energy's overhead electric lines cross Fleshman Creek at six locations within the project area. These utilities may be impacted by proposed changes within the project area. Multiple alternatives, including relocation, replacement, and temporary shutoff, were addressed as potential solutions for working alongside stream restoration and structure replacement activities. Unfortunately, the actual depth of buried utilities is not indicated on the Livingston engineering drawings. Utility design would involve locating and determining the depth of each utility. Temporary road closures would occur during replacement of the hydraulic structures and it is assumed that corresponding utility work would coincide with the culvert work. The utility work would also include the installation of stormceptors (hydrodynamic separators designed to enhance gravity separation of storm water pollutants). The estimated time for each of the utility relocations is estimated to be between a few hours and a few days. Additionally, two existing sewer lines cross under Fleshman Creek at the alley between D and E Streets and at Main Street. During final design, it is likely that the aggraded streambed would need to be lowered to increase flood conveyance without resulting in future erosion and sedimentation. Consequently, the existing gravity sewer lines would likely be exposed in the creek, and therefore need to be lowered or relocated. The installation of a sewer lift station(s) may be necessary. The actual size of the lift station(s), if needed, would be determined during final design, as it depends on a variety of factors, including existing utility depths and overall utility infrastructure of Livingston.

Project Details

Section 1 - Upstream limit of 2003 project area to Geyser Street

No culverts would be installed in this section. The channel would be narrowed and the sinuosity would be increased to a level similar to the 2003/2004 project reach located immediately downstream. The total restored channel length would be approximately 675 feet. Activities in this section would also include: implementation of bank stabilization/revegetation, enhancement/creation of riparian and wetland areas along the creek in places where the channel is narrowed, modification of the storm sewer outfall with a stormceptor at M Street, and creation of a bio-swale treatment wetland. Utilities would be relocated within the road ROW, as needed.

Section 2 - Geyser Street to H Street

In this section, the Proposed Action would involve installing a new 12-foot x 6-foot culvert at Geyser Street and resetting the culvert elevation. The channel would be narrowed throughout the reach and sinuosity would be increased. The channel ·slope would also be made uniform throughout the reach, but would remain relatively flat, preserving its broad wetland character. The total restored channel length would be approximately 2,050 feet. Bank stabilization and revegetation would be implemented. Converting the active channel area to new riparian/wetlands areas along newly created meanders would increase the area of wetlands. Utilities at Geyser Street would be relocated within the road ROW, as needed.

Section 3 - H Street to F Street

In this section, the Proposed Action would involve installing a new 12-foot x 6-foot culvert at H Street and more sinuous riffle/pool morphology would be created. The total restored channel length would be approximately 920 feet. Converting active channel area to new riparian/wetlands areas along newly created meanders would increase the area of wetlands. Utilities at H Street would be relocated within the road ROW, as needed.

Section 4 - F Street to C Street

In this section, the Proposed Action would involve installing a new 20-foot x 5-foot culvert at E Street and a new 14-foot x 7-foot ConSpan culvert at F Street. Channel alteration/restoration would include redistributing the grade over the reach. Also, the channel would be narrowed, creating a riffle/pool profile and converting some of the existing pond area into an active floodplain. The total restored channel length would be approximately 2,130 feet. Riparian and wetland areas would be enhanced in places where the channel is narrowed. The storm sewer outfall at D Street would be equipped with stormceptors and bioswale treatment wetlands would be created. Utilities at F Street and E Street would be relocated within the road ROW, as needed. A Lift Station may be needed to relocate the existing sewer line at the alley between D Street and E Street, depending on existing utility depths and infrastructure.

Section 5 - C Street to Main Street

In this section, the Proposed Action would involve installing a new 16-foot x 8-foot culvert at C Street. The narrow corridor would be widened to improve flood conveyance capacity and increase channel sinuosity. The total restored channel length would be approximately 860 feet. Riparian and wetland areas would potentially be removed/relocated in the section planned for channel widening. Two storm sewer outfalls, one at B Street and one downstream of Main Street, would be equipped with stormceptors, and bio-swale treatment wetlands would be created. A lift station may be needed to relocate an existing sewer line at Main Street, depending on existing utility depths and infrastructure. Utilities at C Street would be relocated within the road ROW, as needed.

Section 6 - Main Street to Upstream Area of Lagoon

In this section, a new 12-foot x 6-foot culvert would be installed at Main Street. The storm sewer outfall at 2nd Street would be equipped with a stormceptor and a bio-swale treatment wetland would be created. The Yellowstone Street Stone Arch Bridge would remain unchanged. Underground utilities at Main Street would be relocated within the road ROW, as needed.

Section 7 - Upstream Area of Lagoon to Yellowstone Diversion Inlet

No culverts would be installed in this section; however, a channel-wide wetland would be created within a more efficient channel. Designed treatments would be configured to improve aesthetics, serve as sediment traps/filters to slow sedimentation of the Lagoon, and improve downstream water quality. Sinuosity would also be increased. The altered channel length would be approximately 920 feet. Riparian/wetland areas would be enhanced where the channel would be narrowed. Three storm sewer outfalls (at 7th, 8th, and 9th Streets) would be equipped with stormceptors and bio-swale treatment wetlands would be created. Utilities would be relocated within the road ROW, as needed.

MITIGATION AND STIPULATIONS

The resulting mitigation and stipulations upon which this finding is conditioned are:

1. A floodplain development permit would be required from the Park County Floodplain Administrator. Construction must begin at the downstream end and proceed upstream.

2. The project sponsor would obtain a Section 404 permit from the U.S. Army Corps of Engineers prior to beginning of construction. Applications can be obtained at: https://nwo.usace.army.mil/html/od.rmt/applications.html

3. Minimize tree removal. Vegetation restoration to include trees, shrubs, and grasses. Impacted wetlands would be mitigations as outlined in the Section 404 permit.

4. The project sponsor would obtain a Section 401 Certification and a 318 Water Quality permit from the Montana Department of Environmental Quality prior to beginning construction. These permitted conditions must be adhered to including the fueling of equipment must be at least 50 feet from the stream.

5. The proposed action would require a SPA 124 permit.

6. Per Montana DEQ, the project sponsor would obtain a General Montana Pollutant Discharge Elimination System permit prior to beginning construction activities. As part of the permitting process, a Notice of Intent Package and a Storm Water Pollution Prevention Plan would also be prepared.

7. Excavation and vegetation removal activities would be completed in accordance with Best Management Practices (BMPs) to reduce impacts to soils and water resources.

8. Excess soil would be disposed of at a local licensed landfill or an established city or county stockpile area.

9. Dust abatement procedures would be implemented if fugitive dust becomes an issue for local residents.

10. The project sponsor must use care to avoid site 24PA1249, View Vista Village which is eligible for nomination to the National Register of Historic Places during construction or staging equipment.

11. Fill would be obtained from established borrow areas near Livingston, Montana. Any new or undisturbed borrow areas must be approved by FEMA and SHPO.

12. If cultural resources are encountered during project activities, work would be stopped until appropriate coordination has been completed with the Montana State Historic Preservation Office.

13. The project sponsor would need to obtain short-term construction easements along Fleshman Creek.

14. Street/road closures would be phased and access to all properties would be maintained during construction activities. Park County would notify local residents prior to any road closures.

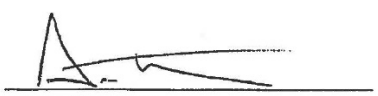
15. The project sponsor would coordinate with the Utilities Underground Location Center regarding the location of utilities within the project area.

16. To assure noise levels remain at acceptable levels, all equipment would be equipped with proper mufflers, construction activities would be limited to daylight hours, and to the extent practicable, construction near the schools would be scheduled to occur during summer vacation.

FINDINGS

Based upon the information contained in the attached Final Environmental Assessment completed in accordance with the National Environmental Policy Act, FEMA's regulations (44 CFR Part 10) for environmental considerations, and Executive Orders (EO) addressing Floodplains (EO 11988), Wetlands (ED 11920), and Environmental Justice.(EO 12898), it is found that the Proposed Action with the prescribed mitigation measures and stipulations will have no significant adverse impact on the human environment. As a result of this Finding of No Significant Impact, an Environmental Impact Statement will not be prepared, and the Proposed Action with the associated mitigation measures and stipulations as described in the attached Environmental Assessment may proceed.

APPROVAL



Steven Hardegen
FEMA Region 8
Environmental Officer

04/30/2010
Date

Final Environmental Assessment

Fleshman Creek Flood Mitigation Project

Livingston, Montana

April 2010

FEMA

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Acronyms and Abbreviations

APE	area of potential effect
BMP	Best Management Practice
BP	before present
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GYA	Greater Yellowstone Area
kg	kilogram
LOMR	Letter of Map Revision
MAAQS	Montana Ambient Air Quality Standards
MBTA	Migratory Bird Treaty Act
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Division of Fish, Wildlife, and Parks
MNHP	Montana Natural Heritage Program
MPDES	Montana Pollutant Discharge Elimination System
MSHPO	Montana State Historic Preservation Office
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act of 1996 (as amended)
NPDES	National Pollutant Discharge Elimination System
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

Oasis	Oasis Environmental
PDM	Pre-Disaster Mitigation
PFOA	Palustrine Forested, Temporarily Flooded Wetlands
PGS	present ground surface
ppt	parts per thousand
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated Wetlands
ROW	Right-of-Way
SPA	Stream Protection Act
SU	settlement units
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SECTION ONE INTRODUCTION

1.1 BACKGROUND AND HISTORY

The City of Livingston (Livingston) is located in Park County in southwestern Montana, on the Yellowstone River, approximately 60 miles north of Yellowstone National Park (Exhibit 1). Fleshman Creek, a tributary of the Yellowstone River, flows through developed areas of Livingston. Its headwaters begin west of Livingston in the Bangtail Mountains and it has a total watershed of approximately 23.6 square miles (Park County 2009). Hydrologic studies for Fleshman Creek completed between 1955 and 2005 concluded that it represents a flood risk to residences, businesses, and public properties located along the creek within Livingston (Park County 2009). Three major flooding events have been documented on Fleshman Creek that, based on the 2008 Consumer Price Index, had damages ranging from approximately $500,000 to over $1 million (Park County 2009) in 2008 dollars.

In addition to posing a flood risk, Fleshman Creek has become a degraded stream within the city limits of Livingston, with poor water and habitat (riparian and aquatic) quality, and steadily increasing annual maintenance costs (Park County 2009). In its degraded condition, the conveyance capacity of Fleshman Creek is severely reduced and low areas adjacent to the creek flood multiple times per year. In addition, numerous streets and other areas frequently used by the public such as the St. Mary's Catholic School parking lot flood during a 1-year (annual) flood event. A 10-year flood event would result in flooding of multiple city blocks.

Park County has applied for funding through the Federal Emergency Management Agency's (FEMA's) Pre-Disaster Mitigation (PDM) Program. This assistance would be used to mitigate chronic flooding by increasing the channel capacity of Fleshman Creek.

The Council on Environmental Quality (CEQ) has developed regulations to implement the National Environmental Policy Act (NEPA). These regulations, as set forth in Title 40, Code of Federal Regulations (CFR) Parts 1500-1508, require as part of the NEPA process an investigation of the potential environmental impacts of a proposed Federal action, and an evaluation of alternatives. The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Subpart 10. This EA was conducted in accordance with both FEMA and CEQ NEPA regulations.

1.2 PURPOSE AND NEED

The purpose of FEMA's PDM program is to substantially reduce the risk of future damage, hardship, loss, or suffering in communities from natural disasters, such as floods, by providing the affected communities with cost-share funds to reduce future losses.

Park County has identified the need to provide flood protection for streets and structures located within the 25-year floodplain of Fleshman Creek within the project area. The 25-year flood event results in approximately 525 cubic feet per second (cfs) of flow in Fleshman Creek within the project area.

During the planning process, Park County was encouraged to take a holistic approach to restoring Fleshman Creek to a more natural and flood resistant state. Based on these suggestions, Park County established the following restoration goals for the creek:

- Mitigate/minimize risk to property and life associated with flood hazards;
- Improve water quality;
- Increase water quantity;
- Restore aquatic and riparian habitat; and
- Enhance the creek as a community resource and public amenity (Park County 2009).

SECTION TWO ALTERNATIVES

CEQ has developed regulations for the preparation of environmental impact documents in compliance with NEPA. CEQ requires an investigation and evaluation of practicable alternatives as part of the NEPA process. The following subsections provide a description of alternatives considered but not retained for further evaluation, as well as alternatives that were considered and retained for evaluation in the EA.

2.1 ALTERNATIVES NOT RETAINED

Several alternatives that would provide desired flood protection have previously been evaluated. Alternatives identified in this Section were found to be unacceptable due to right-of-way (ROW) constraints or economic infeasibility. These were not retained as viable alternatives.

2.1.1 Construction of Reservoirs

A U.S. Army Corps of Engineers (USACE) report evaluated the possible construction of two reservoirs in the Fleshman Creek watershed, upstream of Livingston (USACE 1968). These reservoirs would have had embankments in excess of 120 feet in height and each would have cost approximately $1 million in 1968 dollars. This is equivalent to $6.25 million in 2008 dollars using the Benefit-Cost Analysis inflation calculator (Oasis Environmental [Oasis] 2008). This alternative was found to be economically infeasible and was not considered further.

2.1.2 Construction of Concrete Lined Channel

This alternative involved the construction of a concrete lined channel to increase flow capacity of the Fleshman Creek channel (USACE 1968). In addition, the alternative would have required the removal or relocation of several homes located along Fleshman Creek. The estimated cost of the alternative in 1968 was in excess of $10 million ($62.5 million in 2008 dollars). This alternative was also considered to be economically infeasible and was dropped from consideration.

2.1.3 Placement of Levees along Fleshman Creek Channel

The USACE report evaluated the possibility of constructing levees along Fleshman Creek within Livingston (USACE 1968). The levees were considered impractical due to the limited ROW available throughout most of the Fleshman Creek corridor. Due to this constraint, the alternative was not retained.

2.1.4 Relocation of the Lower Reaches of Fleshman Creek into Billman Creek

This alternative involved the construction of a diversion within the lower reach of Fleshman Creek that would have routed the flows into Billman Creek. The USACE report (USACE 1968) indicated that this was the most feasible of the alternatives considered. In addition to diverting Fleshman Creek flows into Billman Creek, the alternative would have included improvements to Billman Creek's channel. The project was never implemented due to lack of local support. Development along Billman Creek since 1968 would make this alternative economically infeasible under current conditions. Therefore, this alternative was not retained.

2.1.5 Stream Channel Restoration

This alternative would have involved replacing all culverts with those that would have the capacity to convey flows associated with the 100-year flood event (856 cubic feet per second [cfs]). The channel would also have needed to be significantly widened to enable it to convey 865 cfs without flooding. This alternative would have required the acquisition of numerous homes and businesses along Fleshman Creek, and was estimated to cost $7.5 million (2008 dollars). The alternative was not considered to be economically feasible and was dropped from consideration. Additionally, public opinion of this alternative was not favorable (Oasis 2008).

2.2 ALTERNATIVES CONSIDERED

The following three alternatives were retained for further evaluation:

- Alternative 1 – No Action
- Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)
- Alternative 3 – Water Diversion to Yellowstone River

2.2.1 Alternative 1 – No Action

With the No Action Alternative, no action would be taken to reduce the risk of Fleshman Creek flooding areas within Livingston. This alternative would include continued maintenance and removal of debris from existing culverts.

2.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action project area, known as Reach 2 in the Comprehensive Management Plan (Oasis 2008), extends approximately from the intersection of East Clark Street and South M Street upstream to the Yellowstone River diversion pipe (outfall) (Exhibit 2). The goal is to mitigate flood hazards by increasing the channel capacity of the creek so that the flow associated with a 25-year flood event can be conveyed by the creek without flooding, while rehabilitating the creek channel and associated riparian zone. In addition to reducing flood risk, there are several benefits associated with the Proposed Action, such as improving water quality, restoring aquatic and riparian habitat, and enhancing the area as a public amenity. According to the project application, approximately 3 years would be required from project award to the final close out of the project (Park County 2009). Construction of the project features would require approximately 1 year of this 3 year period.

The Proposed Action would upgrade culverts at six street/road crossings; install hydrodynamic separators at storm water outfalls to enhance gravity separation of suspended storm water pollutants; enhance, create, or modify wetlands along the creek channel; and increase the sinuosity of the creek. The project would also include channel augmentations, bank stabilization and revegetation, and relocation of utilities. These features are described in more detail below.

2.2.2.1 New Hydraulic Structures

Undersized culverts would be replaced at six street/road crossings along the creek. In addition, the restoration design plan would involve resetting the culvert elevations to redistribute the channel gradient throughout the project reach. The Proposed Action would employ ConSpan type culverts ranging in size from 12-foot x 6-foot to 20-foot x 5-foot. These structures were selected because they provide an economical solution that would support stream restoration processes along the project reach, including sediment transport, elimination of woody debris jams, and a significant enhancement of the existing flood conveyance capabilities. Table 1 shows the sizes of hydraulic structures proposed for each road crossing.

Table 1: Proposed Hydraulic Structures for Proposed Action

Channel Section No.	Crossing Location	Structure Type	Structure Size (feet)
2	Geyser Street	ConSpan	12 (span) x 6 (rise)
3	H Street	ConSpan	12 (span) x 6 (rise)
4	F Street	ConSpan	14 (span) x 7 (rise)
4	E Street	ConSpan	20 (span) x 5 (rise)
5	C Street	ConSpan	16 (span) x 6 (rise)
6	Main Street	ConSpan	12 (span) x 6 (rise)

Source: Park County 2009
Note: Sections listed downstream to upstream

2.2.2.2 Enhancing/Creating/Modifying Wetlands

The Proposed Action calls for the creation and/or modification of three types of wetlands:

- Existing wetland/riparian fringe along the creek and the Sacajawea Lagoon (Lagoon) edge would be modified as part of active channel restoration, and would be revegetated using native herbaceous and woody wetland species.
- A channel-wide treatment wetland would be constructed within the narrow section of the creek upstream of the Lagoon.
- Storm water outfalls to the stream would be modified to include new hydrodynamic separators and treatment wetlands, or bio-swales.

A conceptual plan view of storm water treatment cells in the floodplain is shown in Exhibit 3.

2.2.2.3 Channel Augmentations

The primary goal throughout the project reach is to increase channel sinuosity and decrease width/depth ratio. In most areas, the existing actively flowing channel would be narrowed and existing channel areas would be reestablished as active floodplain/wetlands/riparian areas.

Channel geometry would be designed based on existing physical and infrastructure constraints and desired geomorphic ratios (sinuosity, width/depth ratio, entrenchment). The design would

establish riffle/pool spacing, meander wavelength, radius of curvature, and belt width based on these multiple requirements and on existing conditions in each stream segment. The desired morphology is classified as a "Type E" stream based on the Rosgen stream classification system (Rosgen 1994). Type E streams have entrenchment >2.2, width/depth ratio < 12, sinuosity > 1.5, and slope < 2 percent. The restoration design would also involve setting new culvert elevations and redistributing channel gradient or slope throughout the project reach. This would effectively eliminate the excessively flat reaches where sediments accumulate, and would improve both flow and sediment conveyance throughout the entire reach. To achieve these stream parameters, the sinuosity (meandering) of the creek would be increased, which would increase the length of the creek within the project area by approximately 1,755 feet (Table 2). Table 2 also shows the change in channel length within each stream segment that would occur with the Proposed Action.

Table 2: Proposed Action Channel Alterations

Channel Section No.	Location	Pre-Project Length (feet)	Post-Project Length (feet)
1	Geyser Street to 2003 Project Meanders	600	675
2	H Street to Geyser Street	1,800	2,050
3	F Street to H Street	800	920
4	C Street to F Street	1,050	2,130
5	Main Street to C Street	750	860
6	Sacajawea Lagoon (Lagoon) to Main Street	2,000	2,000
7	Yellowstone Diversion Inlet to Lagoon	800	920

Total length pre-project (feet) 7,800
Total length post-project (feet) 9,555
Change in length (feet) 1,755
Source: Oasis Environmental (Oasis) 2008
Note: Sections listed downstream to upstream.

2.2.2.4 Bank Stabilization

The Proposed Action would incorporate the strategic use of coir (coconut) fabric to allow for creation of steeper bank angles and critical cover features. After channel alterations are complete, the project would also incorporate other bank stabilization/erosion prevention methods, such as Best Management Practices (BMPs), and would revegetate disturbed area with native herbaceous and woody species to reduce sediment loads in the creek.

2.2.2.5 Utility Relocations

Livingston's water main and Northwestern Energy's overhead electric lines cross Fleshman Creek at six locations within the project area. These utilities may be impacted by proposed changes within the project area. Multiple alternatives, including relocation, replacement, and temporary shutoff, were addressed as potential solutions for working alongside stream restoration and structure replacement activities. Unfortunately, the actual depth of buried utilities is not indicated on the Livingston engineering drawings. Utility design would involve locating and determining the depth of each utility. Temporary road closures would occur during replacement of the hydraulic

structures and it is assumed that corresponding utility work would coincide with the culvert work. The utility work would also include the installation of stormceptors (hydrodynamic separators designed to enhance gravity separation of storm water pollutants). The estimated time for each of the utility relocations is estimated to be between a few hours and a few days.

Additionally, two existing sewer lines cross under Fleshman Creek at the alley between D and E Streets and at Main Street. During final design, it is likely that the aggraded streambed would need to be lowered to increase flood conveyance without resulting in future erosion and sedimentation. Consequently, the existing gravity sewer lines would likely be exposed in the creek, and therefore need to be lowered or relocated. The installation of a sewer lift station(s) may be necessary. The actual size of the lift station(s), if needed, would be determined during final design, as it depends on a variety of factors, including existing utility depths and overall utility infrastructure of Livingston.

Project Details

The Proposed Action is divided into seven sections based on the Fleshman Creek Comprehensive Management Plan (Oasis 2008). Exhibit 2 shows the location of these sections. In the following paragraphs, each section is discussed (ordered from downstream to upstream) with regard to existing conditions, culvert installation, wetlands, channel alterations, utility work, and general comments about the proposed construction activities. Culverts and/or utilities located at the intersection of two project sections are discussed in the upstream section.

Section 1 - Upstream limit of 2003 project area to Geyser Street (Station 80+00 to 74+00)

This section extends from the upstream limit of a Fleshman Creek channel restoration project that was completed in 2003/2004 (where channel meanders begin) to the Geyser Street Crossing (near the trailer park) (Exhibit 2). No construction activities are planned downstream of this section toward its confluence with the Yellowstone River.

Although no beaver dams were observed during the field reconnaissance trip on July 16, 2009, beavers are prevalent in this reach as several mature trees that has been cut down by beaver were observed. Dam construction by the beavers result in periodic flooding throughout this reach. Along this relatively straight reach is a broad flood prone area where the channel dimension is narrower and more efficient than in many upstream reaches.

No culverts would be installed in this section. The channel would be narrowed and the sinuosity would be increased to a level similar to the 2003/2004 project reach located immediately downstream (Exhibit 2). As shown in Table 2, the total restored channel length would be approximately 675 feet. Activities in this section would also include: implementation of bank stabilization/revegetation, enhancement/creation of riparian and wetland areas along the creek in places where the channel is narrowed, modification of the storm sewer outfall with a stormceptor at M Street, and creation of a bio-swale treatment wetland. Utilities would be relocated within the road ROW, as needed.

Section 2 - Geyser Street to H Street (Station 74+00 to 56+00)

This section is bounded on the south for much of its length by one undeveloped, privately owned parcel. On the north side, multiple residential lots border the creek. Compared to other reaches of the creek, this section provides reasonably good habitat. Even so, the channel is wider, with less diversity of habitat, than would be the case if it were restored. The lower end of the reach is quite flat, dropping just 0.5 feet in over 1,000 feet. This lower end is a wide, marshy area with thick cattail growth.

In this reach, the Proposed Action would involve installing a new 12-foot x 6-foot culvert at Geyser Street and resetting the culvert elevation. The channel would be narrowed throughout the reach and sinuosity would be increased. The channel slope would also be made uniform throughout the reach, but would remain relatively flat, preserving its broad wetland character. As shown in Table 2, the total restored channel length would be approximately 2,050 feet. Bank stabilization and revegetation would be implemented. Converting the active channel area to new riparian/wetlands areas along newly created meanders would increase the area of wetlands. Utilities at Geyser Street would be relocated within the road ROW, as needed.

Section 3 - H Street to F Street (Station 56+00 to 48+00)

This section is relatively steep in gradient compared to other sections (average 0.6 percent). The channel flows through a gallery of large willow trees and sandbar willows near H Street, with a sinuosity of approximately 1.0. Regular beaver activity pushes flows out of the channel banks. The steeper gradient offers the potential to enhance trout spawning habitat. North of the channel is publicly owned land and G Street Park and St. Mary's School to the south. Some privately owned land borders the creek near H Street.

In this section, the Proposed Action would involve installing a new 12-foot x 6-foot culvert at H Street. A more sinuous riffle/pool morphology would be created. As shown in Table 2, the total restored channel length would be approximately 920 feet. Converting active channel area to new riparian/wetlands areas along newly created meanders would increase the area of wetlands. Currently, a pedestrian bridge and an above-grade sewer line cross the channel near station 52+00. Utilities at H Street would be relocated within the road ROW, as needed.

Section 4 - F Street to C Street (Station 48+00 to 37+50)

With the exception of the first 150 feet of channel below the C Street crossing, this section is flat in gradient (average 0.2 percent). The majority of the reach is wide and shallow. The occurrence of debris jams is regular, as a result of branch litter, low velocities, and shallow stream depths. Consequently, the stream substrate can be characterized as a silt bed and habitat for most life stages of trout is limited.

In this reach, the Proposed Action would involve installing a new 20-foot x 5-foot culvert at E Street and a new 14-foot x 7-foot ConSpan culvert at F Street. Channel alteration/restoration would include redistributing the grade over the reach. Also, the channel would be narrowed, creating a riffle/pool profile and converting some of the existing pond area into an active floodplain. As shown in Table 2, the total restored channel length would be approximately 2,130 feet. Riparian and wetland areas would be enhanced in places where the channel is narrowed. The storm sewer

outfall at D Street would be equipped with stormceptors and bio- swale treatment wetlands would be created. Utilities at F Street and E Street would be relocated within the road ROW, as needed. A Lift Station may be needed to relocate the existing sewer line at the alley between D Street and E Street, depending on existing utility depths and infrastructure. Impact analysis presented later in this EA assumes that a lift station would be needed.

Section 5 - C Street to Main Street (Station 37+50 to 30+00)

Approximately 100 feet of this section, near the Livingston Enterprise building, flows through a park like setting where channel conditions are not as degraded as in other sections. Downstream of Main Street, the channel flows through a relatively narrow corridor. An additional storm water outfall, near station 33+50 (Exhibit 4), discharges into Fleshman Creek. The channel is straight and the cross section transitions from over-widened to appropriate channel dimensions.

In this reach, the Proposed Action would involve installing a new 16-foot x 8-foot culvert at C Street. The narrow corridor would be widened to improve flood conveyance capacity and increase channel sinuosity. As shown in Table 2, the total restored channel length would be approximately 860 feet. Riparian and wetland areas would potentially be removed/relocated in the section planned for channel widening. Two storm sewer outfalls, one at B Street and one downstream of Main Street, would be equipped with stormceptors, and bio-swale treatment wetlands would be created. A lift station may be needed to relocate an existing sewer line at Main Street, depending on existing utility depths and infrastructure. Utilities at C Street would be relocated within the road ROW, as needed.

Section 6 – Main Street to Upstream Area of Lagoon (Station 30+00 to 10+00)

This section includes the underground culvert that runs adjacent to the city pool from 2nd Street to the Lagoon outlet, the Lagoon, and the Yellowstone Street Stone Arch Bridge (Exhibit 2).

In this section, a new 12-foot x 6-foot culvert would be installed at Main Street. The storm sewer outfall at 2nd Street would be equipped with a stormceptor and a bio-swale treatment wetland would be created. The Yellowstone Street Stone Arch Bridge would remain unchanged. Management recommendations suggest installing a new bottom-release lagoon outlet and replacing the underground culvert; however, this is not part of the current Proposed Action. Underground utilities at Main Street would be relocated within the road ROW, as needed.

Section 7 – Upstream Area of Lagoon to Yellowstone Diversion Inlet (Station 10+00 to 2+00)

This section begins at the Lagoon and extends to the pipeline inlet, a 30-inch reinforced concrete pipe that diverts water from the Yellowstone River to Reach 2 of Fleshman Creek. From the pipeline inlet to the bridge at Yellowstone Street, the channel is very shallow and filled with fine sediments. The hydrology varies drastically by season and depends on the opening of various flood control gates.

No culverts would be installed in this section; however, a channel-wide wetland would be created within a more efficient channel. Designed treatments would be configured to improve aesthetics, serve as sediment traps/filters to slow sedimentation of the Lagoon, and improve downstream water quality. Sinuosity would also be increased. A conceptual plan for this reach is shown in

Exhibit 3. As shown in Table 2, the altered channel length would be approximately 920 feet. Riparian/wetland areas would be enhanced where the channel would be narrowed. Three storm sewer outfalls (at 7th, 8th, and 9th Streets) would be equipped with stormceptors and bio-swale treatment wetlands would be created. Utilities would be relocated within the road ROW, as needed.

2.2.3 Alternative 3 – Water Diversion to Yellowstone River

This alternative would involve the installation of water diversion structures (berms) in the backwater channel that connects Fleshman Creek to the Yellowstone River upstream of the Proposed Action project area. Exhibit 5 shows the project area for Alternative 3. During periods of flooding, water from Fleshman Creek would be conveyed to a detention basin created by the proposed new berms. Water stored in the detention basin would then be pumped into the Yellowstone River through a new buried pipeline using an industrial sized pump. Exhibit 6 shows the site plan for the alternative action.

The proposed berms would be approximately 400 feet long, 35 feet wide at their base, and 5 feet high. An earthen dam would also be constructed to provide sufficient storage and head for the proposed pump. An outlet control structure, such as a weir, would be installed at the proposed dam to allow management of flows into the project reach. Approximately 500 to 1,500 linear feet of pipe would be installed to convey pumped floodwaters into the Yellowstone River, depending on the site topography and pump size. The project would be designed to provide flood protection at the 25-year level (the same as the Proposed Action).

SECTION THREE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 TOPOGRAPHY, GEOLOGY, AND SOILS

3.1.1 Baseline Conditions

Livingston is located along the Yellowstone River in Park County, in southwestern Montana, at an elevation of 4,501 feet above sea level. Park County is located in the Northwestern Great Plains Ecoregion, which includes areas in Montana, North Dakota, South Dakota, Wyoming, and Nebraska, and is described as a semiarid rolling plain where rangeland is common and native grasslands persist, particularly in areas of steep or broken topography (Woods et al. 2002). Ecoregions denote areas of general similarity in ecosystems and environmental resources, based on spatial analysis of patterns of characteristics, such as geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology (Omernik 1987). In Montana, the Northwestern Great Plains Ecoregion has been subdivided into 17 unique areas (designated as Level IV ecoregions), based on their distinct terrain, land use, soil, surficial material, climate, and/or potential natural vegetation. Livingston lies within the "Shield-Smith Valleys" area, which consists of broad, mostly unforested valleys (Woods et al. 2002). It is mostly underlain by Tertiary sediments and late-Cretaceous water-laid volcanics. Potential natural vegetation consists of sagebrush steppe and foothills prairie. Table 3 lists specific characteristics of the "Shield-Smith Valleys" area.

Two soil types were identified in the project area, the Urbanland-Glendive-Mccabe-Ryell complex and the Glendive-McCabe-Ryell complex (Natural Resources Conservation Service [NRCS] 2009). Table 4 provides the specific characteristics of these soils. Neither of the two soil types support a prime farmland classification.

3.1.2 Environmental Consequences

None of the alternatives would impact topography or geology.

3.1.2.1 Alternative 1 – No Action

The No Action Alternative does not involve any activities, other than general maintenance and removal of large woody debris from culverts on an as-needed basis. Therefore, the alternative would not have any affect on soils in the project area.

3.1.2.2 Alternative 2 - Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would involve excavation activities, with approximately 15 acres of soil being temporarily or permanently impacted. Erosion control and BMPs, such as silt fences and/or straw bales, would be implemented to minimize sedimentation during construction activities. Restoration of the stream banks by revegetation would have a long-term positive impact on soils by providing an "anchor" to hold soil in place during future rain and flood events.

Table 3: Characteristics of the Shield-Smith Valleys Ecoregion

Level IV Ecoregion	Physiography	Elevation (feet)	Precipitation Mean Annual (inches)	Frost Free Mean Annual (days)	Temperature January min/max (°F)	July min/max (°F)	Potential Natural Vegetation	Land Use
Shield–Smith Valleys	Broad, mostly treeless, intermontane valleys and hills	4,500-7,300	12-20	70-110	4-34	48-86	Mostly sagebrush steppe	Livestock grazing, agriculture, recreational, rural residential, and commercial

Source: Woods et al. 2002
°F = Degrees Fahrenheit

Table 4: Soil Characteristics in the Fleshman Creek Flood Mitigation Project Area

Map Unit Symbol	Map Unit Name	Elevation (feet msl)	Landform	Parent Material	Slope (percent)	Vegetation Classification	Typical Profile
11A	Urbanland-Glendive-Mccabe-Ryell complex	4,180 to 5,020 feet	Channels on floodplain steps	Sandy alluvium over sandy and gravelly alluvium	0 to 2	Urban/Northern Floodplain Deciduous	Stratified loam to loamy fine sand
602A	Glendive-McCabe-Ryell complex	4,180 to 5,020 feet	Floodplain steps	Sandy alluvium over sandy and gravelly alluvium	0 to 2	Northern Floodplain Deciduous	Stratified loam to loamy fine sand

Source: NRCS 2009
msl = mean sea level

Excess soil would be disposed of at an established city or county stockpile area or landfill. If additional fill is required, it would be obtained from established borrow areas near Livingston, such as the Durgan Rock Pile and STS Gravel. If an established borrow area is not used, potential impacts associated with establishing a new borrow area would need to be addressed in a Supplemental EA.

3.1.2.3 Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would temporarily or permanently impact approximately 0.5 acres of soil. Access to the site is available largely from the adjacent Sacajawea Park. Approximately 1,350 cubic yards of fill would be required for the construction of the earthen berm. Some excavation of existing streambed material is anticipated for placement of the industrial pump. It is anticipated that this material would be placed in the adjacent levees. Erosion control and BMPs, such as silt fences and/or straw bales, would be implemented to minimize sedimentation and storm runoff during construction activities. Any disturbed area would be re-seeded with native grasses following construction activities.

Required fill would be obtained from established borrow areas near Livingston, such as the Durgan Rock Pile and STS Gravel. If an established borrow area is not used, potential impacts associated with establishing a new borrow area would need to be addressed in a Supplemental EA.

3.2 LAND USE AND ZONING

3.2.1 Land Use

3.2.1.1 Baseline Conditions

There are 61 parcels of land adjacent to the project area. These parcels are owned by the County, School District #4, and private individuals (Oasis 2008). The primary uses of land in the project area are residential, recreational, and educational.

3.2.1.2 Environmental Consequences

Alternative 1 – No Action

With the No Action Alternative, the current land use within the project area would not change.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

Implementation of the Proposed Action would not change the land use within the project area. Construction personnel and equipment will need to have access to the stream channel/banks and this will require that short-term (temporary) construction easements be obtained from the affected landowners. For safety purposes, it is also expected that access to the construction areas will be restricted during active construction. Following construction all project related use restrictions would be removed.

Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would change approximately 0.5 acre of land from undeveloped treed land to a grassed flood control structure. Residents living next to the affected area could consider this a significant change.

The west berm is within approximately 20 to 30 feet of the homes. At final design, a determination would be made regarding the potential need to acquire these homes. If acquisition were necessary, all properties would be purchased in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. All acquisition would be done on a willing seller basis.

This alternative would require permanent easements to allow for the maintenance of the berms. Park County would work to obtain these easements on a willing property owner basis.

3.2.2 Floodplain Management (Executive Order 11988)

3.2.2.1 Baseline Conditions

Executive Order (EO) 11988 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for the following actions:

- Acquiring, managing, and disposing of Federal lands and facilities;
- Providing Federally undertaken, financed, or assisted construction and improvements; and
- Conducting Federal activities and programs affecting land use, including, but not limited to, water and related land resources planning, regulation, and licensing activities.

The project area is located in an area designated as Zone AE (FEMA 1987a, FEMA 1987b), which has a 1 percent probability of flooding every year (also known as the "100-year floodplain"). Properties in Zone AE are considered to be at high risk of flooding under the National Flood Insurance Program (NFIP). Construction in these areas must meet local floodplain zoning ordinance requirements.

To satisfy the intent of the EO, FEMA employs an Eight-Step Decision-Making process to evaluate projects that have features located within a 100-year floodplain. The FEMA Eight-Step Process is provided in Appendix B. It involves considering alternatives to siting a project in a floodplain or minimizing impacts to the floodplain. NEPA compliance involves the same basic decision-making process to meet its objectives; therefore, the Eight-Step Process has been satisfied through the implementation of the NEPA process.

EO 11988 and the Eight-Step Process have specific public notification requirements, including, at a minimum, an initial and final public notification regarding the Proposed Action. Park County published an initial public notice in the Livingston Enterprise on October 19, 2009. A final public notice was published in the Livingston Enterprise on April 2, 2010. No comments were received during either public comment period.

3.2.2.2 Environmental Consequences

Alternative 1 – No Action

With the No Action Alternative, no construction activities would occur; therefore, neither the Fleshman Creek floodway nor the floodplain would be impacted.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would involve construction activities within the Fleshman Creek floodway and floodplain. The activities would include culvert upgrades and channel augmentation. However, none of the activities would result in the construction of a permanent structure that would restrict the function of the floodway or floodplain, or in the occupancy of the floodplain. In fact, current culverts in the project area are undersized, therefore, upgrading them to ConSpan structures capable of conveying the 25-year flood event would have a positive impact on the floodway and floodplain. The alternative would alter the floodplain to the extent that approximately 65 structures would be protected during a 25-year flood event. Exhibit 7 shows the extent of the pre- and post-project 25-year floodplain.

By preparing this EA, FEMA is meeting the requirement of EO 11988 to determine the effects of its actions on the natural and beneficial values of floodplains. As per 44 CFR 60.3 (b)(1), the Proposed Action would require Park County to obtain a Floodplain Development Permit from the Park County Floodplain Administrator for construction in a floodplain. As part of the permitting process, Park County would need to ensure that project activities would not increase the base flood elevation (100-year flood) by more than 1 foot. The permit must be obtained prior to any construction activities.

The Proposed Action involves modification of Fleshman Creek channel characteristics; therefore, Park County would be required to send a Letter of Map Revision (LOMR) to FEMA within 6 months of completion of the project (44 CFR 65.3) to officially notify FEMA of the changes to the channel so they can be reflected in the Flood Insurance Rate Map (FIRM). Additionally, the Proposed Action would alter the floodplain to the extent that approximately 65 structures would be protected during a 25-year flood event.

Alternative 3 – Water Diversion to Yellowstone River

As a result of this alternative, new berms would occupy the Fleshman Creek floodplain; however, they would not restrict the function of the floodway/floodplain. Post-project, this alternative would be able to contain and divert flows up to the 25-year flood event (Park County 2009). Impacts on the downstream 25-year floodplain would be similar to those shown in Exhibit 7.

By preparing this EA, FEMA is meeting the requirement of EO 11988 to determine the effects of its actions on the natural and beneficial values of floodplains. The project would require Park County to obtain a Floodplain Development Permit from the Park County Floodplain Administrator for construction in a floodplain. The permit must be obtained prior to any construction activities.

The alternative would affect the flow in Fleshman Creek up to a 25-year event and this change would alter the 25-year floodplain. Therefore, Park County would be required to send a LOMR to FEMA within 6 months of completion of the project (44 CFR 65.3) to officially notify FEMA of the changes to flow so they can be reflected in the map. Additionally, the alternative would alter the floodplain to the extent that approximately 65 structures would be protected during a 25-year flood event.

3.2.3 Prime Farmland

The NRCS online soil survey indicated that none of the soils identified in Section 3.1 are considered prime or unique farmland (NRCS 2009). Since no farmland, including prime farmland, is located within the project area, neither action alternative has the potential to affect prime farmland and the intent of the Farmland Protection Policy Act is met. Therefore, impacts to prime farmland were not considered further and NRCS Form AD-1006 was not completed.

3.3 TRAFFIC AND CIRCULATION

3.3.1 Baseline Conditions

The following roads are located within the project area. All are paved, two-lane roads with typical residential area traffic.

- Butte Street
- Yellowstone Street
- Main Street
- C Street
- Geyser Street
- E Street
- F Street
- H Street

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 – No Action

The No Action Alternative would allow road closures due to flooding to continue. Heavy machinery would continue to clear debris, as needed, during spring high flow periods to prevent culvert clogging.

3.3.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would cause six temporary road closings during the installation of new culverts at road crossings along Fleshman Creek (Table 1). Park County would need to implement road closure and traffic detours for each structure; however, access to all properties would be maintained. Table 5 shows the estimated duration of temporary road closures/detours due to construction activities. To minimize traffic impacts, only one road would be closed at a time. Additionally, Park County would inform the residents before beginning construction activities that would result in road closures. Each culvert installation would require a water diversion, removing the existing culvert\bridge structure, installing a new culvert, and resurfacing the street before reopening the street to normal traffic use. Construction would start at downstream reaches and proceed upstream. Given the phasing of street closures and prior notification of residents, the traffic and circulation impacts associated with the Proposed Action would be short-term and minor.

Table 5: Estimated Duration of Temporary Road Closures/Detours

Location	Duration (days)
Geyser Street Crossing	26
H Street Crossing	15
Alley between G and H Streets	8
F Street Crossing	27
E Street Crossing	25
Alley between D and E Streets	63
C Street Crossing	25
Main Street Crossing	26

Source: Park County 2009

3.3.2.3 Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would require the temporary closure of River Drive during the placement of the pipe needed to convey the diverted Fleshman Creek water to the Yellowstone River. Access to all properties in the area would be maintained. Park County would inform the residents before beginning construction activities that would result in road closures.

This alternative would also require approximately 1,350 cubic yards of fill material to construct the berms. Depending on the size of the trucks used to haul the fill, approximately 65 to 130 truckloads of fill would be hauled to the project area. This extra truck traffic may result in some short-term, minor local traffic delays.

Post-project, the project would prevent the overtopping of several streets during storms up to and including the 25-year flood event. Therefore, it would have a long-term positive impact on traffic and circulation, as the reduced flooding frequency would reduce the occurrence of road closures due to flood events.

3.4 PUBLIC HEALTH AND SAFETY

3.4.1 Baseline Conditions

The potential for flooding along Fleshman Creek is a safety concern for the community. Flooding poses a potentially life-threatening situation for persons caught in the floodwaters. Damaged and/or flooded roads present a public safety concern due to direct hazards and increased response times for emergency services. Standing water in residential and other structures can pose a health and safety risk for local residents due to the presence of biological hazards.

Several historic floods have been recorded along Fleshman Creek. While several flood events on the Yellowstone River undoubtedly resulted in flooding along Fleshman Creek, three major events are documented as specifically involving Fleshman Creek (Oasis 2008). The most damaging flood occurred in June 1937, when Fleshman Creek overtopped its banks near the Northern Pacific Railway tracks, flooding several blocks in the Livingston business district. Currently, Fleshman Creek causes the flooding of streets and residential properties during events as small as the 25-year event.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on public health and safety along Fleshman Creek.

3.4.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would prevent flooding of properties, primarily residential, along Fleshman Creek up to the 25-year flood event. It would also prevent the overtopping of several streets and a school parking lot; therefore, emergency vehicle response times would be maintained or improved during future flood events within the Fleshman Creek area due to decreased street flooding and fewer road closures.

Decreased flooding would benefit such utilities as Livingston's sanitary sewer, potable water, and electrical distribution systems. Flooding can overload these systems and cause a citywide potential for sewer backup, loss of potable water, and power outages; therefore, prevention of flooding would benefit public health and safety throughout Livingston.

3.4.2.3 Alternative 3 – Water Diversion to Yellowstone River

This alternative would be designed to provide protection against a 25-year flood event, which is the same protection afforded under the Proposed Action. Therefore, potential public health and safety impacts associated with Alternative 3 would be similar to those discussed for Alternative 2.

3.5 SOCIOECONOMICS

3.5.1 Economic Issues

3.5.1.1 Baseline Conditions

According to the 2000 census, there were 6,851 people and 3,084 households in Livingston, Montana (U.S. Census Bureau [Census] 2009a). The population density was 2,601.3 people per square mile. The median age was 40 years. The median income for a household in the city was $28,980, and the median income for a family was $40,505. Males had a median income of $26,619, versus $18,684 for females. The per capita income for the city was $16,636. About 5.6 percent of families and 12.1 percent of individuals were below the poverty line. Annual flood damages are estimated at $20,000 (Oasis 2008).

3.5.1.2 Environmental Consequences

Alternative 1 – No Action

Under the No Action Alternative, the cost of flood cleanup would continue to be a negative economic impact on the citizens of Livingston and Park County.

Alternative 2 –Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would have a long-term beneficial effect on socioeconomics in Livingston and Park County by providing flood protection to approximately 65 structures presently located along Fleshman Creek. It would also have a long-term beneficial economic effect on Livingston, Park County, and individuals directly affected by flooding, as the action would decrease the frequency of flood events and the need to repair flood-related damages.

Alternative 3 – Water Diversion to Yellowstone River

Socioeconomic impacts associated with Alternative 3 would be similar to those discussed for Alternative 2.

3.5.2 Environmental Justice (Executive Order 12898)

3.5.2.1 Baseline Conditions

EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," directs Federal agencies to "make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

The 2000 census was used to characterize the area. Based on this data, Livingston has a population of 6,851, of which approximately 96 percent are Caucasian. The largest minority population is Hispanic/Latino, comprising approximately 2 percent of the population. The area surrounding the project area is comprised of approximately 94 to 98 percent Caucasians (Census 2009a). The

largest minority group in the project area is Hispanic/Latino, comprising 1 to 4 percent of the population. Minority concentrations tend to be higher toward the downstream end of the project area.

According to the census data (Census 2009a), Livingston has a poverty rate of 5.6 percent for families and 12.1 percent for individuals. The area surrounding the project area has a family poverty rate of 6 to 7 percent and an individual poverty rate of approximately 12 percent.

3.5.2.2 Environmental Consequences

Alternative 1 – No Action

The No Action Alternative would have no impact on minority and/or low-income populations in Livingston or Park County.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

Construction of the Proposed Action would improve public health and safety throughout Livingston and reduce costs (for both private citizens and public agencies) associated with future flood events. Therefore, construction of the Proposed Action would not have a disproportionately high adverse effect on any minority or low-income populations. In fact, it would have a long-term positive impact on all citizens of Livingston, including low-income and minority populations.

Alternative 3 – Water Diversion to Yellowstone River

Impacts related to Environmental Justice associated with Alternative 3 would be similar to those discussed for Alternative 2.

3.6 VISUAL RESOURCES

3.6.1 Baseline Conditions

The project area is located along Fleshman Creek and entirely within Livingston. The creek flows through Sacajawea Park, which provides a scenic view of the Yellowstone River and the green space associated with the creek, park, and river. Along the creek, the vegetation is riparian forest canopy and grasses, shrubs, and typical wetlands plants, such as cattails. There are several man-made structures in this urban setting, including culverts, roads, utility structures, houses, and schools.

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on visual resources within the project area.

3.6.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would have a short-term adverse impact on the viewshed near Fleshman Creek due to construction activities and equipment; however, it would also involve extensive

planting of a variety of herbaceous and woody vegetation. The types of vegetation were selected to hold stream bank soil in place and restore wildlife habitat along the creek. Therefore, the Proposed Action would have a long-term positive impact on the viewshed within the project area by restoring a meandering stream channel and associated riparian habitat.

3.6.2.3 Alternative 3 – Water Diversion to Yellowstone River

This alternative would remove approximately 0.5 acres of trees and replace them with grassed earthen berms approximately 5 feet in height. The residents living along the newly constructed berm would likely consider this a negative visual impact.

3.7 AIR QUALITY

3.7.1 Baseline Conditions

The National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency (USEPA), define the allowable concentrations of pollutants that may be reached but not exceeded in a given time period in order to protect human health (primary standard) and welfare (secondary standard) with a reasonable margin of safety. These standards include maximum concentrations for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter (10 microns or less and 2.5 microns or less). The State of Montana has developed its own ambient air quality standards (Montana Ambient Air Quality Standards [MAAQS], Montana Department of Environmental Quality [MDEQ] 2009). Park County, including the entire project area, is considered an Attainment Area for all air quality parameters (USEPA 2009, MDEQ 2009).

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on air quality in the project area.

3.7.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

Heavy machinery used to remove and install culverts, augment channels, and create wetlands would contribute to an increase in exhaust fumes and fugitive dust (particulates) during the construction period. These increases would be short-term and minor.

MDEQ indicated that no permits would be required (MDEQ 2009, Appendix C); however, if dust emissions become an issue for the local residents, the contractor would be required to implement dust abatement procedures, such as applying water or magnesium chloride to the disturbed areas to control fugitive dust.

3.7.2.3 Alternative 3 – Water Diversion to Yellowstone River

Air quality impacts associated with Alternative 3 would be similar to those discussed for Alternative 2.

3.8 PUBLIC SERVICES

3.8.1 Baseline Conditions

Livingston water and sewer mains and Northwestern Energy's overhead electric lines and natural gas lines cross Fleshman Creek in several locations within the project area.

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on public services within the project area. During future flood events, the potential would exist for public services to be interrupted or delayed.

3.8.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

Temporary road closures are anticipated during replacement of the existing hydraulic structures required for the Proposed Action, and it is assumed that corresponding utility work would coincide with the culvert work.

The Utilities Underground Location Center would need to locate the underground utility lines prior to any construction activities. Additionally, caution would need to be used so that overhead power lines in the area are not contacted during construction activities. Actual relocation of utilities would depend on their current location relative to the placement of the new culverts.

Therefore, specific relocation cannot be determined at this time. Any interruption of service would be temporary and would be done in a manner that would minimize adverse effect on the local users.

3.8.2.3 Alternative 3 – Water Diversion to Yellowstone River

It is anticipated that existing water lines feeding the Sacajawea Park irrigation system would be disturbed by this alternative. Potential impacts to gas, electric, water, and sewer would be unlikely.

The Utilities Underground Location Center would need to locate the utility lines prior to any construction activities. Caution would need to be used so that overhead power lines in the area are not contacted during construction activities. Any water lines would be relocated as close to their existing position as possible. Any interruption of service would be temporary and would be done in a manner that would minimize adverse effect on the local users.

3.9 NOISE

3.9.1 Baseline Conditions

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Noise events that occur during the night (10 p.m. to 7 a.m.) are more annoying than those that occur during normal waking hours (7 a.m. to 10 p.m.). Noise events within the project area are presently associated with car traffic, climatic conditions (e.g., wind and thunder),

nature (e.g., birds), and other typical sounds. Four schools are located near the project area: Park High School, East Elementary School, Sleeping Giant Middle School, and St. Mary's Parochial School. These are considered sensitive receptors.

3.9.2 Environmental Consequences

The Noise Control was enacted in 1972 (Public Law 92-574). Inadequately controlled noise presents a growing danger to the health and welfare of the nation's population.

3.9.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on noise levels within the project area.

3.9.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

For the Proposed Alternative, heavy machinery would be used to remove and install culverts, augment channels, and create wetlands; therefore, noise levels would increase in the project area during the construction period. To minimize noise impacts, construction activities would be limited to daytime hours (7 a.m. to 9 p.m.). All equipment would have standard noise reducing components, such as mufflers, to minimize noise levels. Additionally, to the extent practicable, construction near the schools would be scheduled to occur during the summer vacation. With these noise control measures, noise impacts in the project area would be considered to be minor. Once construction activities are completed, noise levels in the project area would return to pre- project levels.

3.9.2.3 Alternative 3 – Water Diversion to Yellowstone River

Noise impacts associated with Alternative 3 would be similar to those discussed for the Proposed Action; however, there are no schools located near the project area. Therefore, construction could occur whenever weather permitted, regardless of the school schedule. To minimize noise impacts to nearby residents and businesses, construction activities would be limited to daytime hours (7 a.m. to 9 p.m.). All equipment would have standard noise reducing components, such as mufflers, to minimize noise levels.

3.10 HYDROLOGY AND WATER QUALITY

3.10.1 Baseline Conditions

The project area is located within the Fleshman Creek and Yellowstone River watersheds. The Fleshman Creek watershed is approximately 23.65 square miles (Park County 2009), and has two named tributaries, Spring Creek and Perkins Creek. Reach 2 of Fleshman Creek receives water from the Yellowstone River through a pipeline diversion near Park Clinic on River Drive Dr, which empties just upstream of the 7th Street Pedestrian Bridge. Downstream of the pipeline inlet, Fleshman Creek enters the 7.6-acre Lagoon.

The Fleshman Creek confluence with the Yellowstone River is approximately 500 feet southeast of the intersection of Park Street and Bennett Street. The Yellowstone River Valley slope is 0.23

percent in the segment from Park Clinic on River Drive Dr to the Mayor's Landing Fishing Site access on Vista View Drive Dr (NRCS 1998).

In order to maintain or benefit aquatic communities of the stream, a minimum flow of 10 cfs is recommended in Fleshman Creek. An annual flushing flow of 28 to 35 cfs for a duration of 3 to 5 days between March and May is also recommended for the creek (Livingston 2009).

The Fleshman Creek 100-year flood event flows are estimated at 856 cfs. These flows are significantly higher than the capacity of the culverts and the existing channel corridor within Reach 2 of Fleshman Creek, which overtop during 25-year storm events (525 cfs), causing localized flooding (Oasis 2008).

3.10.2 Environmental Consequences

3.10.2.1 Alternative 1 – No Action

The No Action Alternative would have no impact on the hydrology and water quality in Fleshman Creek.

3.10.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action is designed to favorably alter Fleshman Creek stream hydrology by increasing the culvert and stream channel capacity to handle the 25-year event (525 cfs). These changes would also reduce the overbank flow of the 100-year event. The project would also return the creek hydrology to a more natural flow regime by narrowing the channel and creating meanders. These features would also reduce erosion and sedimentation. Therefore, the Proposed Action would have a long-term positive impact on the hydrology and water quality in Fleshman Creek.

The USEPA's National Pollutant Discharge Elimination System (NPDES) Program requires a permit for all construction activities that disturb more than 1 acre. The MDEQ Permitting and Compliance Division administers the NPDES Program through the Montana Pollutant Discharge Elimination System (MPDES) Program. Park County would need to obtain a "General Permit for Storm Water Discharges Associated with Construction Activity" (General Permit) prior to the initiation of construction activities. As part of the permitting process, the County would also need to complete the Notice of Intent (NOI) Package and prepare a Storm Water Pollution Prevention Plan (SWPPP). A soil erosion and sediment control plan must also be prepared prior to construction. An authorization for turbidity-related construction activities from MDEQ would also be required. As previously stated, BMPs would be used to prevent and/or minimize soil erosion and the movement of sediment during the construction of project features.

A 401 Water Quality Certification would need to be obtained from the MDEQ. For projects that need to obtain a Section 404 Permit from the USACE, the 401 Water Quality Certification is obtained as part of the Section 404 Permit process. A MDEQ 318 Water Quality permit would also be required. This permit is generally issued/approved by Montana Fish, Wildlife, and Parks (MFWP).

Mobile fueling would likely occur as heavy equipment work in the channel. If fueling were to occur, appropriate spill control measures would be implemented, including the use of secondary containment and spill kits. If a spill or leak were to occur, the County will notify the MDEQ and FEMA for appropriate response actions. Cleanup activities would be completed in accordance with MDEQ regulations.

With permits and mitigation activities, the Proposed Action would have no long-term adverse impacts on water quality.

3.10.2.3 Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would not change the basic hydrology or water quality of Fleshman Creek within the project area. The water would still be diverted to the Yellowstone River and then released back into Fleshman Creek further downstream. During times of high water, flows up to the 25- year event (525 cfs) would be diverted from Fleshman Creek into the created basin and then actively pumped into the Yellowstone River. BMPs, such as silt fences and straw bales, would be used to minimize sedimentation during construction of the berms and basin.

This alternative would require a MPDES permit because more than 1 acre of land would be disturbed. This alternative includes a diversion pipe to the Yellowstone River and potential activities within wetlands along Yellowstone River. Park County would coordinate with the USACE during final design to determine whether a Section 10 or Section 404 permit and associated State Water Quality permits would be required for the project. The permits would set the terms of mitigation, as appropriate.

Mobile fueling would likely occur as heavy equipment work in the channel. If fueling were to occur, appropriate spill control measures would be implemented, including the use of secondary containment and spill kits. If a spill or leak were to occur, the County will notify the MDEQ and FEMA for appropriate response actions. Cleanup activities would be completed in accordance with MDEQ regulations.

3.11 BIOLOGICAL RESOURCES

3.11.1 Wetlands (Executive Order 11990)

Wetlands provide significant ecological functions, including:

- Providing habitat for numerous aquatic and terrestrial wildlife species
- Aiding in the dispersal of floodwaters
- Improving water quality through retention and assimilation of pollutants from storm water runoff
- Recharging the aquifer

Wetlands also possess aesthetic and recreational values. EO 11990, entitled “Protection of Wetlands,” requires Federal agencies to take action to minimize the loss of wetlands. Activities disturbing jurisdictional wetlands require a Section 404 Permit from the USACE.

3.11.1.1 Baseline Conditions

The U.S. Geological Survey (USGS) National Map shows six small wetlands along Fleshman Creek within the project area, and the Lagoon, which is also classified as a wetland. The total area of the six small wetlands is approximately 7.1 acres and the Lagoon is approximately 7.6 acres (USGS 2009). Exhibit 8 shows the location of the wetlands within the project area.

Individually, the six small wetlands range from approximately 0.7 to 1.6 acres in size. All are classified as Palustrine Forested, Temporarily Flooded wetlands (PFOA). Palustrine wetlands include all non-tidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens, and all such wetlands that occur in tidal areas where the salinity due to ocean derived salts is below 0.5 parts per thousand (ppt). Wetlands lacking such vegetation are also included if they:

- Are less than 20 acres
- Do not have an active wave-formed or bedrock shoreline feature
- Have, at low water, a depth less than 6.5 feet at the deepest part of the basin
- Have a salinity due to ocean-derived salts of less than 0.5 ppt

Forested wetlands are characterized by woody vegetation that is 20 feet or taller. Temporarily flooded wetlands are wetlands where surface water is present for brief periods during the growing season, but the water table usually lies below the soil surface. Plants that grow both in uplands and wetlands may be characteristic of this water regime.

The Lagoon is listed as a Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated wetland (PUBGx). Unconsolidated Bottom wetlands include all wetlands and deepwater habitats with at least 25 percent cover of stones less than 3 inches, and a vegetative cover less than 30 percent. Intermittently Exposed wetlands contain surface water that is present throughout the year, except in years of extreme drought. Excavated wetlands lie within a basin or channel excavated by man.

3.11.1.2 Environmental Consequences

Alternative 1 – No Action

No construction or development would occur with the No Action Alternative; therefore, it would not affect wetlands located within the project area.

Alternative 2 –Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action does not include any construction activities within the Lagoon and the associated PUBGx wetland area would not be adversely affected.

All six of the small PFOA wetlands (approximately 7 acres) in the project area are located along Fleshman Creek and would be affected by construction activities (channel augmentation and grading); however, the Proposed Action would increase the length of Fleshman Creek and the banks of the created channel would be re-planted with native riparian vegetation. This would be

expected to create riparian fringe wetlands along the creek. In addition, within the narrow section of Fleshman Creek upstream of the Lagoon, a channel-wide wetland area would be constructed and planted with wetlands vegetation. Exhibit 9 shows the proposed locations of the constructed wetland areas. Bio-swale wetlands would be installed at each of the storm water outfalls to the stream. The wetlands would function to create a sediment filtration zone and mitigate water quality impairments. These wetlands, used in series with hydrodynamic separators, should provide good treatment efficacy to remove sediment and pollutants entering Fleshman Creek.

Since wetlands would be affected, Park County would need to obtain a Section 404 Permit from the USACE. During final design, the County would need to delineate the wetlands within the project area. The County would then need to consult with the USACE to determine the net impact on wetlands and appropriate mitigation, as necessary, to resolve wetland impacts. All mitigation measures identified by the USACE in the permit would need to be implemented by Park County. The Section 404 permit would need to be obtained prior to beginning construction activities. Discussions with the USACE are included in Appendix C.

Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would have the potential to impact wetlands along the Yellowstone River and Fleshman Creek. Therefore, a Section 404 permit may be required for this action. If this alternative is selected, Park County would need to work with the USACE during final design to determine impacts to wetlands and the need for a Section 404 permit and mitigation, as appropriate. Exhibit 10 shows the location of wetlands relative to the location of Alternative 3 project features.

3.11.2 Vegetation

3.11.2.1 Baseline Conditions

MFWP (MFWP 2009c) classifies the project area as part of the Intermountain Grassland ecosystem, which is a transition zone between prairie grasslands and montane forests, sometimes referred to as foothill grasslands. The large, open valleys within this ecosystem support plant communities that are primarily grasses intermixed with a variety of forbs and shrubs. Trees are primarily limited to riparian areas along stream corridors. Representative plant species include fringed sagewort, limber pine, big sagebrush, skunkbush sumac, silky lupine, arrowleaf balsamroot, blanket flower, rough fescue, bluebunch wheatgrass, prairie junegrass, Idaho fescue, and needle and thread (MFWP 2009c). The plant community within and in the vicinity of the project area has been affected by previous urban development activities. During the field reconnaissance of the project area on July 15 and 16, 2009, the following vegetation was observed: willows, boxelder trees, cottonwoods, Russian olives, cattails, cordgrass, brome grass, sedges, and various aquatic macrophytes.

3.11.2.2 Environmental Consequences

Alternative 1 – No Action

No vegetation would be affected under the No Action Alterative as no construction would occur. Local vegetation would continue to be flooded during future flood events.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

With the Proposed Action, approximately 8 acres of non-wetland vegetation would be affected by project activities. The Proposed Action has been designed to minimize the removal of trees. Upon completion of construction, to the extent possible, riparian habitat would be restored through the installation of native shrubs, trees, and other herbaceous plants along streams reaches where vegetation cover is inadequate (Park County 2008).

Alternative 3 – Water Diversion to Yellowstone River

Approximately 0.5 acre of vegetation would be disturbed by this alternative. Currently, this vegetation consists primarily of trees. Post-project, the area would be re-vegetated with native grasses. The loss of the trees within the project area is expected to be viewed as an adverse impact by local residents.

3.11.3 Terrestrial Wildlife

3.11.3.1 Baseline Conditions

As per MFWP (MFWP 2009c), terrestrial mammals that are routinely present in the Intermountain Grassland ecosystem include elk, deer, grizzly bear, bighorn sheep, meadow vole, masked shrew, western jumping mouse, Columbian ground squirrel, and long-tailed weasel.

Typical bird species living in these grassland and riparian valleys are sandhill crane, bald eagle, grasshopper sparrow, Wilson's snipe, bobolink, yellow warbler, osprey, northern harrier, western meadowlark, Savannah sparrow, upland sandpiper, and American kestrel (MFWP 2009c).

Representative amphibians include spotted frogs, leopard frogs, and western toads. Reptiles include garter snakes and painted turtles. With the project area being located in an urban area, wildlife is expected to be limited to species that thrive in an urban setting, which generally include small mammals, passerine birds, amphibians, and reptiles.

The Migratory Bird Treaty Act (MBTA), 16 U.S. Code (U.S.C.) 703, was enacted in 1918. It prohibits the taking of any migratory birds, their parts, nests, or eggs, except as permitted by regulations. The U.S. Fish and Wildlife Service (USFWS) consults on issues related to migratory birds.

3.11.3.2 Environmental Consequences

Alternative 1 – No Action

The No Action Alternative would not have any impacts on wildlife or migratory birds.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

As discussed in previous sections, the Proposed Action would disturb 7.1 acres of wetland habitat and 8 acres of upland habitat. The project would also create wetlands. The acreage of wetlands disturbed and created would be determined during final design, in coordination with the USACE.

Affected wetlands would be mitigated as per USACE requirements and other disturbed areas would be revegetated following the completion of construction activities. Local populations of wildlife species would be temporarily impacted during the construction of project features; however, with the restoration activities associated with this alternative, it is expected that wildlife habitat would be restored to pre-project conditions or better.

The USFWS was contacted regarding this project. In a letter dated October 15, 2009 (Appendix C), the USFWS indicated that the Proposed Action would be unlikely to cause significant adverse effects to fish, wildlife, or habitat resources under their purview, and that the project would likely be beneficial to a variety of wildlife due to the creation and enhancement of wetland areas in the Yellowstone River floodplain. The MFWP was contacted regarding this project and had no concerns regarding wildlife or wildlife habitats. This correspondence is included in Appendix C.

Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 would impact approximately 0.5 acres of upland habitat, primarily trees. Tree removal would represent a long-term adverse affect on birds and other species that use the trees and associated habitat. If this alternative were selected, the USFWS would need to be consulted regarding potential impacts to terrestrial wildlife, including migratory birds.

3.11.4 Aquatic Wildlife

3.11.4.1 Baseline Conditions

The large rivers and their tributaries of the Intermountain Grassland, including Fleshman Creek, support many cold-water fish species, including trout, mottled sculpin, longnose sucker, burbot, and mountain whitefish (MFWP 2009c). According to the MFGP, the fish population in Fleshman Creek has not been surveyed in recent years. Apparently, the last survey occurred in 1974, and species collected during that survey included brook trout, Yellowstone cutthroat trout, brown trout, mottled sculpin, and lake chub (MFWP 2009b). The quality of habitat in the stream has degraded in recent years and the species diversity may have decreased. The MFWP (MFWP 2003) indicated that the creek is currently in a very degraded state and recreational opportunities are essentially zero. In addition, migratory connectivity to the Yellowstone River is very limited due to the number of road and street crossings.

In the last several years, there has been a focused cooperative undertaking to improve the habitat and water quality within specific reaches of Fleshman Creek. This has included the stream reach immediately downstream of the project area that extends to the confluence of Fleshman Creek and the Yellowstone River. Another reach of Fleshman Creek presently being upgraded is located on private land approximately 1.5 miles upstream of the project area. Participants in these stream improvement projects have included the NRCS, USFWS, MFWP (Future Fisheries Improvement Fund), Park County, Joe Brooks Chapter of Trout Unlimited, local school system, and private individuals. The focus of these programs has been to reduce pollution (sediment and livestock waste), reshape the stream so the channel is narrower and the water deeper, and encourage the establishment of stream bank vegetation.

3.11.4.2 Environmental Consequences

Alternative 1 – No Action

The No Action Alternative would not have any impacts on aquatic resources located within the project area. Fleshman Creek would remain in a degraded state and would continue to provide marginal habitat for most fish species.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The Proposed Action would result in a short-term increase in turbidity during construction. To minimize this affect, construction would occur during a low flow period, to extent possible, operation of equipment in the stream channel would be minimized, and BMPs, such a silt fences and straw bales, would be employed to prevent or minimize the movement of sediment into Fleshman Creek. Additionally, to minimize the potential for petroleum products to enter the stream, all fueling and lubricating of construction equipment would occur at least 50 feet from the stream. To improve habitat within the stream and reduce the potential for excessive soil erosion, all disturbed areas adjacent to the stream would be re-vegetated with approved riparian vegetation and disturbed upland areas would be re-vegetated with an approved seed mixture.

Replacing the culverts at the six road crossings with properly sized and properly installed culverts would improve the hydraulics of lower Fleshman Creek and remove the crossings as potential migration barriers to adult trout attempting to migrate up Fleshman Creek to spawn.

In addition, planned channel alterations and associated stream bank restoration would improve the overall water quality of lower Fleshman Creek. These activities would enhance habitat for adult trout and provide nursery areas for young salmonids (trout). Some of the salmonids reared in Fleshman Creek would be expected to migrate into the Yellowstone River and contribute to its sport fishery.

In summary, during construction, a minor increase in turbidity (sediment loading) would be expected in Fleshman Creek within and immediately downstream of the project area. These increases would occur during the removal of the old culverts, installation of the new culverts, and connection of the new channel segment (meander) to the existing channel. BMPs would be implemented to minimize these impacts. Post construction, it is expected that a healthier habitat for aquatic life would quickly become established. These improvements would be expected to enhance the abundance and diversity of salmonids within the project area and adjoining reaches of the stream.

Trout Unlimited has written a letter of support for this project and stated that it would significantly improve aquatic habitat in Fleshman Creek (Appendix C).

The MFWP was contacted regarding this Proposed Action and had no concerns regarding aquatic wildlife. However, MFWP indicated that it would require a Stream Protection Act (SPA) 124 permit. This correspondence is included in Appendix C.

Alternative 3 – Water Diversion to Yellowstone River

Alternative 3 involves the construction of berms along an ephemeral portion of Fleshman Creek. This stream segment is generally dry, except during high flow periods, such as spring snow melt and a heavy rain event. Construction activities would occur during low flow and when the stream segment is dry. However, it is not anticipated that any flow would need to be diverted in order to complete the project features. BMPs would be implemented to minimize any impacts associated with increased turbidity immediately downstream of the project area. This alternative would have no beneficial impact on aquatic wildlife.

3.11.5 Threatened, Endangered, and Special-Status Species

3.11.5.1 Baseline Conditions

Federal Species

The USFWS Montana Ecological Services Field Office website (USFWS 2009) lists one federally threatened or endangered species for Park County: the Canada lynx (Lynx canadensis), which is listed as threatened with designated critical habitat.

Canada Lynx

On March 21, 2000, the USFWS listed the Canada lynx as threatened under the Endangered Species Act (ESA) in the contiguous United States.

The boreal forests of Canada and Alaska are the primary habitat of the Canada lynx in North America. Populations occurring in the western mountains of the conterminous United States occupy peninsular extensions of this distribution. In Montana, Canada lynx have been documented, historically and currently, throughout the Rocky Mountains, from the Canadian border through the GYA. Canada lynx presence has also been verified in the majority of the mountain ranges in Montana, including isolated ranges, such as the Big Belt, Little Belt, and Crazy Mountains, and trapping records indicate past occupancy in the Big Snowy, Little Snowy, and Highwood Mountains. USFWS has concluded that a resident population of Canada lynx is distributed throughout its historic range in Montana. The MFWP (MFWP 2009a) indicates that Montana supports the healthiest Canada lynx population in the lower 48 states.

Canada lynx lead solitary lives, except when rearing young and during a short breeding period from February to March. They seem to prefer to travel through coniferous forests, also using ridges, saddles, and riparian areas. They are most active from shortly before dark to shortly after dawn, but are sometimes active during daylight hours. They usually bed for the day in or on the edge of dense to moderate cover. The home range size of the Canada lynx varies considerably, with reported home ranges between 5 and 147 square miles. Location and abundance of prey species heavily influence the home range size of the Canada lynx (Ruediger et al 2000).

Canada lynx feed primarily on snowshoe hares, particularly during the winter. They also eat other small to medium-sized animals, and occasionally larger animals and carrion. The distribution and abundance of Canada lynx are associated with those of their primary prey species, the snowshoe

hare. However, the red squirrel is an important alternative prey. In Montana, snowshoe hares are most abundant in young, dense stands of lodgepole pine.

State Species

A geographic search of the Montana Natural Heritage Program (MNHP) "Species of Concern" database was conducted for the project vicinity and an additional 1-mile buffer area (Section 18, Township 02 South, Range 10 East; and Section 24, Township 02 South, Range 09 East) (MNHP 2009). The search identified three species of concern that may occur within the area. They include one mammal (gray wolf [*Canis lupus*]), one bird (trumpeter swan [*Cygnus buccinator*]), and one fish (Yellowstone cutthroat trout [*Oncorhynchus clarkii bouvieri*]).

Both trumpeter swan and Yellowstone cutthroat trout have been observed within the Lagoon and Fleshman Creek (Park County 2009).

Gray Wolf

On March 11, 1967, the gray wolf was designated by the USFWS as endangered in the conterminous United States. In April 2003, the gray wolf was reclassified and downlisted from an endangered to a threatened species. However, a recent court ruling has returned the status of the gray wolf from threatened to endangered for populations outside of the nonessential experimental areas.

The availability of ungulate prey and isolation from human activities are the most important factors that determine suitable wolf habitat. Wolves are highly social animals that form packs of 2 to 20 individuals organized around a breeding pair. Most packs include a pair of breeding adults ("alpha" or dominant), other nonbreeding adults and/or yearlings that may be offspring from previous years, and pups of the year. Depending on the number of wolves in the pack and on prey availability, each pack occupies a territory of 50 to 300 square miles.

Wolves are found in varied habitat, including grasslands, sagebrush steppes, coniferous and mixed forests, and alpine areas. They are opportunistic predators, and are primarily associated with an ungulate prey base that includes deer, elk, and moose. Wolves prey on ungulates throughout the year, and ungulates account for more than 90 percent of the biomass they consume. Beaver and other small mammals make up a small part of the gray wolf diet.

In North America, the gray wolf ranges from Alaska, across the Northwest Territories, throughout the Canada provinces, with extensions into Idaho, Montana, and the northern Great Lakes region, and remote parts of the Southwest and Mexico. Since 1982, several packs have formed in Montana, primarily from Canadian dispersers.

In 1987, the USFWS developed a Recovery Plan for the gray wolf in the northern Rockies that identified northwestern Montana, central Idaho, and the Greater Yellowstone Area (GYA) as the three recovery areas (USFWS 1987). As part of the recovery plan, the USFWS established a biological goal of at least 10 breeding pairs of wolves in each of these three areas for 3 successive years. On November 22, 1994, the USFWS approved a plan to establish nonessential experimental populations of wolves in central Idaho and Yellowstone National Park. In 1995 and 1996, wolves were reintroduced in the central Idaho and GYA recovery areas.

Trumpeter Swan

Trumpeter swans are the largest waterfowl in North America. They can be up to 5 feet in length, have a wingspan of up to 80 inches (almost 7 feet), and weigh over 20 pounds. The adult trumpeter swan is entirely white, although the head and neck are sometimes stained an orange color by the iron-rich water and mud in which they forage for food. Juvenile swans are mostly white, but can retain a gray or brown head, neck, and body feathers (MNHP 2009).

Trumpeter swans breeding in Montana are non-migrants. They spend both the breeding season and the winter in southern Montana's lakes, ponds, and streams. In addition to the resident population, the trumpeter swans that breed in Canada migrate to and over winter in southern Montana with the resident population. In the Bozeman area, the fall migration of the Canada trumpeter swans normally occurs between November 15 and December 15, and the spring migration normally occurs between February 25 and April 15 (MNHP 2009).

The breeding habitat for trumpeter swans along the Rocky Mountain Front is small pothole lakes, generally with sufficient water to maintain emergent vegetation through the breeding season (MNHP 2009). Habitat requirements for breeding include room to take off (~300 feet), shallow, unpolluted water with sufficient emergent vegetation and invertebrates, appropriate nest sites (e.g., muskrat lodges), and areas with little human disturbance. Nesting begins in late April or early May in the intermountain western United States. Clutch size is two to nine, usually about five. Incubation, mainly conducted by the female, lasts 33 to 37 days. Hatching occurs in June in the intermountain western United States.

In the Yellowstone ecosystem, dominant foods (>10 % in at least one season) included various muskweed and pondweed species.

Yellowstone Cutthroat Trout

The Yellowstone cutthroat trout is one of two cutthroat trout subspecies in Montana. They have a golden coloration and larger spots more widely distributed on their sides than the westslope cutthroat trout. The Yellowstone cutthroat trout, as the name implies, is native to the Yellowstone River drainage of southwest and south-central Montana. Much of their spawning habitat in tributaries of the upper Yellowstone River has been lost to irrigation withdrawals, which dewater the streams before spawning and egg incubation are completed in July and August. The Big Timber Hatchery of the MFWP maintains a pure Yellowstone cutthroat trout broodstock. Yellowstone cutthroat trout are used extensively for mountain lake stocking on the east slope of the Rocky Mountains and in the Absaroka-Beartooth Wilderness, where they can grow up to 15 pounds. In general, Yellowstone cutthroat trout are larger than westslope cutthroat and are more prone to eat fish as part of their diet (MNHP 2009).

Yellowstone cutthroat trout inhabit relatively clear, cold streams, rivers, and lakes. Optimal temperatures have been reported to be from 39 to 59ºF, with occupied waters ranging from 32 to 81ºF. Resident fish occupy home ranges entirely within relatively short reaches of streams, but fish migrate as adults from larger streams or rivers to smaller streams to reproduce. Yellowstone cutthroat trout typically spawn in spring and early summer, after flows have declined from their seasonal peak, and tend to select sites with suitable substrate (gravel less than 3.5 inches in

diameter), water depth (3.5 to 12 inches), and water velocity (0.5 to 2 feet per second). Water temperature determines the time of hatching and emergence of fry. Juvenile fish require three or more years to mature (Natureserve 2009).

Habitat protection is important for conservation of this subspecies. Management applications have included modification of culverts to facilitate fish movement, reductions in water diversions, improved riparian management, and continued use of angling restrictions. Threats include dewatering, water diversion, chemical pollution, siltation, barriers to movement, excessive angler harvest, genetic introgression, and introduced fishes, all resulting primarily from human activities (Natureserve 2009).

3.11.5.2 Environmental Consequences

Alternative 1 – No Action

The No Action Alternative would not impact any of the sensitive species or their habitat that have the potential to occur in the project area; however, continued sedimentation of Fleshman Creek and untreated inputs from storm sewer runoff would continue to degrade the stream, which severely limits its value to Yellowstone cutthroat trout.

Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

The only Federal listed species for Park County is the Canada lynx. As discussed previously, the Canada lynx prefers montane forest habitats. The project area is located entirely within the city limits of Livingston and does not contain any forest habitat used by the Canada lynx. Although designated critical habitat for the lynx is located within Park County, it is miles from the project area. Based on the information provided above, site reconnaissance of the project area, and discussions with the USFWS, FEMA has determined that the Proposed Action would have NO EFFECT on the Canada lynx.

In a letter dated October 15, 2009 (Appendix C), the USFWS indicated that the Proposed Action would be unlikely to cause significant adverse effects to fish, wildlife, or habitat resources under their purview, and that it would likely be beneficial to a variety of wildlife due to the creation and enhancement of wetland areas in the Yellowstone River floodplain.

The MFWP was contacted about the species identified in the Natural Heritage search: the gray wolf, trumpeter swan, and Yellowstone cutthroat trout. The MFWP indicated that the gray wolf would not occur within or near the project area because it is within the city limits of Livingston. The trumpeter swans sighted on the Lagoon are the progeny of a transplanted pinioned flock from other area and regional lakes and streams. The MFWP stated that the Proposed Action would not cause any adverse effects to wildlife due to the residential nature of the project area. Communications with the MFWP are included in Appendix C.

Alternative 3 – Water Diversion to Yellowstone River

The only Federal listed species for Park County is the Canada lynx. The project area is located entirely within the city limits of Livingston and does not contain any of the forest habitat used by the Canada lynx. Based on this information, FEMA has determined that Alternative 3 would have

NO EFFECT on the Canada lynx. If this alternative were selected, FEMA would need to get concurrence from the USFWS on this determination before construction activities could begin.

As indicated above, three state-listed species have the potential to occur in Park County: the gray wolf, trumpeter swan, and Yellowstone cutthroat trout. The MFWP indicated that the gray wolf would not occur within or near the project area due because it is within the city limits of Livingston. The trumpeter swans sighted on the Lagoon are the progeny of a transplanted pinioned flock from other area and regional lakes and streams. The MFWP indicated that noise and other disturbances associated with the proposed construction activities would not be an issue for the swan. Finally, the MFWP acknowledged the presence of Yellowstone cutthroat trout in Fleshman Creek. The MFWP has no mitigation requirements for the project. Communications with the MFWP are included in Appendix C.

3.12 CULTURAL RESOURCES

In addition to a review under NEPA, consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act of 1996 (as amended) (NHPA), as implemented by 36 CFR Part 800. Requirements include the need to identify significant historic properties that may be impacted by the Proposed Action or alternatives. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed or determined eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 60.4).

3.12.1 Baseline Conditions

Humans have occupied the area now known as Montana for at least 12,000 years. This lengthy period of time is divided into prehistoric and historic eras. The local cultural resources related to these eras are detailed in the cultural resources survey report included in Appendix D. The resources are summarized below.

3.12.1.1 Prehistoric Era

Prehistoric groups have been camping at or near the project area for at least 9,000 years, for much the same reasons as have modern people: “a reliable source of water, protection from the wind, availability of firewood, and maximum sunlight exposure,” as well as proximity to a major mountain trail system along the northern flank of the Absaroka Range (Lahren 2006). Research conducted at one site located a few miles southeast of Livingston revealed what may represent a microcosm of prehistoric occupation in the Yellowstone Country in a relatively unbroken stratigraphic sequence of nine discrete use periods, what Lahren (2006) has called “settlement units” (SU). The lowermost cultural horizon, SU-1, at 79 to 84 inches below the present ground surface (PGS) returned a radiocarbon age estimate of 9400 ± 200 years before present (BP), documenting a Paleoindian occupation. SU-1 contained an unlined hearth and bison bone fragments. The prehistoric sequence is completed with SU-8, which is found 2 to 8 inches below the PGS and returned a radiocarbon age estimate of 790 ± 90 years BP from a rock-lined hearth that documents a Late Prehistoric occupation. Between these stratigraphic and chronological extremes are six additional occupations, representing the Early to Late Plains Archaic periods. Each SU contained a variety of chipped and ground stone artifacts, animal bones (bison, mountain

sheep, elk, deer, pronghorn antelope, and rodents), and bone and shell beads. A thin layer (0 to 2 inches) of historic debris, dating to the last 200 years, caps the site.

The protohistoric stage represents a time of transition between the prehistoric and historic eras, between the mid-1500s and late 1700s and early 1800s, when items of European origins, such as horses, firearms, and trade goods, were finding their way to the aboriginal inhabitants (Lahren 2006). At one point in time or another, the Shoshoni, Crow, and Arapaho have claimed this area as their homeland.

3.12.1.2 Historic Era

The known first non-aboriginal visitors to the Yellowstone River valley were members of the Lewis and Clark Expedition (1804-1806). On July 15, 1806, during their return trip from the Pacific Coast to St. Louis, William Clark and his party, including Sacajawea and her son, Pomp, stopped to rest and graze their horses at a location just east of present-day Livingston (Watry and Goss 2009). Following the Lewis and Clark expedition, mostly fur trappers visited the area for the next several decades. The discovery of gold in 1863 near Bannack, MT, 200 miles west of Livingston (Watry and Goss 2009), resulted in an influx of fortune seekers and prospectors, and irreversibly altered the cultural landscape. Construction of the Northern Pacific Railroad inched its way up the Yellowstone River valley in the late 19th century, eventually reaching the site of Livingston, which was platted in December 1882. Centrally located along the Northern Pacific corridor, Livingston quickly became a center of commerce for the region, retaining that distinction into the 1950s (Watry and Goss 2009). By late August 1883, the Northern Pacific Railroad completed its Yellowstone Park Branch Line to Cinnabar, Montana, 51 miles south of Livingston (Watry and Goss 2009). This development cemented Livingston's reputation as the Gateway City to America's first national park (Watry and Goss 2009). Park County was created out of Gallatin County in 1887, with Livingston as its county sea. From this auspicious beginning, Livingston grew steadily, from a population of 500 people in 1882 (Watry and Goss 2009), to 2,850 in 1890 (Census Office 1890), and 7,500 in 2008 (Census 2009b).

3.12.2 Environmental Consequences

A pedestrian cultural resources inventory was completed for the Proposed Action. The area of potential effect (APE) consists of a linear corridor in two parts: the Proposed Action is 8,000 feet (1.5 miles) long and Alternative 3 is approximately 500 feet long; both parts are 100 feet wide (50 feet wide on either side of the drainage). The combined project area is 8,500 feet long and 100 feet wide, encompassing a total of 19.5 acres. The APE parallels the former channel of the West Branch of the Yellowstone River, since diverted, which is locally known as Fleshman Creek. The pedestrian survey results are detailed in Appendix D.

3.12.2.1 Alternative 1 – No Action

Alternative 1 would have no impact on cultural resources.

3.12.2.2 Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)

One archaeologist walked two sinuous transects, one on either side of the drainage, along the project corridor. No archaeological resources were encountered, probably because it is a dynamic

geological setting, with active processes of erosion and deposition. In addition, fill has been placed in this area for decades.

Four historic structures were documented in the APE for the Proposed Action. These properties are shown in Exhibit 11. One structure (24PA1350) is an historic outbuilding, built in 1920, which is situated behind a modern residence. Another structure (24PA1351) is a service garage, built in 1953 or 1960, which now serves as a residential garage. The third structure (24PA1352) is a residence, a smaller version of which was present at this location in 1907, but which was enlarged in 1966. None of these sites is considered eligible for listing in the NRHP and additional cultural resources investigations at these locations are considered unnecessary. The fourth structure is the View Vista Village (24PA1349), formerly known as the Yellowstone Camp Grounds and S-S Motel and Trailer Court. It consists of a residential duplex, blocks of apartments, and a trailer court, surrounded by a gravel driveway. The duplex and apartments were built in 1925 and the trailer court was added in 1950. The site is recommended eligible for listing in the NRHP under Criterion A, because it is associated with the development of the regional recreational industry and of modern transportation.

A portion of the project area lies adjacent to the View Vista Village property; however, no construction activities would directly impact the structures. It is anticipated that the Proposed Action would have a long-term beneficial impact on the property by reducing the frequency of flooding along Fleshman Creek; therefore, FEMA has made the determination of "No Adverse Effect to Historic Properties" for the Proposed Action. In a letter dated December 31, 2009 (Appendix C), the Montana State Historic Preservation Officer (MSHPO) concurred with this determination.

In the event that cultural resources are encountered during construction activities of the Proposed Action, construction activities would be stopped and the MSHPO and the FEMA Region VIII Environmental Officer would be contacted. Construction would not be resumed until appropriate coordination had been completed.

3.12.2.3 Alternative 3 – Water Diversion to Yellowstone River

No historic resources were identified in the immediate vicinity of the Alternative 3 project area. View Vista Village is located over 0.5-mile northeast, and is separated visually by Park High School, the Civic Center, and Sacajawea Park. Therefore, FEMA has made the determination of "No Historic Properties Affected" for Alternative 3. In a letter dated December 31, 2009 (Appendix C), the MSHPO concurred with this determination.

In the event that cultural resources are encountered during construction activities of Alternative 3, construction activities would be stopped and the SHPO and the FEMA Region VIII Environmental Officer would be contacted. Construction would not be resumed until appropriate coordination had been completed.

3.13 CUMULATIVE IMPACTS

Section 1508.7 of the CEQ regulations defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions." Cumulative effects are not wholly different effects

from direct or indirect effects of an action, they are merely a way of placing seemingly isolated or insignificant direct and indirect effects in context with respect to overall impacts, both over time and in an area larger than that evaluated for direct and indirect effects. Cumulative effects are discussed in terms of being additive, synergistic, or reductive.

In the last several years, there has been a focused cooperative undertaking to improve the habitat and water quality within specific reaches of Fleshman Creek. This has included the reach immediately downstream of the project area that extends to the confluence of Fleshman Creek and the Yellowstone River. Another reach of Fleshman Creek presently being upgraded is located on private land approximately 1.5 miles upstream of the project area. Participants in these stream improvement projects have included the NRCS, USFWS, MFWP (Future Fisheries Improvement Fund), Park County, Joe Brooks Chapter of Trout Unlimited, local school system, and private individuals. The focus of these programs is to reduce pollution (sediment and livestock waste), reshape the stream so the channel is narrower and the water deeper, and encourage the establishment of stream bank vegetation. Studies are also being proposed to evaluate procedures that could be implemented by existing water users that would enhance the ability to maintain year round flows in upper Fleshman Creek. Cumulative effects to the Fleshman Creek watershed would result from the implementation of these stream enhancement projects.

As discussed previously in this Section, the Proposed Action would not affect the following environmental disciplines:

- Geology
- Topography
- Land use
- Prime farmland
- Environmental justice
- Hydrology
- Threatened and endangered species
- Wild and scenic rivers
- Cultural resources
- Hazardous Materials or Wastes

Therefore, the Proposed Action would not contribute to cumulative impacts on any of these resources.

Potential impacts that could affect several of the environmental disciplines are site specific and temporary, occurring only during construction. These impacts would not be considered cumulative unless other projects are constructed concurrently and in the immediate vicinity of the Proposed Action. These environmental disciplines include:

- Air quality
- Soils
- Noise
- Visual resources
- Vegetation
- Wildlife

EO 11990 requires Federal agencies to fully mitigate project-induced impacts on wetlands. As stated in Section 3.11.1, based on final design, the USACE will determine if wetland mitigation is needed and, if so, the type and quantity required to mitigate the wetland impacts. With the implementation of the identified mitigation measures, the Proposed Action is not expected to have any residual adverse impact on wetlands; therefore, the Proposed Action would not contribute to cumulative impacts on wetlands.

Project-induced impacts (adverse or beneficial) associated with the remaining environmental disciplines have the potential to contribute to cumulative impacts on the Fleshman Creek drainage. The remaining environmental disciplines include:

- Soils
- Traffic and circulation
- Floodplains
- Socioeconomics
- Public health and safety
- Public services
- Water quality
- Aquatic resources
- Wildlife
- Visual

The Proposed Action and the stream improvement work previously completed downstream of the project area would have a cumulative effect on the flooding of Fleshman Creek within Livingston. Combined, these two projects would have an additive effect by reducing the risk of flooding from the upstream boundary of the project area downstream to the confluence of Fleshman Creek and the Yellowstone River. Reducing the flood potential within this reach of Fleshman Creek would have the following effects:

- Reduce the number and frequency of street closings due to flooded streets during a flood event, particularly up to and including the 25-year event (beneficial effect).
- With fewer streets being flooded, reduce the effect on response time of emergency responders, and the opportunity for flood related injuries and fatalities (beneficial effect).
- Reduce soil erosion during a flood event and, consequently, the effect on local soils (beneficial effect).
- With less soil erosion, improve the water quality of the Fleshman Creek, as there would be less sediment in the stream during periods of surface runoff (beneficial effect).
- With fewer flood events, reduce the cost to the City and private citizens for clean up and restoration of damages following a flood event (beneficial effect).
- With fewer flood events, reduce the frequency interruption of public services, such as emergency responses, and sewer and electrical services (beneficial effect).
- Increase fish habitat within Fleshman Creek from the Lagoon downstream to the Yellowstone River, providing spawning, rearing, and adult habitat. Further, many of the young fish reared in this reach of the creek would be expected to migrate to the Yellowstone River and contribute to the River's sport fishery (beneficial effects).
- With the restoration of the stream channel and replanting of vegetation along several segments of Fleshman Creek, contribute to improved habitat for area wildlife and an improved visual appeal for area residents and visitors (beneficial effects).

Stream restoration work being done upstream of the project would also have an additive beneficial effect on the water quality, and the quality of aquatic habitat within and downstream of the project area.

3.14 COORDINATION AND PERMITS

The following Federal, State, and local agencies were contacted and consulted during the preparation of this EA. Additional coordination and permits that are required prior to implementation of an alternative are also identified.

U.S. Fish and Wildlife Service

The Proposed Action would not require additional coordination or permits regarding threatened and endangered species and migratory birds unless project activities change. Coordination would be required if Alternative 3 is selected.

U.S. Army Corps of Engineers

The Proposed Action would require coordination with the USACE during final design to determine the net impact on wetlands, the type of Section 404 permit required, and, if needed, appropriate mitigation.

Alternative 3 would require coordination with the USACE during final design to determine whether a Section 10 or Section 404 permit would be required, based on design components. Mitigation measures would be determined at that time.

Natural Resources Conservation Service

No additional coordination or permits will be required unless project activities change.

Montana State Historic Preservation Office

No additional coordination or permits will be required unless project activities change or cultural resources are encountered during project activities. If this happens, work will be stopped and the MSHPO and FEMA Region VIII Environmental Officer will be contacted. Project activities will not resume until appropriate coordination has been completed.

Montana Division of Fish, Wildlife, and Parks

The Proposed Action would require an SPA 124 permit. Coordination with the MFWP would be required for Alternative 3 to determine what, if any, permit would be needed.

Montana Department of Environment Quality

MPDES "General Permit for Storm Water Discharges Associated with Construction Activities" would be required prior to beginning construction of either the Proposed Action or Alternative 3, including the NOI and SWPPP. A soil erosion and sediment control plan and an Authorization for turbidity-related construction activities would also be required from the MDEQ.

A Section 401 Water Quality permit would be required for the Proposed Action and Alternative 3 if a Section 404 permit were required by the USACE.

A Section 318 Water Quality permit would be required for the Proposed Action. This permit is generally approved by the MFWP on behalf of the MDEQ.

Park County – Floodplain Administrator

Since actions involving the Proposed Action and Alternative 3 would impact the Fleshman Creek floodplain, a Park County Floodplain Permit would be required for either alternative.

SECTION FOUR SUMMARY

Three alternatives were evaluated in this EA. They included: (1) No Action, (2) Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action), and (3) Alternative 3 – Water Diversion to Yellowstone River.

A summary of potential environmental impacts associated with each of the alternatives is provided in Table 6. Construction activities along Fleshman Creek would impact approximately 7 acres of wetlands and 8 acres of upland habitat. Final design would determine the net acres of wetlands associated with the project. The overall construction of the all components of the Proposed Action would be expected to require approximately 2 years.

Table 6: Comparison of Alternatives by Environmental Resource

Environmental Resource	Alternative 1 No Action	Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)	Alternative 3 – Water Diversion to Yellowstone River
Topography/Geology and Soils	No impact to topography, geology, or soils would occur.	No impact to topography or geology would occur. Approximately 15 acres of soils would be temporarily or permanently impacted. Erosion control and Best Management Practices (BMPs), such as silt fences and/or straw bales, would be implemented to minimize sedimentation during construction activities. Excess soil would be disposed of at an established city or county stockpile area or landfill. If additional fill is required, it would be obtained from established borrow areas near Livingston. If an established borrow area is not used, potential impacts associated with establishing a new borrow area would need to be addressed in a Supplemental Environmental Assessment (EA).	No impact to topography or geology would occur. Approximately 0.5 acres of soils would be temporarily or permanently impacted. Erosion control and BMPs, such as silt fences and/or straw bales, would be implemented to minimize sedimentation during construction activities. Approximately 1,350 cubic yards of soil would be required for the berms. The fill would be obtained from established borrow areas near Livingston. If an established borrow area is not used, potential impacts associated with establishing a new borrow area would need to be addressed in a Supplemental EA.
Land Use and Planning	No impact on land use, planning, floodplains or floodways, and prime farmland.	No impact on land use or planning would occur. Temporary construction easements would be required. There would be a positive impact on floodways or floodplains by increasing the flow capacity of the culverts and channel to convey flows up to and including the 25-year storm event. A floodplain development permit would be required from Park County Floodplain Administrator. There would be no impact on prime farmland.	Approximately 0.5 acres of land would be converted from undeveloped land to flood control. Purchase or permanent easements for the affected area would be required. Berms would be located in the Fleshman Creek floodplain. A floodplain development permit would be required from Park County Floodplain Administrator. There would be no impact on prime farmland.

Environmental Resource	Alternative 1 No Action	Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)	Alternative 3 – Water Diversion to Yellowstone River
Traffic and Circulation	No impact.	Six temporary road closures would be required during culvert upgrades. Access to all properties would be maintained. No road is expected to be closed more than 1 month and only one road would be closed at a time. Residents would be informed of closures prior to closures and detours. There would be a long-term positive impact on traffic and circulation in the project vicinity.	Temporary closure of River Drive [Dr] would be required. Access to all properties would be maintained. Residents would be informed of closures prior to closures and detours. Truck traffic may result in short-term traffic delays. There would be a long-term positive impact on traffic and circulation in the project vicinity.
Public Health and Safety	No impact.	There would be a long-term positive impact on public health and safety by decreasing the frequency of flooding and sewer backups and maintaining emergency response times.	Same as Alternative 2.
Socioeconomics/ Environmental Justice	No impact.	Twenty-five-year flood protection would be provided to approximately 65 structures. There would be a long-term positive impact on all citizens of Livingston.	Same as Alternative 2.
Visual Resources	No impact.	There would be a long-term positive impact on the viewshed of Fleshman Creek.	There would be a potential negative visual impact by converting treed land to grassed berms.
Air Quality	No impact.	There would be short-term and minor impacts during construction associated with increased dust. If necessary, dust emissions would be controlled by applying water or magnesium chloride to disturbed areas.	Same as Alternative 2.
Public Services and Utilities	No impact.	Six temporary road closures would be required. Underground utilities would be relocated as appropriate. Caution would need to be used so that overhead power lines in the area are not contacted during construction activities. Impacts would be short-term and minor. Utilities Underground Location Center would need to locate underground utilities prior to construction.	One temporary road closure would be required. Impacts would be short-term and minor. Underground utilities would be relocated as appropriate. Utilities Underground Location Center would need to locate underground utilities prior to construction.

Environmental Resource	Alternative 1 No Action	Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)	Alternative 3 – Water Diversion to Yellowstone River
Noise	No impact.	There would be short-term and minor noise impacts limited to the duration of construction activities. Construction would be limited to daylight hours (7 a.m. to 9 p.m.). All equipment would have standard noise reducing components, such as mufflers, to minimize noise levels. To the extent practicable, construction activities near the schools would be scheduled to occur during summer vacation.	Similar to Alternative 2, there would be short-term and minor noise impacts; however, there are no schools located near the project area and construction activities would occur whenever weather permitted. To minimize noise impacts to nearby residents and businesses, construction activities would be limited to daytime hours (7 a.m. to 9 p.m.). All equipment would have standard noise reducing components, such as mufflers, to minimize noise levels.
Hydrology/Water Quality	No impact.	There would be a long-term positive impact on hydrology and water quality. Post-project culverts and stream channel would have capacity to convey flows associated with the 25-year event, reduce erosion and sedimentation, and create a more natural flow regime by narrowing the channel and creating meanders. To the extent possible, work would be completed in the "dry." BMPs would be implemented to minimize erosion and sedimentation. All fueling and lubricating would be done at least 50 feet from the stream. Revegetation would occur following construction. Montana Pollutant Discharge Elimination System (MPDES), Section 401, and Montana Department of Environmental Quality (MDEQ) 318 Water Quality permits would be required.	There would be no impact on hydrology. Short-term impact on water quality would occur during construction. To the extent possible, work would be completed in the "dry." BMPs would be implemented to minimize erosion and sedimentation. All fueling and lubricating would be done at least 50 feet from the stream. Revegetation would occur following construction. Park County would need to coordinate with the U.S. Army Corps of Engineers (USACE) during final design to determine what permits (mitigation, if necessary) would be required for the project. State Water Quality permits would be determined by the selection of a USACE permit.
Wetlands	No impact.	There would be a long-term positive impact on wetlands along Fleshman Creek. Approximately 7 acres of existing wetlands would be affected. Riparian vegetation would be replanted along new and disturbed stream banks. Wetlands and bio-swales would be created by project. Net impact on wetlands would be determined during final design and coordination with USACE. Section 404 permit would be required from USACE.	Net impact on wetlands would be determined during final design and coordination with USACE. Section 404 or Section 10 permit would be required. Final permit requirements would be determined during final design and coordination with USACE.

Environmental Resource	Alternative 1 No Action	Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)	Alternative 3 – Water Diversion to Yellowstone River
Vegetation	No impact.	Approximately 8 acres of non-wetland vegetation would be impacted by construction activities. Upon completion of construction, all remaining disturbed upland areas would be re-seeded with a locally approved seed mixture.	Approximately 0.5 of upland vegetation (primarily trees) would be removed for the placement of the berms. Once constructed, the berms would be vegetated with native grasses.
Wildlife Resources	No impact.	There would be a short-term impact on local populations during construction. Restoration activities would be expected to provide wildlife habitat equal to or better than pre-project conditions.	Approximately 0.5 acres of upland habitat, primarily trees, would be affected. Tree removal would represent a long-term adverse affect on birds and wildlife that use the area for foraging, nesting, and/or fledging habitat. If this alternative were selected, the U.S. Fish and Wildlife Service (USFWS) would need to be consulted regarding potential impacts to terrestrial wildlife, including migratory birds.
Aquatic Resources	No impact.	There would be a short-term increase in turbidity during construction. To the extent possible, work would be completed in the "dry." BMPs would be implemented to minimize erosion and sedimentation. All fueling and lubricating would be done at least 50 feet from the stream. Revegetation would occur following construction. There would be long-term beneficial effects on aquatic resources.	There would be no beneficial impact. To the extent possible, work would be completed in the "dry." BMPs would be implemented to minimize erosion and sedimentation. All fueling and lubricating would be done at least 50 feet from the stream. Revegetation would occur following construction.
Threatened and Endangered Species	No impact.	The Federal Emergency Management Agency (FEMA) has determined that the Proposed Action would have NO EFFECT on the Canada lynx. In a letter dated October 15, 2009 (Appendix C), the USFWS indicated that the project as proposed would be unlikely to cause significant adverse effects to fish, wildlife, or habitat resources under their purview, and that this project would likely be beneficial to a variety of wildlife due to the creation and enhancement of wetland areas in the Yellowstone River floodplain. Montana Division of Fish, Wildlife, and Parks (MFWP) has no mitigation requirements for the project.	FEMA has determined that Alternative 3 would have NO EFFECT on the Canada lynx. If this alternative were selected, FEMA would need to get concurrence from USFWS on this determination before construction activities could begin. MFWP has no mitigation requirements for the project.

Environmental Resource	Alternative 1 No Action	Alternative 2 – Fleshman Creek Flood Mitigation Project (Proposed Action)	Alternative 3 – Water Diversion to Yellowstone River
Cultural Resources	No impact.	Four historic structures were documented in the area of potential effect (APE) for the Proposed Action. Three of these sites were considered not eligible for listing in the National Register of Historic Places (NRHP) and additional cultural resources investigations at these locations is considered unnecessary. The fourth structure is the View Vista Village (24PA1349), formerly known as the Yellowstone Camp Grounds and S-S Motel and Trailer Court. The site is recommended eligible for listing in the NRHP under Criterion A, because it is associated with the development of the regional recreational industry and of modern transportation. FEMA has made the determination of "No Adverse Effect to Historic Properties" for the Proposed Action. The site should be avoided, but if avoidance is not possible, then adverse effects should be addressed through additional consultation with the Montana State Historic Preservation Officer (MSHPO).	Same historic properties were documented as for Proposed Action, with the same recommendations for listing on NRHP. FEMA has made the determination of "No Historic Properties Affected" for Alternative 3.
Hazardous Material / Hazardous Waste	No impact.	No impact.	Same as Proposed Action.

APE = Area of Potential Effect
BMP = Best Management Practice
Dr = Drive
EA = Environmental Assessment
FEMA = Federal Emergency Management Agency
NRPH = National Register of Historic Places
MDEQ = Montana Department of Environmental Quality
MFWP = Montana Division of Fish, Wildlife, and Parks
MPDES = Montana Pollutant Discharge Elimination System
MSPHO = Montana State Historic Preservation Officer
USACE = U.S. Army Corps of Engineers
USFWS = United States Fish and Wildlife Service

SECTION FIVE AGENCIES CONSULTED

5.1 AGENCIES CONSULTED DURING THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

Federal Emergency Management Agency, Region VIII, Denver, CO

Mr. Steven Hardegen, Regional Environmental Officer	(303) 235-4798
Ms. Joan Huston, Emergency Management Program Specialist	(303) 235-4798

U.S. Fish and Wildlife Service, Helena, MT

Mr. Mark Wilson, Project Leader	(406) 449-5225

U.S. Army Corps of Engineers, Helena, MT

Mr. Todd Tillinger, Montana Regulatory Office	(406) 441-1375

Montana Department of Environmental Quality, Helena, MT

Mr. Jeff Ryan, Environmental Science Specialist	(406) 444-4626
Ms. Debbie Skibicki, Air Quality Permits	(406) 444-1472

Montana Division of Fish, Wildlife, and Parks, Helena, MT

Mr. Scott Opitz, Fisheries Biologist	(406) 222-5105
Mr. Tom Lemke, Wildlife Biologist	(406) 222-0102

Montana State Historic Preservation Office, Helena, MT

Mr. Mark Baulmer, State Historic Preservation Officer	(406) 444-7717
Mr. Damon Murdo, Cultural Resources Manager	(406) 444-7767
Mr. Josef Warhank, Historic Compliance Officer	(406) 444-0388

Livingston Historic Preservation Commission, Livingston, MT

Mr. Jim Woodhull, Historic Preservation Officer	(406) 222-4903

5.2 AGENCIES CONSULTED BY THE SUBAPPLICANT

Montana Department of Environmental Quality, Helena, MT

Mr. George Mathieus, Chief, Water Quality Planning Bureau	(406) 444-2544

Montana Department of Natural Resources and Conservation, Helena, MT

Mr. Ray Beck, Administrator	(406) 444-2074
Mr. Gregg Mills, Program Officer	(406) 444-2074

Montana Division of Fish, Wildlife, and Parks, Livingston, MT

Mr. Scott Opitz, Fisheries Biologist	(406) 222-5105

Park Conservation District, Livingston, MT

Ms. Jacquie Nelson, Park Conservation District Administrator	(406) 222-2899

Livingston School Districts, Livingston, MT

Mr. Todd Wester, Director Curriculum and Instruction	(406) 222-0861

Park County Disaster and Emergency Services, Livingston, MT

Ms. Belinda VanNurden, Coordinator	(406) 222-419

Park County, Livingston, MT

Mr. Larry Lahren, Chairman	(406) 222-4106
Mr. James R. Durgan, Commissioner	(406) 222- 4106

Montana Trout Unlimited, Joe Brooks Chapter No. 25, Livingston, MT

Mr. Kerry Fee, President	(406) 579-7734

Northern Rocky Mountain Resource Conservation & Development, Bozeman, MT

Mr. Ronald Carlstrom, Vice Chairman	(406) 582-5700

SECTION SIX REFERENCES

Census Office. 1890. Report on Population of the United States at the Eleventh Census: 1890. U.S. Department of the Interior, Census Office, Washington, DC.

City of Livingston (Livingston). 2009. Unpublished information. Letter from City Manager Dewin R. Meece to Mr. Kerry Fee, President, Joe Brooks Chapter of Trout Unlimited, Regarding Fleshman Creek Flow Maintenance Agreement. July 9, 2008.

Environmental Data Resources, Inc. (EDR). 2009. EDR Corridor Study. Livingston Stream. Livingston, Montana. Inquiry Number 2549878.1s. July 27, 2009.

Federal Emergency Management Agency (FEMA). 1987a. Flood Insurance Map. Park County, Montana. Community Panel Number 3001600014B. January 1, 1987.

FEMA. 1987b. Flood Insurance Map. City of Livingston, Montana, Park County. Community Panel Number 3000510005B. May 19, 1987.

Lahren, Larry. 2006. Homeland: An Archaeologist's View of Yellowstone Country's Past. Cayuse Press, Livingston, Montana.

Montana Department of Environmental Quality (MDEQ). 2009. Federal and State Primary Ambient Air Quality Pollutant Standards. Website visited September 28, 2009. http://www.deq.state.mt.us/AirMonitoring/citguide/appendixb.html.

Montana Fish, Wildlife and Parks (MFWP). 2003. Environmental Assessment Fleshman Creek Channel Enhancement Project. September 26, 2003. Website visited September 15, 2009. http://fwp.mt.gov/content/getItem.aspx?id=7089.

MFWP. 2009b. Decision Notice Fleshman Creek Channel Renaturalization Project. Prepared March 24, 2009. Website visited September 15, 2009. http://fwp.mt.gov/publicnotices/notice_2032.aspx

MFWP. 2009c. Discover Montana's Ecosystems. Website visited August 9, 2009. http://fwp.mt.gov/education/ecosystem/home.html.

MFWP. 2009a. Canada lynx. Website visited September 17, 2009. http://fwp.mt.gov/wildthings/tande/lynx.html.

Montana Natural Heritage Program (MNHP). 2009. Website visited August 9, 2009. http://mtnhp.org/.

Natural Resources Conservation Service (NRCS). 1998. Upper Yellowstone River Physical Features Inventory Report, Gardiner to Springdale. October 1998.

NRCS. 2009. Soil Data Mart. Park County, Montana. Web site visited July 20, 2009. http://soildatamart.nrcs.usda.gov/State.aspx.

Natureserve. 2009. Website visited August 9, 2009. http://www.natureserve.org/.

Oasis Environmental (Oasis). 2008. Fleshman Creek Comprehensive Management Plan. November 14, 2008.

Omernik, J.M. 1987. Ecoregions of the conterminous United States. Map (scale 1:7,500,000). Annals of the Association of American Geographers 77(1):118-125.

Park County. 2009. Pre-Disaster Grant Application. Fleshman Creek Flood Mitigation Project. PDMC-PJ-08-MT-2009-006.

Rosgen, D. L., 1994. "A Classification of Natural Rivers," Catena, Vol. 22, pp. 169-199. Ruediger, Bill, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney,

Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger, and Al Williamson. 2000. Canada lynx conservation assessment and strategy.

U.S. Department of Agriculture (USDA) Forest Service, U.S. Department of the Interior (USDI), U.S. Fish and Wildlife Service (USFWS), USDI Bureau of Land Management, and USDI National Park Service. Missoula, Montana.

U.S. Army Corps of Engineers (USACE). 1968. Reconnaissance Report. Yellowstone River and Fleshman Creek. Livingston, Montana. Potential Section 205 Project. January 1968.

U.S. Census Bureau (Census). 2009b. Livingston City, Montana. Electronic document. Website visited October 31, 2009. http://factfinder.census.gov/servlet/SAFFPopulation?_event=Search&_name=Livingston&_state=04000US30&_county=Livingston&_cityTown=Livingston&_zip=&_sse=on&_lang=en&pctxt=fph.

Census. 2009a. Census 2000 Summary File, American FactFinder, Livingston, Montana. Website visited August 9, 2009. http://www.factfinder.census.gov/.

U.S. Environmental Protection Agency (USEPA). 2009. EPA Greenbook Nonattainment Area Map. Last updated in August. Website visited August 9, 2009. http://www.epa.gov/oar/oaqps/greenbk/mapnpoll.html.

USFWS. 1987. Northern Rocky Mountain Wolf Recovery Plan. Prepared by USFWS in cooperation with the Northern Rocky Mountain Wolf Recovery Team. August 3, 1987.

USFWS. 2009. Mountain-Prairie Region. Federal endangered and threatened species list. Park County, Montana. Website visited July 20, 2009. http://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf.

U.S. Geological Survey (USGS). 2009. The National Map. Livingston, Montana. Website visited July 20, 2009. http://nationalmap.gov/.

Watry, Elizabeth A., and Robert V. Goss. 2009. Images of America: Livingston. Arcadia Publishing, Charleston, South Carolina.

Woods, Alan J., James M. Omernik, John A. Nesser, J. Shelden, J.A. Comstock, Sandra H. Azevedo. 2002. Ecoregions of Montana, 2nd edition (color poster with map, descriptive text, summary tables, and photographs). Map scale 1:1,500,000.

SECTION SEVEN LIST OF PREPARERS

This EA was prepared by URS Group, Inc., for FEMA Region VIII in Denver, CO.

URS Group staff includes:

Mr. Quentin Bliss, Senior Environmental Planner – Mr. Bliss has over 40 years of progressive experience in the environmental field and has been involved with NEPA since it was enacted in 1969. He has extensive experience with all aspects of NEPA, including the scoping process, identification and evaluation of alternatives, identification of appropriate mitigation, and agency coordination. His project experience includes over 120 multidiscipline projects that involved NEPA compliance.

Ms. Susan Volkmer, Environmental Planner – Ms. Volkmer has over 15 years of experience with EAs involving human and ecological resources. Her project experience includes over 75 multidiscipline projects that involved NEPA compliance.

Mr. Brian Osborn, Environmental Planner – Mr. Osborn has over 12 years of experience in the environmental field. He has specialized expertise in environmental planning and NEPA compliance studies, including environmental document preparation. His project experience includes over 50 multidiscipline projects that involved NEPA compliance.

Mr. Justin Williams, Environmental Planner – Mr. Williams has over one year of professional experience in environmental planning and document preparation. He has specialized experience in Biological Sciences and Geographic information Systems.

SECTION EIGHT PUBLIC INVOLVEMENT

8.1 PUBLIC NOTICES

8.1.1 Initial Public Notice

Public notification is hereby given by the Department of Homeland Security's Federal Emergency Management Agency (FEMA) of the intent to prepare an Environmental Assessment (EA) for a Proposed Action submitted by Park County, Montana, to upgrade existing culverts, perform channel augmentation, and restore wetlands and habitat along an approximately 2-mile reach of Fleshman Creek. FEMA's Pre-Disaster Mitigation Program would provide a portion of the funding. This program assists State and local governments with implementing cost-effective hazard mitigation planning and project activities that complement a comprehensive mitigation program.

Fleshman Creek is a tributary of the Yellowstone River, with a total watershed area of approximately 23.65 square miles. Its headwaters begin west of Livingston in the Bangtail Mountains, where several small tributaries join it before entering Livingston west of Park Street. The Proposed Action project area is known as Reach 2, and includes the Sacajawea Lagoon and Fleshman Creek downstream to the confluence with the Yellowstone River. The goal is to mitigate flood hazards by increasing the capacity of the creek and rehabilitating the creek channel. In addition to reducing flood risk, there are several associated benefits of the Proposed Action, such as improving water quality, restoring aquatic and riparian habitat, and enhancing the area as a public amenity.

The President's Council on Environmental Quality (CEQ) has developed regulations to implement the National Environmental Policy Act (NEPA). These regulations require an investigation of the potential environmental impacts of a proposed Federal action, and an evaluation of alternatives as part of the environmental analysis process. FEMA also has regulations that establish the agency-specific process for implementing NEPA. An EA will be prepared in accordance with both FEMA and CEQ NEPA regulations. Three alternatives will be considered in this EA:

The NO ACTION ALTERNATIVE, which considers the consequences of taking no action to protect the Livingston area from future floods along Fleshman Creek.

The PROPOSED ACTION ALTERNATIVE, which would provide flood protection from the 25-year flood event for areas of Livingston along Reach 2 of Fleshman Creek by increasing flood flow capacity and channel efficiency, reducing sedimentation, and rehabilitating the creek channel.

The ALTERNATIVE ACTION would involve the construction of levees along the backwater channel that connects Fleshman Creek to the Yellowstone River upstream of the Proposed Action project area. Water stored in the detention basin would then be pumped into the Yellowstone River through a new buried pipeline using an industrial sized pump.

Other alternatives considered include construction of upstream reservoirs, construction of a concrete lined channel, construction of levees along Fleshman Creek, relocation of the lower

reaches of Fleshman Creek to Billman Creek, and replacement of culverts to convey the 100- year flood.

The President of the United States has issued Executive Orders (EOs) that require Federal Agencies to focus attention on the environment, and on human health and safety when considering the funding of an action. Particular attention is paid to EOs 11988 – Protection of Floodplains, 11990 – Protection of Wetlands, and 12898 – Environmental Justice. FEMA also considers the effects of the Proposed Action and its compliance with the Endangered Species Act and National Historic Preservation Act of 1996 (as amended).

A public comment period related to the alternatives as outlined above or other possible alternatives will remain open for 15 days following publication of this notice. In addition to this initial comment period, a final comment period will be opened for notice of availability of the Draft EA.

Interested parties may obtain more detailed information about the alternatives from Park County by contacting Lori Benner at (406) 222-6111 or by email at lori@nittanygrantworks.com. Additionally, comments or question regarding the environmental analysis process can be directed to Joan Huston, FEMA Region VIII Mitigation Environmental Coordinator by contacting her at (303) 235-4798 or by email at joan.huston@dhs.gov.

The initial public notice was published in the Livingston Enterprise on October 19, 2009.

8.1.2 Final Public Notice

Notification is hereby given to the public that it is the intent of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) to provide funds to Park County, Montana to reduce flood damages along a 2-mile reach of Fleshman Creek by upgrading existing culverts, performing channel augmentation, and restoring wetlands and habitat along the Creek.

FEMA is required under the National Environmental Policy Act (NEPA) to consider all reasonable alternatives for protecting persons and property from damage due to flooding. The purpose of the proposed action is to reduce the risk of future damage, hardship, loss, and suffering by increasing the flow capacity of Fleshman Creek and restoring its channel to a more natural and flood resistant state. The Draft Environmental Assessment (EA) considered the following three alternatives: 1) a no action alternative, which considers the consequences of taking no action; 2) increasing the flow capacity of the creek and restoring the channel; and 3) diverting water to Yellowstone River.

The President of the United States has issued Executive Orders that require Federal agencies, when considering an action for funding, to focus attention on the environment and human health with respect to Floodplain Management, Executive Order 11988; Protection of Wetlands, Executive Order 11990; and Environmental Justice, Executive Order 12898. Compliance with Executive Orders, other environmental laws, and NEPA has been documented in this Draft EA.

FEMA or the applicant has coordinated with the following agencies: U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; Montana State Historic Preservation Office; Montana Division of Fish, Wildlife, and Parks; Montana Office of Homeland Security/Emergency Management Agency; Montana Department of Environmental Quality; Montana Department of Natural Resources and Conservation; Park Conservation District; Livingston School Districts;

Montana Trout Unlimited; Northern Rocky Mountain Resource Conservation & Development; and the Livingston Historic Preservation Commission.

Based upon agency comments, and the EA process, there does not appear to be any significant adverse environmental impact on the human or natural environment associated with the proposed action if documented mitigation measures and requirements stated in the EA are followed. Therefore, an Environmental Impact Statement will not be prepared, and if no comments are received, a Finding of No Significant Impact (FONSI) will be signed fifteen (15) days from the date of this notice and the project will proceed.

Interested parties may submit comments, request additional information, or request a copy of the FONSI by contacting FEMA's Region 8 Office located at the Denver Federal Center, P.O. Box 25267, Denver, CO, 80225 or by calling 303.235.4798 between 8:00 a.m. and 4:30 p.m. Mountain Time, Monday through Friday. Comments or requests should be submitted in writing to Ms. Joan Huston, FEMA Region 8 Mitigation Environmental Coordinator at the above address or by email at joan.huston@dhs.gov.

The Draft Environmental Assessment is on repository at the Park County Planning Department, City/County Complex, 414 East Callender Street, Livingston, MT. Business hours are 8:00 a.m. to 5:00 p.m. Mountain Time, Monday through Friday. Mr. Phillip Fletcher, Planning Director, may be contacted at 406.222.4102. The document can also be viewed at the Livingston Library, 228 West Callender Street, Livingston, MT. Business hours are noon to 8 p.m. Monday and Tuesday, 10 a.m. to 8 p.m. Wednesday and Thursday, 10 a.m. to 6 p.m. Friday, and 10 a.m. to 5 p.m. Saturday. The library can be contacted at 406.222.0862.

The final public notice was published in the Livingston Enterprise on April 2, 2010.

8.2 PUBLIC COMMENTS

No comments were received during the initial public comment period in October 2009. No comments were received during the final public comment period in April 2010.