HAILEY G REENWAY MASTER PLAN

FINAL - As Adopted April 23, 2018



HAILEY GREENWAY MASTER PLAN

April 23, 2018

Prepared for The City of Hailey

and The Wood River Land Trust

Prepared by

Harmony Design & Engineering

with Biota Research and Consulting









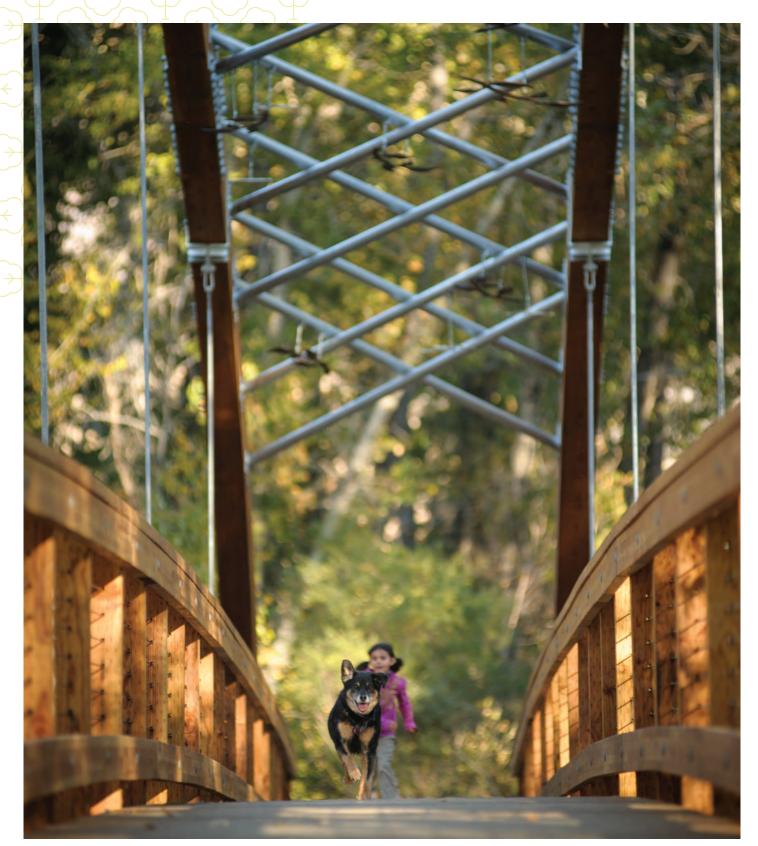


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1 INTRODUCTION



PROJECT VICINITY MAP

Nestled within the trees and along the banks of the Big Wood River, the natural trails of the Hailey Greenway provide the community a refuge and a deep connection to nature. The Hailey Greenway is a place to walk your dog, to hear the river trickling over rocks, to meet friends, and to celebrate a loved one with a heart shaped stone. It is a special place that is physically very close to the bustling Hailey downtown, but experientially another world away. It is a place to be cared for and celebrated as described in this Master Plan so that it can continue to connect land, water, and our community for generations to come.

The Hailey Greenway includes lands along 1.5-miles of the Big Wood River from the Bullion Street bridge to the Colorado Gulch Road that are primarily owned or controlled by the Wood River Land Trust (WRLT) or the City of Hailey. The Greenway encompasses approximately 350-acres and includes two public parks, Lions Park and Heagle Park, as well as open space land owned by the City of Hailey and the Draper Wood River Preserve and the Colorado Gulch Preserve owned by the Wood River Land Trust. This continuous stretch of land that includes the riparian area of the Big Wood River is a tremendous asset to the community providing recreational opportunities for residents and visitors, habitat for wildlife, and space for natural floodplain function.

This Master Plan was developed collaboratively with the City of Hailey, the Wood River Land Trust, and the community, and it includes guidelines for future development and preservation of the Greenway, as well as prioritization of future projects. Other planning documents and studies that pertain to the Greenway include the Big Wood Geomorphic Assessment (Biota, 2016), the Hailey Parks, Lands & Trails Master Plan, the Hailey and Blaine County Comprehensive Plans, and others. This Master Plan is a living document and should be updated frequently as new information, plans, projects, or events unfold.

2 HISTORY

On the northern end of the Greenway, the area that is now Lions Park was used as the Hailey City landfill for more than 70 years starting in the early 1900s. During this time, the Big Wood River was constrained, and trash and fill were dumped along its banks and in the river. In the 1970s, the landfill was capped with soil and the area was converted into a park with a ball field and a large gravel area that is currently used for snow storage by the City. In 2002, the City of Hailey partnered with the Wood River Land Trust (WRLT) to improve the ¹/₄-mile stretch of river adjacent to the park by removing debris and landfill material, regrading along the western bank to allow safer and easier river access, and installing rootwad bank stabilization treatments that provide fish habitat and reduce erosion.

Immediately southwest of Lions Park lies the Croy Creek Wetlands. In 2008, the Land Trust removed 1200 tons of dump fill material as well as non-native trees in order to revive the wetlands within an old meander bend of the Big Wood River. In 2011, the Croy Creek Wetlands boardwalk

was completed, which provides public recreation and wildlife viewing along an ADA accessible boardwalk that winds through this unique ecosystem. The boardwalk protects the sensitive ecological and biological values of the wetlands while allowing the community to experience and view the wildlife and plants that they support. The Wood River Land Trust's Draper Wood River Preserve lies in the heart of the Hailey Greenway, and the Colorado Gulch Preserve anchors the Greenway on the southern end. The Draper Preserve was created through three land acquisitions over the course of six years between 2001 and 2007. The Colorado Gulch Preserve is 150-acres of land that was purchased by the WRLT in 2016. These preserves are permanently protected lands that are owned, maintained, and restored by the WRLT. Both the Draper Preserve and the Colorado Gulch Preserve are open to the public for fishing, hiking, bird and wildlife watching, and other outdoor and educational activities.

For the past 20 years, the City of Hailey and the WRLT have been working cooperatively on land use, restoration, and river protection projects within the Greenway. This Master Plan represents the next phase in planning for the Greenway so that management, restoration, and development efforts are consistent and work towards common future goals.



THE BIG WOOD RIVER LOOKING DOWNSTREAM FROM THE BULLION BRIDGE C 1890 (MALLORY PHOTO COURTESY HAILEY PUBLIC LIBRARY)

3 MISSION AND VISION

The mission for the Master Plan is to provide a framework that, when implemented, will balance human use (trails, parking, and recreational amenities) with the needs of fish, wildlife, the river, and its floodplain, which are predominately accommodated within the riparian corridor. The riparian corridor consists of the unique plant communities growing near the river that provide habitat for wildlife and fish, storage areas for flood waters, stream bank protection, and water quality enhancement. A continuous corridor of natural vegetation helps to maintain a healthy, stable stream ecosystem.

Our vision for the Greenway is that it remains a special place that is recognized and cared for by the entire community and is a destination for visitors to enjoy throughout the year.

The mission for the Master Plan is to provide a framework that, when implemented, will balance human use with the needs of fish, wildlife, the river, and floodplain. The original scope of the Greenway Master Plan established in March of 2017 addressed the following categories: Land Use and Connectivity, Recreation, Wildlife and Habitat, Restoration and the Big Wood River Floodplain

In June of 2017, after significant flooding occurred within the Greenway and the surrounding neighborhoods, the scope of the Master Plan was revised to include river system management. Thus, the projects recommended within this Master Plan are divided into three categories:

- Access and Connectivity
- Land Use, Recreation, and Conservation
- River Restoration and Floodplain Function

4 PROCESS AND PUBLIC INVOLVEMENT

The Hailey Greenway Master Plan was developed collaboratively with the Wood River Land Trust, the City of Hailey, adjacent landowners, and the entire community through a robust public outreach effort. Public outreach was a key part of the entire planning process that included an initial site assessment, development of master plan concepts, drafting of the master plan maps, and finalizing the master plan and report.



MASTER PLANNING PROCESS

4 HAILEY GREENWAY MASTER PLAN | April 23, 2018

Outreach was conducted using a variety of methods in order to reach a wide variety of people. Public meetings, work sessions, and stakeholder interviews were supplemented with an online survey and mobile workshops that targeted people that may not be able to make evening meetings. The WRLT used social media and electronic newsletters to make more than 17,000 contacts with members of the community. This included four enewsletters that were opened by 3,130 people, eight Facebook posts that reached 9,670 people, seven Twitter posts that reached 3,179 people, and three Instagram posts that were seen by 1,178 people. Additionally, 10 newspaper articles were published in the local and regional papers and one television broadcast featured the Greenway Master Plan process and how the Master Plan would address floodplain management.

The Master Plan was initially presented to the Hailey City Council on January 8, 2018 and public input was taken at the meeting and via email for an additional three months. As a result of public input, the Master Plan was modified and again presented to the City Council on April 9, 2018.



4.1 Outreach #1 – Introduction and Public Listening Sessions (July 12, 2017)

Outreach session #1 was held at the Draper Preserve pavilion located south of Lions Park and was attended by more than 30 participants. The session began with an introductory presentation that included a brief history of the Greenway and an overview of goals and objectives of the Hailey Greenway Master Plan project. This was followed by an outreach activity where two listening stations were set up to engage the participants in group discussions to brainstorm ideas for greenway elements and share experiences and concerns. The comments received from this activity served as the basis for developing the first draft of the Master Plan. A complete list of comments recorded at the listening session is included in Appendix B.





OUTREACH #1 AT THE DRAPER PRESERVE PAVILION

Highlights of What We Heard...

Community and Connections

- Trails
 - Accommodate Multi-users, ADA
 - Connections to BLM, Downtown
 - Narrow trails to footpath width
 - Add dog poop stations farther in
- Parks & Recreation
 - Restroom & water at Lions
 - Parking at War Eagle, esp winter
 - Eddies, water park, geothermal
 - Sledding Hill
 - Heagle needs TLC
 - Camping or minimalist RV park
- General
 - Relocate Snow Storage
 - More Patrol needed at 4th July (fire)

The Big Wood River

- River is a dynamic system
- Recent Flooding
 - Trails, Sawmill raceways act as conveyances
 - Heagle park acts as a dam
 - Jurisdictions need to act cooperatively
- What can be done proactively?
 - Expand floodplain/meander in Lions Park
 - Encourage development of white water park and commercial opposite Lions.
 - Reduce grade of Heagle Park
 - Provide conveyance channels around Heagle

SUMMARY OF INFORMATION GATHERED AT OUTREACH #1

4.2 Outreach #2 – River Hydrology, Management and Restoration (August 7, August 8, and October 2, 2017)

In response to the flooding that occurred within the Greenway and adjacent neighborhoods during the spring of 2017, several outreach sessions were held to focus on the hydrology and hydraulics of the Big Wood River system and general recommendations for river restoration and floodplain management. Ryan Colyer of Biota Research and Consulting and Jennifer Zung of Harmony Design and Engineering presented information related to the geomorphology and watershed hydrology of the Big Wood River to Hailey City Council and to the public at the Community Campus in Hailey on August 7th. The following day on Au-

gust 8th, the public was invited to participate in an open public work session at Hailey City Hall where additional input was gathered and initial master plan concepts related to floodplain management began to be developed.

On October 2, 2017, another presentation was made to the Hailey City Council to review specific recommended short-term and long-term river restoration and floodplain management projects that would address channel form, horizontal stability, vertical stability, and flood attenuation. Immediately after the presentation to the City Council, another meeting was held with interested individuals to discuss and answer questions regarding floodplain management of the Big Wood River adjacent to the Greenway.



PUBLIC WORK SESSION ON FLOODPLAIN MANAGEMENT, AUGUST 8, 2017

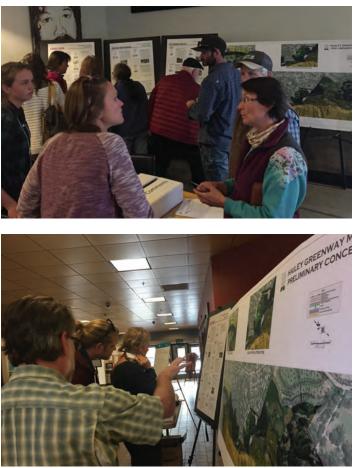
4.3 Outreach #3 – Project Priorities (October 10th, 11th, and 12th, 2017)

Based on outreach sessions #1 and #2, initial concepts and proposed projects were developed. During Outreach #3, the public was given an opportunity to review the draft plan and give input regarding their opinions and priorities of elements of the plan through mobile workshops. These workshops were held at the Community Campus, Wiseguy Pizza Pie, Black Owl Coffee, and the Hailey Farmers Market. Feedback was solicited through a "Priority Money Exercise" where each of the 60 participants was given \$300 of play money to "spend" on various projects identified in the draft plan. Projects were priced accordingly to represent a cost relative to the actual cost or complexity of the project. Participants were not given enough money to "fund" all the projects, which required them to choose their priorities thoughtfully.



MOBILE WORKSHOPS AT BLACK OWL COFFEE, THE COMMUNITY CAMPUS, AND WISE GUY PIZZA PIE

The mobile workshop was also available as an online survey that was available for approximately one month from October 9th until November 6th. Almost 100 people participated in the online survey, most of whom were Hailey residents (ages 30 to 60 or older). The complete results of the "Priority Money Exercise" and the online survey are included in Appendix B.



5 THE PLAN

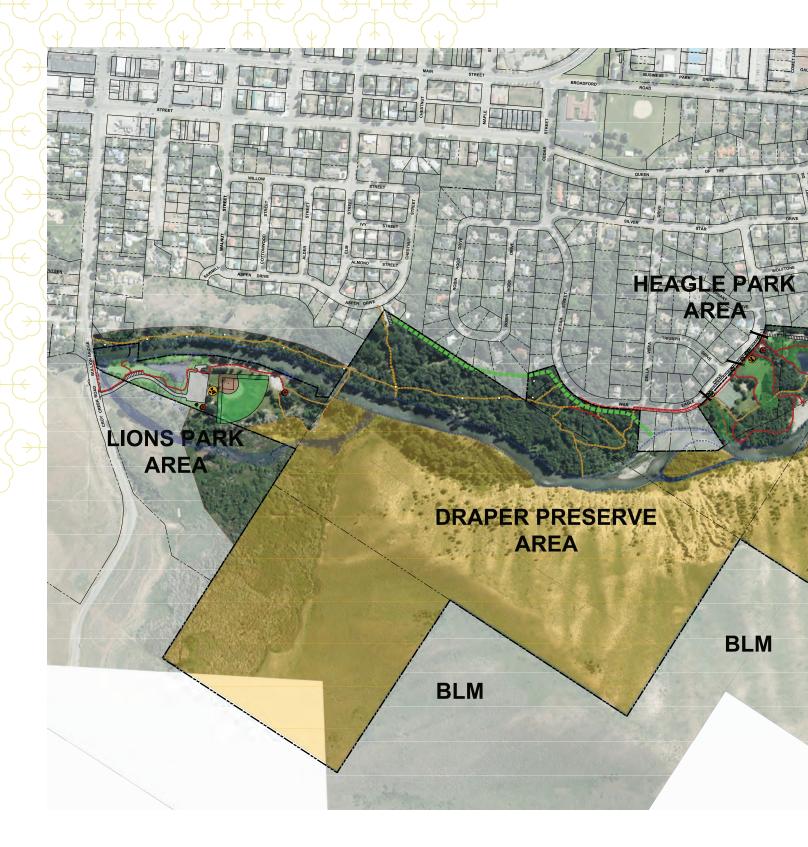
The Hailey Greenway Master Plan is intended to be a guiding document for the management and development of property along the Greenway. The Plan, which is composed of projects that address floodplain management, parks and recreation facilities, trails, and conservation, is intended to be completed as funding allows over the next 20 years. Since this plan considers the Greenway holistically, both publicly-owned and privately-owned properties were evaluated for potential future projects. However, although some projects are shown on private properties, such as the property on the east side of the river across from Lions Park, it is important to note that the Master Plan is only a guiding document and that projects will only occur as property is developed by or acquired from willing landowners.

These concepts are general in nature, not mutually exclusive, and do not in any way constitute a complete design. Many of these concepts will require significant additional engineering, environmental, planning, and public outreach efforts. Funding does not currently exist; jurisdictions and responsibilities are complex; and all future work, if any, must have agency approvals for not just the City of Hailey but all other regulatory agencies, including but not limited to relevant state and federal agencies. Inclusion of a project within this planning document does not guarantee City action.

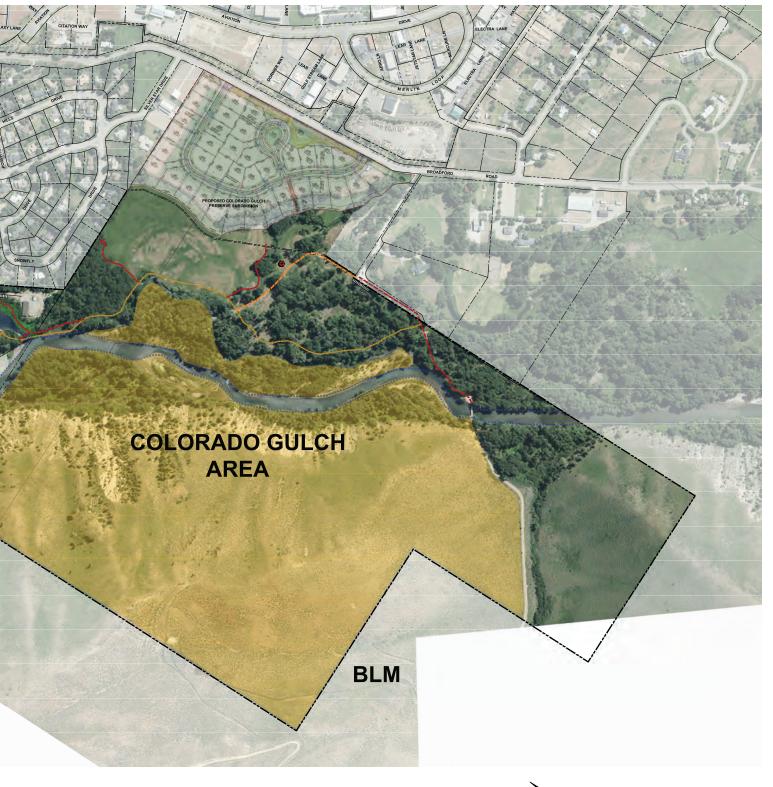
Projects described here and shown on the Master Plan Maps have been organized into three categories:

- Access and Connectivity
- Land Uses and Recreation
- River Restoration and Floodplain Function

The following pages show the overall Master Plan with project numbers that identify projects described in this section and the following implementation section of this report.





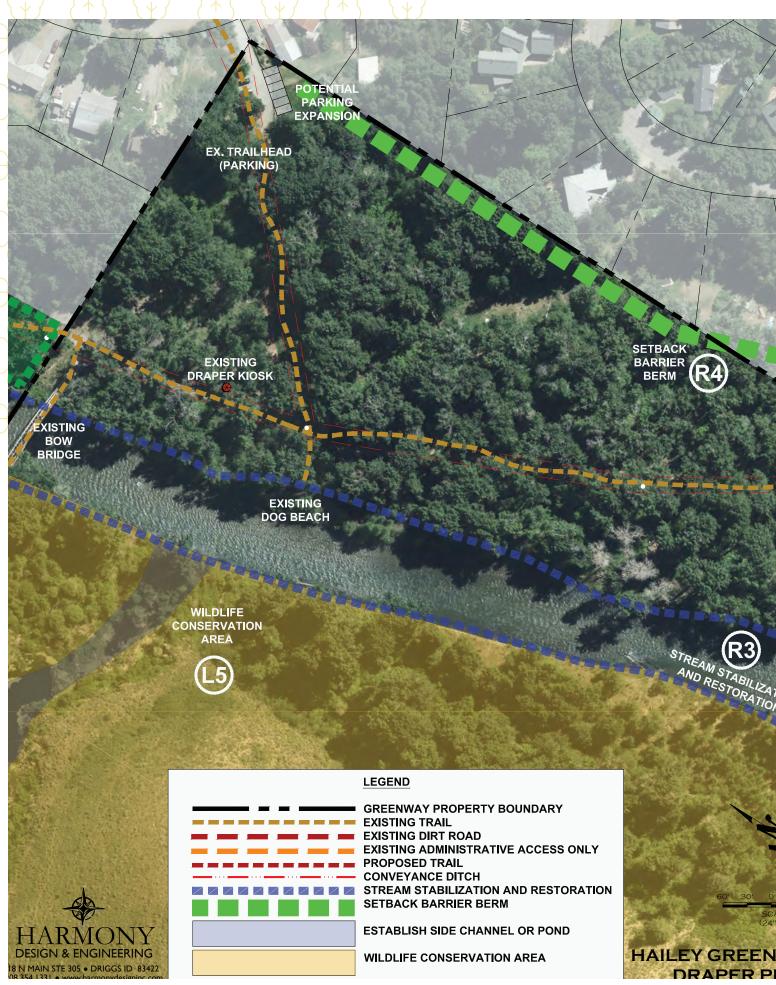




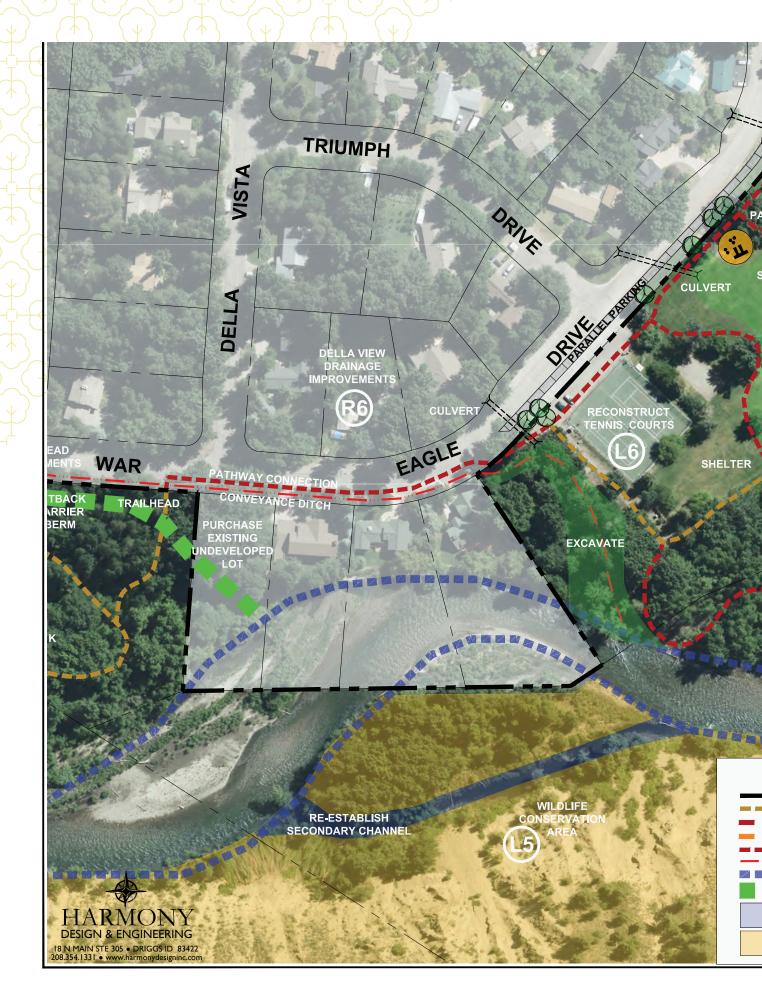
OVERALL PLAN

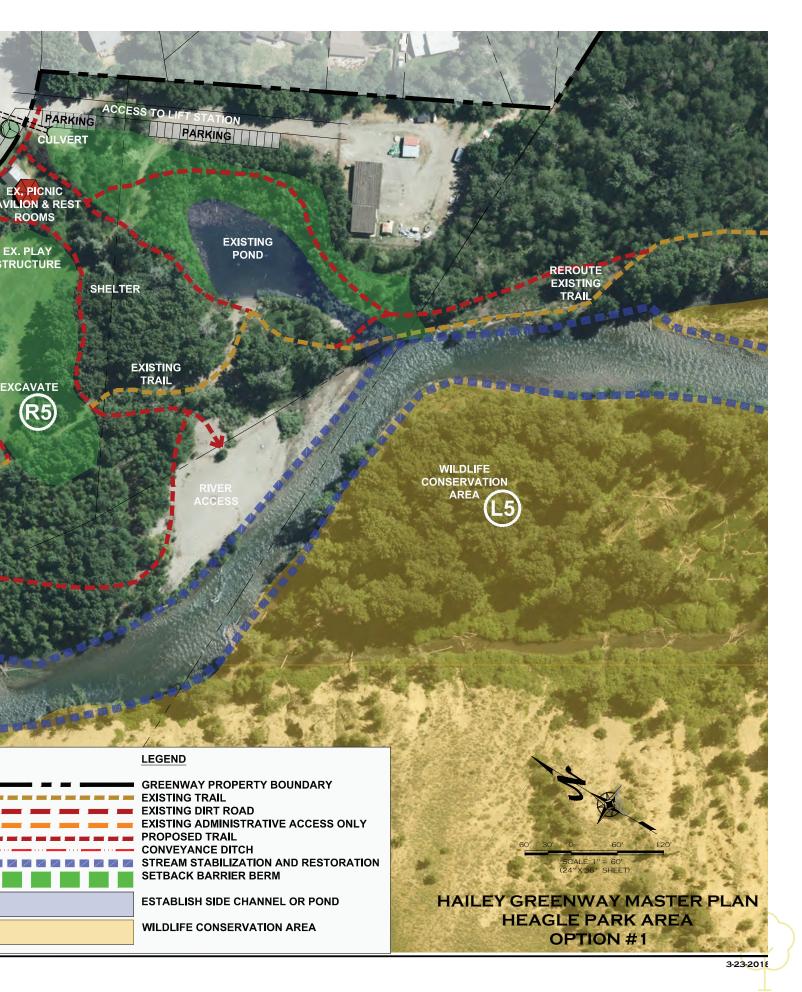


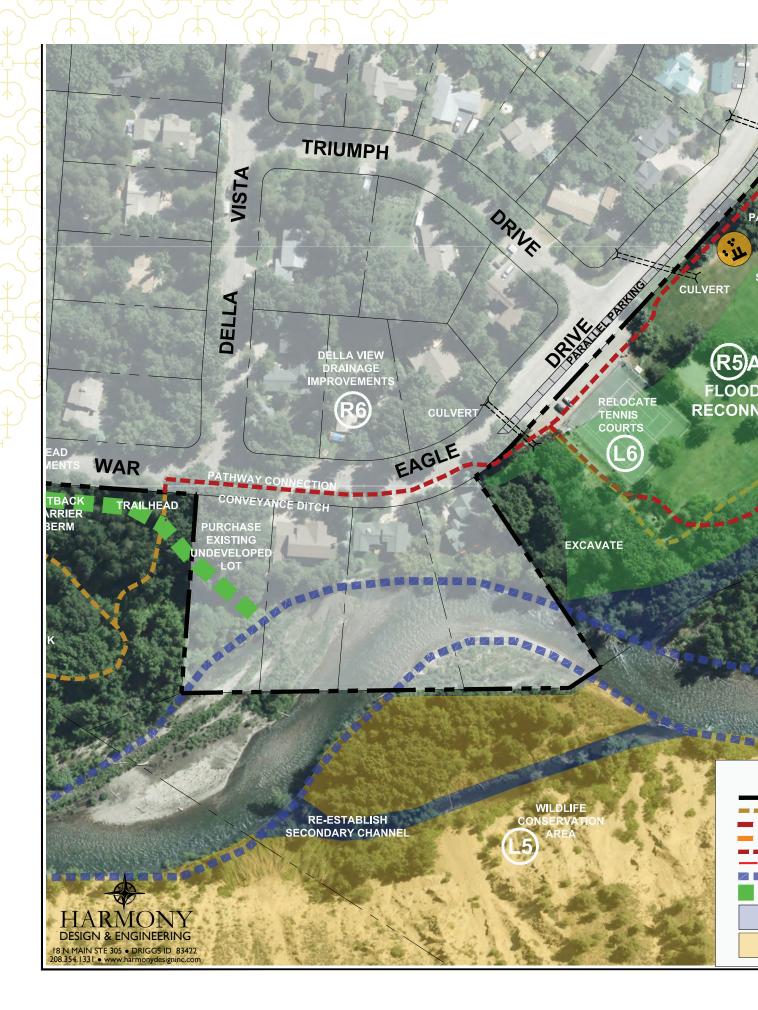


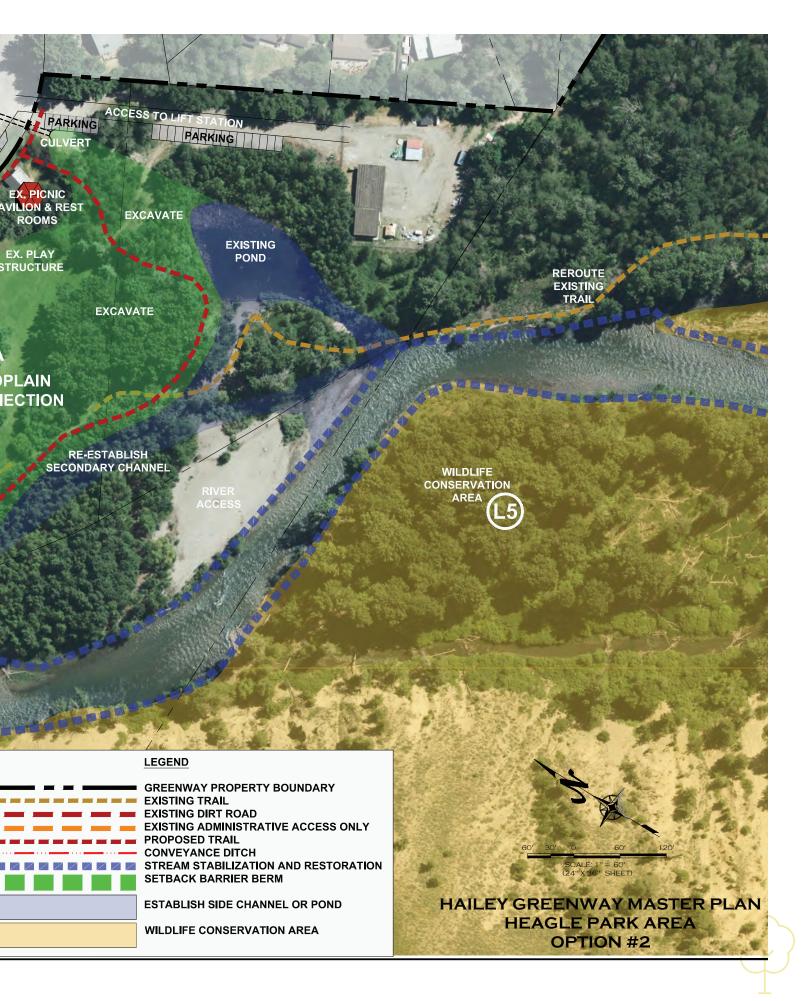


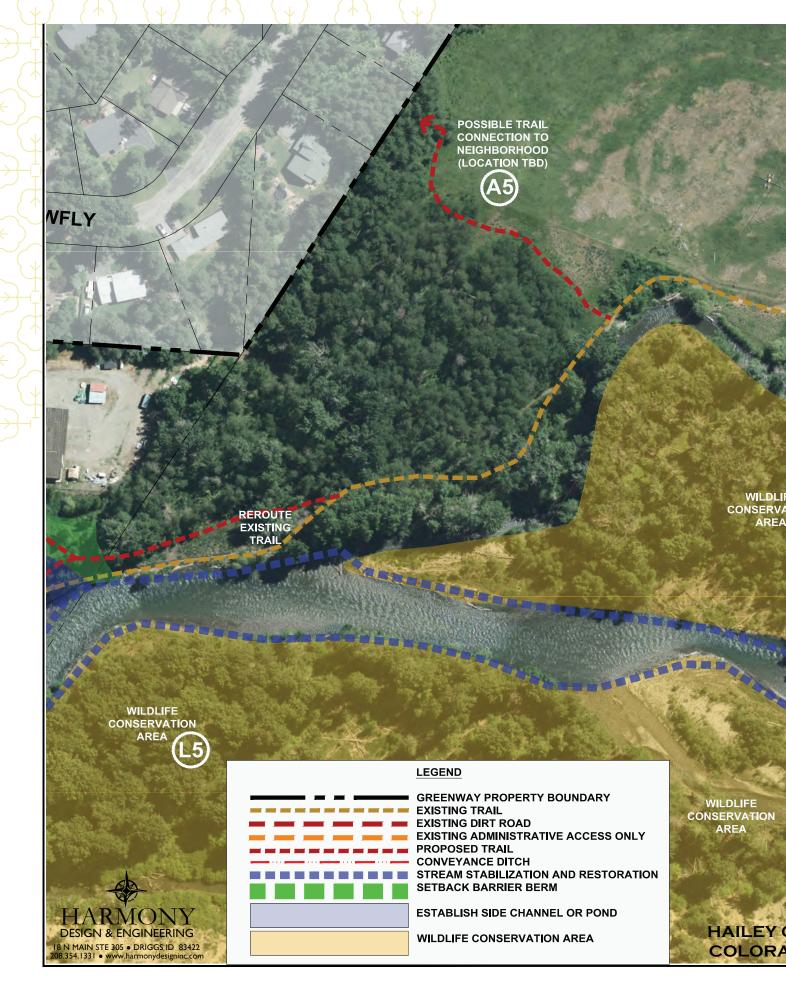












ADJACENT OPEN SPACE PARCEL (COLORADO GULCH PRESERVE SUBDIVISION)

NATIVE POLLINATOR MEADOW

E TION POTENTIAL ENVIRONMENTAL EDUCATION CENTER PAVILION

MSRATHER CES

ADDITIONAL TRAILS HERE

IMPROVE FOOTBRIDGE

> WILDLIFE CONSERVATION AREA

EA L5

GREENWAY MASTER PLAN DO GULCH AREA (NORTH)

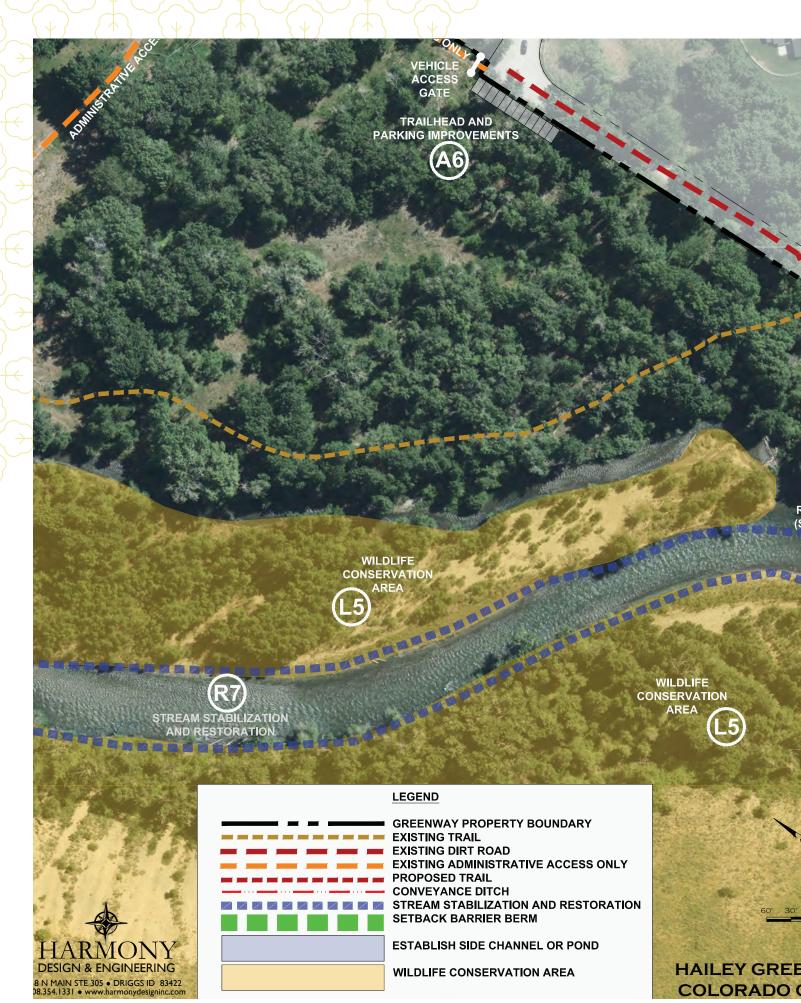
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R7

STREAM STABILIZATION AND RESTORATION



RIVER ACCESS SMALL BOATS)



FUTURE PUBLIC DAY USE



BLM ACCESS

SCALE: 1" = 60' (24" X 36" SHEET)

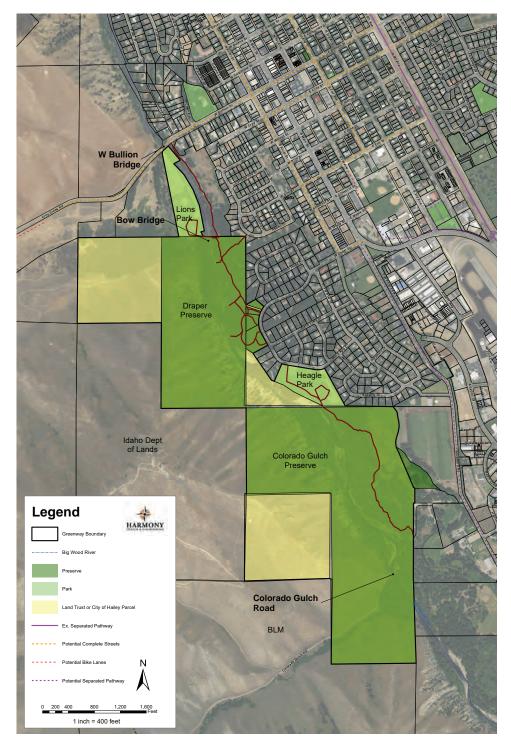
NWAY MASTER PLAN **GULCH AREA (SOUTH)**

5.1 ACCESS AND CONNECTIVITY

The Hailey Greenway is heavily used by hikers, walkers, runners, and bikers during every season throughout the

year. The existing trail system is a mix of gravel paths, boardwalks, and natural surface roads and trails. The system, for the most part, is contiguous through the Greenway except for a short gap of private property along War Eagle Drive between the Draper Preserve and Heagle Park. There are also some other short sections where the trail is somewhat undefined. The main points of access currently are Lions Park, Heagle Park, and Colorado Gulch Road. Several smaller trailheads within adjacent neighborhoods also provide access.

Goals of the Master Plan with respect to access and connectivity are to provide a sustainable and contiguous trail system that is easily accessed from adjacent neighborhoods and public parks, provides adequate parking, and accommodates a variety of user groups. The following are projects that have been identified that achieve these goals.



A1. RELOCATE LIONS PARK ENTRANCE

This project includes relocating and reconstructing the entrance to Lions Park to improve site distance and provide a more aesthetically pleasing entrance. An improved entrance will increase public awareness of the Greenway and make the Greenway easier to find for residents and visitors.

The proposed location shown on the Lions Park Area Map is on property west of Lions Park that is currently privately owned. Relocating the entrance road as shown would require collaboration with the adjacent property owner, purchase of the property, or an easement.

A2. CONVERT ROAD TO DRAPER PAVILION TO PATHWAY

This project includes revegetating and converting the existing road between the Draper Pavilion and the existing ball field into an ADA accessible pedestrian trail. This enhanced walking experience between the large ball field parking area and the pavilion would help encourage parking near the ball field. Administrative vehicular access could be maintained, but public vehicular access would be restricted with a gate.



ROAD TO DRAPER PAVILION TO BE CONVERTED TO A TRAIL WITH PROJECT A2



EXISTING ENTRANCE TO LIONS PARK

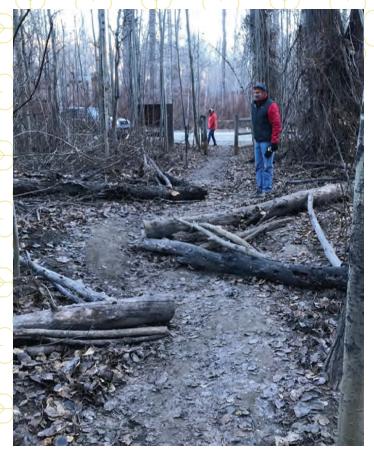
A3. ROAD AND PARKING IMPROVEMENTS AT LIONS PARK

This project includes making general improvements to the entrance road to Lions Park and adding parking adjacent to the ball field that is adequate for the anticipated use of the park. This will help improve access and better delineate the parking at Lions Park.

A4. TRAIL IMPROVEMENTS ADJACENT TO WAR EAGLE DRIVE

Currently, the trailheads to the Draper Preserve trails along War Eagle Drive do not have formal parking areas. These trailheads are heavily used with several cars being parked there on a regular basis. This project includes eliminating two of the four trailheads that are user created along War Eagle and focusing access and trailhead improvements on the remaining two. This would require a new connector trail between the two eliminated trailheads. Parking for five to six cars would be provided along the street, which would accommodate the current parking needs at this location.

This project also includes adding hydraulic roughness to the western trail that approaches War Eagle Drive by reorienting the trail perpendicular to the primary flow direction, adding downed logs or humps in the ground perpendicular to the primary flow direction, and/or narrowing the pathway where possible. This would help reduce the conveyance of floodwaters along the trails.



WRLT ADDING LOGS AND MEANDERS ON THE DRAPER TRAIL NEAR WAR EAGLE (FALL 2017)

A5. TRAIL CONNECTIONS TO ADJACENT NEIGHBORHOODS

In order to enhance access to the Greenway trails, additional trail connections from Snowfly Drive to the Colorado Gulch Preserve could be developed. This would require an easement from a landowner through private property. Additional improvements to the trails within the Colorado Gulch Preserve, including construction of a new footbridge across the existing irrigation channel, can help improve access to the river for a variety of users.



ONE OF THE FOUR EXISTING WAR EAGLE DRIVE TRAILHEADS



EXISTING TRAILS IN COLORADO GULCH PRESERVE



EXISTING COLORADO GULCH PARKING AREA

A6. TRAILHEAD AND PARKING LOT AT COLO-RADO GULCH

There is a need for a formalized parking lot and improved trailhead, including an informational kiosk, at the southern end of the Greenway at Colorado Gulch. This would improve access to the Colorado Gulch trails and could provide an area for trailer parking for equestrian users.

A7. PLAN FOR PUBLIC ACCESS TO COLORADO GULCH CANYON

During the 2017 floods, the County bridge on Colorado Gulch Road over the Big Wood River washed out and was permanently damaged. This project includes evaluating the best location for a new bridge with respect to floodplain function. Based on public feedback gathered during the Master Plan process, a pedestrian, equestrian, and non-motorized accessible bridge would be preferred. The replacement of the bridge will require many steps and will need to consider the needs and desires of the county, various stakeholders, WRLT, the BLM, and the community. Because the bridge and Colorado Gulch Road are located in the unincorporated County and owned by Blaine County adjacent to WRLT land, the WRLT will provide a strong supporting role with the County in moving this project forward and will assist with planning to provide a connection to the west side of the river.



DAMAGED BRIDGE AT COLORADO GULCH TO BE REPLACED



EXISTING PEDESTRIAN BRIDGE WITHIN THE GREENWAY

A8. GREENWAY BRANDING

A key project in creating an identity for the Greenway is to develop a comprehensive branding plan. This includes a clear, recognizable logo and consistent wayfinding throughout the Greenway. This will help build recognition of the Greenway as a special place and a recognizable destination, which will help create loyalty and increase fundraising potential.

A9. RELOCATE SNOW STORAGE OUT OF LIONS

Currently, most of the parking area at Lions Park is used for snow storage for the City of Hailey during the winter. This poses environmental concerns due to the potential for oil, grease, sediment, and other contaminants present in the snow to migrate into the adjacent river, as well as safety concerns relative to winter recreational use and snow storage activities. This project includes relocating the snow storage area to another suitable property that should be secured by the City. Suitable property should be relatively proximate to downtown, a minimum of four acres in size, have adequate water quality treatment measures, and pose manageable audible and visual impacts to surrounding residential neighbors.



EXISTING WAYFINDING SIGN FOR THE HAILEY GREENWAY



SAMPLE GREENWAY LOGOS





GREENWAY LOGO AND SIGNAGE FOR THE MILWAUKEE RIVER GREENWAY

5.2 LAND USE, RECREATION, AND CONSERVATION

The Hailey Greenway consists of a mix of public parks owned and maintained by the City of Hailey and preserve properties owned and maintained by the Wood River Land Trust. All the property within the greenway is accessible to the public. The City parks are the main access points to the Greenway and provide most of the active recreation facilities, including a ball field, tennis courts, and play structures, while the preserve properties provide most of the trails and opportunities for quiet, passive recreation.

The goal of the Master Plan with respect to land use, recreation, and conservation is to provide a balance of recreational uses that do not negatively impact conservation goals and wildlife habitat. The following are improvements and potential new uses and facilities that could be developed within the Greenway that meet these goals.

L1. RECONSTRUCT BALL FIELD/MULTIPUR-POSE FIELD IN LIONS PARK

This project includes reconstructing and expanding the ball field in Lions Park so that it meets adult softball league specifications, as the existing ball field does not currently meet adult league specifications. It also includes adding gates to the outfield fence to improve access through and onto the field and making modifications that would allow the ball field to be used as a multi-use amphitheater where outdoor concerts or other events could be held. Other mountain towns that have similar multi-use event space include Telluride, CO and Jackson, WY.

Depending on the final configuration, this project may require encroachment into the adjacent Croy Canyon Ranch Conservation and Park easement and/or removal of existing trees.

L2. RECREATIONAL PLAY WAVE WITH GRADE CONTROL AND BOAT LAUNCH

The desire to construct a recreational play wave on the Big Wood River is not new. This project includes modifying the channel form and adding grade control structures that could control flow into the off-line sediment pond in project R2 and create a seasonal play wave for kayaks and other small paddlecraft. The feasibility of this project would need to be determined based on additional study of the existing stream form and flow, and it may only be useful during high water in the spring and early summer. This project also includes developing non-motorized boat launches downstream of Bullion Bridge and near the existing Draper Pavilion to provide the opportunities for short recreational floats.



EXISTING BALL FIELD AT LIONS PARK



RECREATIONAL PLAY WAVE

L3. RESTROOM FACILITIES IN LIONS PARK

Lions Park currently does not have a restroom facility. With the presence of the ball field and nearby pavilion and riverside benches, a restroom facility is an important addition that will enhance visitor experiences and improve sanitation. The addition of a permanent restroom is not a simple endeavor, however, since a fully plumbed facility will require extension of water and sewer service to the park from the east side of the river. Another alternative would be a composting toilet, and a temporary alternative could be placing port-a-potties at the park during peak use seasons.

L4. CREATE A CONCESSIONS AREA AT LIONS PARK

To accompany an improved ball field and potential amphitheater at Lions Park, this project includes identifying a location for mobile food trucks to accommodate the sale of food and drinks during games or other events. Mobile food trucks operated by local restaurants or others would need to be self-contained and have the proper licenses and permits.

L5. ESTABLISH WILDLIFE CONSERVATION AREAS

A primary purpose of the preserves owned by the WRLT is to maintain and enhance the land for wildlife and riparian habitat. Thus, this project includes setting aside areas within the Greenway for wildlife conservation purposes. These areas include steep hillsides, wetlands, and riparian areas that will remain in their natural state and will only be improved to enhance fish and wildlife habitat and floodplain function. No trails or other recreational facilities will be developed in these areas.

L6. HEAGLE PARK TENNIS COURTS

This project includes either reparing the existing tennis courts in conjunction with project R5 or relocating the existing tennis courts in Heagle Park out of the floodplain to allow for development of project R5A. Tennis is a valued activity in Hailey and a new location for a tennis court facility should be pursued.



TYPICAL PUBLIC RESTROOM AT A CITY PARK

5.3 RIVER RESTORATION AND FLOODPLAIN FUNCTION

The Big Wood River is the spine of the Hailey Greenway. It provides recreational opportunities for boating, swimming, and fishing as well as habitat for fish and wildlife. The river also functions as the main drainage corridor for the Wood River Valley. The form and function of the river and its floodplain is of great concern.

Historically, the river through the Hailey Greenway has been impaired by channelization, dredging, and development encroachment into the floodplain. Historic impairment has caused reaches within the Greenway to become unstable with respect to sediment transport capacity, lateral movement, excessive deposition and/or incision, channel enlargement potential, and sediment supply.

Prolonged peak flows experienced during the spring of 2017 highlighted the instabilities within the Big Wood River system. Excessive sediment supply due to upstream erosion and channelization, combined with insufficient sediment transport capacity through the Greenway reach, caused sediment deposition and premature flooding through the Della View neighborhood in Hailey.

During the public outreach for the Master Plan, many residents pointed to the trails in the Draper Preserve as the cause of flooding in the Della View neighborhood. Although the trails will convey more water than the adjacent forested areas, removing the trails or increasing the roughness of the trails will not prevent flooding of the Della View neighborhood. In fact, completely removing the trails and revegetating them at existing grades would result in an increase in flood elevations due to increased roughness and decreased velocity. Based on a 1-dimensional hydraulic model, during a 1% annual chance (100-yr) event, only about 5% of the floodwater that is conveyed through the Draper Preserve is conveyed by the trails.

The Draper Preserve is an example of a connected floodplain that helps disperse and slow floodwaters, which is needed for a healthy river system. Premature flooding of the Della View neighborhood is largely due to an impaired river system and development pressures within the natural floodplain.



COLORADO GULCH

One of the main goals of the Hailey Greenway Master plan is to create a stable river system that functions without adversely impacting existing infrastructure or land uses. More specifically, the goals of the Master Plan are to:

- **Maintain** natural floodplain characteristics and functions.
- **Improve** floodplain functions where possible without creating further flood impacts to existing development or infrastructure, public or private.
- **Reduce** flood water impacts, particularly to public infrastructure.
- **Develop** strategies and projects that will help mitigate bedload migration, erosion, and entrenchment of the river system.

In order to address the underlying causes of fluvial system instability, the Big Wood River should be restored using a suite of treatments. Thus, the following river restoration treatments are recommended to be used in a comprehensive manner:

- **1. Channel Form**: Establishment of functional channel width, depth, profile, and alignment that allows for sediment continuity, including bedload migration;
- **2. Horizontal Stability**: Wood revetment or rock revetment with bioengineering to achieve bank stabilization;
- **3. Flood Attenuation:** Floodplain reconnection and re-establishment through excavation or fill; and
- **4. Vertical Stability:** Hardened riffles or rock cross vanes to achieve grade control, where needed.

To help achieve horizontal stability, woody debris should be retained and incorporated as much as possible through this reach to increase floodplain age diversity and biological productivity. Woody debris creates shade, reduces temperatures, decreases erosive energy, and benefits the fishery and aquatic life. All of the river restoration projects presented in this plan should be reevaluated after sufficient topographic, geomorphic, and hydrologic data has been gathered so that a comprehensive assessment can be completed. Before any flood project can be considered, the funding, permissions, partnerships, and authorities must be clearly identified and secured. A more detailed assessment of the river system and floodplain management projects that include permitting requirements and possible funding sources, as well as results from preliminary hydraulic modeling of the Big Wood River through the Greenway, is included in Appendix A.

R1. STREAM STABILIZATION AND RESTO-RATION FROM BULLION BRIDGE TO BOW BRIDGE

This project includes restoration of functional channel form within the Big Wood River in order to convey the sediment and hydrologic inputs without severe aggradation or erosion. This effort would include bed and bank stabilization, establishment of functional channel geometry and profile, possible activation of a historic side channel at Lions park and up to 100-ft of additional floodplain width along the east bank, and potential establishment of sediment storage facilities.



EXISTING BIG WOOD RIVER ADJACENT TO LIONS PARK

R2. RECREATIONAL POND AND FLOODPLAIN RECONNECTION IN LIONS PARK

This project would need to be considered and constructed with project R1. Stream Stabilization and Restoration from Bullion Bridge to Bow Bridge, requires brownfield remediation of the old landfill, and would need to be completed after project A9. Snow Storage Relocation. This project includes constructing a riverside pond to provide offline sediment storage during flood events and allow for sheet flooding and floodplain reconnection to the west through a historic side channel and the existing wetlands.

The pond water surface could be at the normal river elevation, which would be approximately 8-ft below existing grade. The elevation of the existing gravel parking lot will need to be returned to natural grade conditions by excavating the existing fill to allow floodwaters to sheet flow across the area to the west and into the Croy Creek Wetlands. The pond could be used for boating practice, fishing, swimming, etc. Providing sediment storage and improving



EXISTING BIG WOOD RIVER JUST UPSTREAM OF HEAGLE PARK

sediment transport continuity will reduce downstream sediment loads in an effort to maintain flood water conveyance capacity. Activation of the historic high flow side channel and wetland areas west of Lions Park can help attenuate flood flows an and enhance

wildlife habitat.



SAMPLE BIOENGINEER-ING BANK STABILIZATION TREATMENTS

R3. STREAM STABILIZATION AND RESTO-RATION FROM BOW BRIDGE TO HEAGLE PARK

This project is a continuation of project R1 and includes constructing treatments to the river banks and channel to improve habitat, control sedimentation and bed load migration, reduce flood hazards, and restore the natural functionality of the river system. This project also includes activating a side channel on the west side of the river by excavating material to clear the historic overflow channel against the Della Mountain hillside and installing sufficient rock grade control structures to prevent enlargement of the re-established secondary channel and only allow it to be accessed during high flow events.

R4. SETBACK BARRIER BERM AT EDGE OF NEIGHBORHOOD THROUGH DRAPER PRE-SERVE

This project includes the construction of an earthen barrier along the eastern boundary of the Draper Preserve coupled with channel restoration from Bow Bridge downstream to Heagle Park (project R2). The setback barrier would allow for floodplain inundation and conveyance within the encompassed riparian area while also reducing the impact of flooding within the adjacent residential development. This project should be evaluated carefully in conjunction with stream restoration (Project R2) to ensure no adverse impacts would occur on private property. The City and the WRLT will not proceed with this or any other flood mitigation project unless it is shown that no adverse impacts will occur on existing properties, either public or private. Additionally, the berm may need to cross private property, which would require property owner approval, and would require removal of mature vegetation.

R5. CONVEYANCE SWALES THROUGH HEAGLE PARK

This project includes keeping the tennis courts in place and excavating three wide drainage swales through the park to improve conveyance of floodwaters from the adjacent residential area. Up to three large drainage culverts could be constructed from the east side of War Eagle Drive to Heagle Park. This project can help reduce the duration of flooding but not the overall impact or maximum elevation of flooding.

The existing pond on the east side of Heagle Park could be removed and incorporated into the proposed conveyance swales or remain if it is evaluated with respect to sediment storage capacity and found to be effective.



FLEXMSE VEGETATED WALL SYSTEM

R5-A. FLOODPLAIN RECONNECTION AND RE-MOVAL OF TENNIS COURTS AT HEAGLE PARK

An alternative to project R5 is to not only increase the conveyance capacity back to the river but also reconnect the floodplain within Heagle Park by removing the tennis courts and excavating the existing fill. This could also include excavating and lowering the overall grade of the park and reestablishing a high flow channel on the west side of the park to increase flood attenuation and conveyance. This would require removal of mature vegetation, but the site could be reclaimed with riparian vegetation and Heagle Park could be reprogrammed as a riverside park with improved river access and riverside amenities such as picnic areas.

R6. CONVEYANCE DITCH AND NEIGHBOR-HOOD DRAINAGE IMPROVEMENTS

This project includes constructing a drainage ditch along the west side of War Eagle Drive and through the Della View neighborhood to convey floodwaters from the residential neighborhood back to the river. This project will not prevent flooding or reduce flood heights but can reduce the duration of flooding.



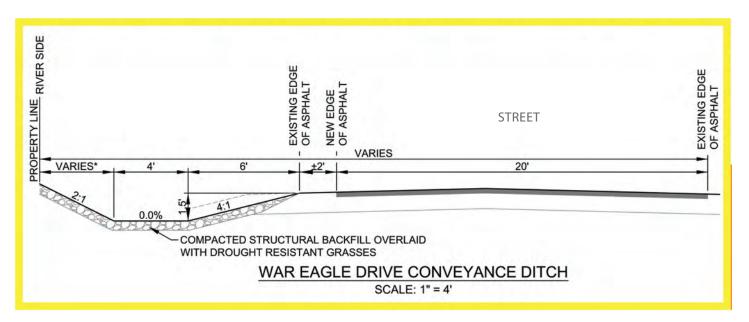
EXAMPLE RIVERSIDE PICNIC AREA



2017 FLOODWATERS BEING CONVEYED DOWN WAR EAGLE AND AROUND HEAGLE PARK

R7. STREAM STABILIZATION AND RESTO-RATION FROM HEAGLE PARK TO COLORADO GULCH

This project includes restoration of functional channel form within the Big Wood River through the Colorado Gulch Preserve in order to convey the sediment and hydrologic inputs without severe aggradation or erosion. This effort would include bed and bank stabilization, establishment of functional channel geometry and profile, removal of the existing Colorado Gulch access bridge, and consideration of more sustainable means to provide public access west of the river.



CONVEYANCE DITCH CROSS SECTION

6 IMPLEMENTATION

Implementation of the projects in the Master Plan will occur gradually as funding and opportunities occur. Many of the large projects will require collaboration and partnerships with a variety of organizations. Some projects could be simplified to be "lighter, quicker, cheaper" projects that could be implemented immediately. An example is using the existing ball field for outdoor concerts and allowing the existing gravel lot to be used for mobile food trucks.

The following table summarizes the projects listed in the Master Plan and includes a recommended priority based on public input, City and WRLT needs, and feasibility. Also included are rough estimates of project costs, project partners, and potential funding mechanisms. Projects can be funded through a combination of grants, cash and in-kind donations, and funding from local and federal partners, such as the City of Hailey, WRLT, Wood River Flood Control District, Corps of Engineers, and the Federal Emergency Management Agency. It is important that grant funding opportunities are pursued that can facilitate high priority projects.

#	ACTION	PRIORITY	PARTNERS	APPROX. COST
A1	Relocate Lions Park Entrance	low	City, WRLT, land- owners	\$165,000 - \$247,500
A2	Convert road to Draper Pavilion to pathway	low	City, WRLT	\$54,000 - \$81,000
A3	Road and Parking Improvements at Lions Park	low	City, WRLT, COE	\$10,000 - \$165,000
A4	Trailhead improvements at War Eagle Drive	high	WRLT, neighbors	\$40,000 - \$60,000
A5	Trail connections to adjacent neighborhoods	low	City, WRLT, land- owners	\$60,000 - \$90,000
A6	Trailhead and parking improve- ments at Colorado Gulch	high	WRLT, County	\$175,000 - \$262,500
A7	Plan for public access to Colorado Gulch Canyon	high	County, BLM, WRLT	\$200,000 - \$300,000
A8	Greenway Branding	high	City, WRLT	\$5,000 - \$50,000
A9	Relocate Snow Storage out of Lions Park	high	City	\$400,000 - \$1,340,000

#	ACTION	PRIORITY	PARTNERS	APPROX. COST
L1	Reconstruct ball field in Lions Park; or, if the opportunity arises, con- sider another location for the ball field.	high	City, BCRD, special interest groups	\$75,000 - \$112,500
L2	Recreational play wave with grade control and boat launch	medium	City, special interest groups, COE	\$100,000 - \$150,000
L3	Restrooms at Lions Park	high	City	\$130,000 - \$195,000
L4	Construct concessions area at Lions Park	low	City, BCRD, special interest groups	\$10,000 - \$20,000
L5	Establish wildlife conservation areas	high	WRLT	\$10,000 - \$15,000
L6	Heagle Park Tennis Courts ; or, if the opportunity arises, consider another location for the tennis courts.	high	City, BCRD, special interest groups	\$100,000 - \$200,000

#	ACTION	PRIORITY	PARTNERS	APPROX.COST
R1	Stream stabilization and resto- ration from Bullion Bridge to Bow Bridge	high	City, WRLT, Flood Con- trol Dist, County, FEMA, COE	\$750,000 - \$1,125,000
R2	Recreational pond / sediment trap and floodplain reconnection in Lions Park with project R1	high	City, WRLT, Flood Con- trol Dist, County, COE	\$1,500,000 - \$2,000,000
R3	Stream stabilization and resto- ration from Bow Bridge through Heagle Park to address bedload migration	medium	City, WRLT, Flood Con- trol Dist, County, FEMA, COE	\$750,000 - \$1,125,000
R4	Setback barrier berm at edge of neighborhood through Draper Preserve with project R3	medium	City, WRLT, Flood Con- trol Dist, County, COE, neighbors, owners	\$500,000 - \$750,000
R5	Construct conveyance swales through Heagle Park	medium	City, Flood Control Dist,	\$500,000 - \$750,000
R5-A	Floodplain reconnection and removal of tennis courts in Heagle Park	high	City, Flood Control Dist, County, BCRD	\$1,000,000 - \$1,500,000
R6	Conveyance ditch and neighbor- hood drainage improvements	medium	City, Flood Control Dist,	\$800,000 - \$1,200,000
R7	Stream stabilization and resto- ration from Heagle park to Colora- do Gulch	low	City, WRLT, Drainage Dist, County, FEMA, COE	\$750,000 - \$1,125,000

7 APPENDIX

Appendix A

Hydraulic Analysis of the Big Wood River and Floodplain Management Projects

Appendix **B**

Summary of Public Comment Outreach Results Listening session notes Priority exercise results Online survey results Stakeholder/work session notes

Appendix C

Softball Field Renovation Alternatives

APPENDIX A – Hydraulic Analysis of the Big Wood River and Floodplain Management Projects

1.1 Background

In 2015, Biota Research and Consulting, Inc. (Biota) completed a geomorphic assessment of the Big Wood River from the confluence with the North Fork Big Wood River downstream to Magic Reservoir in Blaine County, Idaho. The assessment effort was an attempt to quantitatively describe fluvial system conditions and to develop restoration guidelines and comprehensive management objectives that can be utilized as projects are funded and implemented.

As part of geomorphic assessment, Biota conducted channel surveys at fourteen study sites to evaluate channel stability, river bank erosion rates and sediment inputs, sediment transport, and departure from stable functional conditions. Two of the study sites, the Bullion Bridge Reach and the Colorado Gulch Reach, are located within the Hailey Greenway. The stream stability analysis indicated that the reaches within the Greenway have insufficient sediment transport capacity, are unstable laterally, have excess deposition, are slightly incised, have channel enlargement potential, and are a high supply of sediment. Predominant causes of river impairment are historic channelization, dredging, and development encroachment onto the floodplain.

Prolonged peak flows experienced during the Spring of 2017 highlighted the instabilities within the Big Wood River system. Excessive sediment supply due to upstream erosion and channelization combined with insufficient sediment transport capacity through the Greenway reach caused sediment deposition and premature flooding through the Della View neighborhood in Hailey. As a result, there is increased public awareness and desire to implement river restoration and flood mitigation efforts for the Big Wood River through the Hailey Greenway. In July 2017, the scope of the Hailey Greenway Master Plan (HGMP) was revised to include additional analysis and information on river system management throughout the Greenway corridor.

During the public outreach for the Master Plan, many residents pointed to the trails in the Draper Preserve as the cause of flooding in the Della View neighborhood. Although the trails will convey more water than the adjacent forested areas, removing the trails or increasing the roughness of the trails will not prevent flooding of the Della View neighborhood. In fact, completely removing the trails and revegetating them at existing grades would result in an increase in flood elevations due to increased roughness and decreased velocity. During a 1% annual chance (100-yr) event, only about 5% of the floodwater that is conveyed through the Draper Preserve is conveyed by the trails. This estimate is based on a 1-dimensional hydraulic model of the Big Wood River using pre-2017 flood LiDAR data that compared flows in the left overbank using an "n" value of 0.12 (heavy stands of trees, dense willows) with and an "n" value of 0.08 (default, light brush).

The Draper Preserve is an example of a connected floodplain that helps disperse and slow floodwaters, which is needed for a healthy river system. Premature flooding of the Della View neighborhood is largely due to an impaired river system and development pressures within the natural floodplain.

1.2 Restoration and Flood Mitigation Guidelines

In order to restore the Big Wood River to channel conditions that provide improved flood flow attenuation, reduced flood hazards, improved sediment transport continuity, increased channel stability, reduced severe bank erosion, and improved fish habitat, it is recommended that the underlying causes of fluvial system instability be addressed by applying a suite of treatments within the project reach. This is opposed to applying individual, or localized, treatments that only address individual symptoms of system degradation (the typical Band-Aid approach). Thus, the following suite of river restoration treatments is recommended:

- 1. Channel Form: Establishment of functional channel width, depth, profile, and alignment;
- 2. **Horizontal Stability:** Wood revetment or rock revetment with bioengineering to achieve bank stabilization;
- 3. **Flood Attenuation:** Floodplain reconnection and re-establishment through excavation or fill; and
- 4. **Vertical Stability:** Hardened riffles or rock cross vanes to achieve grade control, where needed.

Short-term and long-term projects within the Greenway were identified that will help create a stable fluvial system and reduce flood impacts to existing public infrastructure and private development. Each project should consider the system holistically and include evaluation of upstream and downstream impacts. Short-term projects could be implemented during the Fall of 2018. Long-term projects will require larger funding, planning, permitting, and collaboration efforts.

1.3 Short Term Projects

1.3.1 Project #1 – Activation of Side Channel Across from Heagle Park

This project includes activating a side channel on the west side of the river by excavating material to clear the historic overflow channel against the Della Mountain hillside and installing sufficient rock grade control structures to prevent enlargement of the re-established secondary channel. This project also includes selective clearing of debris. Debris configurations that impede establishment of the functional channel form should be modified, and debris configurations that complement the functional channel form should be allowed to remain in place. For example, debris that would otherwise impair conveyance into the re-established secondary channel should be removed. Debris that is stabilizing banks should remain in place. Existing debris should be evaluated on a case-by-case basis to determine if debris is complementing or detracting from the design functional channel form.

Benefits of this project include increased conveyance during flood flows and reduced shear stresses on the east bank adjacent to existing development. Increased conveyance in this location could also reduce backwater conditions that result in sedimentation and premature flooding in the upstream river reach. This project is located outside of the floodway shown on the effective Flood Insurance Rate Map (FIRM).

Funding options include the Big Wood River Flood Control District, City of Hailey (in-kind labor and materials), and Blaine County.

1.3.1.1 Project #1 Permitting

- IDWR/COE Joint Stream Alteration Permit
- County Floodplain Development Permit and Stream Alteration Permit

1.3.1.2 Project #1 Preliminary Project Schedule

- May 2018: Topograhic Survey for design
- June July 2018 : Design
- August September 2018: Permitting
- October November 2018: Construction
- 1.3.1.3 Project #1 Preliminary Project Budget

Item	Estimate
Survey	\$5,000
Design	\$10,000
Permitting	\$2,000
Construction	\$83,000
TOTAL	\$100,000

1.3.2 Project #2 – Drainage System Improvements - War Eagle Drive and Heagle Park

This project includes the addition of drainage channels or side ditches along War Eagle Drive and through Heagle Park that can provide positive drainage away from private development and outfall to the Big Wood River. Although the total conveyance capacity available within the road right-of-way is equal to a small portion of the total possible overbank flow from the river during a 1% annual chance event, this project will relieve nuisance flows caused by smaller stormwater runoff events and help protect City infrastructure such as War Eagle Drive and the sewer lift station. Conveyance channels through Heagle Park will not prevent flooding of the neighborhood but can reduce the duration of flooding.

1.3.2.1 Project #2 Permitting

• City of Hailey Floodplain Development Permit

1.3.2.2 Project #2 Preliminary Project Schedule

• Fall 2018

1.3.2.3 Project #2 Preliminary Project Budget Could be completed with existing City Staff and contract City Engineer

1.3.3 Project #3 – Reconfiguration and Roughening of Draper Trails

This project includes adding hydraulic roughness to the western trail that approaches War Eagle Drive by adding downed logs or humps in the ground perpendicular to the primary flow direction and/or narrowing the pathway where possible. Although this project will not prevent flooding of the Della View neighborhood or address the causes of flooding, it will slightly reduce the amount of water that is conveyed to War Eagle Drive.

1.3.3.1 Project #3 Permitting

- City of Hailey Floodplain Development Permit
- 1.3.3.2 Project #3 Preliminary Project Schedule
 - Fall 2018
- 1.3.3.3 Project #3 Preliminary Project Budget

Could be completed with volunteer and in-kind contributions.

1.4 Long Term Projects

1.4.1 Project #3 – Construction of Setback Barrier from Bow Bridge to War Eagle Drive

This project includes the construction of an earthen barrier along the eastern boundary of the Draper Preserve coupled with channel restoration from Bow Bridge (Dog Beach) downstream to Heagle Park. Channel restoration would include bed and bank stabilization, as well as establishment of functional channel geometry and profile. The setback barrier would allow for floodplain inundation and conveyance within the encompassed riparian area while also reducing the impact of flooding within the adjacent residential development.

The setback barrier could be constructed with compacted earth keyed into the natural ground with 2:1 maximum side slopes. The barrier could be vegetated but it is not recommended that a certified or accredited flood control levee be constructed. Thus, the barrier would not change the Special Flood Hazard Area (SFHA) designation for the adjacent subdivision, but it would reduce the actual flood hazards in the area. It should be noted that reducing the active conveyance area in the overbanks can result in an increase in base flood elevations (BFEs), velocity, and shear stresses in the main channel adjacent to and on the river side of the barrier. Thus, this project must be designed holistically and include measures to stabilize and allow for an increase in conveyance within the main channel to ensure that there are no adverse impacts to existing development or infrastructure upstream or downstream of the project.

The long-term efforts to construct a setback barrier and restore functional channel morphology within the proximate reach of the Big Wood River would complement short term efforts associated with re-activation of a side channel across from Heagle Park and improvements to drainage systems along War Eagle Drive. Ultimately, the short term and long-term project components would provide a multi-facetted approach to alleviating flood hazards within the project area.

Multiple funding sources are likely needed for this project. Due to the scale of this project and the objective of protecting existing homes currently located within the SFHA, a Local Improvement District (LID) could be formed by the property owners that would benefit from the project in order to help provide capital funding. Financial support from the Big Wood River Flood Control District is also an option for long term maintenance. Other funding options include grants from FEMA and the Corps of Engineers, as well as contributions from governmental agencies and private donors.

1.4.1.1 Project #3 Permitting

- IDWR/COE Joint Stream Alteration Permit
- County Floodplain Development Permit and Stream Alteration Permit

- City Floodplain Development Permit and Stream Alteration Permit
- Conditional Letter of Map Revision prior to construction in the floodway
- Letter of Map Revision after construction

1.4.1.2 Project #3 Preliminary Project Schedule

- Sept Oct 2018: Survey for design obtained
- Nov 2017 March 2019: Funding for design secured
- April August 2019: Design & Analysis, Final Cost Estimates
- Sept Dec 2019: LID formed, apply for grants, file CLOMR
- Jan 2020 Aug 2020: LID monies available, grant decisions received, CLOMR approved
- March 2020: Project out to Bid
- Aug 2020 Nov 2020: Construction

1.4.1.3 Project #3 Preliminary Project Budget

Item	Estimate
Survey	\$10-20,000
Design	\$100-150,000
Permitting	\$50,000
Construction	\$800,000 to \$1.3 million
TOTAL	\$1.0 to 1.5 million

1.4.2 Project #4 – Channel Restoration and Sediment Storage Downstream of Bullion Bridge

This project includes restoration of functional channel form within the Big Wood River in order to convey the sediment and hydrologic inputs without severe aggradation or erosion. This effort would include bed and bank stabilization, establishment of functional channel geometry and profile, activation of a historic side channel at Lions park, activation of up to 100-ft of additional floodplain width along the east bank, and potential establishment of sediment storage facilities.

Activation of high flow side channel and wetland areas will attenuate flood flows and enhance wildlife habitat. Providing sediment storage and improving sediment transport continuity will reduce downstream sediment loads in an effort to maintain flood water capacity.

Multiple funding sources are likely needed for this project including grants from FEMA and the Corps of Engineers, as well as contributions from governmental agencies and private donations. Continued financial support from the Big Wood River Flood Control District is an option for long term maintenance.

1.4.2.1 Project #4 Permitting

- IDWR/COE Joint Stream Alteration Permit
- County Floodplain Development Permit and Stream Alteration Permit
- City Floodplain Development Permit and Stream Alteration Permit
- Conditional Letter of Map Revision prior to construction in the floodway
- Letter of Map Revision after construction

1.4.2.2 Project #4 Preliminary Project Schedule

- 2019: Design
- 2019-2020: Fundraising
- 2021: Construction

Note that this project could be completed after Project #5 depending on the relative desire to replace the Colorado Gulch bridge and the ability to acquire additional property needed for this project.

1.4.2.3 Project #4 Preliminary Project Budget

, , , ,	
Item	Estimate
Survey	\$10-20,000
Property	TBD
Acquisition	
Design	\$100-150,000
Permitting	\$50,000
Construction	\$800,000 to \$1.3 million
TOTAL	\$1.0 to 1.5 million + Property Acquisition costs

1.4.3 Project #5 – Channel Restoration in Colorado Gulch Preserve

This project includes restoration of functional channel form within the Big Wood River through the Colorado Gulch Preserve in order to convey the sediment and hydrologic inputs without severe aggradation or erosion. This effort would include bed and bank stabilization, establishment of functional channel geometry and profile, removal of the existing Colorado Gulch access bridge, and consideration of more sustainable means to provide public access to the site.

Improving sediment transport continuity will reduce downstream sediment loads in an effort to maintain flood water capacity and will reduce sedimentation in the reach that could cause upstream backwater conditions. Restored channel and floodplain functions will provide flood water attenuation and maintain vigorous and healthy riverine conditions.

Multiple funding sources are likely needed for this project including grants from FEMA, the Corps of Engineers, and Western Federal Lands, as well as contributions from governmental agencies and

private donors. Continued financial support from the Big Wood River Flood Control District is an option for long term maintenance.

1.4.3.1 Project #5 Permitting

- IDWR/COE Joint Stream Alteration Permit
- County Floodplain Development Permit and Stream Alteration Permit
- City Floodplain Development Permit and Stream Alteration Permit
- Conditional Letter of Map Revision prior to construction in the floodway
- Letter of Map Revision after construction

1.4.3.2 Project #5 Preliminary Project Schedule

- 2019: Design
- 2020-2021: Fundraising
- 2022: Construction

Note that this project could be completed before Project #4 depending on the relative desire to replace the Colorado Gulch bridge and the ability to acquire additional property needed for Project #4.

1.4.3.3 Project #5 Preliminary Project Budget

Item	Estimate
Survey	\$10-20,000
Design	\$100-200,000
Permitting	\$50,000
Construction	\$800,000 to \$1.7 million
TOTAL	\$1.0 to 2.0 million

Big Wood River 2-D Hydraulic Analysis

City of Hailey, ID 4/17/2018

Description

The Greenway Master Plan includes several recommendations for improving the floodplain function and stability of the Big Wood River. In response to public comment, a two-dimensional (2-D) hydraulic analysis was performed on the Big Wood River to simulate the 1% annual chance (100-year) flood and assess the impact of reconnecting the floodplain in three locations as proposed in the Master Plan. It is important to note that this analysis only considers flood attenuation through floodplain reconnection, which is only one piece (item 3 below) of the recommended suite of recommended treatments for the Big Wood River that includes:

- 1. **Channel Form:** Establishment of functional channel width, depth, profile, and alignment.
- 2. **Horizontal Stability**: Wood revetment or rock revetment with bioengineering to achieve bank stabilization.
- 3. Flood Attenuation: Floodplain reconnection and re-establishment through excavation or fill.
- 4. Vertical Stability: Hardened riffles or rock cross vanes to achieve grade control where needed.

In particular, further evaluation and design of the Big Wood River through the Greenway with respect to channel form (item 1 above) will have a large impact on sediment transport and how the river reacts to flood events. This should be further evaluated in conjunction with the floodplain reconnection scenarios described herein.

Model Software

GeoHECRAS v2.1.0.16943 by CivilGEO Engineering Software was chosen to setup the hydraulic model. The software utilizes HEC-RAS v5.0.3 model (Army Corps of Engineers software) as the modeling engine. However, GeoHECRAS has many advantages in setting up a more robust 2-D geometry than can be done with standard HEC-RAS tools.

The 2-D model was selected in order to provide a more detailed assessment of flood conditions in the developed overbank areas (flow directions, velocities, constrictions between buildings, etc.). The initial 1-D model did not appear to represent the overbank flooding as accurately. In particular, it showed dry areas near the City's lift station where flooding was observed during the Spring of 2017. Also, the 2-D model provided a good platform for comparing proposed scenarios in overbank areas, such as increasing road grades, removing buildings, or regrading areas to provide additional flood storage. The model extent covered the area of the Greenway Master Plan from the Bullion bridge at the upstream end to approximately 1,000 feet downstream of the old Colorado Gulch Road.

Hydrology

The 2-D model requires a flow hydrograph for the input. Peak FQ software was used to develop the 1% annual chance discharge based on a statistical analysis of recorded peak flows from 1915 to 2016 at USGS streamgage 13139510. This gage is located just upstream of Bullion/Croy Creek Road. The computed

discharge of 7,038 cfs compared well with the published FIS discharge of 6,580 cfs, although slightly higher. The updated statistical analysis contains a much longer period of record with significant flood peaks occurring after the FIS study was performed.

A hydrograph was developed for the project area by creating a simplified HEC-HMS rainfall runoff model with a single subbasin upstream of Croy Creek Road. That output hydrograph was then scaled to the peak discharge of 7,038 cfs and used for the 2-D model input.

Terrain

The terrain data used for in the model and floodplain mapping was a 1-foot cell size DEM derived from LiDAR data flown in 2015 for the overbanks and channel ground survey data collected in the fall of 2017 for the channel.

Boundary Conditions

The upstream boundary condition was the inflow hydrograph applied at the Bullion bridge. The downstream boundary condition used normal depth with a measured channel slope of 0.005 ft/ft.

Buildings

After an initial trial run, all building footprints within and near the floodplain were digitized using detailed aerial photography (236 buildings). GeoHECRAS provides tools to then incorporate the buildings into the 2-D mesh (described below). It also develops a new terrain file with the building elevations raised by a user defined amount (25 feet), preventing any flow through the building footprints.

2-D Geometry Mesh

A 2-D mesh is required for the model to calculate flows and velocities over the project area in any direction. A uniform mesh would be represented by a grid of cells with a standard size such as 50 feet per side. This mesh may not capture distinct boundaries in the terrain across which it is desirable to compute flow. Breaklines are added to force the mesh to be created along these lines. In GeoHECRAS, an adaptive mesh option was used that creates a more intuitive, non-uniform mesh defined by the breaklines, building footprints, and external boundary. The following image shows an example of the adaptive mesh with breaklines and buildings.

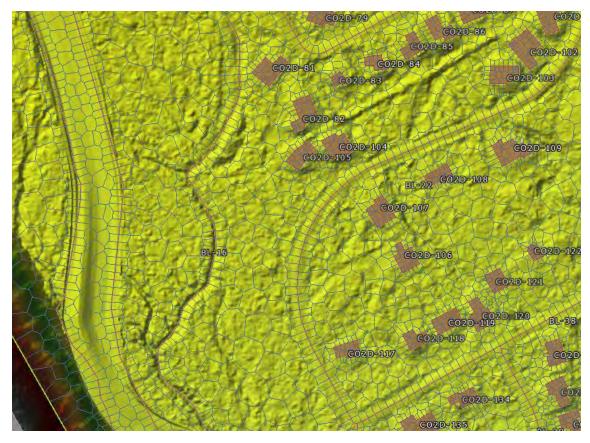


Figure 1. Example adaptive 2-D mesh with breaklines and buildings

Roughness Coefficients

2011 National Land Cover Database (NLCD) data was downloaded for the project area. GeoHECRAS applied the Manning's N values listed in the following table to the cell faces of the 2-D mesh.

Land Cover 🛛 🌾	Land Cover 🛛 🏹 Default Manning's n
255	0.059
Cultivated Crops	0.059
Developed, High Intensity	0.15
Developed, Low Intensity	0.079
Developed, Medium Intensity	0.1
Developed, Open Space	0.039
Emergent Herbaceous Wetlan	0.079
Evergreen Forest	0.119
Grassland/Herbaceous	0.045
Pasture/Hay	0.059

Table 1. Land cover classification and associated Manning's n values

A polygon representing the Big Wood River channel within the banks was also digitized. An overriding Manning's n value of 0.04 was applied within the channel.

Results

The 2-D model results provide the maximum inundation (floodplain) boundary, elevations, depths, and velocities over the project area. An animation of the flood event over the simulated time period can be viewed and particle tracing allows for a view of the direction and speed of water flowing through the inundated area (the following image is a snapshot of the particle traces).

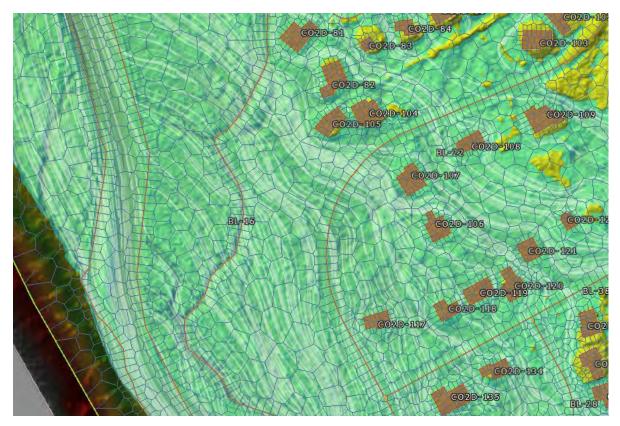


Figure 2. Snapshot of particle tracing during animation

Proposed Scenarios

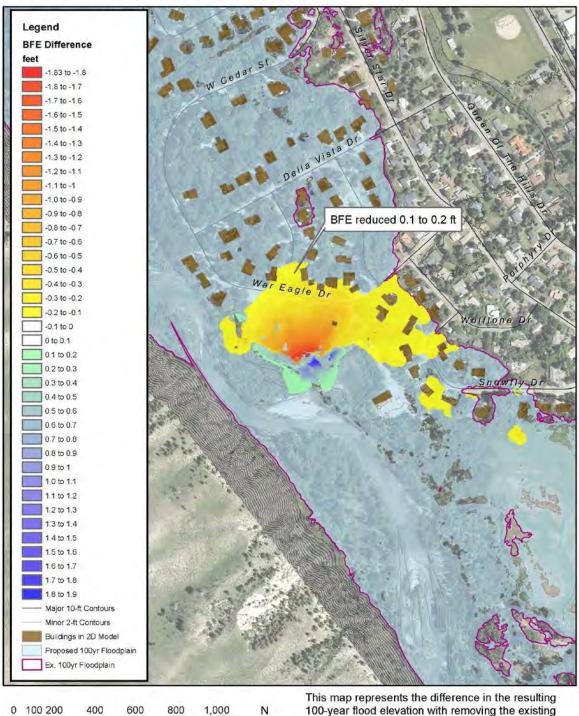
Several proposed scenarios for reconnecting the floodplain were modeled and the existing and proposed conditions were compared. In each case, the maximum water surface elevation grid of the proposed scenario was subtracted from the maximum water surface elevation grid of the existing conditions.

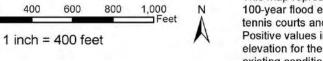
The following floodplain reconnection scenarios were computed by merging the proposed terrain surface with the existing terrain DEM and rerunning the model. Figures that show changes in water surface elevation (Figures 3 to 6) and velocity adjacent to Lions Park (Figures 7 and 8) follow.

- 1. Remove Tennis Courts and regrade Heagle Park
- 2. Remove three buildings on War Eagle Drive and regrade
- 3. Lower and regrade Lions Park and the softball field area
- 4. Lower and regrade Lions Park with no change to the softball field

Big Wood River - City of Hailey Scenario: Remove Tennis & Lower Grade

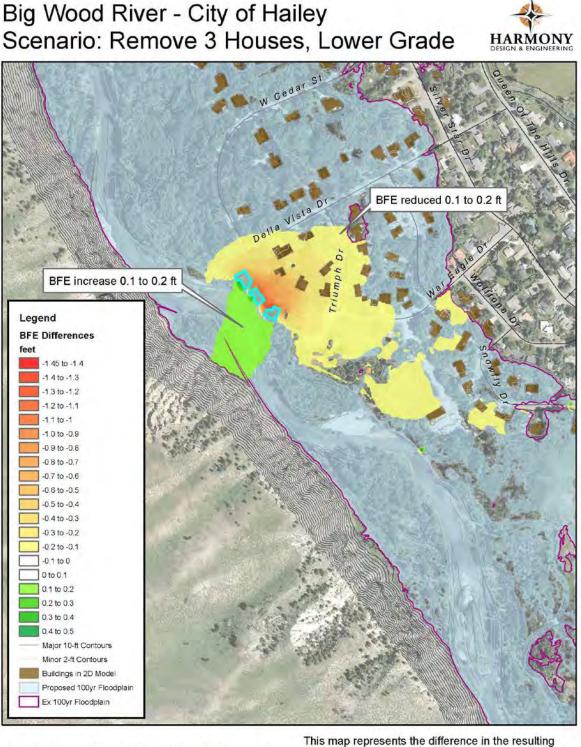


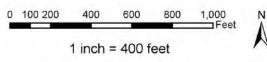




This map represents the difference in the resulting 100-year flood elevation with removing the existing tennis courts and lowering the grade of Eagle Park. Positive values indicate an increase in flood elevation for the proposed scenario compared to existing conditions. 3/26/2018

Figure 3. Estimated 100-year water surface elevation change due to reconnecting the floodplain at Heagle Park



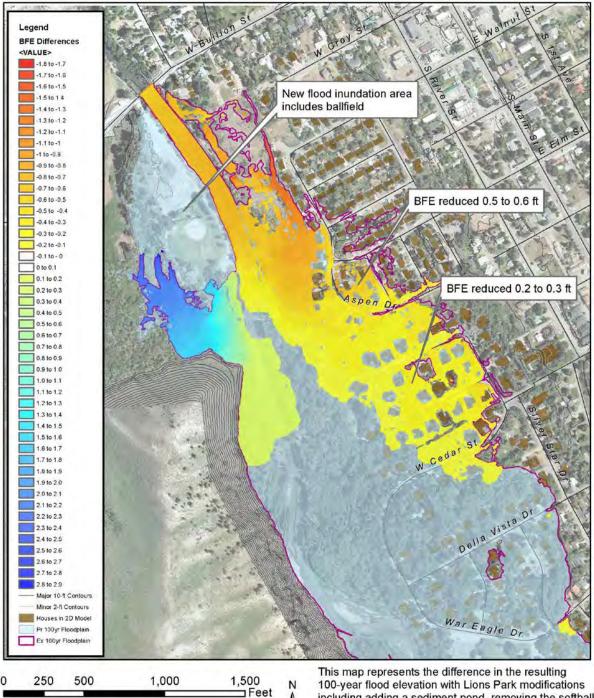


This map represents the difference in the resulting 100-year flood elevation with the three houses located adjacent to the river removed and the grade dropped to allow for floodplain reconnection. Positive values indicate an increase in flood elevation compared to existing conditions. 3/26/2018

Figure 4. Estimated 100-year water surface elevation change due to reconnecting the floodplain at War Eagle

Big Wood River - City of Hailey Scenario: Lions Park Proposed





1 inch = 500 feet

This map represents the difference in the resulting 100-year flood elevation with Lions Park modifications including adding a sediment pond, removing the softball field, and reactiving the channel west of the park to the existing wetlands. Positive values indicate an increase in flood elevation for the proposed scenario compared to existing conditions. 3/26/2018

Figure 5. Estimated 100-year water surface elevation change due to reconnecting the floodplain at Lions Park

Big Wood River - City of Hailey Scenario: Lions Park Proposed -No Change to Softball Field



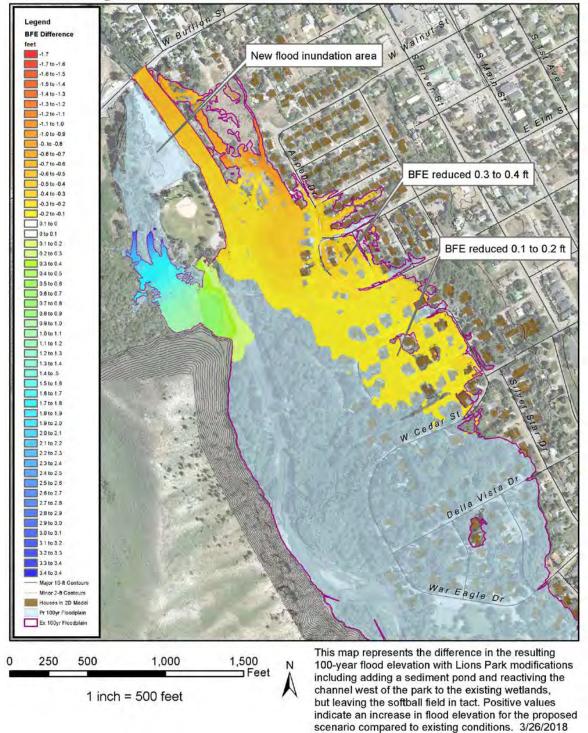


Figure 6. Estimated 100-year water surface elevation change due to reconnecting the floodplain at Lions Park without removing the softball fields

Big Wood River - City of Hailey Scenario: Lions Park Proposed No Change to Softball Field



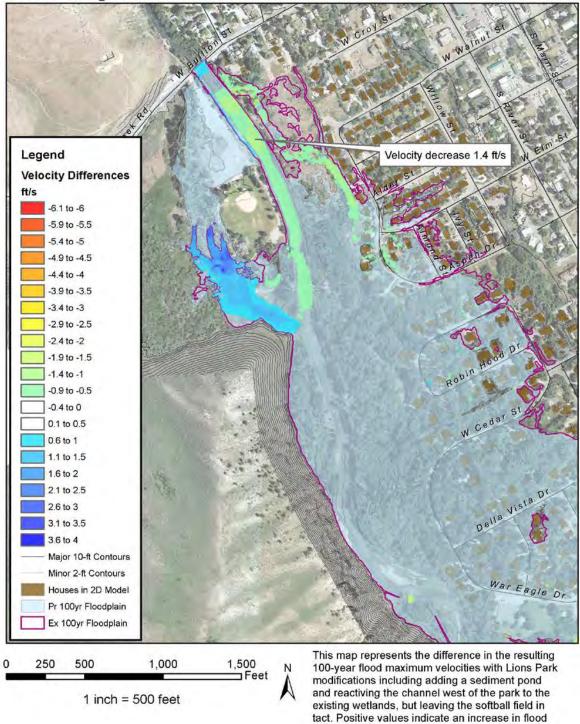


Figure 7. Estimated velocity change due to reconnecting the floodplain at Lions Park without removing the softball fields

elevation for the proposed scenario compared to

existing conditions. 3/26/2018

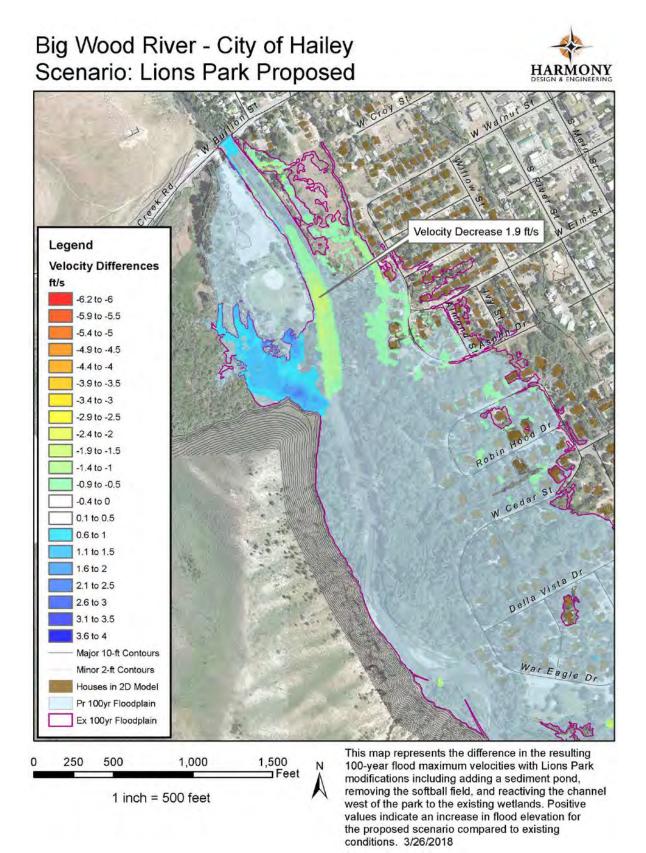


Figure 8. Estimated velocity change due to reconnecting the floodplain at Lions Park without removing the softball fields

APPENDIX B – Outreach Results



memo

DATE:	March 19, 2018
TO:	Stephanie Cook – HGMP Project Manager, City of Hailey Patti Lousen – HGMP Project Manager, Wood River Land Trust
FROM:	Jennifer Zung, PE, CFM - Harmony Design & Engineering
RE:	Hailey Greenway Master Plan: Public Comment Response
CC:	Lisa Horowitz – City of Hailey Scott Boettger – Wood River Land Trust

This memorandum is in response to public comments received via email after the presentation of Draft 4 of the Hailey Greenway Master Plan (HGMP) dated 12/22/2017. There were 33 written comments received between 1/9/2018 and 1/25/2018 and an additional 11 comments received between 1/25/18 and today. This summary also includes verbal comments presented by the public at Hailey City Council meetings on 1/8/2018, 1/22/2018, and 2/12/2018. Some comments related to single issues and some were regarding multiple elements of the plan. This memo summarizes the major themes of the comments and includes a response and how the Master Plan was modified in response to public comments.

- 1. Improvements to Lions Park The majority of the comments received related to plan elements proposed in Lions Park. These included comments regarding camping, softball field, parking, play wave, restrooms, concessions, snow storage, and conservation.
 - a. Camping Twenty one comments were received in opposition to developing camping facilities at the park. RV sites were particularly opposed due to increased noise, general disturbance, and potential impacts on wildlife. Only one comment was received that was in favor of camping.

Response: The staff and consultant team recommend that developed camping facilities be eliminated from the plan. It is noted however that the current practice of permitting occasional camping for specific events would be allowed to continue.

b. Softball Field – Comments were received in support of improving the existing softball field and re-evaluating parking provided. Letters in support of moving the softball field improvements to a "high" priority included signatures of more than 140 individuals. There were also 7 comments in support given during City Council meetings. There appears to be tremendous support for this due to the lack of a regulation sized field in Hailey. There were 2 comments opposing ballfield improvements.

Response: The staff and consultant team recommend that Plan Element L2 -Reconstruct Ball Field / Multi-purpose field in Lions Park be elevated from medium to high in the priority matrix of the implementation section of the report. The City of Hailey could begin to study options for various orientations and locations of an improved ballfield.

c. Parking – Comments were received that the amount of parking shown on the plan was not adequate. One comment recommended placing the parking near the Bullion Bridge across from the Carbonate Ridge parking to help alleviate the parking at the Carbonate Ridge trail access.

Response: The staff and consultant team recommend that the parking area in Lions Park be reconfigured to increase the amount of parking to accommodate the softball field. Along Bullion Road there is an inadequate amount of right-ofway and publicly owned land to add a parking lot adjacent to the road.

d. Recreational Play Wave – There were 10 comments in favor of developing a play wave and citing the benefits of providing a facility to teach river safety, practice river rescue, and learn whitewater boating skills. Also noted was the economic benefit of drawing visitors to the community. However, there were also 5 comments opposed to the play wave, generally from those who also opposed other high intensity recreational development in Lions Park.

Response: The staff and consultant team recommend that the development of a recreational play wave will remain in the Master Plan. Individuals and groups interested in pursuing this amenity are encouraged to organize and present plans and options for financing to the City.

e. Permanent Restrooms – In general, most comments received regarding restrooms in Lions Park acknowledged the need for restroom facilities.

Response: The staff and consultant team recommend that the development of permanent restrooms remain in the plan. The plan recognizes the potential

expense and challenges of bringing water and sewer service to the site and provides other options, including composting toilets or portable toilets that are housed in permanent structures.

f. Concessions – Construction of a concessions building received mixed reviews. It was generally supported by softball supporters and generally opposed by those opposing camping and adding additional amenities to Lions Park. One comment suggested that concessions could be provided by temporary food carts.

Response: The staff and consultant team recommend that permanent concession stand be removed from the plan. Instead, a "concessions area" could be included, which could provide a space for mobile food carts from local restaurants during events at the ball field.

g. Lions Park Amenities vs. Conservation – Some comments applauded the development of new amenities and increased uses of the park while others felt that Lions Park should be dedicated to conservation, wildlife habitat, and floodplain management.

Response: The staff and consultant team recommend that some intense uses proposed in the Draft Master Plan be reduced or eliminated such as camping and concessions building. All uses within the existing riparian area on the west edge of the park have been eliminated to preserve that area. Other recreational uses such as improvement of the existing ballfield and the development of a recreational play wave are recommended to remain in the plan. The City of Hailey will continue to evaluate and program the park within the context of all of the existing and future City parks, as well as the goals and objectives of the Hailey Parks, Lands, and Trails Master Plan.

h. Snow Storage and Landfill Remediation – There were several comments referring to the existing gravel area in Lions Park, which is the old city landfill and the current location for snow storage for the City. These are significant hurdles to park redevelopment and specifically floodplain improvements.

Response: Snow Storage Relocation will be added as a high priority project (A9) and will include the desired features of an appropriate snow storage location for the City. These issues are also acknowledged in Master Plan Element R4.

2. Floodplain Issues – Floodplain issues and stream restoration projects received the next highest number of comments behind development in Lions Park. There was concern that

there was not enough focus on the flooding and that it was important for the City to do something to mitigate flooding in the adjacent neighborhoods. There was general support for projects that included reconnecting the floodplain at Lions Park, the Caplow property, the 3 homes on the river, and/or Heagle Park. Many comments provided opinions on the effectiveness or applicability of particular restoration features, such as the setback berm, side channel reconnections, and sediment ponds. Questions arose on the recommendation of a Local Improvement District (LID) for funding and if this meant that the City intended to create a LID.

Response: Further clarification has been added to the plan that each project needs to be evaluated fully after sufficient topographic, geomorphic, and hydrologic data has been gathered so that a comprehensive assessment can be completed. It is outside of the scope and budget available for the Master Plan to fully evaluate the feasibility and effects of each restoration project within the plan because additional data and analysis is required.

Floodplain issues were very much a priority during the Master Plan process and were the focus of all of the early public outreach. Additional presentations were held that specifically focused on flooding and river restoration, and Appendix A includes additional information on the river restoration projects included in the plan. Before any flood project can be considered, the funding, permissions and authorities must be clearly identified.

The staff and consultant team recommend that the formation of a Local Improvement District mentioned in Appendix A be changed from a recommendation to an option for funding of stream restoration and floodplain management projects that would benefit the Della View Subdivision. Funding for floodplain remediation projects will need to come from many different sources. The City's priority in the floodplain area will remain protection of public infrastructure.

Colorado Gulch Bridge Replacement – All of the comments received regarding the Colorado Gulch Bridge supported replacement of the bridge and encouraged it to happen as soon as possible. The majority of the comments regarding the bridge replacement preferred a non-motorized option.

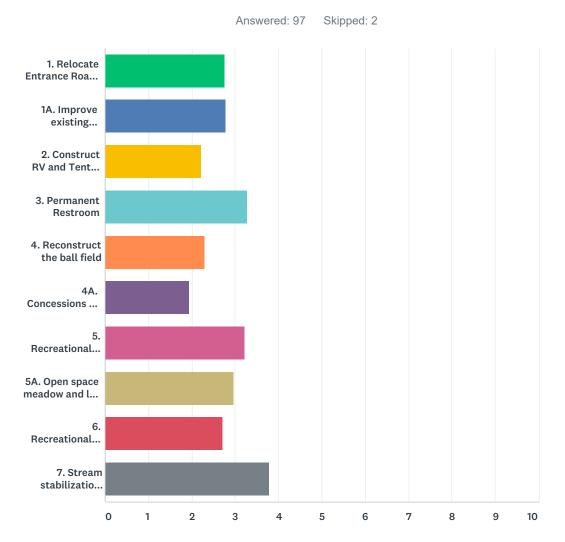
Response: Planning for establishing access to the west side of the river along Colorado Gulch road remains in the master plan and remains a high priority. Because the bridge and Colorado Gulch Road are located in the unincorporated area and owned by Blaine County adjacent to WRLT land, the WRLT will provide a strong supporting role with the County in moving this project forward and will assist with planning to provide a connection to west side of the river. Private Property and Land Use – Comments were received regarding the appropriateness
of land uses identified in the plan, such as residential development and a riverside
restaurant on the TL 7900 property, and consistency with the Blaine County
Comprehensive Plan. Questions were asked regarding the level of direct outreach to
private landowners and the County.

Response: The staff and consultant team recommend that the conceptual roads and development shown on the plan east of the 100-ft river setback and sewer line easement on lot TL 7900 be removed from the plan. During the Master Plan process, the City contacted private landowners most affected by the plan, including the owner of lot TL 7900. The City is not exercising planning and zoning authority by adopting the Master Plan and does not intend to change its Comprehensive Plan or pursue annexation of any land as a result of the Master Plan adoption.

4. Hot Springs – One comment was received that supported development of a hot springs on the south east side of the river by the Bullion Bridge by piping in thermal waters from Democrat Gulch.

Response: Due to the public opposition to other proposed recreational amenities at Lions Park and the expense needed for development, the staff and consultant team do not recommend a hot spring be added to the plan.

Q1 Please classify the priority of the conceptual projects for Lions Park.



	HIGH	MEDIUM	LOW	NONE	TOTAL	WEIGHTED AVERAGE
1. Relocate Entrance Road, add path to Draper Pavilion	26.09% 24	32.61% 30	32.61% 30	8.70% 8	92	2.76
	24	30	30	0	92	2.70
1A. Improve existing entrance Road	27.78%	36.67%	22.22%	13.33%		
	25	33	20	12	90	2.79
2. Construct RV and Tent Camping	16.84%	21.05%	29.47%	32.63%		
	16	20	28	31	95	2.22
3. Permanent Restroom	52.63%	29.47%	11.58%	6.32%		
	50	28	11	6	95	3.28
4. Reconstruct the ball field	9.78%	31.52%	38.04%	20.65%		
	9	29	35	19	92	2.30
4A. Concessions for ball field	5.32%	15.96%	46.81%	31.91%		
	5	15	44	30	94	1.95
5. Recreational pond with floodplain reconnection	59.78%	13.04%	16.30%	10.87%		
	55	12	15	10	92	3.22
5A. Open space meadow and lawn area	<u>Δ</u> 3ήβηδωι	ก <i>ส่เ</i> ∡₀®	17.58%	8.79%		
			16	8	91	2.97

The Hailey Greenway Master Plan Priority Workshop Survey

SurveyMonkey

6. Recreational play wave and boat launch	26.37% 24	36.26% 33	19.78% 18	17.58% 16	91	2.71
7. Stream stabilization and restoration from Bullion Bridge to Bow Bridge	83.33% 80	13.54% 13	2.08% 2	1.04% 1	96	3.79

Q2 Do you have any ideas for other features that should be considered for Lions Park?

Answered: 25 Skipped: 74

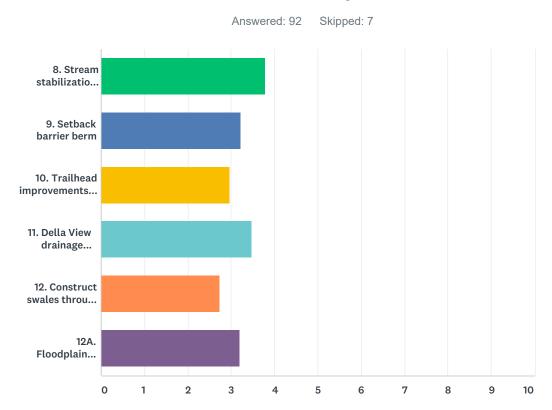
#	RESPONSES	DATE
1	Disc golf course - nine holes	11/4/2017 10:12 AM
2	I like it the way it is. All this will just bring in more people and it is well used now I am against any camping or RV's. There are camping opportunities all over the valley. The beauty of this last river space that we have is that it is for locals use. Please don't make it a place for tourists to stay.	11/3/2017 2:03 PM
3	It would be ideal if Lions Park and/or Draper Preserve could extend to the East side of the river into the large parcel of vacant land located there. Ideally this land should be configured with waterways to widen the river and provide additional volume for the river to spread out when flooding, as well as riverside recreation enjoyment the rest of the year.	10/30/2017 8:38 PM
4	Natural open space area for more community engagement with cultural and social activities, farmer's markets and bio-friendly cafes and restaurants. NO RV OR CAMPING which would bring horrifically ugly monster RVs all over the park along with more cars and transient derelicts- no no no! Let's make this a PEOPLE, BIKE and BOAT park. Less cars!!! I don't think the ball field should be a focus of the re-development. It's a nice park, but we don't need it to be a professional baseball park, and we don't need garbage junk food concessions to go along with it. I would like to see investment in a community hot springs setup like Norris outside Bozeman.	10/28/2017 2:28 PM
5	Concentrate more on the people and their needs than the needs of the community. I personally do not use the park area any longer because of what the flooding has done to the area.	10/27/2017 3:05 PM
6	RV camping is a really bad idea!	10/26/2017 10:31 AM
7	GET RID OF THE SNOW STORAGE!!! THAT IS A HIGHER PRIORITY THAN ANY LISTED ITEM.	10/25/2017 5:21 PM
8	Attempt to acquire private property south and north of the river. What about engineering the confluence of Croy and The BWR to allow BWR water to reach a little farther into the wetland? Would this have merit in establishing more dependable open water nearer the board walk?	10/25/2017 6:51 AM
9	high-water play wave, drop structures, boulders eddies and features also provide great fish habitat in lower water as summer progresses. Consider this all the way to Colorado gulch.	10/25/2017 6:37 AM
10	Let's build as little as possible and take mother nature's lead on how the land works seasonally.	10/24/2017 8:14 PM
11	Create pedestrian access at Colorado Gulch to bridge to encourage hiking/biking through Colorado Gulch, Della Mountain etc.	10/24/2017 4:45 PM
12	Love the idea of a restaurant or two by the river (if floodplain allows)	10/24/2017 10:30 AM
13	No RV facility	10/24/2017 7:44 AM
14	Create a dog park area	10/22/2017 6:14 PM
15	Bike trails that are separate from walking trails	10/22/2017 5:16 PM
16	All of the fill that is Lions Park must be removed so that when the rive hits flood stage, it will overflow into the bottom of Croy Creek canyon	10/22/2017 8:58 AM
17	I love the idea of there being a year round cafe or restaurant at or near this site to draw people to the river and stay there.	10/12/2017 1:53 PM
18	Good looking conceptual plan.	10/12/2017 9:50 AM
19	swimming hole in the river. bike friendly trail head with adjoining trails.	10/11/2017 5:06 PM
20	FIRST AND FOREMOST, WATER FLOW DOWN WAR EAGLE IS NEEDED - SOME TEMPORARY IDEAS FOR THIS WINTER	10/11/2017 10:25 AM
21	None. Feeling that the City of Hailey has no money, why would this even be a consideration. Plenty of other areas within the immediate vicinity th 头 	10/11/2017 7:06 AM

The Hailey Greenway Master Plan Priority Workshop Survey

SurveyMonkey

22	Remove all the fill that is Lions park and allow the flood to expand up Croy creek like it should	10/10/2017 9:05 PM
23	Prioritize restoring the river and improving trails and fishing	10/10/2017 6:49 PM
24	Protecting the river is my concern. How can we improve access while maintaining a healthing river system and trout population? So many guides and outfitters rely on this resource for their livelihood. Please help protect it for generations to enjoy! Thank you, for your efforts—Joy Gonzalez	10/10/2017 11:54 AM
25	Possible connection to Della Mt. for access to BLM trails. This important if the future of the Colorado bridge is unclear. Keep the trails by the river open to bikes.	10/10/2017 8:11 AM

Q3 Please classify the priority of the conceptual projects for the Draper Preserve and Heagle Park.



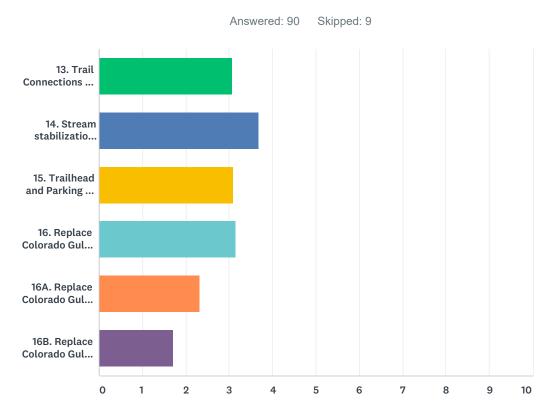
	HIGH	MEDIUM	LOW	NONE	TOTAL	WEIGHTED AVERAGE
8. Stream stabilization and restoration Bow Bridge to Heagle	80.90% 72	16.85% 15	2.25% 2	0.00% 0	89	3.79
9. Setback barrier berm	46.99% 39	31.33% 26	18.07% 15	3.61% 3	83	3.22
10. Trailhead improvements at War Eagle Dr.	30.23% 26	38.37% 33	30.23% 26	1.16% 1	86	2.98
11. Della View drainage improvements	60.24% 50	26.51% 22	13.25% 11	0.00% 0	83	3.47
12. Construct swales through Heagle Park, improve tennis courts	29.27% 24	30.49% 25	25.61% 21	14.63% 12	82	2.74
12A. Floodplain reconnection in Heagle Park, remove tennis courts	54.65% 47	24.42% 21	8.14% 7	12.79% 11	86	3.21

Q4 Do you have any ideas for other features that should be considered for the Draper Preserve and Heagle Park?

Answered:	19	Skipped: 80
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#	RESPONSES	DATE
1	Disc golf - nine holes	11/4/2017 10:13 AM
2	No other features. Leave it as pristine as possible.	11/3/2017 2:05 PM
3	Perhaps the funding for restoration of the Della subdivision should be born by the people within the flood zone through a URA district?	10/30/2017 8:43 PM
4	Side stream YES. Anything to help the river return to a more wild state. Not sure about flood protections for Della View neighborhood eg routing that water back to the river. Is this what the Greenway fund should go towards? Is it really sensible to direct streetwater back to the river without treatments? (Maybe that's what happens anyway?) We appreciate the tennis courts on our side of town. They're some of the only free ones in town I think and it would be a shame to lose them.	10/28/2017 2:50 PM
5	Heagle Park used to be such a great place for families to gather. However, after all of the flooding in the area, this park is no longer deemed safe and I choose to go elsewhere. In fact, it breaks my heart when I see what the residents of Della View had to go through this year. I live in Bellevue and am very thankful that our Mayor and City protect the people at all costs.	10/27/2017 3:10 PM
6	Dredge the river & keep the river and area cleaned of debris.	10/26/2017 4:14 PM
7	Keep the courts. Where else do non-private club members have to play? Keep the mature vegetation!	10/26/2017 10:34 AM
8	Removal of log jams to protect sewer lift station and prevent backing up and ponding in residential areas.	10/26/2017 9:31 AM
9	Would it make any sense to connect the existing pond to the narrow spot in the river through the tennis courts, thus creating an island? This could mimic a braided feature and might take some of the energy out of the river during high water.	10/25/2017 6:57 AM
10	Let's look at historic flood waters path and see if removal of some mature vegetation would be advantageous to redirect flow, as it were 'bucket original' flow access.	10/24/2017 8:20 PM
11	Maintain tennis courts. Build separate basketball court (Ketchum and Bellevue have outdoor basketball courts and so should Hailey)	10/24/2017 4:47 PM
12	Seems like it should be a wetlands park and we should do whatever is best to help alleviate flooding in the neighborhood (though I do love and use the tennis courts!)	10/24/2017 10:32 AM
13	It would be great to leave the playground or elevate it	10/22/2017 5:19 PM
14	The fill that makes up the current Heagle Park must be removed as soon as possible to mitigate the damaging flooding that is recurring in Della View	10/22/2017 9:00 AM
15	What about slowing reclaiming this area and buying property to replace original floodplain that was developed in the 70's when della subdivision was created. Condemn properties not sold at this time there are a few properties undeveloped that should never be developed.	10/18/2017 9:48 PM
16	I am unfamiliar with the best way to deal with the flooding (other than not allowing houses there!) but see that as a very important issue.	10/12/2017 1:56 PM
17	flood mitigation should happen but I don't feel educated enough to know priority or importance.	10/11/2017 5:11 PM
18	Draper Preserve should be filled in, all trails that have been cut though there abandoned. If you came down here and looked at the area you would understand the tennis courts are part of the higher area and that flood waters are actually a problem more to the east and the drainage should go right through the center of the park.	10/11/2017 7:12 AM
19	All of the fill that is Heagle park MUST be removed 体的语言的情况。	10/10/2017 9:09 PM

Q5 Please classify the priority of the conceptual projects for the Colorado Gulch Preserve.

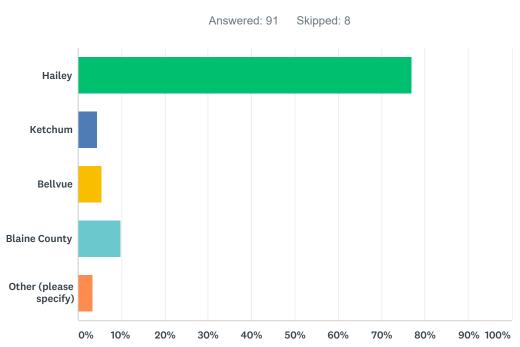


	HIGH	MEDIUM	LOW	NONE	TOTAL	WEIGHTED AVERAGE
13. Trail Connections to Adjacent Neighborhoods	38.37% 33	37.21% 32	18.60% 16	5.81% 5	86	3.08
14. Stream stabilization and restoration Heagle Park to Colorado Gulch	72.73% 64	23.86% 21	3.41% 3	0.00% 0	88	3.69
15. Trailhead and Parking Lot at Colorado Gulch	36.05% 31	43.02% 37	15.12% 13	5.81% 5	86	3.09
16. Replace Colorado Gulch Road Bridge - pedestrian only	53.41% 47	19.32% 17	17.05% 15	10.23% 9	88	3.16
16A. Replace Colorado Gulch Road Bridge - pedestrian and single track motorized only	18.29% 15	21.95% 18	34.15% 28	25.61% 21	82	2.33
16B. Replace Colorado Gulch Road Bridge - full vehicular access	9.64% 8	6.02% 5	30.12% 25	54.22% 45	83	1.71

Q6 Do you have any ideas for other features that should be considered for the Colorado Gulch Preserve area?

Answered: 20 Skipped: 79

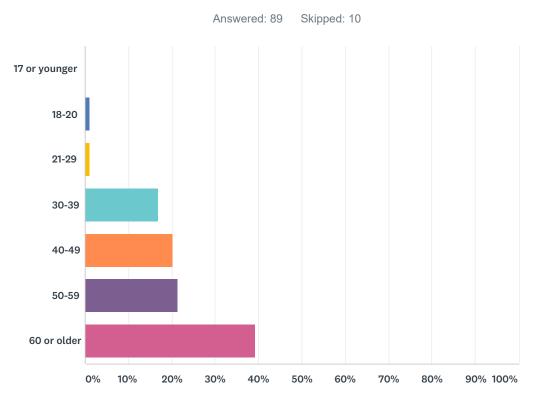
#	RESPONSES	DATE
1	16a: pedestrian and NON-motorized single track access Nine holes of disc golf course	11/4/2017 10:16 AM
2	I wasn't sure what none means. Does it mean don't do anything or similar to an n/a choice. Therefore not sure if my survey is valid as I chose low when I would have chosen a leave it the way it is now choice.	11/3/2017 2:08 PM
3	The Colorado Gulch bridge should accommodate People + HORSES AND BICYCLES. Also there is ample room for parking already including the "wide spot" plus the road up to the gate where cars often park on the side of that road and are able to turn around and drive out. Spend the precious funds on the bridge reconstruction instead.	10/30/2017 8:47 PM
4	Vehicle access up the gulch seems like a very bad idea, unless its for emergency crews only. Also mountain bikers racing down the hill and over the bridge around pedestrians and many children playing and walking also seems like a very bad idea. People can get off their bikes in the congested areas.	10/28/2017 2:54 PM
5	Make it a non-motorized area and nix the subdivision!	10/26/2017 10:35 AM
6	WEED CONTROL NEAR THE COVE CANAL DIVERSION SHOULD BE A HIGH PRIORITY	10/25/2017 5:24 PM
7	When you say "stream stabilization," I think rip-rap, which is very bad. But maybe your "stream stabilization" isn't what I think it is. If 14 includes "braiding" I'm for it. If it includes actions to keep the river in one channel forever, I oppose it. May I suggest benign neglect for dealing with those who want to be able to drive their Hummers across the bridge. If they really want it, let them lobby incessantly for years, to largely deaf ears but smiling lips, letting them pay for it in the end if it comes to that.	10/25/2017 7:11 AM
8	stream and bank improvements to enhance fishing habitats and access	10/25/2017 6:37 AM
9	We would love *any* bridge for Colorado Gulch.	10/24/2017 3:59 PM
10	As much connectivity with trails to other existing trails along the entire greenway project if possible. River access for swimming as well.	10/24/2017 3:49 PM
11	better trailhead parking and pedestrian/vehicle management is important to enhancing overall experience of the area	10/24/2017 7:47 AM
12	Dog waste recepticals	10/22/2017 6:20 PM
13	The river needs to be dredged from Lions park to Colorado Gulch to put the historical flood stage back to where it used to be	10/22/2017 9:01 AM
14	I would love stopping points with logs for benches and or benches with backs to enjoy the meadow and the river along this path.	10/12/2017 1:59 PM
15	The Colorado Gulch road bridge should be non-motorized allowing pedestrian AND bicycle travel.	10/11/2017 5:14 PM
16	Clean up the river and leave it be. Replacing the bridge would be good.	10/11/2017 7:14 AM
17	Dredge the river bed to stop the flooding in Della View	10/10/2017 9:12 PM
18	Definitely construct a wider footbridge west of the meadow (or add another beam to the existing one) to increase the overall safety and accommodate x-country skis and snowshoes. During winter we have to take them off or cross at right angles and when it's icy risk falling.	10/10/2017 1:27 PM
19	Picnic tables near the river.	10/10/2017 12:17 PM
20	A bridge at Colorado no matter what	10/10/2017 8:16 AM



ANSWER CHOICES	RESPONSES	
Hailey	76.92%	70
Ketchum	4.40%	4
Bellvue	5.49%	5
Blaine County	9.89%	9
Other (please specify)	3.30%	3
TOTAL		91

#	OTHER (PLEASE SPECIFY)	DATE
1	Old Hailey, formerly lived in the Della View Sub. for 25 years.	10/26/2017 2:27 PM
2	Indian Creek (county)	10/25/2017 10:08 AM
3	Ketchum and NYC	10/25/2017 9:47 AM

Q7 Where do you live?



Q8 What is your age?

ANSWER CHOICES	RESPONSES	
17 or younger	0.00%	0
18-20	1.12%	1
21-29	1.12%	1
30-39	16.85%	15
40-49	20.22%	18
50-59	21.35%	19
60 or older	39.33%	35
TOTAL		89

Q9 If you would like to recieve updates on the Hailey Greenway Master Plan, please provide your name and email.

Answered: 29 Skipped: 70

ANSWER CHOICES	RESPONSES	
Name	100.00%	29
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	29
Phone Number	0.00%	0

#	NAME		DATE
1	Ronile Robinson		11/3/2017 2:09 PM
2	Ken and Ginna Lagergren		10/30/2017 8:47 PM
3	Erin Sweeney		10/28/2017 2:54 PM
4	Matt Archibald		10/26/2017 10:36 AM
5	Micah Austin		10/26/2017 9:33 AM
6	Rudy Boesch		10/26/2017 7:27 AM
7	Jennifer Montgomery		10/25/2017 7:06 PM
8	Stephen Gerrish		10/25/2017 10:08 AM
9	Alan Reynolds		10/25/2017 7:34 AM
10	Bob Jost		10/25/2017 6:37 AM
11	Brian Sturges		10/24/2017 5:47 PM
12	Frank Kline		10/24/2017 4:00 PM
13	Kris Stoffer		10/24/2017 3:50 PM
14	Tenaya		10/24/2017 10:34 AM
15	Lisa		10/23/2017 6:08 AM
16	K. Earhart		10/22/2017 9:03 AM
17	Kaz Thea		10/18/2017 9:51 PM
18	Coddy		10/12/2017 9:55 PM
19	Wendy		10/11/2017 5:15 PM
20	Jack		10/11/2017 12:22 PM
21	ALVIN HACKEL	Appendix B	10/11/2017 10:28 AM

The Hailey Greenway Master Plan Priority Workshop Survey

SurveyMonkey

22	Mark Kiaakhuaah	40/40/0047 0 44 DM
22	Mark Kieckbusch	10/10/2017 9:14 PM
23	Elizabeth Zellers	10/10/2017 8:54 PM
4	Janice Payne	10/10/2017 1:28 PM
5	Brenda Sanders Lyon	10/10/2017 12:58 PM
6	Mary Jo Musselman	10/10/2017 12:54 PM
7	Мас	10/10/2017 12:52 PM
8	Rich Pogue	10/10/2017 12:03 PM
9	Eric Rector	10/10/2017 8:16 AM
	COMPANY	DATE
	There are no responses.	
	ADDRESS	DATE
	There are no responses.	
	ADDRESS 2	DATE
	There are no responses.	
	CITY/TOWN	DATE
	There are no responses.	
	STATE/PROVINCE	DATE
	There are no responses.	
	ZIP/POSTAL CODE	DATE
	There are no responses.	
	COUNTRY	DATE
	There are no responses.	
	EMAIL ADDRESS	DATE
		11/3/2017 2:09 PM
		10/30/2017 8:47 PM
		10/28/2017 2:54 PM
		10/26/2017 10:36 AM
		10/26/2017 9:33 AM
		10/26/2017 7:27 AM
		10/25/2017 7:06 PM
		10/25/2017 10:08 AM
		10/25/2017 7:34 AM
0		10/25/2017 6:37 AM
1		10/24/2017 5:47 PM
2		10/24/2017 4:00 PM
3		10/24/2017 3:50 PM
4		10/24/2017 10:34 AM
5		10/23/2017 6:08 AM
6		10/22/2017 9:03 AM
		10/18/2017 9:51 PM
7	Appendix B	10/10/2017 9:31 PM

SurveyMonkey

The Hailey Greenway Master Plan Priority Workshop Survey

19		10/11/2017 5:15 PM
20		10/11/2017 12:22 PM
21		10/11/2017 10:28 AM
22		10/10/2017 9:14 PM
23		10/10/2017 8:54 PM
24		10/10/2017 1:28 PM
25		10/10/2017 12:58 PM
26		10/10/2017 12:54 PM
27		10/10/2017 12:52 PM
28		10/10/2017 12:03 PM
29		10/10/2017 8:16 AM
#	PHONE NUMBER	DATE
	There are no responses.	

Appendix B

13 / 13

Project	Project Cost	CC + Black Owl	Farmers' Market	Total \$	# of times f
1) Re-Locate Entrance Road, Convert Road to Draper Pavilion to Path	\$15	\$255	\$60	\$315	
1A) Improve Existing Entrance Road and Add Parking	\$10	\$100	\$10	\$110	
2) Camping	\$20	\$550	\$80	\$630	
3) Permanent Restroom Facility in Lions Park	\$15	\$375	\$80	\$455	30.3
4) Reconstruct Ballfield	\$5	\$105	\$5	\$110	
4A) Reconstruct Ballfield with Concessions	\$20	\$210	\$0	\$210	
5) Recreational Pond and Floodplain Reconnection	\$120	\$1,320	\$360	\$1,680	
5A) Convert Gravel Lot to Meadow and Lawn Area	\$40	\$580	\$160	\$740	
6) Recreational Play Wave and Boat Launch	\$20	\$720	\$80	\$800	
7) Stream Stabilization and Restoration Bullion Bridge to Bow Bridge	\$100	\$1,250	\$725	\$1,975	
8) Stream Stabilization and Restoration Bow Bridge to Heagle Park	\$110	\$1,590	\$440	\$2,030	18.4
9) Setback Barrier Berm w/ River Stabilization and Restoration	\$200	\$1,250	\$190	\$1,440	
10) Trailhead Improvements Along War Eagle Drive	\$5	\$75	\$15	\$90	
11) Conveyance Ditch and Neighborhood Drainage Improvements	\$80	\$400	\$0	\$400	
12) Construct Swales through Heagle Park, Improve Tennis Courts	\$50	\$560	\$200	\$760	
12A)Floodplain Reconnection Remove Tennis Courts	\$100	\$1,480	\$300	\$1,780	
13) Trail Connections to Adjacent Neighborhoods	\$5	\$130	\$20	\$150	
14) Stream Stabilization and Restoration Heagle Park to Colorado Gulch Road	\$80	\$760	\$170	\$930	
15) Trailhead and Parking Lot at Colorado Gulch	\$15	\$360	\$30	\$390	
16) Replace Damaged Colorado Gulch Road Bridge, Pedestrian/Equestrian/Bike	\$10	\$1,160	\$80	\$1,240	
16A) Replace Damaged Colorado Gulch Road Bridge- Pedestrian and Singletrack Motorized	\$15	\$185	\$30	\$215	14.3
16B) Replace Damaged Colorado Gulch Road Bridge- Full Vehicular Access	\$40	\$295	\$120	\$415	
Total \$:	\$1,075	\$13,710	\$3,155	\$16,865	

56.2 people participated

(Ordered by Priority)									
Project	Project Cost		СС	+ Black Owl	Farr	ners' Market	Total \$;	# of times f
16) Replace Damaged Colorado Gulch Road Bridge, Pedestrian/Equestrian/Bike	\$	10.00	\$	1,160.00	\$	80.00	\$	1,240.00	
6) Recreational Play Wave and Boat Launch	\$	20.00	\$	720.00	\$	80.00	\$	800.00	
2) Camping	\$	20.00	\$	550.00	\$	80.00	\$	630.00	
3) Permanent Restroom Facility in Lions Park	\$	15.00	\$	375.00	\$	80.00	\$	455.00	30.
13) Trail Connections to Adjacent Neighborhoods	\$	5.00	\$	130.00	\$	20.00	\$	150.00	
15) Trailhead and Parking Lot at Colorado Gulch	\$	15.00	\$	360.00	\$	30.00	\$	390.00	
4) Reconstruct Ballfield	\$	5.00	\$	105.00	\$	5.00	\$	110.00	
1) Re-Locate Entrance Road, Convert Road to Draper Pavilion to Path	\$	15.00	\$	255.00	\$	60.00	\$	315.00	
7) Stream Stabilization and Restoration Bullion Bridge to Bow Bridge	\$	100.00	\$	1,250.00	\$	725.00	\$	1,975.00	
5A) Convert Gravel Lot to Meadow and Lawn Area	\$	40.00	\$	580.00	\$	160.00	\$	740.00	
8) Stream Stabilization and Restoration Bow Bridge to Heagle Park	\$	110.00	\$	1,590.00	\$	440.00	\$	2,030.00	18.4
10) Trailhead Improvements Along War Eagle Drive	\$	5.00	\$	75.00	\$	15.00	\$	90.00	
12A)Floodplain Reconnection Remove Tennis Courts	\$	100.00	\$	1,480.00	\$	300.00	\$	1,780.00	
12) Construct Swales through Heagle Park, Improve Tennis Courts	\$	50.00	\$	560.00	\$	200.00	\$	760.00	
16A) Replace Damaged Colorado Gulch Road Bridge- Pedestrian and Singletrack Motorized	\$	15.00	\$	185.00	\$	30.00	\$	215.00	14.
5) Recreational Pond and Floodplain Reconnection	\$	120.00	\$	1,320.00	\$	360.00	\$	1,680.00	
14) Stream Stabilization and Restoration Heagle Park to Colorado Gulch Road	\$	80.00	\$	760.00	\$	170.00	\$	930.00	
1A) Improve Existing Entrance Road and Add Parking	\$	10.00	\$	100.00	\$	10.00	\$	110.00	
4A) Reconstruct Ballfield with Concessions	\$	20.00	Ą	ppendix	₿	-	\$	210.00	

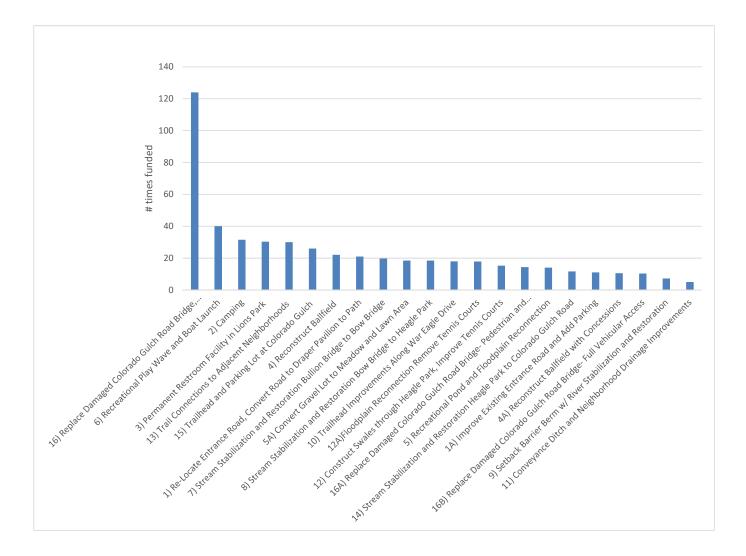
es funded

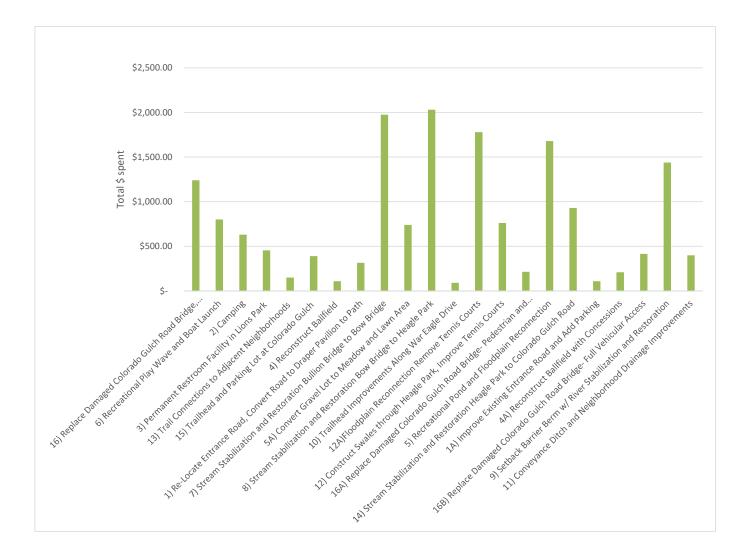
21 11 31.5 30.33333333 22 10.5 14 18.5 40 19.75 18.45454545 7.2 18 5 15.2 17.8 30 11.625 26 124 14.33333333 10.375

es funded 124 40 31.5 30.33333333 30 26 22 21 19.75 18.5 18.45454545 18 17.8 15.2 14.33333333 14 11.625 11 10.5

16B) Replace Damaged Colorado Gulch Road Bridge- Full Vehicular Access	\$ 40.00 \$	295.00	\$ 120.00 \$	415.00
9) Setback Barrier Berm w/ River Stabilization and Restoration	\$ 200.00 \$	1,250.00	\$ 190.00 \$	5 1,440.00
11) Conveyance Ditch and Neighborhood Drainage Improvements	\$ 80.00 \$	400.00	\$ - \$	400.00
Total \$	\$ 1,075.00 \$	13,710.00	\$ 3,155.00 \$	<mark>6 16,865.00</mark>

10.375 7.2 5





Hailey Greenway Master Plan

Initial Public Outreach Sign-in

Wednesday, July 12, 5:30-7:00 p.m.

First Name	Last Name
Micah	Austin
Angela	Barbre
Rick	Barker
Martha S.	Bibb
Amy	Brauniny
Cagna	Caron
Mark & Patrice	Cole
Steve	Crosser
Darlene	Dyer
Gretchen	Ernsdorf
Wally	Ernsdorf
Sarah	Gray
Judy	Harrison
Brenda & Al	Hinkel
Mary	Hogan
Ken & Ginna	Lagergren
Brenda	Lym
Jeff	Lyon
Scott	McGrew
Siri	Mcgrew
Janice	Payne
Colleen	Teevin
Lamar	Waters

Email comments received from:

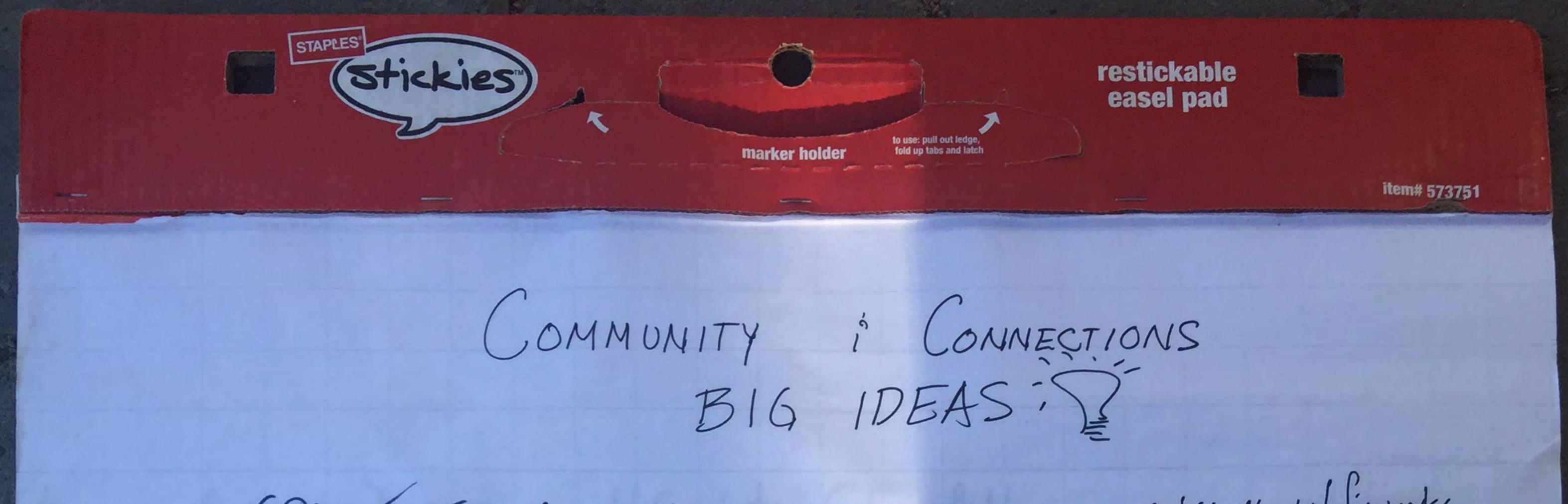
	its received from:	Final Maria		٦			- -		
First Name	Last Name	First Name	Last Name	-	First Name	Last Name	-	First Name	Last Name
Matt	Adamson	Phil	Compton	_	Megan	Hulbert	-	Toni	Marcroft
Priscilla	Adamson	Matt	Conover	_	Jon	Inwood		Jason	Marenda
Ashley	Anderson	Steve	Crosser	_	Clint	Irvin		Joe	Martinez
Janessa	Avila	Patrick	Csizmazia		Devany	Irvin	4	Sharon	Mayne
Adam	Baggerman	John	Cvetich		Brandon	lvie		Kirk	McGee
Megan	Balis	Nikki	Davis		Dee	lvie		Jane	McGrew
Joel	Barbazzeni	Heather	Dawson		Maolys	lvie		Jesse	McMillen
Angela	Barbre	Josie	Dawson		Camron	James		Marie	Mohler
Darin	Barfuss	Sadie	Dawson		Lisa	Jatho		Amberle	Molyneux
Kathie	Barfuss	AJ	Delacy		Jeff	Jones		Linda	Monroe
Brandon	Beall	Jennifer	Dutson		Jennifer	Jones (Boise)		Sean	Moore
Jane	Beattie	Darlene	Dyer		Jennifer	Jones (Hailey)		L. Leigh	Morse
Rebeca	Benitez	Lacey	Ellsworth		Janice V	Jorgensen		Andy	Munter
Maddie	Bennett	Steve	England		Travis	Jorgensen		Michele	Nelson
Sarah	Benson	Hannah	Eove		Mark	Kieckbusch		Mary Ellen	O'Leary
Laura J.	Bernard	Laird	Erman		Samantha	Kirscht		Alexzander	Padilla
Jenny	Blumquist	Meghan	Faherty		Mason	Kluge		Jake	Pearce
Natasha	Boles	Robin	Fiscus		Ginna	Lagergren		Levi	Perryman
Bryan	Bray	Alisa	Frame		Ken	Lagergren		Kolby	Peterson
Milton	Brooks	Samantha	Gaylin		Ken	Lagergren		Tyler	Peterson
Tonya	Brooks	Mr.	Gluer		Kristian	Larese		Tasha	Pfau
Doug & Carol	Brown	Armando	Gomez		Zachary	Lee		Janet	Pierson
Evelyn	Broxson	Karly	Grant		Bob	Lees		Jennifer	Pond
Pamela	Cabello	Kathy	Grotto		Ava	LeRow		Julie	Powell
William B	Cardozo	Cerra	Gudenau		Scott	Levy		Peter	Pressley
Casssie	Chapman	Emma Jensen	Guisasola		Sam	Linnet		Alan	Reynolds
Kellen	Chatteron	Sean	Guisasola		Trudy	Locosta		Nan	Roadarmel
Jason	Chen	Randy	Hermann		Jacob	Lopez		LeighAndra	Roberts
Andrea	Christenrd	Alexandros	Ho Megas		Abbigayle	Lukkasson	1	Donavon	Romrell
Echo Lynn	Christensen	Mary	Hogan		Bob	MacLeod	1	Kim	Romrell
Heather	Clendenin	James	Hoover		Lorraine	Malone		Anthony	Rooney
Kevin	Coggins	George	Hulbert		Rob	Marcroft		, Jimberly	Rooney

First Name	Last Name	First Name	Last Name
Sarah	Rushton	Chad	Trammel
Sam	Samudio	Chase	Uhrig
llse	Sanchez	Morgan	Uhrig
Macleod	Sawyer	Dyllan	Ulrich
Jennifer	Schwartz	Jamie	Ulrich
Deena	Seig	Richard	Ulrich
Tasha	Seig	Laura	Villa
Mike & Gerri	Shane	Lashana	Walker
Jonmarie	Shaw	Logan	Webber
Ali	Sherbine	Salongo	Wendland
Joanne	Shetler	Jeff	West
Cathy	Showalter	Jennifer	West
Joey	Showalter	Brooke	Wilkins
Teresa	Showalter	Treavor	Williams
Kenzie	Sigglin	Lucas	Wilson
Sarah	Soulis	Kris	Wirth
Shane	Soulis	Christina	Wood
Richard H.	Spaulding	Kristan	Young
Danny	Story	Rachel	Ziegler
Patsy	Sua	Chris	Zubia
Jean L	Tatelbaum		
Brad	Thomas		
Tracey	Thomas		
Bart	Thompson		
Bev	Thompson	l	
Hunter	Thompson		
Judy	Thompson		
Kassidy	Thompson		
Nick	Thompson		
Tommy	Thompson		
Nic	Tidwell		
Mason	Tolman		
		-	

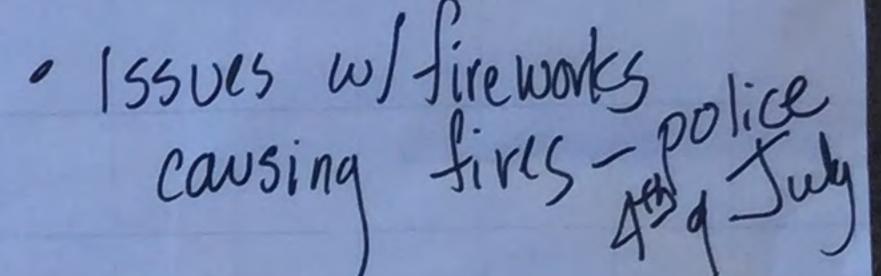
Email comments received from (continued):

Written comments at the Priority Workshop received from:

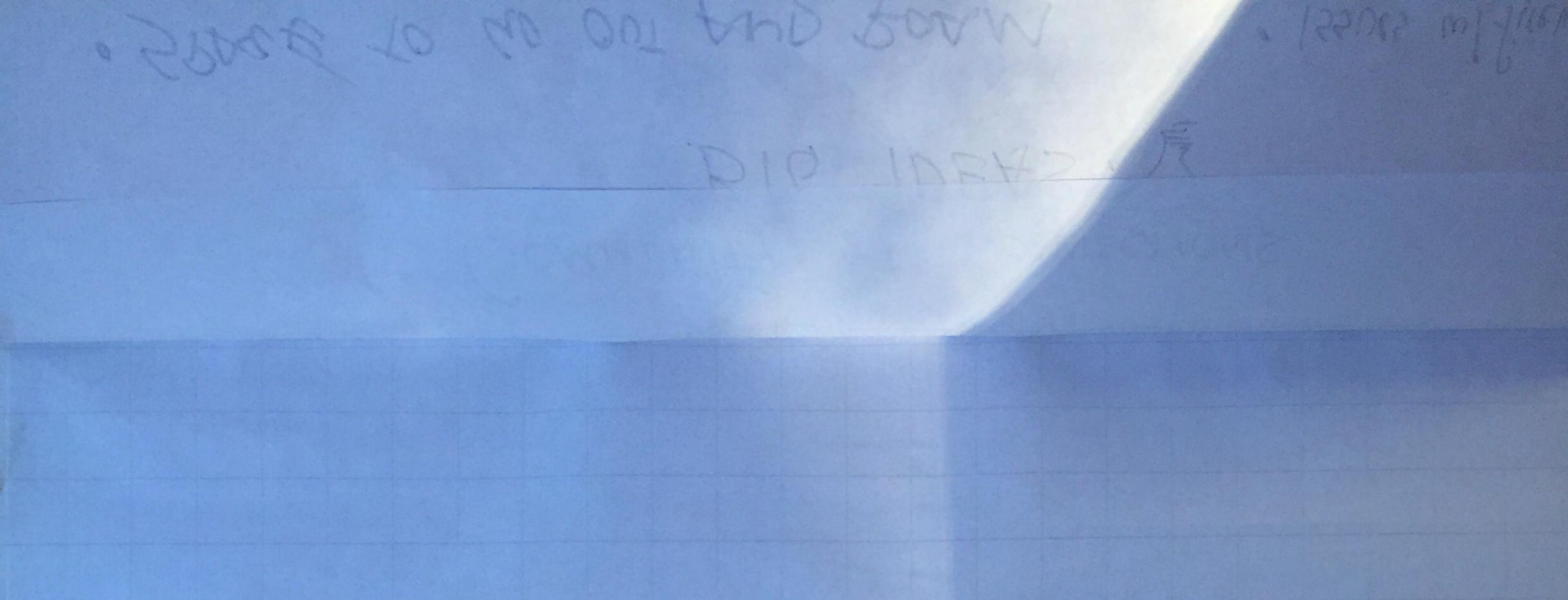
First Name	Last Name
Patti	Lousen
Jonna	Matteson
John	McGough
Carmen	Northen
Ed	Northen



· SPACE TO GO OUT AND ROAM · REPAIR IS NELESSARY - WASHED · TRAILS ON WEST SIDE C. GULCH a CONVECTION TO BLM (UPPERT BLM TRAVEL PLAN "GEPARATED BIFÉ/WALK / HORSE · KATAK SUP WHITEWATER PARK CLOSÉ TO DOWN DUN PARK N BOAT. AUESPEIE TRAIL - (ASPHALT · TIL FOR HEAGLE POND (TRAK POND) PICNIC SEATING/ GIVE IT A NAME · Pavillon · RESTROOM CLIONS / WATER : DOG WATER · WAR EAGLE PARKING - WINTER IS AN ISSUE " JHOW JORAE Le RIVERSIDE DINING. ¿ IN SNOW STORAGE ADEA EXCAMPTION IS AN ISSUE " EDDY POND FOR WHAR BOAT PENTALS · WATFINDING FROM DOWNTOWN DIRECTING TO GREENWAY 20 · WILDUFE - TOO MALY TRAILS AND HAVE AN IMPACT



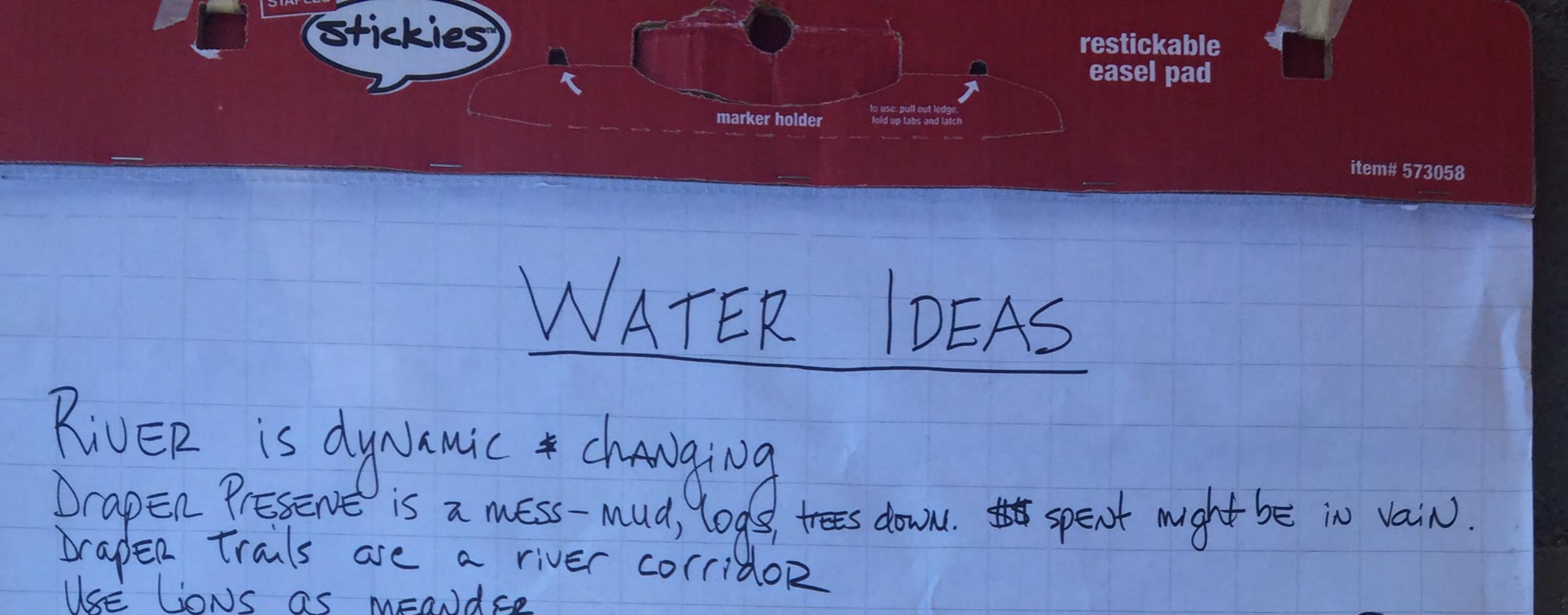
FOCUS CONCENTRATION OF TRAILS NERP TOWN DOG SLED FAT BILE BUT NOT IN SFATE/CLASSIC/SHOWSHOD PRL O NAZROW THE TRAILS · GROOMET NOFOIL MULTI-USE Bring geothermal back who water park Appendix B



ANNEX DrapE2 + HG into City of H Dog Prop 1 Stations + Diposal Cans More consideration of trails due to becoming & raceway - MINIMANST LIMITED OVERNIGHT BIKE CAMPING.

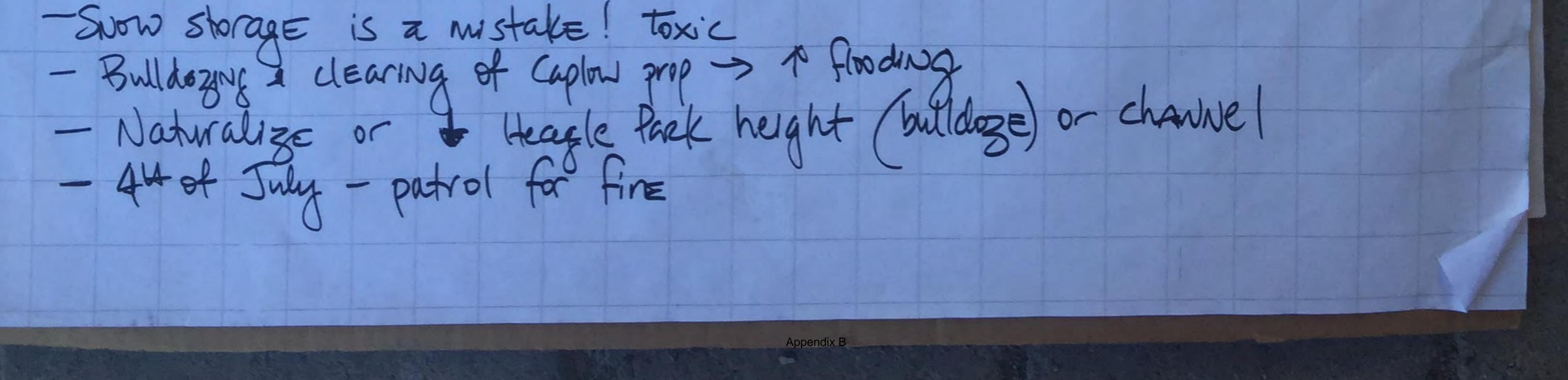
- RU Park

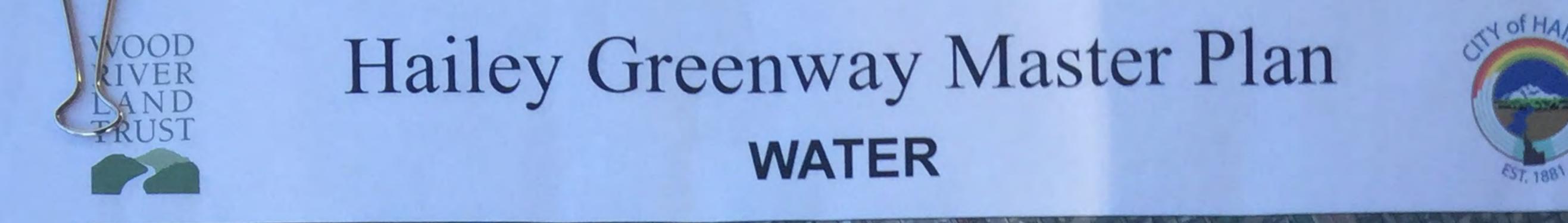
- porous hordscape - poktable shower + toilets

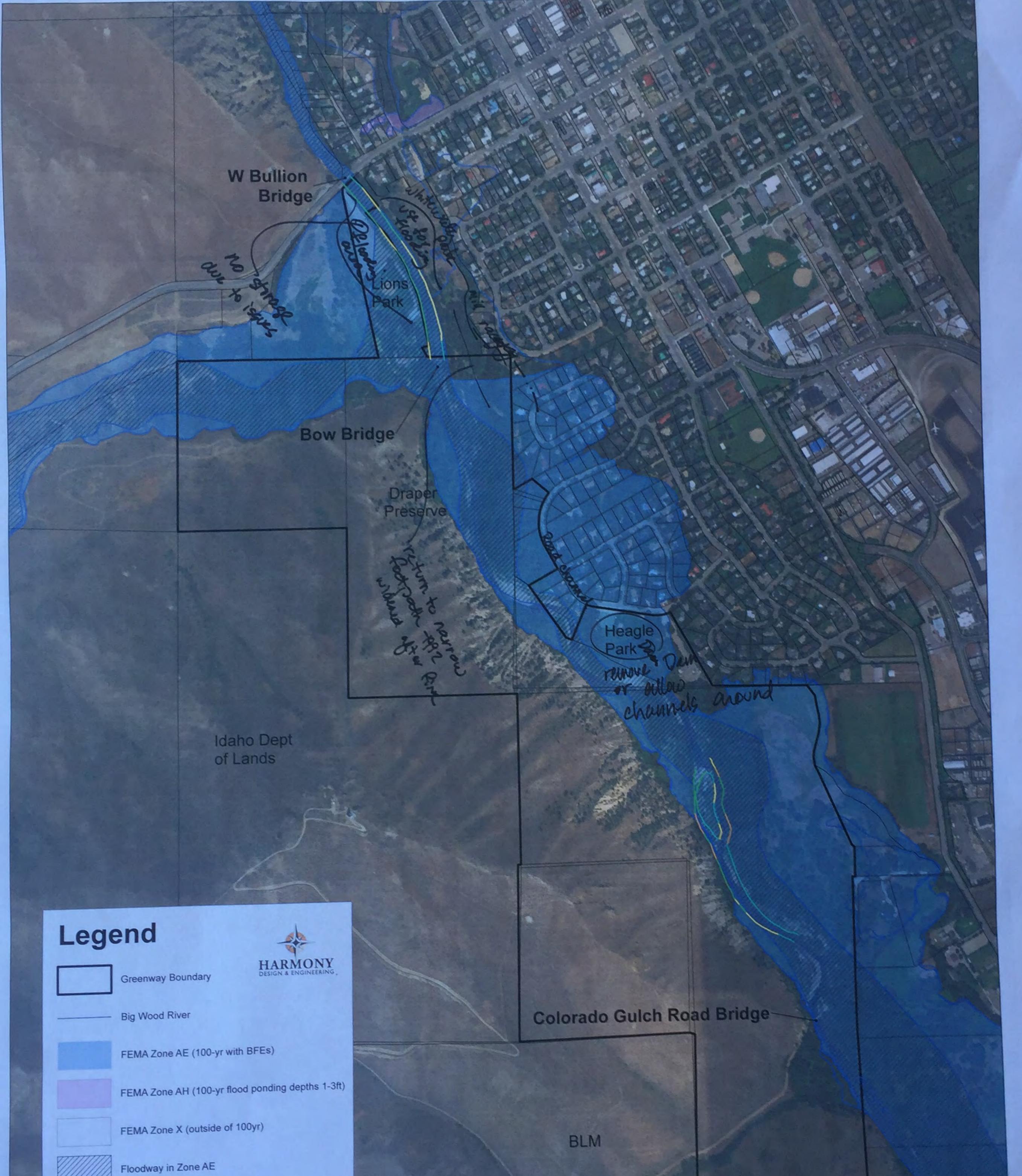


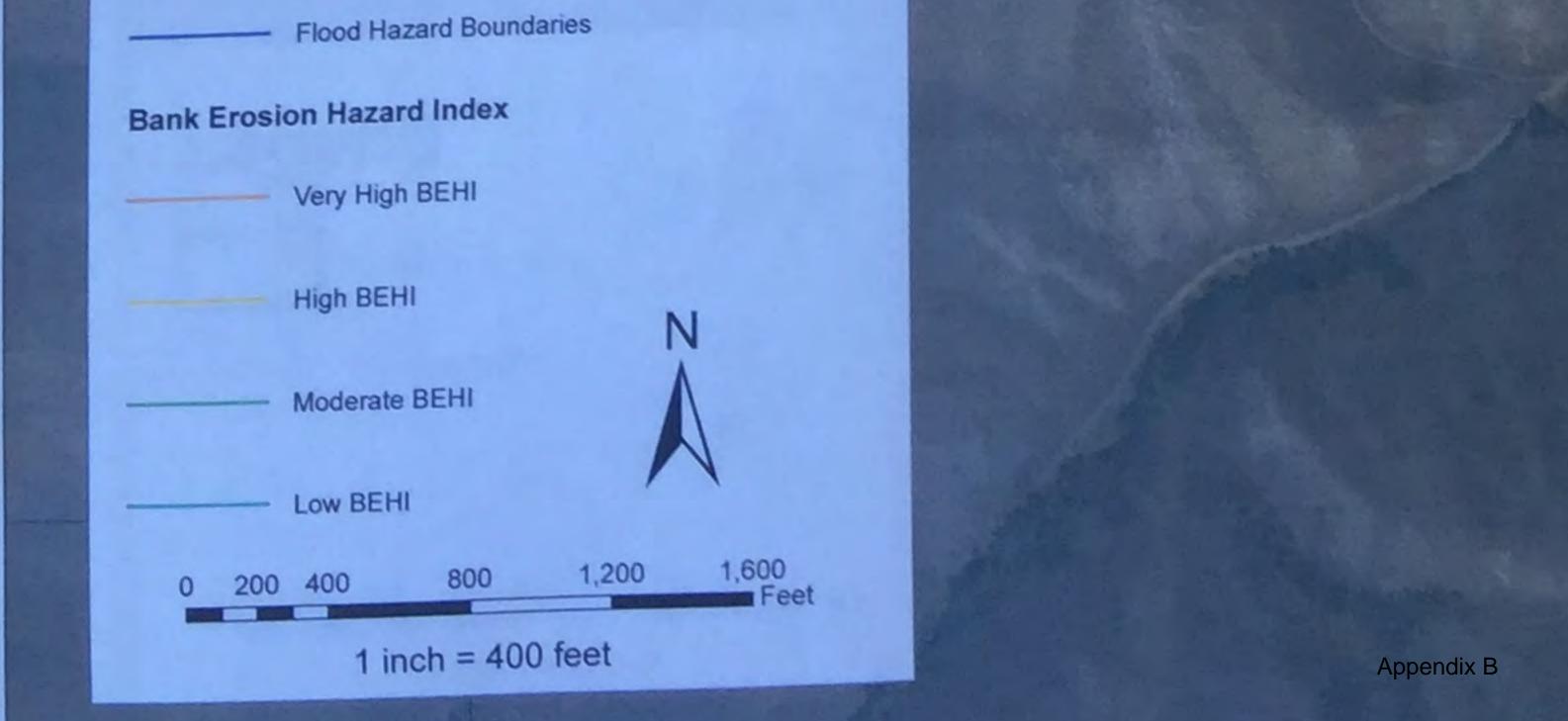
Use Lions as meander Sewer Eastment use to be a foot trail. Road came after Row Fire (91-92:) Sawmill raceway flows Every year. Prothways in Draper came in w Cedar Bend development How can we help floodplan residents protect their property. Heagle Park acts as a dam What type of junsdictional cooperation is there? What can be done proactively. - can the LT speak differently to their stakeholders about the solution? Expand on the mission of preserving land. Lions as z oxbow - Where do we slow down the proces of preserving land. Lions as z oxbow

- Lion's is under utilized for acregit/population.
- Boardwalk is beautiful, Natural place
- Have City que lions to LT for mitigation
- Rurchase Caplow prop for mitigation
- County r city officials
- White did
- Rindwood Dr. Nevelopment was contested all the way to the Supreme County to Cot the Fought it based on being in flow glain.
- White water park - goal for kids
- White water park - goal for kids



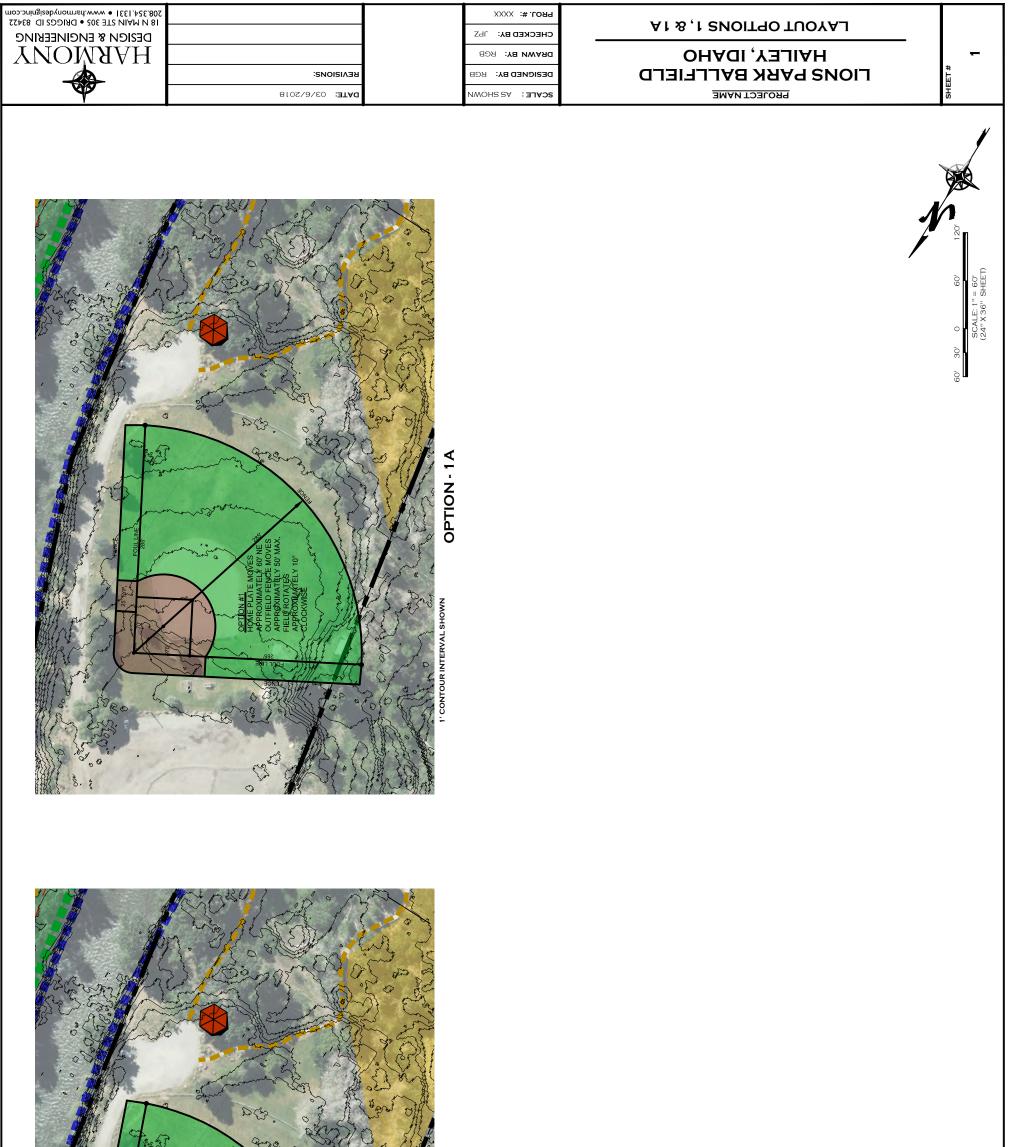


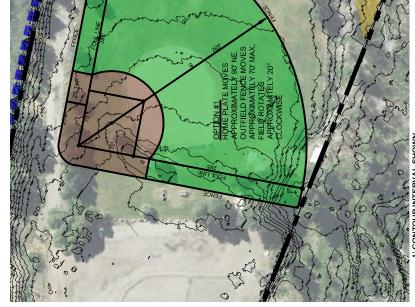






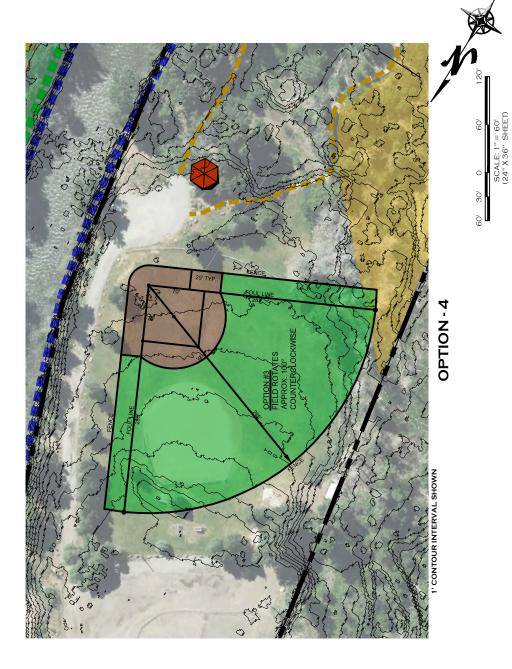
APPENDIX C – Softball Field Renovation Alternatives

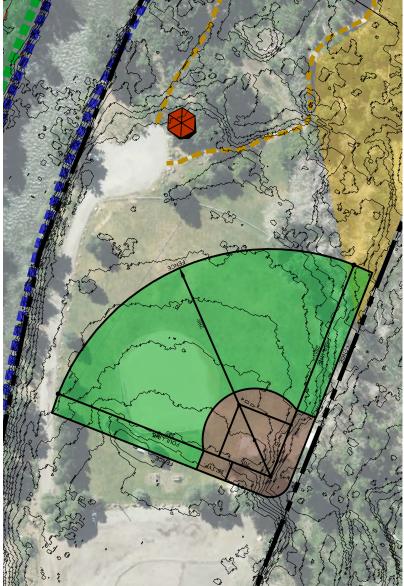




- NOITION -

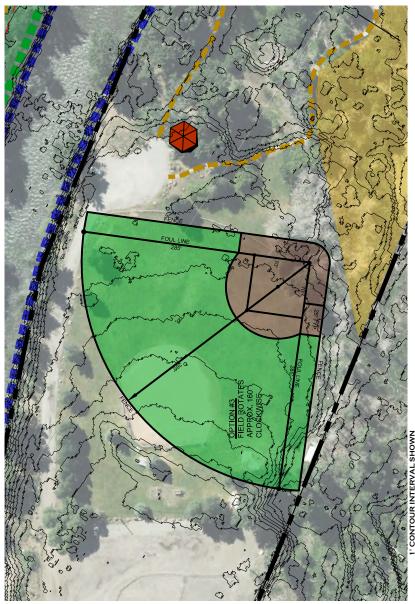
DESIGN & ENGINEERING 18 N MAIN STE 305 • DRIGGS ID 83422 208-354.1331 • WWW.harmonydesigninc.com		-	ЬКОЛ: #: XXXX СНЕСКЕD В.A: ЛЬХ	LAYOUT OPTIONS 2, 3, 84	
ANOWAAH			аря : уа имаяо		N *
	KEVISIONS:	ε	DESIGNED BA: KGB		EET
Ψ	DATE: 03/6/2018	N	SCALE: AS SHOWN	PROJECT NAME	HS







TERVAL SHOWP



OPTION - 3

