FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION
(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Bozeman Creek Enhancement Committee

B. Mailing Address: 4030 Sourdough Road

C. City: Bozeman State: Montana 59715

Telephone: 406-587-1667

D. Contact Person: Gary Weiner

Address if different from Applicant:

City: State: Zip:

Telephone:

E. Landowner and/or Lessee Name (if other than Applicant): City of Bozeman (Contact: Mitch Overton, Parks & Recreation Director)

Mailing Address: 415 N. Bozeman

City: Bozeman State: MT Zip: 59715

Telephone: 406-582-3222

II. PROJECT INFORMATION*

A. Project Name: Bozeman Creek at Bogert Park Enhancement Project

River, stream, or lake: Bozeman Creek

Location: Township Township 2 South Range Range 6 E Section SE ¼ of Sect. 7

County: Gallatin

B. Purpose of Project:

The purpose of this project is to enhance the structure and ecological function of an 820' reach of Bozeman Creek through Bogert Park. Channel and floodplain reconstruction along with riparian enrichment and expansion will greatly improve aquatic habitat and benefit fish populations. Along with improvements to fish, wildlife and water quality, enhancement of the stream through Bogert Park will greatly heighten the park's value for nature-based recreational and environmental educational purposes, while improving safety for park users.

C. Brief Project Description:

The Bozeman Creek at Bogert Park Enhancement Project will restore many of the functions of a healthy stream corridor to a highly degraded reach in the heart of Bozeman. This reach of Bozeman Creek in its current condition is essentially nonfunctional. The creek is channelized with high and unstable banks, no floodplain, little hydraulic diversity, a thin zone of streamside vegetation, and poor habitat for fish and wildlife. Additionally, the creek provides minimal value to park users, and poses a significant safety hazard during annual spring high flows.

This enhancement project will realign and reconfigure the creek channel to improve planform, profile, and cross-sectional characteristics, returning the creek to a morphology more consistent with its hydrology and valley setting. A stable geomorphic condition will be created within which ecological processes can function, but major disturbances such as channel avulsions will be precluded by hardening project limits. Channel materials will be adjusted to provide appropriate roughness elements and substrate size classes to support aquatic habitat. A floodplain will be re-established to slow velocities, provide high-water refugia, filter runoff, and improve safety. Banks will be re-graded to sustainable slopes. Existing vegetation will be augmented, widening the riparian zone and improving diversity of species and age-classes All of these improvements will greatly enhance aquatic habitat and fish populations.

A hardened stream access site, gravel trails, and a new, clear-span footbridge will protect resources while accommodating public use and enjoyment of the restored stream. The project will vastly improve the value of the stream as a community amenity, with opportunities for fishing (especially for kids), wildlife watching, outdoor education, and enjoying the aesthetics of a wild stream in the heart of town.

D. Length of stream or size of lake that will be treated: 820'

E. Project Budget:

Grant Request (Dollars): $ 30,000

Contribution by Applicant (Dollars): $ 347,330 In-kind $
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ 213,000 In-kind $ 13,000
(attach verification - See page 2 budget template)

Total Project Cost: $ 603,330

F. Attach itemized (line item) budget – see template Excel spreadsheet attached

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

Maps, design drawings and site photographs are included in the "Design Information Guidelines for Application Submittal", attached. Additional detail is provided in the document Bozeman Creek Enhancement Project at Bogert Park, Preliminary Design Report, previously provided to FWP.

Description of public support for the project

The Bozeman Creek Enhancement Committee has developed plans for the Bozeman Creek at Bogert Park project, as well as the larger Bozeman Creek Enhancement effort, through an intensive process of substantive community involvement. The project's vision, goals and objectives were developed through public input received at numerous venues. These have included a well-attended public workshop in February, presentations to neighborhood associations and service clubs, three public opinion surveys, and several events.

The Bogert Park project was identified as a priority in the Bozeman Creek Enhancement Plan due to: the reach's impaired condition and location at the upstream end of the most-impacted part of Bozeman Creek; public ownership and use of the site as a popular city park; high visibility and proximity to the center of town; value as a demonstration project and site for environmental education; and *very* strong public support. A survey administered in 2011 identified Bogert Park as the location where respondents most wanted to see enhancements to Bozeman Creek's natural resources and recreational value.

The Bozeman community, the Bogert Park Neighborhood Association, and park users have had numerous opportunities to express their ideas and opinions regarding this project, and to participate in the generation and refinement of succeeding conceptual designs. The affected neighboring landowners have been contacted directly to discuss potential project impacts and to obtain their support for the project. Bogert is a well-loved park, people are very interested in the planned improvements, and every effort will be made to keep the community abreast of progress.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

Mike Vaughn, MT FWP's Madison-Gallatin Fisheries Biologist, lists the following as the species he'd expect to find in Bozeman Creek in Bogart Park on any given day (personal communication, 5/28/13):

- Any of three non-native trouts: brown, rainbow, brook.
- One trout native to MT but not the right subspecies for this drainage: Yellowstone cutthroat.
- One salmonid native to the drainage: mountain whitefish.
- Any of three native suckers: white, longnose and mountain.
- One native cottid: mottled sculpin.
- One native minnow: longnose dace.

FWP electrofished 400' of Bozeman Creek in Bogert Park in early September, 2011, and found: 26 brown trout, mostly 10-12", 4 rainbows, 1 Yellowstone cutthroat, and suckers and sculpins. FWP staff concluded that the fish were relatively healthy, but their numbers and sizes were well below what a stream this size should be able to carry if it had better habitat. Older fish predominate, indicative of poor reproduction. Staff estimated that Bozeman Creek through the park may currently support only 25% or less of its potential for introduced trout.

B. How will the project protect or enhance wild fish habitat?:

Reconfiguring channel morphology, along with improving bed substrates, re-establishing a floodplain, and improving riparian vegetation, will greatly improve habitat for fish and other aquatic organisms. Hydraulic complexity and diversity will greatly increase with variations in bed and bank topography, substrate, depth and flow velocities. These changes will improve habitat for all aquatic organisms, and will provide a much more productive environment for the survival, growth, migration and reproduction of fish, including trout and half a dozen other native fish species (Mike Vaughn, MT FWP, personal communication).

Benthic macroinvertebrates will benefit from the multitude of microhabitats that will be created via the introduction of plants, woody debris, rocks, and interstitial spaces in bed substrate. Habitat value will be improved in the water column, the bed surface, and within the hyporheic zone. Invertebrates help to break down organic matter and are relied upon by many fish species as a food source. Benthic macroinvertebrates are widely used as indicators of stream health.

Cover will be greatly increased for all life stages of fish. Pools, turbulent reaches, interstitial spaces in large cobbles and boulders, woody debris, undercut banks and overhanging vegetation all provide holding water for adult fish. Shallow water areas also will be provided as refuges for juveniles. The newly created sinuous riffle-pool complex will provide feeding lanes and adjacent resting areas for feeding fish. Deep pools will provide overwintering habitat.

Spawning habitat will be created by replacing the existing cemented over-sized bed materials with a gravel-dominated mix of substrate sizes that will mobilize during high flows. The enhancement design will create channel characteristics that encourage hydraulic sorting and accumulation of gravels into bed forms appropriate for spawning.

The enhanced and expanded riparian zone will play an important role in aquatic habitat improvement as well. Riparian benefits to aquatic life include contribution of food (leaf litter, nutrients, insects), shade to help control summer temperatures, large woody debris and overhanging roots for cover, root masses to stabilize banks and allow for undercuts, and improved water quality. Floodplain riparian vegetation also will provide refuge for juvenile and adult fish during floods.

C. Will the project improve fish populations and/or fishing? To what extent?:

The fishery through Bogert Park, and the rest of the mile-long reach through the downtown area, has been greatly impaired by poor aquatic habitat. Yet the downstream-most reach of Bozeman Creek, where the creek has better morphology and good riparian vegetation, supports healthy trout populations. People routinely see and catch 18" brown trout in Bozeman Creek throughout the city, wherever habitat is good, indicating the great potential to develop the fishery through habitat improvements in other locations.

Planned enhancements to the aquatic habitat in the 820' reach through Bogert Park will have a measurable effect upon the local fishery. Fish populations are expected to respond very quickly to the habitat improvements. Adjusting channel morphology to create better aquatic habitat will support many more fish and a full cohort of age classes, enticing families to bring their kids to Bogert to learn to fish.

A strong population of fish in this reach will have benefits beyond this location. Excess fish produced in good habitat will move into adjacent reaches where lack of spawning and recruitment are limiting fish numbers (Mike Vaughn, MT FWP, personal communication).

FWP will repeat their 2011 electrofishing of this reach after construction to ascertain changes in populations due to this enhancement project. The City of Bozeman will take appropriate action to maintain the enhancement project, the improved aquatic habitat and the fishing opportunities at Bogert Park.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Many community residents used to fish Bozeman Creek as kids – some still do – and strongly support an improved urban fishery and better opportunities to fish at public parks, and Bogert Park in particular. The creek's current degraded condition - with its steep, eroded banks, poor aquatic habitat, lack of vegetation, and monotonous character - discourages fishing use.

Bogert is a city park with excellent, unregulated public access, located in close proximity to downtown, other popular parks, and the junction of two Main Street to the Mountains trail system arterials. The park is ideally located to provide a close-to-home opportunity for community residents, and area visitors, to go fishing without needing to drive.

Bozeman Creek through Bogert Park will be promoted as a community resource where families can bring their kids to learn to fish. A sustainable stream access site will be constructed to attract kids yet survive the impact. Bogert will be an outdoor classroom with interpretive signage describing the value of a properly functioning stream, the benefits of restoration, the types of aquatic life in the creek, and the opportunity to catch fish.

E. If the project requires maintenance, what is your time commitment to this project?:

This project will be designed to require minimal maintenance. The reconstructed channel will move its sediment load without aggrading or degrading. Newly planted riparian vegetation will be irrigated using the park's irrigation system, and will be protected with fencing during plant establishment. The city owns and manages Bogert Park as a community park, and the Parks Division will continue to be responsible for long-term maintenance. In addition, Gallatin Valley Land Trust will coordinate with the Parks Division on trail maintenance and trail amenities. Gallatin Local Water Quality district will monitor water quality at sites just above and below Bogert Park to track changes due to restoration. Greater Gallatin Watershed Council will help to develop environmental education messaging. MT FWP will monitor improvements in fish populations in the Bogert reach as a result of this project.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

This reach of Bozeman Creek was channelized not long after the area was settled around 1880. Straightening, shortening and steepening this reach led to channel incision and loss of floodplain connectivity. Development of paved streets and concrete culverts made the creek's incision permanent. Flood flows combined with bank trampling by park users has created steep-walled, bare-soiled, unstable streambanks. Minimal riparian vegetation does a poor job of stabilizing banks and filtering pollutants from park runoff, and contributes little to aquatic habitat. This enhancement project will correct this degraded condition by reconstructing channel and floodplain with a sustainable and ecologically productive morphology, creating the geomorphic and hydraulic diversity necessary for good aquatic habitat, and enlarging/improving the riparian zone.

G. What public benefits will be realized from this project?

Bogert Park provides one of only a very few publicly-owned areas where the public can access Bozeman Creek in the 9-mile reach between the national forest and the East Gallatin River. But the creek's existing degraded condition through Bogert discourages recreational use. By improving the structure and function of the creek corridor through Bogert, the variety of recreational experiences available to park users will be greatly enhanced. A community fishery will be created where parents can bring their kids to learn to fish. Opportunities to watch birds and other wildlife will increase as improved habitat attracts a greater diversity and number of animals. Passive enjoyment of the sights and sounds of a stream corridor will be greatly improved by creating a more-hydraulically active stream with a wider, more diverse riparian zone. A stream access site will be designed to attract people to the water's edge, and will be designed and constructed to withstand heavy use without site degradation.

Water quality in the reach of Bozeman Creek through Bogert Park, currently rated as only partially supporting primary contact recreation, will be improved to benefit people, fish and wildlife. The hazardous high velocities of annual spring flows will be mitigated by creating floodplain benches that slow flows.

This project will be used as a demonstration of the creek's potential to provide environmental educational opportunities to the public. Interpretive signage will be installed describing creek corridor resources, riparian wildlife habitat, and the value of fisheries enhancement and stream habitat restoration in an urban environment. Bozeman School District youth will be presented with the opportunity to become involved in re-vegetation and post-construction monitoring activities, and to use Bogert as an outdoor classroom to learn about the environment.

The Bogert Park Master Plan notes that trail connectivity within Bogert Park and through the park is lacking. This enhancement project will make major improvements to the pedestrian footbridge connecting Bogert to the residential neighborhood west of the creek. The footbridge design will be distinctive, creating a new park focal point where users may linger and enjoy views of the restored stream corridor. The existing trail segment within the park will be realigned and extended to conform to the new creek alignment, and will connect with the Gallagator arterial trail, Burke Park one block to the East, and the downtown area just two blocks north.

Bozeman Creek in its current condition is a marginalized and underappreciated resource with huge potential to be a central asset to the community. Currently channelized and culverted, the creek flows right through the heart of downtown. The Downtown Bozeman Improvement Plan recognizes the tremendous potential of Bozeman Creek to contribute to downtown vitality. Calling for a network of open spaces, plazas and courtyards, the downtown plan recognizes in Bozeman Creek a future downtown destination, a fishable greenway corridor linking the north and south neighborhoods with the city core, and a magnet for new businesses, new residents and increased community vitality. The Bozeman Creek Enhancement Plan envisions Bogert Park as the southern anchor for this urban greenway, with City Hall and Creekside Park the northern anchor four blocks downstream.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

The project will not interfere with water rights. Four private landowners on the west bank will gain additional riparian/floodplain vegetated buffer screening their property from the public park, and all four of the landowners support the project.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No.

J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Date: 11/22/13

Sponsor (if applicable):

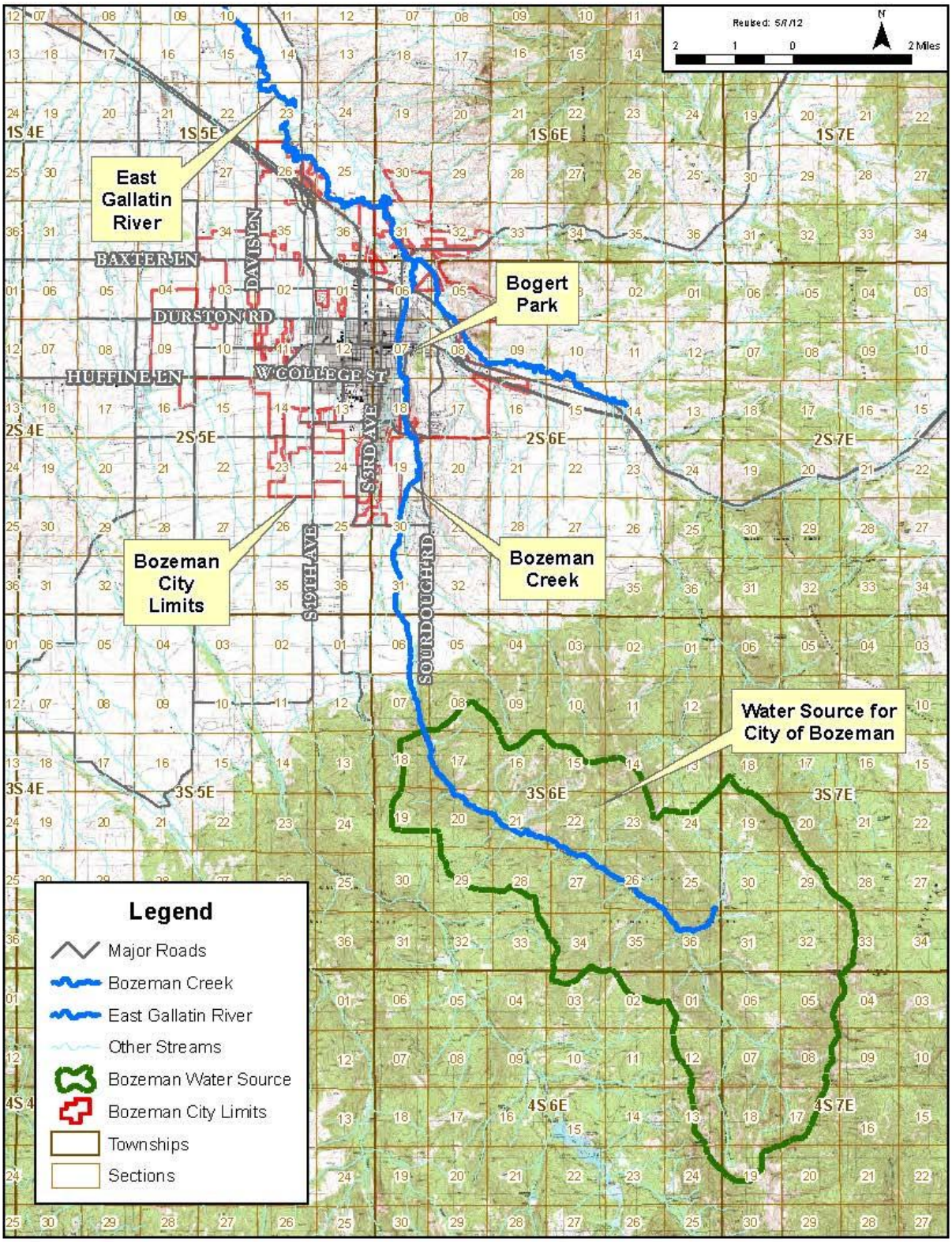
***Highlighted boxes will automatically expand.**

Mail To: **Montana Fish, Wildlife & Parks**
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena <u>before</u> December 1 and June 1 of each year to be considered for the subsequent funding period.*****


Revised: 5/7/12
N
2 1 0 2 Miles
East Gallatin River
Bogert Park
Bozeman City Limits
Bozeman Creek
Water Source for City of Bozeman
BAXTER LN
DAVIS LN
DURSTON RD
HUFFINE LN
W COLLEGE ST
S 3RD AVE
S 19TH AVE
SOURDOUGH RD
1S 4E
1S 5E
1S 6E
1S 7E
2S 4E
2S 5E
2S 6E
2S 7E
3S 4E
3S 5E
3S 6E
3S 7E
4S 6E
4S 7E
Legend
Major Roads
Bozeman Creek
East Gallatin River
Other Streams
Bozeman Water Source
Bozeman City Limits
Townships
Sections