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Introduction

In March 2014, the City of Pocatello, Idaho, requested assistance from the US Army Corps of Engineers, Walla Walla District (Corps), under Section 22 of the Water Resource Development Act of 1974, as amended. This assistance was provided to develop a master plan for the Portneuf River corridor within the Portneuf River Valley in eastern Idaho. The Portneuf River Vision Study (Vision Study) is a public and collaborative conceptual plan for the future of the Portneuf River. It is a living document, and will be updated as information and/or needs change within the Portneuf River Basin.

The Vision Study provides rationale for restoring the ecological function of the Portneuf River and transforming it into a valuable resource for Pocatello residents and visitors. It is not meant to be a comprehensive guide for all Portneuf River issues. The Vision Study taps into the collective history and imagination of residents throughout the Portneuf River Basin by helping them describe and share the important environmental, social, and economic roles the Portneuf River plays in and around Pocatello. The Vision Study is a conglomeration of recommendations and short- and long-term future potential projects, as well as a framework for potentially revitalizing the Portneuf River and environs in the coming years.

Authority

The Portneuf Vision Study is being done under the authority of Section 22 of the Water Resources Development Act (WRDA) of 1974, as amended. This authority gives the Corps the ability to assist states, local governments, Native American tribes, and other non-Federal entities in the preparation of comprehensive plans for the development and conservation of water and related land resources.

Background/History of the Project Area

The Portneuf River begins in the northern portion of the Portneuf Range within the Fort Hall Indian Reservation, current home to the Shoshone-Bannock Tribes. The Portneuf flows into the Snake River at American Falls Reservoir, also within the Fort Hall Indian Reservation. Along its roughly 111-mile route, the Portneuf flows through four (4) Idaho counties (Bannock, Caribou, Power, and Bingham) draining around 1,300 square miles of land in southeastern Idaho. This land provides important habitat for fish and wildlife species, recreational opportunities, and irrigation for farming. Over time, however, the river has been heavily altered.

The cultural and social geography of the Portneuf River is shaped by a complex history of human usage, River management, and shifting environmental perceptions. Prior to European settlement in the region, Native Americans from the Bannock and Shoshone Tribes lived in seasonal settlements and hunted together (Madsen, 1958). They wintered among the willows, chokecherries, and cottonwoods along the Portneuf River. Within the Portneuf Watershed, they set up camps along the Portneuf River, as well as on the adjacent sagebrush-covered valley

floor, from Lava Hot Springs to the Portneuf River's confluence with the Snake River (Holmer, unpublished).

The Portneuf River also served as a route for nineteenth-century migrants along the Oregon and California trails as well as miners headed to search for gold in the Clearwater and Salmon Rivers. The Utah and Northern Railway, the first railroad in Idaho, began construction in 1878 and used the River as a route through the Portneuf and Bannock mountain ranges. In some locations, the River channel was altered by the placement of rail lines.

Railroad development and a growing population of settlers and railroad workers (and associated trespassing by settlers onto tribal lands) resulted in the establishment of the Pocatello townsite in 1888, following the Fort Bridger Treaty in 1869 and the establishment of the Fort Hall Indian Reservation. As was common practice at the time, the townsite was laid out with streets running parallel and perpendicular to the railroad tracks, regardless of topography. House lots and streets crisscrossed the Portneuf River, with no land dedicated as open space for floodplain or floodway. As Pocatello grew, development encroached on the Portneuf River floodplain, bringing inevitable damages from flooding. Runoff was exacerbated by land use changes, including the rapid conversion of much of the watershed's highly erodible sagebrush slopes to tilled ground (particularly following World War II). Flood events along the Portneuf River (usually the result of spring runoff, with the occasional winter rain on frozen ground event) were a common occurrence upstream from Pocatello during the first half of the 20th century, and increasingly threatened property as the floodplain upstream of Pocatello was developed.

A series of spring runoff floods in the 1940s (along with the Flood Control Act of 1936 and the subsequent Columbia River Subbasin study) sparked demands for intensive management of the Portneuf River, and prompted the City of Pocatello to request Federal support for flood damage reduction along the River.

On June 12, 1945, the Pocatello Board of County Commissioners sent a telegram to the Corps' Colonel Ralph Tudor for immediate assistance due to flood conditions. Following this communication, the Corps conducted studies and laid out a proposal to force the Portneuf River into a deeper, reinforced channel through the city to contain flood-level flows. A public meeting was held at which general support for the project was shown, with only scattered concerns. However, lack of public support over funding and project specifics prevented final agreement and implementation of the project at that time.

Over the next decade, Pocatello began to experience significant growth due to phosphate mining, dairy production, and the expansion of railroad transportation throughout the northwest. The devastating winter floods of 1962 and 1963 caused significant damage to residences, agriculture, and industry; and drew public attention to the need for flood protection to the city. The February 1962 flood peaked at 2,990 cubic feet per second (cfs), with damages estimated at \$10 million across the entire Portneuf Watershed. The February 1963 flood peaked at 2,470 cfs. Following these two devastating floods, public opinion changed

in favor of raising tax revenues to cost-share flood control costs to protect private properties and the city's commercial and industrial assets. This investment was designed to have its economic benefits (i.e. reduced property damages during flood event) realized in 50 years (modified to 75 years due to increased construction costs).

Construction of the Federal project began in July 1966 and was completed in November 1968, at a total cost of \$7 million, of which \$500,000 was local match. The project is 6.2 miles long and consists of a 1.5-mile-long rectangular concrete channel and 4.7 miles of levees both upstream and downstream of the concrete channel through the City of Pocatello. The side walls of the concrete channel vary in height from 10 to 16 feet, and the channel is 40 feet wide. Levee slopes are constructed at 2H:1V and are armored with riprap. The project is designed to handle flows up to 6,000 cfs, with 3 feet of freeboard on the levees and 2 feet of freeboard in the concrete channel.

With the establishment of railroads, agriculture, residential and commercial development, industrial uses, and construction of the flood project, the River has become (both literally and figuratively) disconnected from the community over time. The flood control channel has protected Pocatello from flood damage for over nearly 50 years. However, city residents, as well as citizens throughout the Portneuf River Basin, do not have access to one of their most valuable assets. Additionally, economic development has not been realized along the concrete channel.

The Portneuf River Basin supports a wide range of needs, from recreation and agriculture to fish and wildlife habitat. The River is key to the regional economy. After the flooding in the early 1960s, residents of Pocatello were eager to accept the Corps' recommendation for a concrete channel as a solution to flood events. Many current residents, while appreciative of the flood protection afforded by the channel, would like to reconnect with their River, accessing it often and in many different ways. Residents also value a healthy river ecosystem. The Vision Study recommends actions aimed at promoting ecosystem restoration, recreation, and community development goals.

Purpose and Scope

The Portneuf River Vision Study was designed to assist the community by integrating existing policies, plans, and innovative ideas into a single plan; outlining goals and recommendations for improved River corridor management; and identifying opportunities for environmental improvement and restoration. The recommendations outlined in the Vision Study are designed to work in concert with other planning efforts currently ongoing within the watershed. A few of these ongoing efforts are shown in Table 1.

The Vision Study seeks to describe a shared community vision that can inform future planning and project implementation. The recommendations of the Vision Study are meant to identify opportunities to manage the River and its adjacent lands to meet ecosystem health, recreation, access, community engagement, and economic development goals. Recommendations are

strictly voluntary, and are non-binding on landowners and land managers. The implementation of recommendations is contingent on voluntary actions, future rulemaking, planning, and available funding through various governmental agencies, non-profit organizations, and public-private partnership entities.

Table 1. Ongoing Restoration Projects within the Portneuf River Basin

Project	Proponent	Description
City Creek	City of Pocatello	Trail, bridge, and road improvements with grants from Idaho Parks and Recreation.
Marsh Creek	Idaho Association of Conservation Districts	Streambank restoration
Upper Portneuf River	Idaho Fish & Game, Cariboo Conservancy, volunteers	Riparian fencing projects

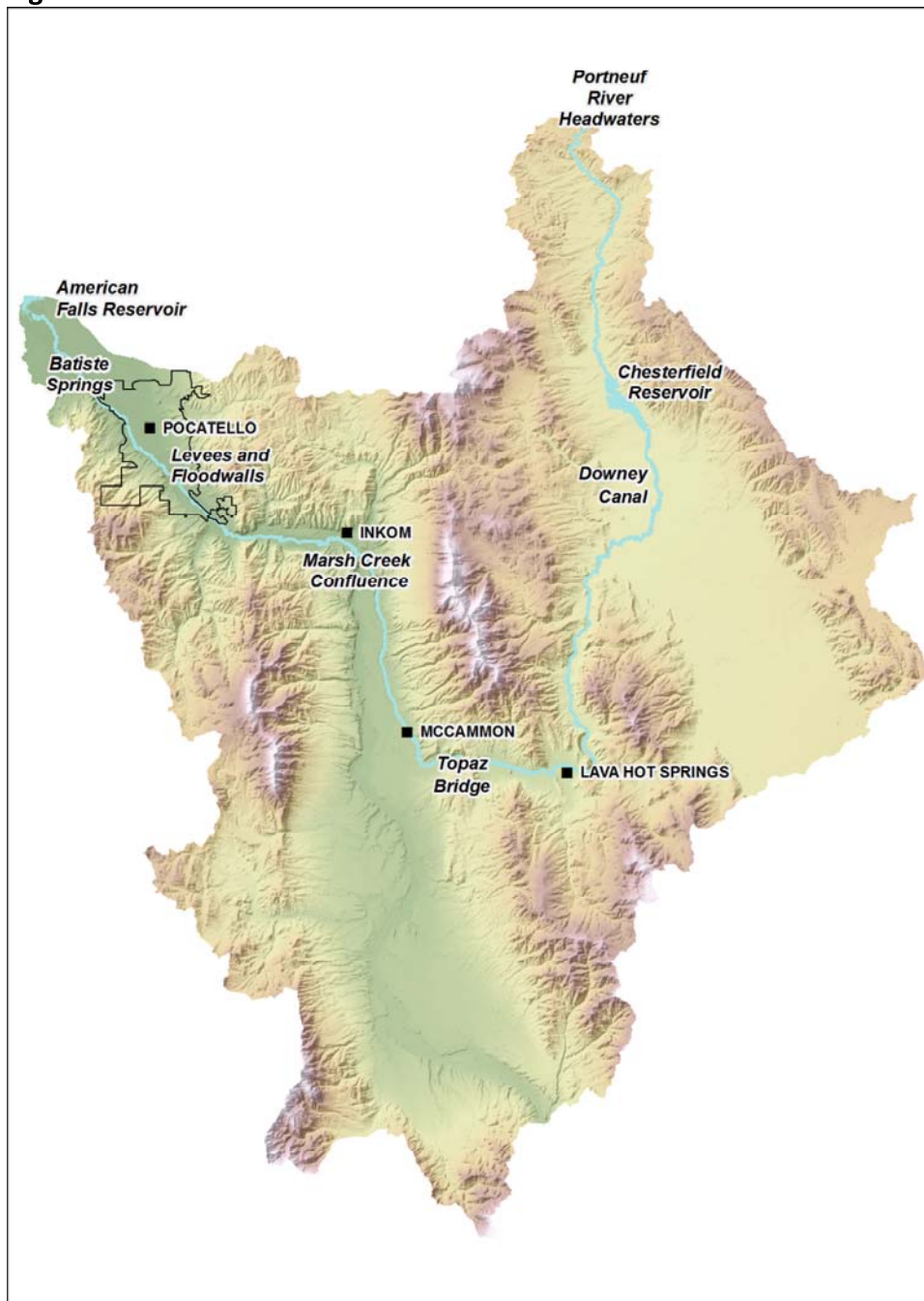
The geographic scope of the Vision Study is the Portneuf River corridor, extending from the Portneuf Gap (Fort Hall Mine Road) to the Fort Hall Indian Reservation boundary (near Siphon Road), and includes tributary streams. Within this study boundary, the River runs through the City of Pocatello, and includes the congressionally-authorized Portneuf Flood Control Project constructed by the Corps in the 1960s.

The Portneuf River Watershed

A watershed is an area within which natural drainage patterns convey surface water flows to a low-point destination. The Portneuf River watershed encompasses approximately 1300 square miles in Bannock, Bingham, Caribou, and Power Counties in southeast Idaho (Figure 1). The River is fed by 576 miles of perennial streams, 902 miles of intermittent streams, and approximately 140 miles of excavated canals. Agriculture is the dominant land use. Range and agricultural land comprises 48% and 33% of land use in the watershed, respectively, while forest and urban lands cover only 13% and 3% of total lands within the Portneuf River Basin (Krajewski 2002). Because Pocatello is situated at the low point of the watershed, any changes to the River channel, including restoration activities, habitat improvements, and water quality treatments, are influenced by upstream activity in the watershed.

The Portneuf River originates on the Fort Hall Indian Reservation, and is fed by high mountain streams. At the reservation boundary, the River flows into Chesterfield Reservoir, which regulates irrigation water flow in Marsh Valley. Near the reservoir, most tributaries to the Portneuf are fully diverted for irrigation. As a result, the lower portions of many tributaries dry up completely. During the irrigation season, all flow from Chesterfield Reservoir is diverted to Downey Canal (Figure 2) for 8 miles, causing the historic Portneuf River channel to run dry for several miles.

Figure 1. The Portneuf River Watershed



Between Chesterfield Reservoir and Lava Hot Springs, the Portneuf River used to be considered a blue ribbon cutthroat trout fishery. Discharges of excessive sediment from Chesterfield Reservoir, eroded stream banks, and channelized stream sections created unfavorable conditions for fish by the 1970s and 1980s. Restoration work performed by volunteers and agencies, in cooperation with local landowners, is resulting in the recovery of Yellowstone cutthroat trout populations.

Figure 2. Downey Canal. Note how straight the canal is compared to the historic Portneuf River channel, which meanders across the valley floor.



From Lava Hot Springs downstream to McCammon, over 10 miles of stream channel was altered by railroad construction, Highway 30, and agricultural uses. Straightening the River course caused erosion in this reach of the River, leaving cut banks over 10 feet high in some locations.

At Topaz Bridge (Highway 30 and Old Oregon Trail Road), Marsh Valley Canal diverts nearly 80% of the Portneuf River for irrigation water to Marsh Valley. Any excess water and irrigation return flows return to Marsh Creek. Marsh Creek is the largest tributary to the Portneuf River, draining nearly one-third of the watershed. Marsh Creek joins the Portneuf River near the town of Inkom, where it returns some diverted irrigation (from Marsh Valley Canal) along with a large amount of sediment and phosphorus. Multiple segments of Marsh Creek have been listed as impaired for sediment, pathogens, bacteria, and nutrients (IDEA 2005; ISU unpublished). Some of this sediment is deposited along levees within the study area, but the majority of it remains within the River until downstream of Pocatello. Landowners along Marsh Creek, in partnership with Federal, state, and local agencies, are working to reduce this sediment load through fencing and streambank restoration projects.

The overall watershed has a dramatic impact on the way the Portneuf River functions within the study area, as it is the main collector for the watershed. While recommended actions cannot adequately address challenges throughout the watershed on their own merit, the Vision Study seeks to leverage ecological function across the watershed by repairing key components in the connectivity of systems and natural processes within the study area. The plan will be coordinated with existing and future efforts by others to improve and protect water quality and restore aquatic resources throughout the Portneuf River Watershed.

Vision Study Reach Descriptions

For purposes of this Vision Study, the River has been divided into four separate river reaches. Each individual reach has certain concerns, and these are so noted in the description of each reach.

South Reach

The South Reach is approximately 7.5 miles in length, and is located immediately upstream, or south, of the Pocatello Flood Control Project (Figure 3). It flows north from Fort Hall Mine Road through a mix of agricultural and suburban development. Some of the development lies within the floodplain.

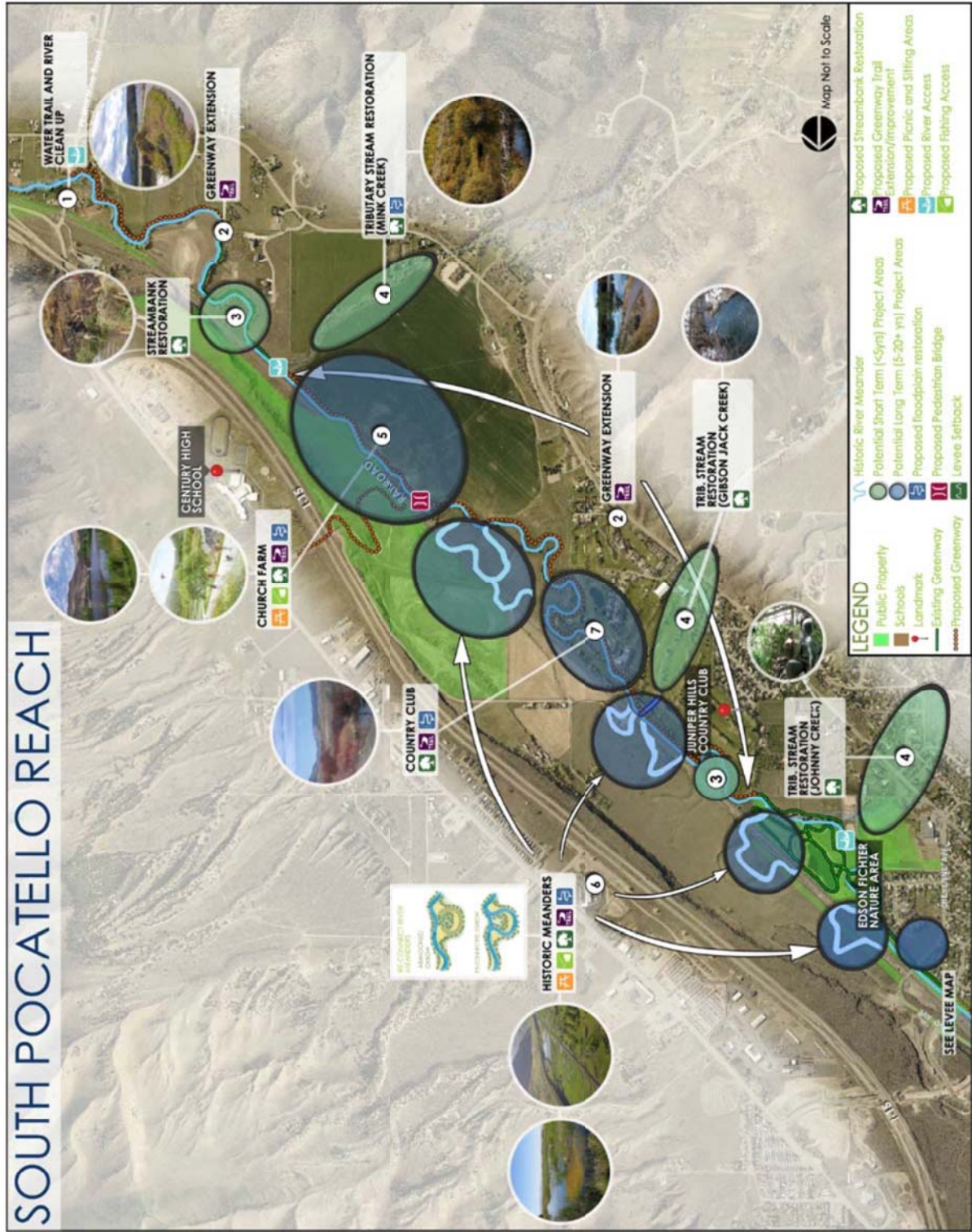
Prior to construction of the railroad in the late 1800s, the Portneuf River meandered across the valley throughout this reach, bounded only by the lava cliffs to the east and the toe of the west bench to the west. Today the River is constricted by development, and meanders between the railroad tracks and the toe of the west bench.

Riparian vegetation is mixed throughout the reach, with a few healthy stands of willows and small native trees along the banks, some noxious weeds, and other areas with little riparian vegetation (primarily adjacent to lands in agricultural use). The fine silt that makes up the banks of the Portneuf River is easily eroded when vegetation is removed.

A hundred years ago, the Portneuf River was a blue-ribbon cutthroat trout stream, lined with willows and filled with beaver dams. A description from the August 1894 Bulletin of the United States Fish Commission states:

At Pocatello [the Portneuf] averages about 30 feet wide, 6 inches deep and flows about 1½ feet per second. There are many deep holes or pools with sand bottom, while in the shallower reaches the bottom is of gravel and the current is more swift. The water is rather clear and cool. There appeared to be very little algae or other water vegetation in this stream. The banks were covered with a dense growth of willows, while back from the stream a short distance on either side are sagebrush plains.

Figure 3. South Reach



The Port Neuf River at the mouth of Mink Creek is a clear, cool stream with gravel and lime-deposit bottom in the shallower parts and mud and sand where deeper and more quiet (Bulletin of the United States Fish Commission, 1894).

The present lack of consistent riparian vegetation also contributes to high temperatures measured at Edson Fichter Nature Area, which is located at the downstream end of this reach. During the summer, water temperatures measured at Edson Fichter are often dangerously high for trout and other coldwater fish.

Three generally healthy perennial streams (Mink Creek, Gibson Jack Creek, and Johnny Creek) enter the Portneuf River in this reach. Gibson Jack Creek and Mink Creek provide spawning habitat for cutthroat trout and other fish. These tributary streams have all been impacted by channelization, the use of undersized culverts, and vegetation management in the riparian zone and upland.

Recreational use in the reach occurs primarily in three areas: 1) Edson Fichter Nature Area, where Greenway Trails run upstream along both banks of the River, and a rope swing is provided at one swimming hole access point; 2) Juniper Hills Country Club, whose fairways cross the Portneuf River in some areas; and 3) along a small isolated stretch of the Greenway that runs behind a small housing development near the upstream end of the reach.

Transportation along the South Reach is via South Bannock Highway, a single arterial road along the valley floor that runs parallel to the River. There is also an east/west connection at both ends of the reach. Another arterial (South Fifth Avenue) and the Interstate highway are located on the lava cliffs above the River. These arterials are popular biking routes, but are generally considered unsafe for novice riders because of the lack of bike lanes (except on one east/west crossing). City of Pocatello planning documents call for additional bike facilities in this area.

Levee Reach

About 4.7 miles in length, the Levee Reach (Figure 4) includes the Portneuf River Flood Control Project intermittent riprap channel and earthen levees. It runs from Edson Fichter Nature Area, at the upstream end of the Federal flood control channel, to Halliday Street, the upstream end of the Concrete Channel Reach. Residential development and railroad tracks line this reach of the Portneuf River.

The land along this reach was historically used for agriculture. However, following levee construction in 1968, the land along this reach was developed, and is disconnected and blocked from the floodplain. This section of the River flooded every few years during spring runoff, and numerous small levees were placed along the River banks by irrigators and landowners to keep floodwaters at bay.

The levee is now about 15% full of fine sediment, creating a mini-floodplain within the River banks. The silt is deposited on the levee banks and kept in place by willows, trees, and other volunteer vegetation.

The trapezoidal levees run fairly straight. They were designed to be maintained with no vegetation over 6 inches in height, as required by the Corps. Willows typically grow on the silt between the River banks, and an occasional tree grows on the levee below the riprap. More trees line the western levee banks that merge into the natural grade coming off the west bench.

Existing vegetation does not cool the stream enough for trout and other coldwater fish. In addition, the straightened channel provides little aquatic habitat, particularly when compared to naturally meandering streams.

Buck Creek and Cusick Creek, two somewhat healthy streams in terms of flow and vegetation, enter the Portneuf River in this reach. Since they flow into the Portneuf River through flap gates, (Figure 5) which open only because of water pressure from these two creeks, there are limited upstream migration opportunities for fish and other aquatic organisms into these tributaries. Both tributary streams have been impacted by development through some channelization, including the use of undersized culverts, and vegetation management both in the riparian zone and upland.

Recreational use in this reach primarily occurs in multiple areas:

- Edson Fichter Nature Area. Greenway trails run upstream along both sides of the River, and there is a fishing dock and access point
- Greenway (from Cheyenne Avenue to Tech Farm Road, and from Taysom Rotary Park to Halliday Street)
- Riverside Golf Course, where the fairways run up to the levees
- Centennial/Rainey Park, which straddles the levees and the Portneuf River

Bannock Highway and South 2nd Avenue provide north/south transportation along the valley floor, with the Portneuf River and the railroad tracks between them. The only east/west crossings are at either end of this reach (at the Benton Street Bridge and at the South Valley Connector). These roads are popular biking routes, but are considered unsafe for novice riders because there are few bike lanes or separated facilities. City planning documents call for additional bike facilities along this reach. The downstream (north) end of this reach merges into Old Town Pocatello, with its many shopping and dining opportunities.

Figure 4. Levee Reach



Figure 5. Flap Gates at Buck Creek



Concrete Channel Reach

The Concrete Channel Reach is approximately 1.5 miles in length, and incorporates the Portneuf Flood Control Project concrete channel (Figure 6). It flows north from Halliday Street, at the downstream end of the Levee Reach, to Sacajawea Park, at the downstream end of the Federal flood control project.

The concrete channel was designed as part of the 1968 Federal flood control project, which was authorized under the Flood Control Act of 1950 (Public Law 51-516). The floods in 1962 and 1963 were over 2,200 cfs, which was the project size recommended by the Corps in a 1953 study. The 1964 study recommended protection up to 4,500 cfs at a minimum. Cost benefit ratios were then performed on discharges from 4,500 cfs to 7,000 cfs.

The final project was based on the benefit-to-cost ratio and ease of construction. A rectangular channel was chosen over a trapezoidal shape because the channel fit under existing bridges and right-of-way issues were less than with other solutions. It is typically 40 feet wide and 15 feet deep, and sized to hold flows of up to 6,000 cfs with 2 feet of freeboard.

Figure 6. Concrete Channel Reach



Dense single-family homes line the Concrete Channel Reach of the Portneuf River. Land in this section was originally platted in the late 1800s to lie along the railroad yard, but with no regard for the Portneuf River or east and west benches. This resulted in floodplain development and subsequent frequent flooding of homes, particularly near what is now Irving Middle School and Raymond Park. Following construction of the flood control channel in 1968, a few additional homes and outbuildings filled in the spaces along the concrete channel.

Despite the lack of vegetation, the straight, deep concrete channel shades the Portneuf River during summer months, but not enough to meet the temperature requirements of trout and other coldwater fish. In addition, the vertical sides of the channel provide no nesting or resting spots for fish and other aquatic life. Because it is approximately 40 feet wide, the depth in the channel is often less than 12 inches in the summer, providing little cover for fish.

City Creek, a generally healthy stream, enters the Portneuf River in this reach. The mouth of City Creek can be more than 5 feet above the level of the Portneuf, making upstream migration into this tributary challenging for fish and other aquatic organisms. City Creek is primarily impacted by significant recreational pressures, resulting in high levels of sediment from nearby trails and roads. *E. coli* bacteria is also present. The source is unconfirmed, but is assumed to be from dog waste.

Recreational use in this reach primarily occurs in multiple areas:

- Greenway Trail River from Old Town to City Creek
- Memorial Park
- Raymond Park
- Greenway Trail running downstream from Raymond Park to Sacajawea Park

Transportation along the concrete channel occurs via Old Town residential streets, with a few bridges across the Portneuf. While many of these roads are low volume and safe for both vehicles and cars, the lack of a clearly marked non-motorized pathway to the river and along it is a significant barrier to greater recreational use of the area. City planning documents call for additional bike facilities along this reach.

Northwest Reach

The Northwest Reach is approximately 8 miles in length. It flows northwest from Sacajawea Park, at the downstream end of the concrete channel; to the Fort Hall Indian Reservation boundary (Figure 7). Development along this portion of the Portneuf River is a mixture of natural areas interspersed with industry, agriculture, and few older residential homes.

The section of the River adjacent to Sacajawea Park was straightened as part of the flood control project, although the area is not within the current flood risk management boundary. Two meanders were removed in this section, but the meander at the southern end of the park has been reconstructed as a stormwater wetland and channel. Aerial photography of the reach

shows that one other significant meander was removed for agricultural use. Other than those cut-off meanders, this reach of the Portneuf River follows its historic channel.

Pocatello Creek is the only perennial stream entering the Portneuf River within this reach. It enters the Portneuf River at the upstream end of Kraft Road. The Creek primarily contains return irrigation flows from the Blackfoot River during summer months. It is extremely degraded as a result of this agricultural input and urban development. It is channelized and buried under much of the City of Pocatello.

Historically, a large section of this reach supported a cottonwood forest, and small willows lined its banks. Upstream water use, which reduces summer flows in the Portneuf by about 75% in the Pocatello area, decimated the cottonwood forest by limiting regeneration. Today, a mature black willow forest provides canopy over the River, but the area is characterized by significant bank erosion due to channelization upstream and within the reach.

The River bed in this reach contains small boulders and gravel deposits. This, along with significant amounts of wood debris, provides habitat for fish and other aquatic life. The River is braided in some places downstream of Kraft Road.

The downstream portion of this reach is vastly different from the upstream reaches. Batiste Springs flows into the Portneuf River just below Batiste Road, providing significant and consistent cold water flow throughout the year. This clear water dilutes the sediment, however it also brings a significant load of phosphorous from the nearby fertilizer plant, which contributes to increased amounts of algae and low oxygen levels.

Recreational use in this reach occurs in multiple areas:

- Sacajawea Park
- Greenway Trails from Sacajawea Park to the Pacific Recycling Trailhead at Kraft Road
- Greenway Trails from the Abraszewski Trailhead to Simplot
- Fishing at Batiste Bridge

Figure 7. Northwest Pocatello Reach



The Vision Statement

The Vision Statement, drafted collaboratively by the Vision Study Working Group and based on community input, provides a simple, yet eloquent and all-inclusive framework for the Vision Study.

Our vision is to restore the Portneuf River corridor in order to revitalize environmental, recreational, and economic opportunities while increasing community pride, connectivity, and quality of life.

Guiding Principles and Goals

In accordance with community preferences and the Vision statement, the Vision Study is based on four overarching guiding principles: 1) ecosystem health; 2) access and recreation; 3) community engagement; and 4) economic development.

Guiding Principle 1: Ecosystem Health

The Vision Study provides opportunities to address a renewal of the Portneuf River's environmental qualities within the study area. As a long-term goal, the River's ecological and hydrological functions can be restored by creating a riparian corridor and removing or modifying the concrete channel and levees through Pocatello, where feasible. Alternatives for flood risk management would be necessary to protect and maintain urban development, but removing the concrete channel would provide long-term benefits to the entire River corridor. Additionally, improvements to urban runoff and upstream water quantity and quality are critical for improving ecosystem health and associated recreational opportunities within the Vision Study area.

Goals for revitalizing the River include the following:

- Appropriate flood risk management
- Restore and protect the Portneuf River ecosystem
- Improve water quality and flow
- Integrate stormwater and groundwater management with plans for the River

Guiding Principle 2: Access and Recreation

Creating and extending safe public access to the Portneuf River would benefit the entire Portneuf River Valley. This includes a continuous greenway linking a series of non-motorized paths to the River, public open space, residential areas and downtown. Signage, bridges, and other such elements could help revitalize the community's perceptions of the River. Key components include visual, walking, and boating access to the river itself.

Goals for providing access and recreational opportunities include the following:

- Connect and extend Greenway trails and open space along the River
- Connect neighborhoods, shopping areas, and trail systems to River trails
- Enable safe public access to the River
- Increase recreational opportunities focused on and around the River
- Incorporate educational resources (e.g., school programs) along the River
- Incorporate public art and signage to celebrate the natural and cultural heritage of the River and the community

Guiding Principle 3: Community Engagement

As recommendations are adopted and implementation begins, residents should participate in the community planning process to identify land uses (e.g., recreation, commercial development, or open spaces) appropriate and compatible to specific project areas. Community engagement will ensure the following goals are met:

- Make the River a focus of activity
- Engage residents in project planning and implementation

Guiding Principle 4: Economic Development

Vision Study recommendations should improve the quality of life for valley residents, enhance the attractiveness of Pocatello as a place to live and work, and increase economic prosperity.

Core elements of this idea include community empowerment by encouraging participation and consensus-building, creating opportunities for sustainable economic reinvestment, and adding value and providing an equitable distribution of opportunities to underserved neighborhoods along the Portneuf River. Working for stronger economic development in the Portneuf River valley will meet the following goals:

- Improve public health and quality of life
- Increase employment, housing, and retail space opportunities
- Promote public and private riverfront development/open space acquisition in suitable areas
- Focus attention on affordable neighborhoods

Planning Process Overview

Over the course of 18 months, the Vision Study for the Portneuf River was developed by the Vision Study Working Group through a collaborative planning process led by the Corps and the City of Pocatello. Key components of this process included:

- Stakeholder Assessment and Working Group Development Summer 2015
- Existing Conditions Inventory Summer/Fall 2015
- Working Group Meetings Fall 2015 to Fall 2016
- Public Outreach and Information Gathering Winter 2015 to Summer 2016
- Vision Study Completion and City Council Presentation Fall 2016

Stakeholder Assessment

As part of this Vision Study, the Corps' Conflict Resolution and Public Participation Center of Expertise (CPCX) was charged with assessing community interests and developing a plan for the public and stakeholder engagement process. A summary of the Stakeholder Assessment is contained in the following paragraphs. Further detail can be found in *Appendix A – Stakeholder Assessment*.

In August of 2015, the CPCX conducted a stakeholder assessment to initiate development of the public engagement plan. This was done through facilitated dialogues with organizations and individuals active in improvement activities or just interested in the River and its future. The purpose of this assessment was: 1) to build a more complete base of information regarding community awareness of existing conditions on the Portneuf River and interest in improving conditions; 2) to help the Corps design the most effective public workshops during development of the Portneuf River Vision plan; 3) to identify information gaps needing to be addressed in the Vision Study; and 4) to identify engagement strategies for other key citizens to ensure creation of a plan representative of the entire community, including those socially-vulnerable populations potentially less likely to participate in workshops and meetings.

Stakeholder interviews focused on interests and concerns about the Portneuf River, both from organizational and individual perspectives.

Stakeholders from the following groups were interviewed:

- Portneuf Valley Pride
- Pocatello/Chubbuck School District #25
- Pocatello Community Charter School
- Portneuf Greenway Foundation
- Bannock Transportation Planning Organization
- Portneuf Health Trust
- NeighborWorks Pocatello

- Old Town Pocatello
- Portneuf Watershed Partnership
- City of Pocatello Mayor and staff
- Pocatello City Council
- Idaho Bureau of Homeland Security (IBHS)
- Idaho State University scientists (ISU)
- Idaho Department of Environmental Quality
- Landowners along the Portneuf River

Several major themes arose during the stakeholder assessment. These themes and other information obtained during the interviews helped develop a series of workshops and open houses, and guided the selection of working group members. The major themes identified during the Stakeholder Assessment are:

- **Perceptions of the River (Aesthetics)**

Because of the Portneuf River's physical appearance, many stakeholders perceive the River as a negative asset to the city. Water color and quality, low flows, and the concrete channel all contribute to this negative view. The biggest concern was the concrete channel, which prevents access and creates the illusion that the River is unapproachable and uninviting. Because of this, residents do not feel connected with the River. Most people do not even think of it as "the River" and, when they think of it all, they generally see an eyesore and a wasted resource.

However, the stakeholders do see great potential for improving River reaches, and feel that enhancements could make the Portneuf River more attractive and inviting. These stakeholders believe that improving River aesthetics and water quality would lead to an overall improvement in the look and feel of the City of Pocatello.

- **Water Quality**

Poor water quality was a concern for many stakeholders. Observation-based concerns included the distasteful color of the Portneuf River, as well as the observed discharge of stormwater and other pollutants into the River. Scientists from ISU and Idaho Department of Environmental Quality (IDEQ) discussed the relationship between low flows and warm temperatures and how they prevent fish and other aquatic life forms from surviving in the concrete channel.

Agricultural byproduct and siltation from pollution attributed to the confluence with Marsh Creek, about 7 miles upstream from the study area, is another concern. A representative from IDEQ noted that "water quantity begets water quality." The general sentiment expressed is that people will not use the River if it is not cleaned up, restored, and relatively free of pollutants and debris.

- **Access and Recreation**

Of utmost important to many stakeholders is recreational access to the River and the connectivity of trails along the River. A “greenway” path bordering the concrete channel was a key topic and, though generally viewed positively, remains a concern for homeowners with property in the vicinity. Some homeowners would have their property, and their privacy, significantly impacted by substantial channel and trail alteration and increased usage.

Many viewpoints were expressed regarding construction of a greenway and continuous trails throughout the city. The majority of stakeholders understand that complete access is not possible. Prior attempts to use eminent domain to create trails along the River left bitter feelings and resulted in a State law disallowing the use of eminent domain for greenway development (Idaho Statutes 7-101a, 2015). Land acquisition is an important consideration for trail development and other future projects.

In terms of River access for the purposes of recreation, school representatives articulated their interest in students using the Portneuf River as part of their curriculum. Several ISU students and other community members also indicated their desire to swim, kayak, and float the River.

- **Channel and Modifications**

As expected, much of the discussion centered on the concrete flood protection channel through the City of Pocatello. Stakeholders are concerned about maintaining an adequate level of flood protection, but many would prefer to remove or significantly alter as much of the concrete channel as possible. The channel is seen as a detriment to water quality, recreation, and access; and was deemed dangerous by some. Emergency officials noted that the current channel design makes human and animal rescue from the channel challenging and difficult.

- **Property Acquisitions along the Channel**

Potential actions taken in support of the Portneuf River Vision should use only land acquired from willing landowners. In 2009 and 2010, the Greenway Foundation caused major conflict by threatening to use eminent domain to create a greenway. As a result, new Greenway leadership is focused on working with willing landowners.

Revitalizing areas of the city with low-quality housing is seen as very positive to many members of the community. However, opposition from landowners or an inability to identify willing sellers could make it difficult to acquire the property needed to support implementation of some actions.

Potential barriers to land acquisition and the need for compromise were noted by the Vision Study Working Group. The suggestion was made that this effort would need to be made over the long-term. The city can “slowly buy out homes over the next 50 years.” Not every house along the concrete channel would have to be moved/removed. Investment companies own and rent out a significant portion of the properties along the concrete channel through the City of Pocatello, and these property owners must be engaged and invited to actively participate in the Portneuf River Vision process. NeighborWorks Pocatello and others in Old Town might be in the best position to involve landlords and homeowners to help the plan remain realistic regarding property acquisition.

- **Flooding**

Flood risk management must remain a consideration in any plans to modify the concrete channel. The channel has protected the city since its construction, and it is imperative that any changes to the channel maintain a level of flood protection that assures all community members they are still protected during flood events.

Two very different points of view emerged during the stakeholder analysis regarding flood protection. One view expressed is that, if the Vision Study does not adequately reassure the community that an adequate level of flood protection will be maintained, individuals may be less likely to become involved and/or support the visioning process. On the other end of the spectrum are those individuals who feel that the science used to determine flood risk when the channel was designed does not reflect current risk, and these individuals are concerned Corps standards will limit modifications that can be made to the channel.

The next step in the planning process was to form a committee that could develop and articulate a shared vision, guide the planning process, and make recommendations for the future of the River. This committee would have to adequately represent the collective voice of the community. Individuals were identified by the City of Pocatello and the Corps, and were formally invited by Mayor Brian Blad to participate in the Working Group in 2016 to develop a vision for the Portneuf River and steer the planning process. During this period, the Vision Study Working Group labored to create a plan that accurately describes the needs and values of the community.

Working Group

Sad Following the Stakeholder Assessment and Existing Conditions Inventory, a Working Group was designated to develop and articulate a shared vision, guide the planning process, and make recommendations for the future of the river. This committee was designed to adequately represent the collective voice of the community. Individuals were identified by the City of

Pocatello and the Corps, and were formally invited by Mayor Brian Blad to participate in the Working Group. The variety of groups and agencies involved in the Vision Study Working Group is broad, and includes local, state, and Federal agencies; non-profit organizations; and other local stakeholders. The Vision Study Working Group provided insights, ideas, and feedback reflecting community values, as well as a balanced and open forum for discussion and decision-making. This dynamic team met five times between November 2015 and September

Working Group Members:

Bannock County - Devin Hillam/Jeremy Welch (alternate)

Bannock Transportation and Planning Organization - Mori Byington

City Creek Neighborhood - Sarah Mead/Julie Hafen (alternate)

City of Pocatello (Engineering) - Deirdre Castillo/Michael Jaglowski (alternate)

City of Pocatello (Environmental) - Hannah Sanger

City of Pocatello (Parks) - John Banks

City of Pocatello (Planning) - Matthew Lewis/Lon Crowell & Melanie Gygli (alternates)

USACE (Planning) - Ben Swaner

USACE (Planning) - Karen Kelly

USACE (Biology) - Ben Tice

USACE (Geotech) - Nathan Pierson

USACE (Geospatial) - Sean Redar

USACE (Hydrology & Hydraulics) Darrell Eidson, Joseph Groetsch

USACE (Institute for Water Resources) -Seth Cohen, Andrea Carson

Foothill Neighborhood - Lee Dille

Historic Old Town Pocatello Neighborhood - Joel Mingura

Idaho Department of Environmental Quality - Hannah Harris/Jennifer Cornell (alternate)

Idaho Fish & Game - Jim Mende

Idaho Power - Mark Lupo

Idaho State University MILES - Colden Baxter & Donna Lybecker

Idaho Transportation Department - Alissa Salmore

Levee Area - Randy Smith

NeighborWorks Pocatello - Lisa Smith

Old Town Pocatello - Stephanie Palagi/Jerry Myers (alternate)

Pocatello Community Charter School - Michael Mendive

Pocatello Planning & Zoning Commission - Jack Brennan

Portneuf Greenway Foundation - Rory Erchul

Portneuf Health Trust - Shaun Menchaca

Riverview Neighborhood - Andrea Kayser

School District 25 - Bart Reed/Shelley Allen (alternate)

Simplot - Jeanene Lowry

Valley Pride - Jay Colonel/George Lloyd (alternate)

Veteran's Memorial Building - Jeff Axford

Existing Conditions Inventory

In the summer of 2015, the Corps technical staff gathered and reviewed existing datasets and reports of the study area compiled and developed by ISU researchers, the City of Pocatello, Portneuf Watershed Partnership, Portneuf Greenway Foundation, and others. A series of literature reviews were produced during this effort, and results are located in *Appendix B – Existing Conditions Literature Review*. These literature reviews, which contain relevant information on existing conditions, challenges, and potential opportunities for improvements to the River

, should be updated as new information becomes available. Key topics discussed in the literature reviews include flood risk management, hydrology and hydraulics, land use, cultural resources, fish and wildlife, and water quality.

Public Involvement/Engagement

Involving the public in a study such as the Portneuf Vision Study is imperative. Public involvement in the decision-making process encourages the public to exchange ideas and understand the process that shapes the recommendations, ensuring they are meaningful, useful, and have potential for success. Balancing the protection and health of the River system and providing community-oriented health, economic, and recreational opportunities for all is a challenge. If the public “buys into” the visioning process, it becomes easier for the project sponsors to create a corridor that reflects community values and has the political support necessary for implementation. Public involvement can also aid in reducing the number of alternatives and, throughout the process, the public gains an understanding regarding tradeoffs and compromises inherent in project development. This ensures many more sectors of the community are ultimately satisfied with the project outcome. In addition, the public is an endless source of passion and creative thoughts that may ultimately lead to the best solutions.

The City of Pocatello and the Corps facilitated the public process for the Vision Study. Through strong public engagement throughout the study process, the Working Group identified a variety of concerns and developed recommendations with the greatest chance for success.

- **Challenges and Opportunities Maps** - One of the first tasks undertaken was the development of maps highlighting Challenges and Opportunities for the Portneuf River within the Vision Study Area. Based on input from the Existing Conditions Literature Review, the Working Group and City staff, Corps staff designed Challenge and Opportunity maps to assist the public in understanding what we know (and don't know) about the river. These maps ultimately served as a springboard for many public comments about the river's history and what needed to happen and where.
- **Website Development** - Information from the literature review was compiled by the City and ISU and presented to the community on the River Study website

(river.pocatello.us) beginning in January 2016. This included historic photo-timelines of the Portneuf River in Pocatello, as well as photo tours of the Portneuf throughout the watershed and corresponding information about water quality and recreational use. A history of flooding and the construction of the federal Flood Control Project also engaged community members. Swipe tools using historic aerial photography from before the flood control project was constructed and present day helped educated community members about changes to the landscape.

A 3-D model of Memorial Park today, before the concrete channel, and as it could be in the future engaged community members with the visioning process. Photo tours of restored rivers in other communities (with and without concrete channels), were presented on this website as well.

The website also included an interactive map with layers that could be turned on and off, including existing greenway trails, public property along the river, historic river meanders, and floodplain. The website also contained maps of the Vision Study area highlighting opportunities and challenges identified by the Working Group.

Finally the website provided means for community members to communicate their ideas, concerns and vision back to the Working Group. Community members could join email lists and get more involved, as well as directly submit comments (including by commenting directly on the interactive map). Comments received were then posted on the website to improve communication and understanding.

- **Community Participation (winter 2016)** - The publication of the website at the beginning of January 2016 coincided with a massive public outreach effort. Over the course of the year over 600 community members attended presentations regarding the River visioning effort, most of whom were reached in early January and February 2016. Hundreds of additional community members engaged in the process through one-on-one conversations, while thousands were reached through media coverage (television, newspapers, etc.). A TV ad in January 2016 showcased the historic Portneuf, as well as restoration efforts in other communities. The TV ad encouraged community members to provide input on the visioning effort online or at an upcoming Open House.

Participating community members provided comments about challenges and opportunities they saw. They did this by commenting directly on the Working Group's Challenges and Opportunities maps, by commenting online onto the interactive map of the River Study area, and by submitting emailed, handwritten and in-person comments to the City.

Additionally over 600 community members completed an online visual preference survey conducted by the City of Pocatello during winter 2016. This survey asked community members about their Visual Preferences for the Portneuf River (see

Appendix F). Demographic information collected through this process indicated a widespread sampling of the community including a significant number of residents who lived along the river.

- **Development of Project Goals, Recommendations and Potential Projects** - Based on community input during winter 2016, the Working Group met two times to draft and revise a set of guiding principles, goals, recommendations, and list of potential projects. The original challenges and opportunities maps were re-configured with locations of potential projects. Identified challenges and opportunities were incorporated into these potential project descriptions and into the Vision Study's goals and recommendations. The potential projects were sorted into short-term (<5 years) and long-term (5 to 25+ years) projects
- **Community Participation (spring 2016)** - In the spring of 2016, the Working Group conducted a follow-up open house and online survey. Community members were invited to vote on their top two favorite short- and long-term projects (See Appendix G). Approximately 400 residents took the survey at this time. Ongoing presentations during the spring incorporated the community input received to date, and helped facilitate this community conversation about the Portneuf and Pocatello's vision for it.

A final public open house will be held October 12, 2016, to showcase the final Vision and recommendations.

In April 2016, the City of Pocatello and ISU hosted a River as part of the Vision Study. This River walk was a 2.5-mile walk, led by Basia Irland, an internationally-acclaimed artist who works with river ecologies. The event was billed as a "Gathering of Waters," and participants were urged to share stories or memories about the Portneuf River. Water samples were gathered by participants, and the River was celebrated for what it once was, what it is currently, and what it could be in the future. A number community members also contributed by installing temporary art along the river, primarily using natural materials. Basia Irland created a website following her "Gathering of Waters." Her story and pictures can be found at <http://voices.nationalgeographic.com/2016/07/17/what-the-river-knows-portneuf-river-pocatello-idaho/>.

- **Survey Analysis - Visual Preference Survey.** The Visual Preference Survey gathered input from a broad spectrum of individuals that live, work, and/or recreate in the area regarding preferences for future development, maintenance, and restoration activities along the River. It became clear that local residents value a healthy River and riparian ecosystem. They indicated a preference for diverse recreational opportunities, walking and biking trails, and natural areas for viewing wildlife. Other important elements include flood control, safety, and planning and development.

With only minor variation among community responses, there was overall consistency regarding a desired future direction. Water quality and ecosystem health is the top concern for survey respondents, followed closely by increasing access and public use. In general, residents feel the City should take action to improve the ecosystem health of the Portneuf River. This is consistent with the results of a random public survey conducted by ISU in 2015.

An increase in River access and recreational opportunities also appear important, although this is tempered with concern that projects considered for implementation be feasible and mesh with local community and River conditions (e.g., winter flood events, low summer water levels, water quality, financial and land ownership constraints, etc.).

Residents want to interact with the River on many levels, from water-related sports to wildlife viewing, walking, and biking. The top priorities for public space are non-motorized trails and wildlife viewing. These would include natural riparian vegetation and vegetation buffers between the River/trails and development.

Residents preferred “clean” options. They liked concepts that were free of weeds, included trees and green spaces, and buffered development from the River. Any recommended concept should mesh well with the surrounding landscape.

Priority Projects Survey. In the spring of 2016, the Working Group again invited public input. Based on the community’s Visual Preference Survey results, a list of potential short-term (<5 years) and long-term (5 to 25+ years) projects was generated, and the public was asked to vote on the top two favorites from each category. Table 2 identifies those top priority projects chosen by survey participants, along with a brief description. Further details regarding each project can be found later in this document.

Table 2. Priority Projects

Project	Description
Short-Term (<5 years)	
Rainey/Centennial Park	Setback levee walls, greenway trail extension, picnic area development
Sacajawea Park	River access, reconnect River with meanders, restore eroding streambanks
Portneuf River Water Trail and River Clean-Up	Construct water trail, remove obstructions
Portneuf River Streambank Restoration	Restore eroded streambanks, plant native vegetation
Long-Term (5 to 25+ years)	
Raymond Park	Modify channel walls; create amphitheater, picnic areas, etc.; extend greenway
Center Street Riverfront Shopping Area	Develop shopping and restaurants, pedestrian trail
Concrete Channel Streambank Restoration and Greenway	Create meandering low-flow channel, greenway path
Memorial Park	Create amphitheater, picnic areas, River access, extend greenway
Historic Meanders	Reconnect historic meanders east of Edson Fichter Nature Area

Key Issues

Flood Control Project

Between 1966 and 1968, the Corps constructed a flood control project along a 6.2-mile reach of the Portneuf River through the City of Pocatello. The project includes a 1.5-mile rectangular concrete channel and 4.7 miles of levee upstream and downstream of the concrete channel. The existing concrete channel and levees have effectively contained floodwaters for close to 50 years along the Portneuf River.

Prior to construction of the flood control project, aerial photos and surveys showed extensive meandering of the Portneuf River. Significant environmental impacts, including reduction in River meandering and subsequent channel erosion and reduction of fish and wildlife habitat, were incurred as a direct result of project construction. The upstream levee reach included seven major meanders and former cutoff meanders before project construction. The reach of the Portneuf River currently channeled by concrete through the center of Old Town Pocatello and the downstream levee area each supported one major meander. A total of nine meanders

were removed as part of the project, although the majority of them were removed for agricultural and industrial use.

Fish species present in the pre-project River habitats are still occasionally present in the study area, although high sediment loads and upstream pollution point sources reduced habitat quality. The habitat further declined because of concrete channelization and the removal of River meanders containing numerous micro-habitat components. This removal of streamside shading also decreased habitat suitability. Low summer flows within the 40-foot-wide concrete channel are not conducive to fish passage, which limits the travel of fish up and down the River, effectively separating fish from better habitat conditions both up and downstream of the flood control project. Depths of as little as 12 inches occur during summer months, and provide no cover for fish.

Construction of the flood control project created several fish passage barriers that inhibit or block fish passage throughout the River system. For example, prior to project construction, fish species used City Creek for spawning. The mouth of City Creek, located along the concrete channel, is blocked by a 4-foot drop structure.

The flood control project has been a significant physical barrier to River access and recreation, as it effectively prevents public access to the River or, at the very least, makes access challenging and dangerous. Because of the flood control project's design the River is underutilized by the community.

In summary, the major issues affecting the River because of the flood control project are:

- *Access to the River is difficult or prohibited.* City residents cannot access the River within the concrete channel for safety reasons. Access along the levees is limited because of the levee slope and the large riprap (rock) banks, which are difficult to negotiate.
- *Channel straightening and loss of meanders.* Beneficial River services are diminished because of the flood control project. Natural river processes (e.g., the formation of point bars required for cottonwood establishment) no longer occur within the bounds of the flood control project.
- *Loss of fish, wildlife, riparian, wetland, and aquatic habitat.* Habitat quality is impaired due to the flood control project and its associated removal of River meanders containing numerous habitat components.
- *Fish passage barriers.* No listed species or species of concern exist in the Portneuf River within the City of Pocatello. However, fish passage is limited for the majority of fish species in the River. High temperatures and low flows during summer months, and high velocities at other times of the year, create passage barriers for most fish within the Portneuf River.

Aquatic Invertebrates

Aquatic invertebrates are good indicators of riverine habitat quality, because they require many variables that are directly linked to their habitat requirements. The Portneuf River has aquatic insect indices reflective of poor habitat conditions. In a study on ecosystem structure and function of the Portneuf River (Hopkins et al. 2010), invertebrate community structure did not reflect large differences in water quality among sample sites. The macroinvertebrate community was more responsive to hydrology, in the form of stabilizing groundwater springs, than to large differences in nutrient concentrations. The largest overall percentage of aquatic invertebrates was the invasive New Zealand mudsnail. Based on macroinvertebrate metrics, the Portneuf River was most degraded downstream of Pocatello in areas with higher nutrient levels than in upstream areas with lower nutrient levels. However, differing land uses does not explain variations in macroinvertebrate percentages (IDEQ 2008).

Hydrology and Geomorphology

Prior to modification of the River channel, spring peak flows routinely inundated the floodplain. Uncontrolled spring runoff established and maintained water tables and flood channels throughout the River corridor, contributing to the complex set of factors that allows a riverine ecosystem to function properly. Following the construction of walls, levees, and bank armoring, the floodplain was no longer accessible to floodwaters. This altered the natural characteristics and habitat value of the River corridor within the Portneuf Valley. In its present condition, the River lacks the channel complexity that historically provided habitat for fish and other aquatic organisms. Channelization increased downstream flooding and stream erosion, decreased the natural ability of the Portneuf River to clean polluted water, and removed habitat for fish, birds, beaver, and other wildlife. Although there are conditions affecting the entire River, each reach has specific conditions that must be evaluated individually.

Since the project was constructed, the 1.5-mile concrete channel has effectively eliminated any connection between ground and surface water systems. The remainder of the project may have increased interaction between the systems by lowering the River bed and removing fine material that could act as a barrier to flow between the ground and surface water systems. Shortening the River channel by 2 miles also reduced water loss due to evaporation and plant consumptive use, although this effect is minimal from a basin-wide hydrologic perspective.

Chesterfield reservoir regulates River flow above the project with a storage capacity of approximately 23,695 acre-feet (AF). This stored water is primarily reserved for irrigation up Marsh Creek, with close to 80% of Portneuf River flows diverted at Topaz Bridge. Some of this diverted water returns to the Portneuf via Marsh Creek. A preliminary analysis of water right claims completed by CH2M Hill in 1994 indicated that approximately 60% to 70% of claimed Portneuf River water rights were for irrigation, or irrigation in conjunction with another use (e.g., stock water or domestic use).

To summarize, the major issues affecting the hydrology and geomorphology of the Portneuf River include the following:

- *Channel straightening and simplification.* Development, agriculture, transportation infrastructure, and flood control measures reducing geomorphic functions have all encroached on the floodplain.
- *Altered flow.* Current flows differ in duration, magnitude, and timing from the natural hydrology that formed the River channel and floodplain.

Water Quality

Clean water is a necessity. It is required for human consumption and recreation; and supports healthy fisheries, wildlife habitats, and ecosystem function. Urban and agricultural runoff negatively affect water quality in the Portneuf. Channelization and flow alteration to accommodate development and water supply also diminish water quality. The time of year, source of pollutants, and water volume can influence the concentration and loads of pollutants within the River.

Within the study area, water quality in the Portneuf River is often quite poor. Tables 3 and 4 show impaired streams and sampling data for IDEQ's 303d-listed streams within the Portneuf River Basin that have water quality issues. The primary pollutants/issues of interest for the Portneuf River are bacteria [*Escherichia coli* (*E. coli*)], low levels of dissolved oxygen, phosphorus, temperature, and sediment. Above Batiste Road, there is too much sediment in the River, which clouds the water. High levels of nutrients and bacteria are attached to this sediment. Below Batiste Road, an influx of spring water dilutes the sediment within the Vision Study area. Extremely high phosphorus loads are delivered to the River via the influx of groundwater from the J.R. Simplot Company. In April 2008, IDEQ and Simplot signed a Voluntary Consent Order, and outlined steps needed to reduce phosphorus discharge to the Portneuf River in the study area. These remedial actions should attain water quality goals and result in improved dissolved oxygen conditions.

Table 3. Portneuf River Basin Impaired Streams between the Portneuf Gap and the Reservation Boundary [Hydrologic Unit Code (HUC) 17040208] in the 2012 Integrated Report

Stream Name	Accounting Unit (AU) of HUC 17040208	Categories in 2012 Integrated Report	Total Maximum Daily Loads (TMDLs)	303d Listing Cause
City Creek	SK002_02	5		<i>E. coli</i>
South Fork Mink Creek	SK004_02c	4A, 5	2001 TMDL, TN, TP, sediment	<i>E. coli</i>
Mink Creek – South Fork to East Fork	SK004_03a	4A, 5	2001 TMDL, TN, TP, sediment	<i>E.coli</i>
Mink Creek	SK004_04a	4A, 5	2001 TMDL, TN, TP, sediment	<i>E. coli</i>
Portneuf River	SK016_05	4A, 4C, 5	2001 TMDL fecal coliform, TN, oil, and grease, TP, sediment	Temperature
North Fork Pocatello Creek	SK026_02a	5		<i>E. coli</i>

Recreation activities can impact water quality, species richness, and substrate conditions in the Portneuf River Basin (Cornell 2013). Compared to Gibson Jack Creek, City Creek (which has a higher level of recreation) has more fine sediment; lower macroinvertebrate species richness, abundance, and aquatic insect abundance, and biomass; higher dissolved organic carbon; and higher total phosphorus (Cornell 2013).

River flow is reduced by as much as 70% by irrigation in the summer compared to unregulated flow (Marcarelli et al. 2010). The River and its tributaries also receive irrigation return flows and non-point source discharges that can be laden with bacteria, excessive nutrients, and sediment [Idaho Association of Soil Conservation Districts (IASCD) 2005; IDEQ 2010]. High nutrient levels in the lower Portneuf River can lead to excessive aquatic plant growth (IDEQ 2010). Lower dissolved oxygen levels are often not adequate for cold-water aquatic organisms, and water temperatures are higher than historic conditions. Stormwater runoff carries oil and grease, high nutrients, bacteria, and sediment; and is often a problem in developed areas (IDEQ 1999).

Table 4. Most Recent Bacterial Sampling Data for Impaired Streams in the Portneuf River Basin

Stream Name	AU of HUC 17040208	Collection Data (Most recent available)	<i>E. coli</i> Results (colony forming unit/ 100 milliliters)
City Creek	SK002_02	5/5/2015	1120
		5/14/2015	364
		5/18/2015	84
		5/26/2015	2419
		6/2/2015	613
		Geometric mean	551
South Fork Mink Creek	SK004_026	7/21/2014	602
		7/25/2014	580.5
		7/31/2014	524
		8/6/2014	348
		8/12/2015	65.5
		Geometric mean	334
Mink Creek – South Fork to East Fork	SK004_03a	7/21/2014	921
		7/25/2014	548
		7/31/2014	921
		8/6/2014	613
		8/12/2014	161
		Geometric mean	540
Mink Creek	SK004_04a	7/18/2014	108
		7/21/2014	635
		8/11/2015	365
		8/18/2015	770
		8/24/2015	411
		Geometric mean (not completed)	344
North Fork Pocatello Creek	SK026_02a	8/14/2007	1203
		8/20/2007	727
		8/23/2007	613
		8/27/2007	>2419
		8/31/2007	>2419
		Geometric mean	1257

Issues affecting water quality in the Portneuf River are summarized below:

- *Dissolved oxygen.* Dissolved oxygen is required by fish and other aquatic organisms, and dissolved oxygen levels of at least 6 parts per million (ppm) are optimal for cold-water fish. When dissolved oxygen levels fall below 6 ppm, fish and other aquatic organisms can undergo stress and/or die. Low dissolved oxygen levels can result from high temperatures and/or excessive algae growth caused by phosphorus. As water temperature increases late in the afternoon, water cannot hold as much dissolved oxygen. Excess nutrients can exacerbate this process by allowing more algae and bacteria than normal to grow in the River.
- *Phosphorus.* High phosphorus levels can result in excess algae and aquatic plant growth which, in turn, reduces the amount of dissolved oxygen in the River and reduces insect diversity and fish numbers. Discharge from municipal wastewater treatment facilities, discharges from phosphate fertilizer plants, over application of fertilizer and agricultural runoff, animal manure, and natural decay of vegetation can all contain phosphorus. Recent monitoring shows high phosphorus levels from Marsh Creek to American Falls.
- *Excess fine sediment.* Excess fine sediment can negatively affect aquatic organisms. Water pollution problems, resulting from sediment loading into the Portneuf River, have been observed since the early 1900s. Much of the excess sediment in the Portneuf River is derived from non-point sources such as range and crop lands (IDEQ 2010). High levels of fine sediment also enter the Portneuf River within the concrete channel from stormwater runoff. Fine sediment levels are also a problem in the Portneuf River (IDEQ 1999), especially between Marsh Creek downstream to Batiste Road (where spring water dilutes the sediment in the Portneuf River). Many fish species can endure high suspended sediment levels for a short time (e.g., during spring runoff), but longer periods of exposure can be harmful. Sediment is one of the most common water quality pollutants (EPA 2009), and is the leading cause of benthic stress in Idaho (Rowe et al. 2003). Sediment loading to the lower Portneuf River exceeds the flushing capabilities of the River, resulting in River bottom sedimentation and impacts to benthic invertebrates, trout spawning, and egg incubation success.
- *Bacteria.* The presence of the *E. coli* bacteria in water can indicate the presence of pathogenic microorganisms harmful to human health. Recent monitoring shows high bacteria levels in the summer months below the concrete channel in Pocatello. Potential sources of *E. coli* in Pocatello include pigeons living under bridges; runoff from agriculture and livestock upstream; over-application of fertilizer; and dog waste in stormwater runoff. No sanitary sewer lines dump directly into the Portneuf River in Pocatello.
- *Reduced stream length.* Straightened channels are very efficient at moving flood flows. At the same time, a straightened channel disrupts many natural processes (connectivity to groundwater, natural channel dynamics of settling and filtration), and hampers biological diversity.

Fisheries and Aquatic Habitat

Fish, aquatic insects, and other aquatic organisms are widely used to evaluate the ecological health of rivers (Zaroban et al. 1999; Resh 2008). Such organisms are good indicators of aquatic habitat quality, because they require many variables representing different spatial and temporal scales directly linked to their habitat requirements (Jungwirth et al. 2000). Even though trout exist in the Portneuf River, aquatic insect indices in the upper River reflect poor conditions (IDEQ 2010). Water quality, irrigation diversions, elevated temperatures, and sediment levels impair fisheries and other aquatic habitat within the River.

Eleven native and four non-native fish species currently reside in the Portneuf River (Feldman and Peterson). Table 5 lists these species. Poor water quality and altered River characteristics likely limit the total number of fish populations present in the River within Pocatello.

Table 5. Fish Species in the Portneuf River¹

Common Name	Scientific Name
Native Species	
Utah Sucker	<i>Catostomus ardens</i>
Bluehead Sucker	<i>Catostomus discobolus</i>
Mountain Sucker	<i>Catostomus platyrhynchus</i>
Mottled Sculpin	<i>Cottus bairdii</i>
Paiute Sculpin	<i>Cottus beldingii</i>
Utah Chub	<i>Gila atraria</i>
Longnose Dace	<i>Rhinichthys cataractae</i>
Speckled Dace	<i>Rhinichthys osculus</i>
Redside Shiner	<i>Richardsonius baleatus</i>
Cutthroat Trout	<i>Oncorhynchus clarkii</i>
Mountain Whitefish	<i>Prosopium williamsoni</i>
Non-Native Species	
Common Carp	<i>Cyprinus carpio</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Brown Trout	<i>Salmo trutta</i>
Brook Trout	<i>Salvelinus fontinalis</i>

¹Feldman and Peterson

No aquatic species listed under the Endangered Species Act (ESA) are currently found in the Portneuf River. Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*), a subspecies of cutthroat trout, has been listed as sensitive or imperiled by the US Forest Service (USFS), the US Bureau of Land Management (BLM), and Idaho Department of Fish and Game (IDFG) (IDEQ 2010, Appendix F – Biological Assessment).

High sediment loads and poor water quality from upstream pollution point sources have reduced fish and aquatic habitat quality. Concrete channelization and the removal of River

meanders have further decreased habitat quality. The removal of streamside vegetation, offering shade, has also diminished habitat suitability. If these issues are not addressed, the long-term health of the River ecosystem will continue to degrade.

In summary, the following issues affect fisheries and aquatic habitat:

- *Channel straightening and simplification.* The Portneuf River lacks instream cover and habitat complexity. Riparian vegetation within the study area needs to be restored.
- *Altered flow.* Flows differ in duration, magnitude, and timing from the natural hydrology that formed the River channel and floodplain over time. This affects the transport of sediment within the River.
- *Water quality.* Poor water quality, elevated temperatures from a lack of streamside vegetation, sediment load, and pollutants reduce fish habitat quality and limit the total number of fish present within the River in the study area.
- *Fish passage.* The concrete channel can block fish passage due to low flows.

Wetland and Riparian Communities

Riparian vegetation provides habitat for wildlife, helps stabilize streambanks and reduce erosion, and provides instream wood critical to forming and maintaining productive habitat, overhead cover, and shade for fish. Wetland and riparian habitat present in the project area is of limited quality and extent. Historically, the River area supported a diverse and well-developed riparian community with associated wetland cover types. Floodplain forests were a mix of narrowleaf cottonwoods (*Populus angustifolia*), willows (*Salix* spp.), and other riparian shrubs. Aerial photos taken prior to construction of the flood control project indicate extensive River meanders and healthy riparian vegetation and wetlands along both banks. Land alteration, development within the floodplain, channelization, etc., have all contributed to the relatively limited riparian and wetland communities within the study area. Restoring a functional riparian corridor will improve the ecological integrity of the River system.

Prior to construction of the Federal flood control project, the upstream leveed portion of the River included seven major meanders. At least two of the major meanders and two or three of the cutoff meanders supported extensive riparian (and possibly wetland) vegetation. The reach of the Portneuf River currently channeled by concrete was also well vegetated. The downstream levee reach only supported one major meander with its associated riparian and wetland vegetation, but the riparian vegetation along the banks was generally well-developed.

All vegetation within the footprint of the flood control project was removed at the time of construction. The loss of mature trees eliminated nest sites for hawks, owls, cavity nesters, and many other wildlife species. Species requiring relatively large habitat blocks have also been

eliminated, as have most (or all) wetland-dependent species. Generally, the wildlife community that occurs in the project area is significantly less diverse and less abundant than that found in unaltered segments of the River prior to the flood control project.

Vegetation has returned along portions of the levees, but is routinely removed to remain compliant with the Corps levee maintenance program. Few large trees remain, leaving primarily shrubs, which provide little shade to the stream or cover for fish.

Most riparian areas outside of the Federal flood control project footprint are comprised of willows. The extent of the riparian/wetland zone along the River, in terms of both width and area, is considerably reduced from what it once was. As a result, wildlife use is limited to the more common species typically associated with edge habitat and/or disturbed areas. Species requiring relatively large habitat blocks, as well as most or all wetland-dependent species, are not supported by current habitat conditions. Generally, the wildlife community living along the Federal flood control project is limited in diversity and abundance when compared to unaltered segments of the River within the study area. Another factor adversely affecting wildlife along the River is the continued encroachment caused by urban development.

Very few small wetlands exist in the study area. Wetlands generally support a limited diversity of emergent species of sedges (*Carex* spp.), rushes (*Juncus* spp.), and other herbaceous plants. Wetlands also support amphibian species, which are now generally absent from most of the Vision Study area. Construction of the flood control channel resulted in the loss of approximately 4 miles of natural River channel and associated wetlands, as natural meandering and more than 100 acres of riparian habitat were removed (Corps 1992, as cited in IDEQ 2010).

To summarize, the following issues affect wetland and riparian habitat in the study area:

- *Wetland and riparian areas are reduced and lost.* Irrigation diversion, channel straightening, transportation infrastructure, and other forms of development have severely diminished riparian and plant communities.
- *Spread of invasive species.* Non-native species are established along the River banks, limiting the function and value of existing riparian habitats.
- *Lack of native plant reproduction.* Altered River flows, and the confined channel and floodplain, have limited the ability for native riparian and wetland vegetation to grow and reproduce naturally.

Recreation and Public River Access

Numerous recreational opportunities are available within the study area. A number of developed parks lie adjacent to the River, where activities such as golfing, picnicking, ball games, playground use, and wading occur. These facilities do not provide or encourage river-based recreation and access, however. Lack of River access was repeatedly identified as an issue by the public and the Study Working Group throughout the visioning process.

At present, public access to the Portneuf River within the Federal flood control channel is limited for safety and liability reasons. When the River was channelized, the concrete portion was fenced to prevent people from falling into the channel or being swept away during flood flows. Once inside, there is no ready escape route to exit the channel. Levee sections of the River are steep and treacherous to navigate, which also discourage use of the River in this area. Recreation is limited by land use and ownership, but includes biking, walking, and bird watching. Private lands and the lack of public access throughout the remainder of the study area limit the use of the River as a whole. There is also limited access available for individuals protected by the Americans with Disabilities Act of 1990 (ADA). Encouraging more beneficial use, while ensuring public health and safety, could make the Portneuf River an amenity for Pocatello residents and others from the surrounding area.

The Edson Fichter Nature Area, located at the south end of the levee section, provides River access. This park has a walking bridge across the Portneuf River where users can access a natural trail and fish for trout in a pond constructed and stocked by IDFG. An informal swimming hole at Edson Fichter is equipped with a rope swing. However, this stretch of the Portneuf River typically exceeds recreationally safe limits for the *E. coli* bacteria, particularly in the summer months. The bacteria are primarily delivered to the River in animal and human fecal wastes, and can enter the human body if small amounts of River water are ingested.

A series of bike and pedestrian pathways follow the River. The Portneuf Greenway Foundation plans to extend these trails along the channel throughout the study area, connecting to trails in other parts of the Lower Portneuf River Valley. Currently, the Greenway trail connects Taysom Rotary, Rainey, and Centennial Parks. The pathway is connected through Old Town Pocatello, but pathways north and south of town are incomplete.

Several parks and trailheads are located north (downstream) of the concrete channel, but are underutilized for several reasons. Within the River, trash and river debris in this area block users from participating in water-based recreation (e.g., canoeing and kayaking), and make River travel hazardous. Parking, bathroom facilities, access, and signage to these areas also limit usage.

Issues affecting recreation and access are summarized in the following:

- *Access to the River is difficult or prohibited.* City residents are unable to access the River within the concrete channel for safety reasons. Access along the levee sections is limited because of the levee slopes and large riprap (rock) banks. Elsewhere, current river access is limited and not designed for universal ADA accessibility. Additionally, trails near the River are fragmented, making continuous travel along the River corridor challenging for recreation users.
- *Existing parks do not encourage river recreation.* Limited signage and facilities to support River recreation (e.g., bathrooms and parking lots) reduce the amount of River use at the present time.

- *Poor water quality.* The water quality within the Portneuf River currently creates health risks for those using the River for recreation during certain portions of the year. Additionally, portions of the river are clogged with trash and debris that make river travel hazardous.

Recommendations

The Vision Study suggests a wide range of potential benefits and opportunities for community improvement that can be obtained through River revitalization. After a plan is adopted, the City can begin to determine how the guiding principles, goals, and proposed projects can best be implemented to fit local needs.

The following paragraphs detail the four guiding principles of the Vision Study and its goals and recommendations. The next section contains potential projects to achieve these recommendations.

It must be noted that any potential project that would alter or interfere with the Federal project would require extensive coordination with the Corps. Work could possibly be done under the authority of 33 USC 408 (commonly known as Section 408), which allows an entity to alter a Corps civil works project provided the activity will not be injurious to the public interest or impair the project function and usefulness.

Guiding Principle 1: Ecosystem Health

The Portneuf River Vision Study provides a vehicle to address the enhancement of environmental qualities within the study area. The Portneuf River is a key element of the Portneuf Watershed, and provides flood control, habitat, and aesthetic amenities to the community. This Vision Study encourages appropriate flood risk management, while still providing riparian and aquatic habitat, clean water, and recreational opportunities.

The River's ecological and hydrological functions could be restored in the long-term by re-creating the riparian corridor and removing or modifying the concrete channel and levees, wherever possible. Guiding Principle 1 includes a wide range of environmental goals for improving hydrologic functions; protecting and increasing the floodplain, wetland, and riparian habitat areas; and improving water quality.

- **Goal 1.1 – Appropriate flood risk management**
 - The need to maintain existing flood risk management is the biggest influence on the planning process. Residents who experienced the floods in the 1960s need reassurance that any proposed changes to the concrete channel will not result in increased flood hazard. The City, in partnership with the Corps, will not permit improvements that will compromise existing flood risk management in the City.

- Flood risk could potentially be reduced through non-structural measures. Such measures may include increasing the amount of floodplain acreage upstream of the City, purchasing and removing flood prone structures, and implementing land management practices that reduce winter runoff.
 - Onsite infiltration and retention in new developments can be increased to limit shallow flooding from stormwater. Stormwater can be managed onsite through natural landscape features and green stormwater infrastructure [e.g., bio swales (trenches) and bio retention areas (depressions)]. Effectively managing stormwater onsite involves capturing, filtering, and slowly releasing stormwater back into the system.
 - Both the City and the Vision Study Working Group recommend a reassessment of current flood control requirements along the Federal flood control channel. Currently, the Annual Peak Discharge Frequency Curve produced by the Corps identifies the 6,000 cubic feet per second (cfs) flood event for which the concrete channel is designed as a 500-year event for the Portneuf River at Pocatello (0.2 percent exceedance). A 3,300-cfs flood event is the equivalent of a 100-year flood.
- **Goal 1.2 – Restore and protect the Portneuf River ecosystem**
 - Protect and increase River channel complexity and cover, including the establishment of riffles, pools, runs, and/or a natural stream bottom, wherever feasible.
 - Reduce stream width and establish low-flow channels in the concrete channel, where possible.
 - Protect and increase the floodplain and wetland and riparian habitat areas, including setting back levee and channel walls and/or re-establishing stream meanders.
 - Remove exotic and invasive vegetation. Plant native species to promote health stream function and improve the aesthetic nature of the River corridor.
 - The City and Study Working Group recommend pursuing a levee vegetation variance from the Corps to allow more flexibility with the type of vegetation that can be planted along levee sections of the Federal flood control project. Currently, vegetation is limited along the levees, as required by Federal law.
- **Goal 1.3 – Improve water quality and flow**
 - Implement urban and agricultural land management practices to reduce the amount of sediment and other pollutants in runoff water.
 - Filter fine sediments and other pollutants from stormwater and agricultural runoff with infiltration swales, constructed wetlands, and other measures.
 - Reduce stream temperature by enhancing vegetative stream cover. Restoring vegetation within the Federal flood control project will require additional flood capacity unless the current 6,000-cfs flow requirement is reduced. Introducing

vegetation in the River bottom, for example, will require an expanded channel capacity.

- Increase in-stream flows to improve water quality and support beneficial uses of the River, including ecological systems, in-stream recreation, and aesthetics.
 - Increase beaver populations, where suitable. Beavers regulate water flow and help create wetland environments for other wildlife. Wetlands are considered nature’s “kidneys.”
- **Goal 1.4 – Integrate stormwater and groundwater management with the Vision for the Portneuf River**
 - Plan for aquifer recharge in select locations.
 - Plan for regional and/or localized stormwater treatment and infiltration along the River corridor.

Guiding Principle 2: Access and Recreation

Guiding Principle 2 focuses on creating and extending access to and along the Portneuf River throughout the entire valley. It is important for the River to be connected to neighborhoods and the overall community and accessible to everyone. A range of transportation improvements will make traveling to and accessing the River easier. These improvements include development of a continuous greenway to link a series of non-motorized paths to the River and other public open spaces and parks.

Implementation of the Vision Study will also improve the River’s infrastructure and provide recreation, bringing visibility to the Portneuf River and promoting it as an amenity for the community. Creating designated River access points and removing hazards will make River travel more enjoyable and attractive to River users.

- **Goal 2.1 – Connect and extend Greenway trails and open space along the River**
 - Explore and implement creative solutions for non-motorized Greenway trails within and along the River, where feasible. The Study Working Group strongly supports completion of the Portneuf River Greenway to connect downtown Pocatello with parks along the River.
- **Goal 2.2 – Connect neighborhoods, shopping areas, and trail systems to the Portneuf River**
 - Implement road, sidewalk, trail, park, landscaping, and signage recommendations from the Portneuf Valley Bicycle Plan and the Old Town Revitalization Plan.
 - Improve existing and add additional pedestrian and bicycle bridges across the River and railroad in suitable locations.
 - Provide consistent directional signage to, and along, the Portneuf River.

- **Goal 2.3 – Enable safe public access**
 - Create River access at public parks adjacent to the River. The Vision Study considers public safety a critical priority. Jurisdictional partners (Pocatello, Bannock County, and the Corps) must work together to develop strategies and design standards for safe access to the River. Appropriate measures may include endorsing common design standards for channel modifications (e.g., stepped or terraced access, ramp intervals, and safety fencing). This will allow people to reach the water’s edge and easily exit in the event of a flood.
 - Install launch and take-out facilities for various boating and floating watercraft along the River. These facilities will be developed with safe, flexible, functional, and ADA-compliant designs that meet user needs at various flow levels.
 - Within the concrete channel, provide safe entry and exit points.
 - Establish a flood warning system in the event of high flow conditions.
 - Ensure ADA-compliant accessibility to the River.
 - Ensure existing flood risk management capability is maintained.
- **Goal 2.4 – Increase recreational opportunities**
 - Modify select riverfront property to create a variety of public spaces, including natural areas, grassy parks, and recreational facilities. Recreational facilities should respond to specific neighborhood needs, but remain consistent with river habitat restoration plans. River parks should seek to improve water quality by using best management practices and treating stormwater onsite.
 - Establish a water trail for tubing, canoeing, etc., with multiple boat launches and take-outs. Discontinuous trail segments, fractured by hazards and the lack of launches and take-outs within the River currently prevent users from enjoying a continuous trip on the Portneuf River.
 - Establish swimming areas, fishing holes, and kayak/stand-up paddle board parks.
- **Goal 2.5 – Incorporate educational resources**
 - Install interpretive signage, incorporating natural or cultural information.
 - Modify select riverfront property to support use as an outdoor classroom for student engagement with the Portneuf River. Several schools are within close walking distance, and this offers the potential to create joint-use parks and outdoor classrooms to provide the schools with space for ecological class and fieldwork (e.g., water quality monitoring).
 - Improve transportation options, including non-motorized paths, between the Portneuf River (and its tributaries) and local schools. All cross-connections between the community and the River should ensure safe accommodations of multiple modes (motorized traffic, pedestrians, and cyclists, etc.).

- **Goal 2.6 – Incorporate public art and signage to celebrate the natural and cultural heritage of the Portneuf River**
 - Heighten awareness of the River corridor by using signature elements (e.g., signage, gateways, and innovative bridges).
 - Facilitate public art projects along the River corridor that celebrate the Portneuf River, create a sense of place, and integrate with the surrounding environment. The identity and awareness of the River within the community can be improved by encouraging, supporting, and maintaining art that improves the beauty of the River setting and inspires people.

Guiding Principle 3: Community Engagement

As implementation of study recommendations begins, residents should participate in the community planning process to identify types of land, recreation, and open space uses that re-appropriate the spaces and are compatible with the study area and individual neighborhoods.

- **Goal 3.1 – Make the Portneuf River a focus of activity**
 - Design riverfront space for multipurpose use that will support diverse community events and activities. River parks and spaces should be designed to improve the River corridor. When possible, park land adjacent to the River should be used to expand the River footprint. Recreation facilities should respond to specific neighborhood needs, balanced with water quality improvement and the restoration of wildlife habitat.
 - Support events and activities that bring residents in contact with the Portneuf River. Event programming can help improve public perception of the River. Both regional and local event planning can enliven the community and provide new visibility and attention to the River.
- **Goal 3.2 – Engage residents in project planning and implementation**
 - Capture community River history and values at the beginning of the planning process.
 - Engage with riverfront residents in their neighborhoods and in partnership with neighborhood organizations.
 - Provide multiple opportunities and levels for residents to engage in project planning and implementation.
 - Prioritize engagement efforts with citizens from neighborhoods near the River

Guiding Principle 4: Economic Development

In addition to improving the environment, the Vision Study also includes intangible values such as improving the quality of life for residents, increasing the attractiveness of Pocatello as a place to live and work, and increasing economic prosperity within the region.

A core element of this concept is empowerment of the community. This is accomplished by encouraging participation and consensus building; creating opportunities for sustainable, economic reinvestment; and adding value and providing an equitable distribution of opportunities to underserved neighborhoods along the Portneuf River.

- **Goal 4.1 – Improve public health and quality of life**
 - Facilitate events and programs that encourage physical activity along the River corridor
 - Design riverfront space to facilitate walking and biking for recreation and transportation. Neighborhood walking and biking loops can make the River a continuous route that safely connects users to recreational opportunities.
- **Goal 4.2 – Increase employment, housing, and retail space opportunities**
 - Incentivize development projects that increase pedestrian activity, reduce crime, and increase property values.
- **Goal 4.3 – Promote public and private riverfront development and open space acquisition in suitable areas**
 - Identify parcels suitable for open space acquisition or the development. The Greenway should expand by acquiring new open spaces that, where feasible, can be restored to improve fish and wildlife habitat. Areas outside of the River corridor should be explored by protecting, reclaiming, and restoring them as parks and open space that connect wildlife habitats.
 - Develop and implement standards for streamside buffers based on land use and streamside conditions. Buffers should be applied to all new open space or park lands created along the River. Buffers provide multiple benefits, including recreation and water quality improvements.
 - Incentivize mixed-use development opportunities (industrial, retail, residential) in suitable areas (e.g., density bonuses, expedited approvals or relocation requirements and benefits, etc.).
 - Develop and implement complementary and sustainable design standards for riverfront neighborhoods. Improving standards near the River will benefit the City through improved River health and quality of life. Good development practices can mitigate impacts on habitat and water quality in both existing communities and new development areas.
 - Retain and celebrate neighborhoods and community history through context and sensitive development.
- **Goal 4.4 – Focus attention on affordable neighborhoods**
 - Prioritize projects that improve linkages between housing, transportation, and parks in underserved areas.
 - Plan and implement projects in a socially, culturally, and geographically equitable manner.

- During project planning, ensure areas with lower-income populations receive opportunities and amenities consistent with higher-income areas.

Potential Projects

This section describes 30 potential projects proposed to restore the Portneuf River (Table 6). The long-term vision for the River is a continuous functioning riparian ecosystem along the River corridor within the study area. This involves restoring riparian vegetation to support birds and mammals, and provides improved aquatic restoration for fish and other aquatic organisms. Potential projects that alter flood risk management would require extensive coordination with the Corps.

Achieving the long-term goal of restoring the Portneuf River riparian corridor and ecological function may take generations to achieve. In the meantime, the study recommends identifying and phasing improvements for the short-term in order to maintain momentum and demonstrate ecological and public-access benefits of long-term restoration.

To ensure improvements can be made in the near-term, the Vision Study proposes several projects that can be introduced with less change to the existing channel configuration. Over the long-term, as funding is made available, further modification may be required to introduce a functional riparian corridor within the concrete channel.

The proposed projects are both short- and long-term, and are listed in Table 5. Descriptions of the potential projects follow the table. It should be noted that several proposed projects involve access into the flood control channel. In order to minimize life safety risks, any project providing access to the concrete channel may have restricted use during high-flow events.

Short-term projects are defined as those that could be designed, developed, and executed within 5 years following completion and adoption of the Vision Study. Short-term projects are typically those with fewer legal or real-estate constraints; and are less costly to construct, operate, and maintain than long-term projects.

Long-term projects are projects requiring greater planning, design, and development to complete. They are anticipated to take anywhere from 5 to more than 20 years to implement. Long-term projects are those with greater legal or real estate constraints; and are more costly to construct, operate, and maintain than proposed potential short-term projects.

In addition to the proposed short- and long-term projects, several additional projects were proposed. These projects support the Guiding Principles and Goals, and consist of additional planning studies, policy creation, continued actions, and determinations from Federal agencies. They should be considered as time and funding allows. Some of these projects are already in progress.

Table 6. Potential Projects for Revitalizing the Portneuf River

Project Number	Project Name	Short-Term, Long-Term, or Additional?
1	Portneuf River Water Trail and River Clean-Up	Short
2	Greenway Extension	Long
3	Portneuf River Streambank Restoration	Short
4	Tributary Stream Restoration	Short
5	Church Farm	Long
6	Historic Meanders	Long
7	Country Club	Long
8	Levee Setbacks	Long
9	Ross Park	Long
10	Rainey/Centennial Parks	Short
11	Concrete Channel Streambank Restoration and Greenway	Long
12	Concrete Channel Greenway Trail Extension	Long
13	Center Street Riverfront Shopping Area	Long
14	Memorial Park	Long
15	Raymond Park	Long
16	Sacajawea Park	Short
17	Pacific Recycling Trailhead	Long
18	Zweigart Park	Long
19	West Side Parks	Short
20	Simplot Trailhead	Short
21	Add Pedestrian/Bicycle Bridges across Railroad and River	Long
22	Install Signage and Wayfinding to the Portneuf River and Access Points	Short
23	Concrete Channel Art and Seating	Short
24	Seek a Levee Vegetation Variance	Additional
25	Develop a Portneuf River Zoning Overlay District	Additional
26	Reassess Current Flood Control Project Capacity Requirements	Additional
27	Reduce Volume of Urban Runoff Water Flowing into the Portneuf River	Additional
28	Increase In-Stream Flows	Additional
29	Identify and Purchase Greenway Easements and Flood-Prone Homes from Willing Sellers	Additional
30	Improve Upstream Water Quality	Additional

Short-Term Projects

- **Project 1 – Portneuf River Water Trail and River Clean-Up.** Develop a water trail for canoes/kayaks and other non-motorized watercraft with a series of accessible put-ins, take-outs, and other necessary infrastructure (parking lots, restrooms, etc.) from Fort Hall Mine road to the Fort Hall Reservation Boundary near Siphon Road (Northwest, Levee, and South Reaches). Constructing the water trail would include the removal of debris jams, trash, fallen logs, and other obstructions that currently create hazards and impede travel along the Portneuf River.
- **Project 3 – Portneuf River Streambank Restoration.** Restore eroded streambanks and plant native vegetation along sections of the Portneuf River in the study area. Efforts should be made to survey the River and develop a phased approach to removing invasive vegetation and restoring degraded streambanks.
- **Project 4 – Tributary Stream Restoration.** Mink, Gibson Jack, Johnny, Cusick, City, and Pocatello Creeks all feed into the Portneuf River within the Vision Study boundary. Fish passage barriers, channelization, dewatering, and bank erosion are all found within these tributary streams. Based on their various conditions, the Vision Plan recommends completion of an inventory and assessment of each stream to prioritize restoration work.
- **Project 10 – Rainey/Centennial Parks.** Setback levee to create room for water trail access, fishing, riparian habitat and floodplain restoration, a seasonal wetland, Greenway trail extension, neighborhood connections, interpretive and educational signage, and picnic area development.
- **Project 16 – Sacajawea Park.** Create canoe and tubing access points, reconnect the River with historic meanders at the north end of the park, and restore eroding streambanks. Improve parking, picnic areas, signage, and neighborhood connections.
- **Project 19 – West Side Parks.** Restore eroded streambanks and the historic floodplain. Develop picnic areas and water trail access points, and extend the existing Greenway trail.
- **Project 20 – Simplot Trailhead.** Create canoe and tubing access, fishing access, and picnic areas. Restore eroded streambanks.
- **Project 22 – Install Signage and Wayfinding to the Portneuf River and Access Points.** Develop and install wayfinding and signage, including maps and directional markers to introduce, educate, and guide users to the Portneuf River and its associated amenities.
- **Project 23 – Concrete Channel Art and Seating.** Encourage appropriate art to enhance the experience of visiting and learning about the River.

Long-Term Projects

- **Project 2 – Greenway Extension.** Currently, the Greenway extends along certain portions of the Portneuf River. The Vision Study recommends a continuous Greenway from the Gap to the Fort Hall Indian Reservation boundary. Development of the Greenway must be sensitive to its alignment and design in order to avoid any adverse impacts to the natural environment and the privacy of homeowners along the River. Along the levees and concrete sections of the Federal flood control project, trails could be at street level, on top of levees, or within the levee and the concrete channel where feasible. The Greenway's non-motorized paths should connect the River to parks, trails, open space, neighborhoods, and businesses. River
- **Project 5 – Church Farm.** This large parcel of land would provide opportunity for riparian, wetland, and upland restoration for use as fish and wildlife habitat. Fishing and floating fishing access, picnic areas, and nature viewing areas are all possible components of this potential project. Opportunities for a lake or sediment basin should also be assessed.
- **Project 6 – Historic Meanders.** Located between Interstate 15 and the railroad tracks south and east of Edson Fichter Nature Area are several disconnected River meanders. Prior to construction of the railroad, these meanders provided valuable riparian and aquatic habitat as well as floodplain access. The proposed project would include the installation of culverts to pipe the River under the railroad tracks (and back) and into the historic meanders, giving the River access to the floodplain and providing valuable fish and wildlife habitat.
- **Project 7 – Country Club.** Along Juniper Hills Country Club, the Portneuf River is constrained between the railroad the golf course. This project would restore the channelized River running through the golf course, stabilize streambanks, improve riparian and aquatic vegetation, increase River access to the historic floodplain, and extend the Greenway trail along the River.
- **Project 8 – Levee Setbacks.** Several locations along the earthen levee portion of the Federal flood control project have potential for levee setbacks. These locations include Cheyenne Avenue Park, Connector Park, Tech Farm, Riverside Golf Course, and Riverside Drive. Levee setback projects include the relocation of the current levee alignment to encourage natural floodplain processes (e.g., floodplain storage, River meandering, and riparian habitat establishment). The current flood capacity would still be maintained.
- **Project 9 – Ross Park.** Connect the Portneuf River to Ross Park. Restore historic meanders and the floodplain east of the railroad tracks (north of Cheyenne Avenue). Install culverts to pipe the River under the railroad tracks (and back). Install fishing access, and create picnic areas and a Greenway trail.
- **Project 11 – Concrete Channel Streambank Restoration and Greenway.** Construct a meandering low flow channel, with natural stream characteristics (e.g., riffles, runs, pools), within the concrete channel. Make riparian plantings on wide overbanks and

add containerized plantings. Create a recreation trail along the River's edge that can be closed for safety reasons during high flow events.

- **Project 12 – Concrete Channel Greenway Trail Extension.** Extend the Greenway trail along the concrete channel at street level, either next to the concrete channel or along existing streets.
- **Project 13 – Center Street Riverfront Shopping Area.** Develop a mixed-use district with gathering spaces and outdoor café tables facing the River near Center Street. Connect the Portneuf River to Old Town Pocatello with a pedestrian mall or similar feature.
- **Project 14 – Memorial Park.** Modify the concrete channel and existing park to accommodate an amphitheater, picnic areas, water trail and River access, and an extension of the Greenway. The park and its associated features may be closed for safety reasons during high flow events.
- **Project 15 – Raymond Park.** Modify the concrete channel and Raymond Park to provide access to the Portneuf River. Create an amphitheater, picnic areas, splash pad, water trail, and River access points. Extend the Greenway trail along the River edge.
- **Project 17 – Pacific Recycling Trailhead.** Restore eroded streambanks and the historic floodplain. Create fishing and water trail access points, and improve picnic areas and parking.
- **Project 18 – Zweigart Park.** Restore the historic floodplain, and create fishing access and a picnic area.
- **Project 21 – Add Pedestrian/Bicycle Bridges across Railroad and River.** Implement recommendations outlined in the Portneuf Greenway Master Plan (2009) for pedestrian/bicycle bridges. In order to reconnect communities and neighborhoods, and link users to the larger network of trails and public resources, additional pedestrian/bicycle bridges should be built.

Additional Projects

- **Project 24 – Seek a Levee Vegetation Variance.** Apply for a levee vegetation variance from the Corps. Currently, the City is required to remove vegetation from the levee portion of the flood control project. If a variance is approved, the City would be allowed to grow specific types of riparian vegetation on the levees. Modify existing levees to allow vegetation to be planted on the landward side of the levee, in accordance with Corps levee vegetation regulations.
- **Project 25 – Develop a Portneuf River Zoning Overlay District.** Consider restrictions that should be placed on development along the River.
- **Project 26 – Reassess Current Flood Control Project Capacity Requirements.** Currently, the City of Pocatello is required to maintain the flood control project to safely convey flood flows of 6,000 cfs. According to the Annual Peak Discharge Frequency Curve developed by the Corps, the 6,000-cfs is a 500-year event for the Portneuf River at Pocatello, while a 3,300-cfs flood event is equivalent to the 100-

year flood. This project would request the Corps to reassess flood risk and capacity requirements to determine if the current level of protection required is still appropriate.

- **Project 27 – Reduce Volume of Urban Runoff Water Flowing into the Portneuf River.** Seek opportunities to keep urban runoff out of the Portneuf River wherever possible.
- **Project 28 – Increase In-Stream Flows.** Continue to actively purchase available water rights using water bond funds. Pursue all other mechanisms available to keep water within the Portneuf River to support fish and other aquatic species.
- **Project 29 – Identify and Purchase Greenway Easements and Flood-Prone Homes from Willing Sellers.** As willing sellers are found, purchase homes prone to frequent flooding. In addition, purchase additional easements whenever possible that will aid in extending the Greenway trails.
- **Project 30 – Improve Upstream Water Quality.** Continue collaboration and support of environmental improvements along Marsh Creek and other tributaries to reduce sediment and other pollutants from being deposited into the Portneuf River.

Selecting Priority Projects

When the 30 potential projects were outlined, the public was invited to vote on projects they consider the top priorities. Table 7 shows the top 5 results of public voting (listed by project number).

Table 7. Public Priority Project Selection

Short-Term Projects		Long-Term Projects	
Project Number	Project Name	Project Number	Project Name
1	Portneuf River Water Trail and River Clean-Up	6	Historic Meanders
4	Tributary Stream Restoration	11	Concrete Channel Streambank Restoration and Greenway
16	Sacajawea Park	13	Center Street Riverfront Shopping Area
10	Rainey/Centennial Park	14	Memorial Park
3	Portneuf River Streambank Restoration	15	Raymond Park

After public input and voting was complete, the study team (consisting of Pocatello and Corps hydrologists, biologists, geotechnical engineers, and landscape architects) completed a screening exercise to analyze how well each potential project aligned with the principles and goals of the Vision Study. In order to complete this exercise, the study team developed the following criteria:

Benefits Criteria

- **Improve River/Riparian Ecosystem and Water Quality.** Areas should be capable of maintaining or improving flood protection, improve water quality, and restore the aquatic and riparian ecosystem.
- **Create/Expand Parks, Trails, and River Access.** Areas should be able to create, expand, and/or connect wildlife habitat, parks, recreation, and open space. In addition, any modifications should improve the aesthetics and visibility of the Portneuf River.
- **Create Community Benefits and Opportunities for Economic Development.** Areas should be able to create multiple community benefits and economic reinvestment opportunities, and provide environmental equity.

Feasibility Criteria

- **Cost of Implementation.** What is the relative cost of this potential project?
- **Legal/Real Estate Constraints.** Are there any known legal or real estate constraints? What is the current real estate status of land associated with this project?
- **Cost to Operate and Maintain.** What are operation and maintenance responsibilities and costs for this project?

Once criteria was established, the study team analyzed each of the 30 potential projects identified. The team relied on best professional judgment and available information to determine how well each potential project met the Vision Study principles and goals. Tables 8 and 9 show results of the screening process for potential short- and long-term projects.

After potential projects were screened by the study team, the results were presented to the Vision Study Working Group for review, input, and adoption. The Working Group was requested to compare the results of the priority projects identified by the public and the results of the technical team screening process. From this comparison, a final list of priority projects was developed. This list contains potential projects that meet the goals of the Vision Study and represent the voice of the public. These projects should not be the only projects considered and may not be the first ones to be implemented. However, they were selected for their potential to contribute to the revitalization of the Portneuf River. These priority projects are presented in Table 10, and will be adopted as part of the Vision Study.

Table 8. Short-Term Potential Project Screening Results

Short-Term Projects	Benefits Criteria			Feasibility Criteria			
	Improve River/ Riparian Ecosystem and Water Quality	Create/ Expand Parks, Trails, and River Access	Create Other Community Benefits and Opportunities for Economic Development	Cost to Implement	Legal/Real Estate Constraints	Cost to Operate and Maintain	Scoring Totals
*1 – Portneuf River water trail and river clean-up	2	1	1	3	3	3	13
20 – Simplot Trailhead	2	1	1	3	3	3	13
*16 – Sacajawea Park	1	3	1	1	3	1	10
*22 – Install signage and wayfinding to the Portneuf River and access points	2	2	1	3	3	3	14
*10 – Rainey/ Centennial Park	1	3	3	2	1	1	11
23 – Concrete channel art and seating	2	1	1	3	3	1	11
*3 – Portneuf River streambank restoration	3	2	2	1	1	3	12
19 – West Side Parks	1	1	2	1	1	3	9
4 – Tributary stream restoration	1	2	2	1	1	3	10

*Project has been identified as a priority project.

1 – Little or no opportunity to achieve criteria

2 – Medium opportunity to achieve criteria

3 – High opportunity to achieve criteria

Table 9. Long-Term Potential Project Screening Results

Long-Term Projects	Benefits Criteria			Feasibility Criteria			
	Improve River/Riparian Ecosystem and Water Quality	Create/Expand Parks, Trails, and River Access	Create Other Community Benefits and Opportunities for Economic Development	Cost to Implement	Legal/Real Estate Constraints	Cost to Operate and Maintain	Score Totals
17 – Pacific Recycling Trailhead	1	1	1	1	3	3	10
18 – Zweigart Park	1	1	1	1	1	3	8
12 – Concrete channel Greenway trail extension (street level)	2	3	1	1	2	3	12
5 – Church Farm	3	1	1	2	1	1	9
7 – Country Club	3	1	1	1	2	1	9
*6 – Historic Meanders	3	2	1	2	2	3	13
*11 – Concrete channel streambank restoration and greenway	1	3	3	2	2	2	13
*13 – Center Street riverfront shopping area	2	3	3	2	2	1	13
*14 – Memorial Park	2	3	3	2	2	1	13
*15 – Raymond Park	2	3	3	2	1	2	13
*2 – Greenway extension	2	3	1	1	2	1	10
*8 – Levee setbacks	1	1	1	1	2	1	7
21 – Add pedestrian/ bicycle bridges across railroad and River	2	1	3	2	2	1	11
9 – Ross Park	1	1	1	2	2	1	8

*Project has been identified as a priority project.

1 – Little or no opportunity to achieve criteria

2 – Medium opportunity to achieve criteria

3 – High opportunity to achieve criteria

Table 10. Final Array of Priority Projects

Project Number	Project
Short-Term Projects	
1	Portneuf River Water Trail and River Clean-Up
16	Sacajawea Park
22	Install Signage and Wayfinding to the Portneuf River and Access Points
10	Rainey/Centennial Park
3	Portneuf River Streambank Restoration
Long-Term Projects	
6	Historic Meanders
11	Concrete Channel Streambank Restoration and Greenway
13	Center Street Riverfront Shopping Area
14	Memorial Park
15	Raymond Park
2	Greenway Extension
8	Levee Setbacks
Additional Projects	
24	Seek a Levee Vegetation Variance
25	Develop a Portneuf River Zoning Overlay District
26	Reassess Current Flood Control Project Capacity Requirements (Corps)
27	Reduce Volume of Urban Runoff Water Flowing into the Portneuf River
28	Increase In-Stream Flows
29	Identify and Purchase Greenway Easements and Flood Prone Homes From Willing Sellers
30	Improve Upstream Water Quality

Hydraulic Analysis

Hydraulic analysis was completed for three of the original proposed potential projects. The analysis was done using HEC-RAS, software developed to model one-dimensional steady and 1- or 2-dimensional unsteady flows, sediment transport, and water quality. The three projects modeled were Project 10 – Rainey/Centennial Park; Project 15 – Raymond Park; and Project 11 – Concrete Channel Streambank Restoration and Greenway. A brief summary of the results of this hydraulic analysis can be found in the following paragraphs. Details can be found in *Appendix C – Hydraulic Analysis*.

Project 10 – Rainey/Centennial Park

The proposed levee setback would allow land between the levee and the River to be inundated during flood events greater than the 2-year flood (50% probability). Modeling indicates partial inundation of the low area during a 5-year event (20% probability) and full inundation during a 20-year event (5% probability).

Project 15 – Raymond Park

At Raymond Park, an approximately 1,100-foot section of the concrete channel bisects the park. Residents would like River access from both sides of the channel, which would impact an existing tennis court and ball field on the right bank and, potentially, a shade structure and play area on the left bank.

Due to the complexity of the hydraulic environment in this area, it is recommended that three-dimensional modeling be performed at this site prior to any design activity.

Project 11 – Concrete Channel Streambank Restoration and Greenway

The proposed low flow channel would be built below the bottom of the existing channel to preserve conveyance capacity in the concrete channel. It is assumed the low flow channel bottom would be roughened to appear natural. However, if the goal of the low flow channel is biological connectivity, it is unlikely that goal can be met. It is impossible to excavate a low flow section in the lower portion of the concrete channel unless the channel downstream of the concrete channel is also modified. This must occur so the low flow channel can catch the natural River grade. Without a low flow channel in the final section of the concrete channel, that portion will act as a barrier to some fish and other aquatic organisms.

Coordination Roles, Responsibilities, and Implementation

Ongoing engagement and support from landowners, government agencies, and many community members and organizations will be required if the Vision Study's recommendations are to come to fruition. The Vision Study focused on gathering public input regarding how the Portneuf River should be revitalized (if at all). This input was used to develop a long-term vision for the River. This Vision Study contains concepts that can be implemented at select locations, and can be implemented both in the short-term and the long-term.

Implementation of the Vision Study's recommendations is intended to occur over time as funding and opportunities arise. It is anticipated that many interested and invested parties will work together to help implement the recommendations. Additionally, environmental review, documentation, and permits will be required. For example, projects that seek to alter the original flood control project will require extensive coordination with the Corps.

Funding for projects listed within this study document is likely to come from many different sources. It is unlikely that any one entity can bear responsibility for even a single project. To that end, Table 11 contains a matrix of potential funding sources.

Essential steps for implementation are straightforward:

- Develop a Vision
- Draft an Implementation Plan
- Identify necessary human and financial resources
- Implement through ongoing community involvement and support

Pre-Conditions for Implementation

- Support and leadership from the City of Pocatello’s Mayor, City Council, and leadership staff
- A project manager and organizational entity (governmental or non-governmental) to coordinate necessary planning, engineering, community engagement, fundraising, construction, etc.
- Technical support from a Mayor’s advisory committee and/or non-profit organization
- Continued community support, including volunteerism
- Concept plans and engineering designs (with community input), grant writing, any necessary land acquisition, and construction
- Funding and land
- Continued comprehensive planning for the Portneuf River, including tributaries, water quality, and certain land use planning and policy-making to establish long-term improvements that move the community toward an integrated watershed approach
- Continued community support, including volunteerism

Bannock County Commissioners (via resolution):

- Adopt the Portneuf River Vision Study

Pocatello City Council (via resolution):

- Adopt the Portneuf River Vision Study
- Designate the City as coordinating entity for implementation
- Designate a City department to provide sufficient staff resources for project management of the implementation of the Vision Study
- Ensure City staff leadership understands and supports the Portneuf River Vision Study, and ensure other City operations/activities are not in conflict with the Vision Study’s recommendations.

- Create a Mayor's advisory committee to provide technical assistance with activities such as assist project planning, design, and outreach. Committee members, appointed by the Mayor, should include balanced representation from groups with interests in environmental, recreational, and development opportunities. The committee should include scientists, conservationists, recreational advocates, community leaders, planners, economic development specialists/business owners, and neighborhood representatives.

Existing non-profits:

- Identify projects where they can take the lead, solicit funds and volunteers, purchase land and easements and/or advocate.
- Identify how they can best work with the City and Mayor's Advisory Group and evaluate the need for a dedicated 'Friends of the River' non-profit.

Roles and Responsibilities

- City Department/Staff Member
 - Project Manager
 - Draft implementation plan
 - Act as "Keeper of the Vision Study"
 - Act as liaison with other departments and government entities
 - Facilitate advisory group meetings and send out meeting invitations
 - Keep the spirit of the Vision Study alive
 - Coordinate public relations, and ensure webpage is relevant and up-to-date
 - Write grants
 - Contractor coordination/management
- Mayor's Advisory Committee
 - Update Mayor and City Council at least annually
 - Interact with and support the City Department/Staff Member
 - Provide technical expertise
 - Assess and evaluate project success
 - Periodically review the list of proposed projects
 - Review the Vision Study's goals and recommendations at least every 10 years to ensure continued relevancy
 - Assemble project-specific groups with technical expertise, as necessary
 - Identify project opportunities and challenges
 - Encourage community involvement
 - Assist City Department/Staff Member with implementation plan development, updates to the Vision Study, and project prioritization (based partly on current community interests and funding opportunities)
 - Community outreach

- Identify needs, potential projects, and funding opportunities
- Non-Profit Organizations
 - Raise funds for projects identified by the City and Advisory Board
 - Acquire land when necessary
 - Hold land and manage funds
 - Write and manage grants
 - Champion the vision through public outreach and engagement
 - Recruit and mobilize volunteers when needed
 - Sit on the Mayor’s Advisory Board
 - Assist with project implementation

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Table 11. Funding Source Inventory

Funding Source	Funding Program	Flood Management
Federal Sources		
U.S. Department of Agriculture, Natural Resources Conservation Service	Emergency Watershed Protection Program (Bank stabilization, vegetation restoration)	
U.S. Army Corps of Engineers	Continuing Authorities Program - New Projects (Flood Control, Sections 208, 14) Continuing Authorities Program, Project modification for Environmental Improvement (Section 1135 and Section 206) Congressionally mandated studies (Construction costs will exceed \$5 million, only authorized by Congress)	
U.S. Department of the Interior, National Park Service	Land and Water Conservation Fund (Matching grants for acquisition and development of public outdoor recreation areas and facilities) Urban Park and Recreation Recovery Program (Matching grants to economically distressed urban communities for rehabilitation of recreation facilities)	
U.S. Environmental Protection Agency	319 Program and Wetland Program Development Grants (Monitoring and assessment of water quality mitigation programs, improving effectiveness of compensatory mitigation, refining wetland protection strategies)	
U.S. Department of Transportation	SAFETEA (TEA-21 Reauthorization), provides funding for multiple use paths, trails and related projects.	
Federal Highway Administration	Federal Highway Administration Bridge Replacement/Rehabilitation (HBRR) project (reauthorized under SAFETEA, FHA pays 75 percent of replacement and modifications)	
National Endowment for the Arts	Our Town (Arts/culture-driven community development, place based investments); Art Works (Creation, Engagement, Learning, Livability projects); Challenge America (Extend reach of arts to underserved communities)	
State Sources		
Idaho Transportation Department	Transportation Alternatives Program (TAP), Idaho Transportation Improvement Plan (ITIP) -Bridge, Federal Aid Bridge Program (LHTAC)Public Transportation Program	
Private Sector		
Trust for Public Land	Assistance in acquisition of open lands and potential parklands	
The Conservation Fund	Assistance in acquisition of open lands and potential parklands	