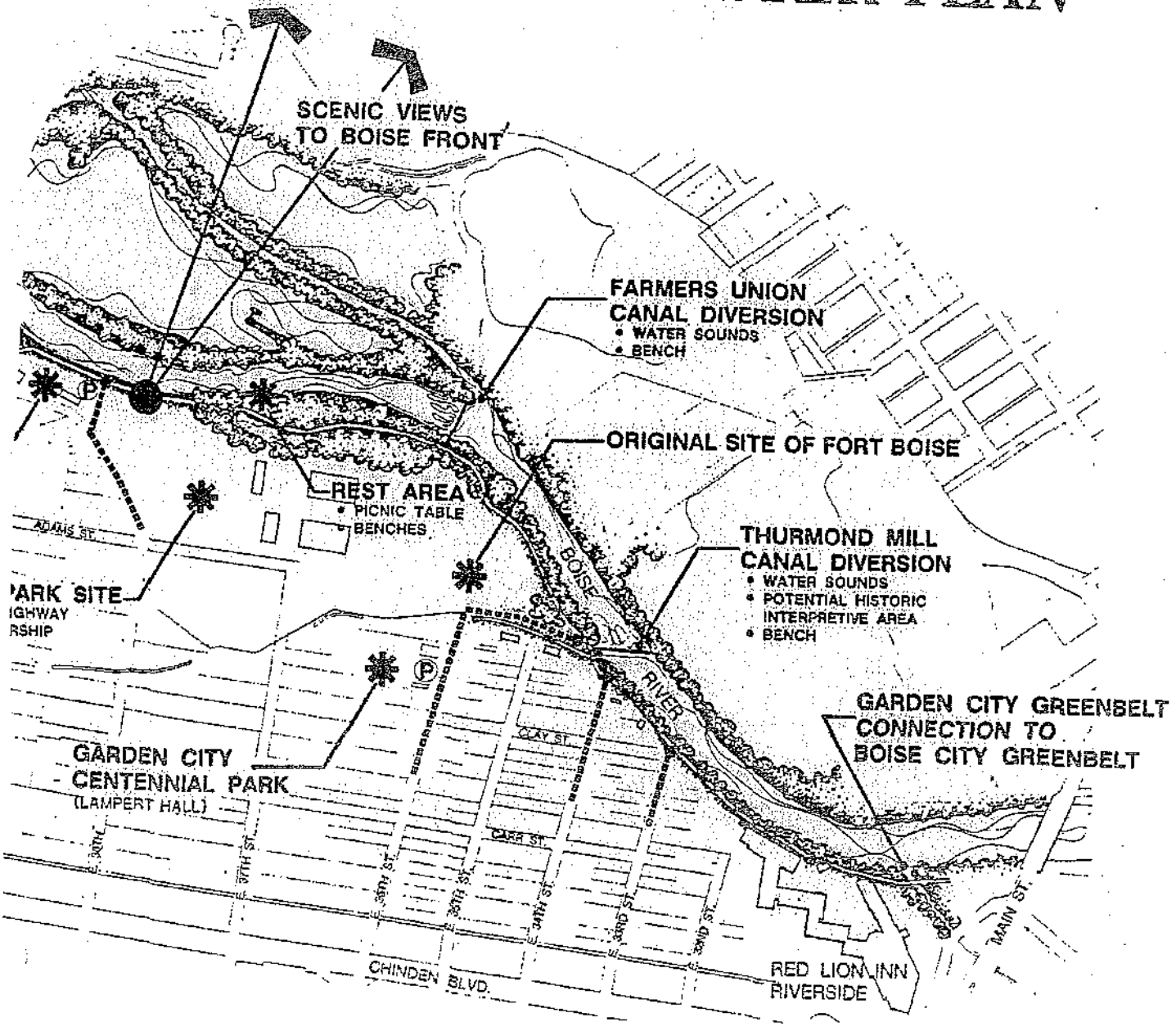
city of
Garden City

"Nestled by the River"

GREENBELT MASTER PLAN



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UNDER THE GUIDANCE AND ASSISTANCE OF THE GARDEN CITY COUNCIL, GREENBELT COMMITTEE, AND NUMEROUS CITIZENS DEDICATED TO THE ENHANCEMENT AND ENJOYMENT OF THE BOISE RIVER.

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INTRODUCTION

THE GREENBELT HISTORY

The Boise River has long been regarded as a detriment to land use along its banks. The river flooded extensively making development risky. The major developments included industrial users who located near the river so they could use it as a conduit to dispose of waste products, or mine the gravel along the river's banks.

Numerous irrigation diversions were constructed removing water from the river. Along with irrigation diversions came drainage and waste water canals that further affected the quality of the Boise River.

By the mid 60's, things had started to change along the river. Major dams had been constructed upstream to help mitigate flood damage. New sewage treatment facilities were constructed that made a dramatic improvement to water quality. Fish started to return and people began to view the river as a major recreational and environmental resource. Tubing the river became a very popular event and brought additional awareness to the value of the river.

In the late 60's, the City of Boise started the beginning of a greenbelt system along the river's banks. The initial concept was limited in scope. The idea was to link the existing major parks along the river with a path system. It was so popular that the concept of a greenbelt throughout the Boise area became a high priority goal of the city.

The banks of the river had not been extensively developed. This was a major advantage in establishing the greenbelt. Relatively few obstructions were in the way of developing the system. The greenbelt brought stimulated development along the river's banks, especially office building projects. The development community saw the greenbelt as a major selling tool in promoting its developments. The greenbelt has continued to expand with the growth of the Treasure Valley. The river has become a very desirable asset with many new pressures being placed on its resources.

Today the greenbelt from the Barber Park Diversion Dam on the east, to the Willow Lane Athletic complex on the west, except for a few segments. Other segments have been constructed through Riverside Village, west of Glenwood in Garden City. A major bike path facility has been constructed along the old railroad right-of-way and canal easements from the Boise Municipal Golf Course, east to Lucky Peak.

The greenbelt has become the premiere environmental and recreational attraction to the area and is generating national attention.

FUTURE GOALS OF THE GREENBELT/PATH SYSTEM

With the success of the greenbelt, major plans have been established to link the greenbelt/path system from Lucky Peak on the east, to Eagle Island State Park on the west. This will provide continued public access to the river for over 22 miles.

This requires the coordination of numerous public agencies, local jurisdictions, and private land owners. The system has been planned to extend through Boise, Garden City, portions of Ada County, and the City of Eagle. The Boise River Trail Foundation was established to help coordinate and develop the path system to Eagle Island State Park as part of the Idaho Centennial Celebration. They have been successful in extending the system along the eastern portion of the route.

GARDEN CITY GREENBELT/PATH SYSTEM

The river through Garden City, and its area of impact, contains some of the best wildlife habitat to be found in the developing portions of Ada County. These areas should be protected and, where possible, enhanced as development continues.

In the preparation of the original Garden City Comprehensive Plan, policies were established to develop a greenbelt system within the City and its area of impact. River developments have taken into account these policies, though some major problems have occurred. The development of Riverside Village includes a greenbelt system that will eventually tie into the developing system to the east and west.

With the increase in development pressures along the river, it became apparent that Garden City needed a committee to review river-front issues. In 1987 the Garden City Greenbelt Committee was established. The purpose of the committee was to assist Garden City in assuring that river front development conformed with the goals of the City and that the major attributes of the river were protected and enhanced.

In 1988, Garden City reanalyzed its greenbelt policies and adopted a new river plan. This plan outlines the city's goals regarding river protection and development. It is used to review development proposals to assure compliance with the city's goals for development. The following is a brief summation of the important components of the river plan. These components were used in the development of the Garden City River Master Plan.

* The Boise River Floodway will not be developed or structurally altered.

* River bank stabilization must be addressed in any development adjacent to the river.

* A 25 foot strip of natural vegetation should be maintained or established along the bank of the river for bank stabilization and wildlife.

* Levees are not considered as a means of flood proofing.

* A 70 foot setback will be maintained along the river's bank. The 70 feet will be measured from the 6,500 cubic foot per second (cfs) line as measured at the Glenwood bridge.

* Extremely important wildlife habitat (Class A) should be preserved and protected from development. These include wetlands, islands, spawning areas, and forested

zones. Major bike path facilities should follow the edge of these areas. Maps have been created to delineate the location of these uses.

* Moderately important wildlife areas should be enhanced as development takes place. These areas have also been mapped.

* New or improved river diversion structures should take into account safe river passage for floaters.

* A paved bicycle path shall be provided. It should not be located in Class A habitat areas except where the location may not be detrimental to existing plants and wildlife.

* The bicycle path shall be located above the 6,500 cubic foot per second river flow line.

WHAT IS THE RIVER MASTER PLAN

It is very important to understand what the intent of the Garden City River Master Plan is and what it will provide for the community. Conversely, it is very important to understand what the Plan is not. The Garden City River Master Plan is a comprehensive look at the river and adjoining land use. The Plan will be used as a guide to help integrate future development into the river environment and provide protection of the river's resources.

GRAPHIC REPRESENTATION The Garden City River Master Plan will include a graphic representation of the development of a greenbelt/path system through Garden City. This graphic representation will include the general location of bike paths, setbacks, wildlife areas, points of interest, areas of concern, important open space areas, points of access, and other key issues on the maps attached.

NARRATIVE DESCRIPTION This document will help explain the graphic and the specific issues along the river. It will also address design criteria, issues and problems along the river, suggested actions, and recommended alternatives.

USE OF THE MASTER PLAN The Garden City River Master Plan has many valuable uses for protection and enhancement of the river. A brief list is as follows:

* It should be used as a promotional tool for the development of the greenbelt system. The graphic representation is of the quality and detail to be used in soliciting public support.

* It should be used as an educational tool to explain the importance of the river to the community.

* It is a tool to review development proposals. River-front developers can use the plan to determine what the public policy is regarding development. This provides the developer with a valuable tool in designing his project with the river in mind BEFORE submitting the application. It provides the city with the tools to determine proper setbacks, important environmental features, access, and design criteria for development of the greenbelt.

* The plan should be used as the base document for phased construction of the greenbelt/path system. Detailed construction plans should conform to the concepts of the Master Plan.

* The Plan should be used as the base document to obtain funding and grants for improvements along the river. The Master Plan will assure potential funding sources that Garden City has an excellent viable project.

WHAT THE MASTER PLAN IS NOT

The Garden City River Master Plan is not a detail construction plan. It is the base document used to prepare detail plans. The Master Plan cannot address each individual parcel of land or the detail cost to acquire real estate or improve the river. As development plans are submitted, unique issues may occur that cannot be addressed in the overall plan. Issues of land ownership, detail location of property lines, bank stabilization, and specific design criteria cannot be adequately addressed at this planning level.

When development applications are submitted for review they should be analyzed in relationship to the Plan. If major deviations are proposed, they should be reviewed in relationship to their impact on the total system.

The Garden City River Master Plan is not an ordinance nor a formally adopted land use plan. The City could consider adopting it as part of their river plan but care should be taken in doing this. Again, the intent of the Master Plan is to graphically show how the system should be linked together over time.

GOALS OF THE RIVER MASTER PLAN

The preparation of the Garden City River Master Plan addresses numerous goals that Garden City wishes to see accomplished as development takes place along the banks of the Boise River. Some of these major goals are:

* To create a public open space system along the Boise River that will optimize potential recreational, educational, cultural, and social interaction opportunities along the river.

* To create a plan that will help protect and enhance the riparian habitat along the river for the benefit of fish and wildlife.

* To stimulate complimentary growth along the river.

* To develop a continuous open space system along the river through Garden City's Area of Impact.

* To provide a graphic representation of how Garden City wishes to see river front development take place within their Area of Impact.

* To provide a document and related maps that graphically represent the adopted Garden City River Plan policies.

* To provide a document that addresses, on a comprehensive basis, the inter-relationships of real estate development and the river. Issues such as major open space, bicycle paths, public access, and riparian protection are addressed by looking at the system from a whole view rather than from a piecemeal perspective.

* To provide a document that can be used as a major tool for raising funds for public improvements to the system.

* To stimulate community involvement in the development of the river environment.

The document and maps will be used as a tool to explain to the public how the City wishes to see the river developed. It is much easier for an individual to see the concept on a map than to envision what narratives and ordinances may say.

CRITERIA USED IN DEVELOPING THE CONCEPT

In developing the Garden City River Master Plan, certain criteria were used in making decisions on open space, path locations, setbacks and other major components of the Plan. It is important to understand what these components are and how they were used in the development of the graphic representation of the Plan. A brief description of each component follows:

COMPONENTS OF THE GARDEN CITY RIVER PLAN

The adopted Garden City River Plan, which is part of the Garden City Comprehensive Plan, was used as the major component in making decisions as to the locations of open space and paths. The key elements used are as follows:

* The Boise River Floodway, as adopted by Garden City, will not be structurally modified and no development of structures shall take place in this area. These areas are to be left as open space.

* Areas of obvious stream bank instability have been mapped with suggestions for stabilization addressed in the report.

* Areas classified as Class A habitat are not to be developed and are prime areas for public and private open space. Major bicycle paths should avoid these areas if possible.

* Areas classified as Class B habitat have been shown but are areas where development may take place if mitigation is proposed.

* The 6,500 cubic foot per second (cfs) flow line, measured at the Glenwood Bridge, is considered the line of normal yearly inundation. It is used to establish setbacks from the river. The intent is to assure that any greenbelt bike path system is constructed above the yearly high water flow line. Its detail location should be established when plans are submitted for development.

* A setback of 70 feet from the 6,500 cfs line has been used to designate the minimum distance that development can approach the river.

* Critical wildlife habitat areas such as heron rookeries have been designated on the Master Plan and should be protected. Development and human intrusion should be kept a minimum of 300 feet from these rookeries.

* The Flood Plain has been use to determine potential land uses. Development may occur in the flood fringe areas if adequate flood-proofing measures have been undertaken, but not in the floodway.

* Public and emergency access points have been designated at minimum intervals of 1/4 mile. This is to provide for means of access in times of emergency, as well as to provide for adequate public access to the river.

BOISE RIVER WILDLIFE INVENTORY STUDY

The Boise River Fish and Wildlife Habitat Study was used to assist in the delineation of the important wildlife habitat. This study should be used as a resource document in reviewing development proposals.

GARDEN CITY COMPREHENSIVE PLAN

The existing adopted Garden City Comprehensive Plan has been used as a guide in making decisions for the location of land uses and the bike path.

GARDEN CITY GREENBELT COMMITTEE

Two detail meetings have been held with the Garden City Greenbelt Committee. At these meetings input was collected regarding details of the design of the Garden City River Master Plan.

ON SITE OBSERVATIONS

Two extensive field trips were undertaken where detail investigations were made. A series of field notes and photographs were taken to establish design and location guidelines.

EXISTING LAND USE PATTERNS

Existing land use patterns were studied to determine their impact on the Garden City River Master Plan. Where possible, mitigation of these impacts was addressed. The Plan also looks at the long term solutions where existing developments cause problems with the Garden City River Master Plan. These site problems may only be resolved as the areas redevelop.

EXISTING AND PROPOSED TRANSPORTATION SYSTEMS

The existing and proposed transportation systems were reviewed. It is important that future transportation improvements take into account the Garden City River Master Plan as well as what effect these systems may have on the development of the greenbelt.

EXISTING LEVEES

It was determined to use the existing levees along the river for the bike path wherever possible. The levees typically provide a natural boundary between the river environment and developed lands. They also provide the best means of emergency access to the river. They are built to a standard that can handle large equipment if needed.

SITE CHARACTERISTICS

It is important that individuals understand the critical role that the Boise River plays for residents of southwestern Idaho. If it were not for the Boise River there would be no major cities located here.

REGIONAL PERSPECTIVE

The Boise River drains in excess of 2,500 square miles of the mountains of south central Idaho above Boise. The North Fork and Middle Fork of the Boise River drain an extensive portion of the western Sawtooths. The South Fork of the Boise drains the Smokey Mountains west of Ketchum. Because of the limited amount of development in these areas the water quality is very high.

Once the river leaves the mountains to the east, it enters the flat lands of Ada County. Soils in this area are shallow. The river and its banks are composed of river cobble making the river what is commonly called a free stone stream. The majority of the Boise Valley is composed of river deposited soils and cobble. The benches are a byproduct of the rivers' geologic processes.

The river provides the majority of the irrigation water for both Ada and Canyon counties. The aquifer underlying the Boise area relies, to a great extent, on the river system. Thus, most domestic water is affected by the river.

RIVER HYDROLOGY

Historically, the Boise River endured great fluctuations in its flows. Major snow packs on the mountains caused peak flows in the spring and early summer that flooded the river valley. This flooding helped develop the fertile soils in the valley, as well as establishing the riparian woodlands and marshes along its banks.

Major flooding has historically prevented developments from encroaching into the river. Floods have been as high as 35,000 cfs (cubic feet of water per second). Flooding has been reduced with the construction of three major storage reservoirs upstream. It has been calculated that a 100 year flood event (a one percent chance of occurring in any given year) would be approximately 16,600 cfs. The last major flood flow occurred in 1983 with a flow of approximately 10,000 cfs (equivalent to a 30 year flood).

With the loss of gradient and the instability of the stream bank, the river tends to meander through the valley. This causes great problems in developed areas. The river banks want to move laterally across the valley. The natural reaction is to rip rap and levee the river. Though it may create a short term solution, the long term effects can be devastating. The levees and rip rap tend to increase the velocity of the river causing major problems down stream. If there is a levee only on one side it will push the water to the other side causing damage to other property owners.

The channelization of the river also tends to destroy the riparian zone along the river's banks. This zone is the major wildlife area along the river. The reduction of the riparian zone also removes vegetation that helps stabilize the river bank and prevent erosion and siltation.

VEGETATION

The vegetation associated with the Boise River is commonly referred to as the riparian zone. Its diversity is due to the wide range of soil types, climatic conditions, moisture and introduced plant species. Plants range from desert varieties, such as sagebrush, to wetland varieties, such as cattails. The most familiar is the cottonwood trees that line the river's banks and are the dominant visual aspect of the river. The removal of these trees has a tremendous visual and environmental effect on the river.

Modifications to the river will have a direct effect on the riparian zone along its banks. It is extremely important to study the effects development may have on the riparian edge of the river. Removal of side channels, for example, may remove critical moisture causing a loss of willows and cottonwoods. Conversely, the addition of side channels and ponds may increase vegetation along the river. Thus, the importance of this vegetation is critical in maintaining a viable ecosystem and the aesthetic trademark of the river.

A more detailed description of the vegetative resources of the Boise River may be found in a document called THE BOISE RIVER FISH AND WILDLIFE HABITAT STUDY, 1983. This is an excellent resource document.

FISH AND WILDLIFE

There is a critical relationship between the riparian zone and wildlife along the river. The diversity and numbers of fish and wildlife is dependant upon the vitality of the riparian zone. The larger the riparian zone, the larger the number of associate animals.

Approximately 150 species of birds associate with the Boise River. These include birds as small as hummingbirds and as large as the great blue herons and bald eagles. The opportunity to see birds of such magnitude and diversity is unique, particularly in an urban setting.

Approximately 37 species of mammals are known to live along the river. These animals include beaver, mink, and the rare river otter. In the sizable riparian areas, deer, fox, and other larger mammals exist. Smaller mammals such as rabbits and mice provide an important food base.

Reptiles and amphibians can be found in the river, side channels, and marshes along the river. Again, these are part of the food chain for the abundant ecosystem that exists.

Numerous varieties of fish are found in the Boise River. These include the whitefish, wild and hatchery planted rainbow trout, and brown trout. The brown trout have been reported to grow as large as 12 pounds within the study area. The river historically produced salmon and steelhead which migrated from the Pacific Ocean. The Idaho Department of Fish and Game has been releasing adult steelhead in the river for sports fishing. Fish are dependant on the riparian fringe to provide cover and food. Side ponds and channels provide an environment for warm water fish, such as bass and blue gill. All fish species are an important food source for eagles, herons, osprey, mink, and river otters.

It is important to remember that development of, or intrusion into, the riparian areas will cause an impact on the river community. Thus, development proposals and major public pathways should be integrated into the existing ecosystem.

WATER QUALITY

Boise and Garden City are the first major cities along the Boise River. Because of this fact, the water quality is excellent. The further down stream from Boise, the lower the water quality becomes. Generally, up stream from the Lander Street Treatment plant the water is of extremely high quality. Below the Lander Street plant the river is still of exceptional quality, but the river contains an added nutrient load. These nutrients have been beneficial to the fishery as more aquatic invertebrates exist as a food source.

A substantial amount of storm runoff enters the river. As development continues, this runoff will have a negative effect on water quality. Return drains from agricultural lands also will affect the water quality. Downstream from the study area, the river water quality starts to rapidly deteriorate.

RIVER OPERATIONS

The river is now a highly regulated system. Three major dams upstream of Boise provide flood control and irrigation storage. This has affected the flow patterns in the river. Yearly high flows are planned for 6,500 cfs. Winter flows are planned for 300 cfs, but can get as low as 150 cfs, the minimum needed for adequate sewage dilution.

Without large flushing flows, the river bank vegetation encroaches further into the channel. This becomes a major problem in years of high flow because the river channel becomes restricted. This causes the water to stack up and try to go around the vegetation leadimg to the potential for over-bank flooding or side channel erosion.

The storage facilities also provide the opportunity to regulate flows to enhance fish and wildlife. With regulated flows the peaks tend to lessen and low flows tend to be stabilized.

Major irrigation diversions remove water from the river, both up stream, and within the study area. The major diversions in the study area are the Thurman Mill and the Farmers Union Canals.