

Great Salt Lake State Park – Jordan River Shared Use Area



Area Management Plan
November 2002

Utah State Parks & Jordan River Area Management Plan

Legend:

- ▲ Utah State Park Locations
- ★ Area Management Plan Study Locality



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Preface

The Jordan River Shared Use Area within Great Salt Lake State Park is a multiple use park providing an array of recreation opportunities within an urban setting. The 350 acre park lies directly west of the Jordan River – including a trail on the River’s East Bank - and runs northward from Redwood Road at approximately 1800 North to Interstate 215. Primary recreation activities include an off-highway vehicle (OHV) riding and training area, a model airport, and a riparian trail system along the adjacent Jordan River that provides hikers, walkers, equestrian enthusiasts and bicyclists with trail and wildlife viewing opportunities.



The area’s OHV center and model airport are the only public facilities of this kind within Salt Lake County’s urban area. Non-motorized users - hikers, equestrian enthusiasts- also visit the park for non-motorized trail experiences or to view wildlife, avian species in particular. Because of these varied multiple uses, there is concern about potential conflicting experiences among users, continuity of various motorized opportunities, and resource and aesthetic impacts.

Motorized users express concern about the park being a “going concern” for their future use. They note the many occasions that development has forced them to relocate to another area. On the other hand, hikers and avian enthusiasts express concern that motorized activities may have a deleterious effect on wildlife in the area and may

diminish their experience. Adjacent landowners have expressed concerns about noise, dust and traffic generated by the park’s motorized activities.



Additionally, the park’s facilities and infrastructure require renovation and upgrade. There is concern about the condition of trails and the park’s riparian corridor and the proliferation of invasive and noxious weeds.

Other issues such as the identification of new recreation opportunities, expansion and enhancement of facilities, trails and area aesthetics, the need for visitor information, sustenance of a healthy ecosystem, signage, and visitor safety also need to be addressed.

To deal with these concerns, the Utah Division of Parks and Recreation, along with other interested parties propose the creation of a comprehensive plan for the area.

Strategies are needed to address the park’s needs and provide for future recreation opportunities. A Jordan River Shared Use Area Management Team, consisting of park users, local landowners, resource experts and agency representatives was formed to develop a vision for the park and address these issues. The team determined that actions are needed to ensure safe, satisfying, and unique recreational opportunities for the

park's broad user base by integrating the following principles into the plan's recommendations:

- Ensure that recommendations do not diminish current park user welfare.
- Continue to provide multiple recreational opportunities that accommodate a broad visitor base.
- Provide programs that promote safety, respect for other users, education and resource preservation.
- Provide facilities that adequately meet user needs and enhance the area's aesthetic and scenic values.
- Establish reasonable policies that enhance park revenues and result in cost effective operations.
- Ensure that recreational activities do not pose negative externalities to local residents.
- Ensure that the park is clean and orderly.

Team recommendations to resolve these issues were reached by consensus and included input from the public and other government agencies. These recommendations will guide management of the park over the next decade. They are intended to be dynamic and will evolve

concurrently with park needs as the plan's goals are achieved.

This **Area Management Plan (RMP)** is required by the Utah State Legislature and the Board of the Utah Division of Parks and Recreation to guide short and long term site management and capital development. The planning process recommends limits of acceptable change or modification, and a future vision for the park. Specifically, the process: **(1) recognizes the value of the park's resources and varied recreation opportunities and commensurate user needs; (2) recognizes impacts will result from use and enjoyment of the site; (3) questions how much and what types of impacts may be accommodated while providing reasonable protection of the resources for future visitors; (4) seeks sustained quality and value; and (5) seeks to determine the conditions under which this can be attained.**

Recommendations contained within this plan will be implemented under the direction of the Utah Division of Parks and Recreation. This plan is intended to be a useful, workable document that will guide management of the park over the next five to ten year period.

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Executive Summary

In July 2002, the Utah Division of Parks and Recreation (State Parks) officially closed Jordan River State Park. Salt Lake City assumed management responsibility for all former areas within the park except a 350 acre parcel located adjacent to the Jordan River corridor from Redwood Road at approximately 1800 North to Interstate 215. This parcel – the Jordan River Shared Use Area – was integrated into Great Salt Lake State Park.

Primary recreation activities in the Jordan River Shared Use Area include off-highway vehicle (OHV) riding, trail activities and radio-controlled model airplane use. Recent residential development and the emergence of additional, alternative uses have heightened concerns about potential impacts on visitors, neighbors and area resources. In light of these concerns, there are questions about the adequacy of current management policies in effectively dealing with these issues. To further complicate matters, State Parks is faced with these concerns in a time of budgetary cutbacks and fewer available staff. Consequently, planning is needed to resolve these challenges.

The purpose of this Area Management Plan is to identify management strategies to deal with the challenges facing the Jordan River Shared Use Area. The goal is to implement recommendations that protect park resources, promote safe and responsible recreational use and provide the necessary improvements to infrastructure to meet visitor demands. Plan recommendations will meet these objectives by:

- Implementing strategies to minimize recreational impacts upon the park's natural resources and park neighbors.
- Reducing user conflicts and enhancing visitor safety.
- Improving visitor awareness of the area's natural resource base and

eliciting more responsible recreation use through effective education and interpretation.

- Providing for necessary improvements and expansion of park facilities and infrastructure.
- Articulating the budgetary needs associated with plan elements and identifying means to boost park revenues.

A citizen-based planning team identified these goals and objectives in response to a need to address the concerns listed above. In September 2001, representatives from State Parks met with park stakeholders – users, local government officials, nearby residents and resource agency officials - to initiate an area management planning effort for the Jordan River Shared Use Area. These stakeholders identified a pool of individuals capable of serving on an Area Management Planning Team. From this pool, a team consisting of interested users, local property owners and State Parks representatives was selected.

The team identified seven primary vision elements to meet the goals described above. These vision elements serve as the foundational principles that provide management direction for the Jordan River Shared Use Area. They are listed as follows:

- Users engaging in current recreational activities at the park will not suffer a loss of opportunities from the current situation with implementation of the plan's recommendations;
- Multiple recreational opportunities are offered within the area, are consistent with the park's mission and are effectively zoned to delineate use, accommodate a broad-based

visitor base, minimize user conflicts and preserve resources;

- Programs are well structured, and organized and ultimately enhance the welfare of society by promoting safety, respect for other users and resource preservation
- Facilities are well-designed, well-kept, adequately meet the diverse recreation needs, enhance the area's aesthetic and scenic values. Future facilities development is minimal and focuses on the preservation of open space;
- Operational aspects such as fees, concession opportunities and designated periods of operation are reasonable, cost effective, enhance resource protection and are consistent with Division goals;
- The park is a good neighbor; recreational activities do not pose negative externalities (e.g., dust, noise, traffic problems) to local residents;
- Area resources are adequately protected and a professional staff ensures that the park is clean and orderly.

The planning team developed specific recommendations to achieve the objectives listed within each of the guiding vision elements. Five issue areas form the basis of the team's recommendations. Each issue area with its accompanying recommendations is outlined as follows:



Park Resources and Resource Impacts

- Develop strategies to minimize the negative impacts of recreation activities on nearby residents, visitors and area resources;
- Identify strategies to protect and enhance park habitat, control and eradicate noxious weeds, effectively landscape to improve area aesthetics and better manage water resources.

Recreational Use

- Effectively manage diverse recreational activities, meet user needs and minimize potential conflicts;
- Identify and address safety and liability issues.



Education

- Increase visitor awareness of the park's natural resource base and its various recreational opportunities; develop strategies to elicit responsible user behavior and to encourage more public involvement.



Park Facilities and Infrastructure

- Create a plan to meet renovation and improvement needs for existing park

facilities; work with the Division's OHV section for funding;

- Create a facilities development plan for the following activities: OHV use, wildlife viewing, model airplane use, potential camping/boating/fishing activities, and trail use, park maintenance and security;
- Prevent the potential loss of recreation activities by working with city and county agencies to stem park encroachment by residential developments.

Budgetary Items, Revenue Generation and Resale Opportunities

- Develop budgets for plan recommendations requiring funding;
- Evaluate the feasibility of providing retail opportunities through concession or other appropriate means;
- Identify actions to make the park more financially self-sufficient through the the generation of additional revenues, contributions or grants;
- Effectively budget to meet required staffing needs for park operations.

Implementing some of these recommendations will be dependent upon acquiring new funding sources. There may be keen competition for funding or other unforeseen priorities and contingencies that could affect implementation. To ensure that many plan recommendations are implemented, an effort was made to identify strategies that – while they may result in redirection of staff priorities – do not require additional funding.

The plan's success is dependent upon the continued support of park stakeholders. Efforts must be made to promote safe and appropriate recreation use, preserve park resources, interact with local communities and strive to meet the expectations of park visitors. The recommendations contained

within this plan were based upon an open and collaborative process. It is imperative that all stakeholders continue to collaborate as the plan's components are implemented.

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Mission and Vision

Mission Statement

Jordan River State Park Shared Use Area provides a safe, satisfying and educational recreational experience by increasing awareness of user needs, minimizing potential conflicts and educating visitors about the need to

Statements

Mission Statement

The Jordan River Shared Use Area offers a variety of diverse recreation opportunities within an urban setting. The area is significant since it is the only public facility within the Salt Lake valley providing both motorized and non-motorized use.

In spite of the park's significance, actions are needed to better manage the area's diverse use. Management strategies are needed to minimize impacts upon neighbors, protect park resources, improve park facilities and infrastructure, prevent potential conflicts between different users and heighten awareness of area resources and user needs. Planning team members developed a park mission statement that incorporates these issues.

Recommendations developed by the team are consistent with this mission: Team recommendations will minimize the negative impacts of recreation activities on area resources and neighbors. Strategies will also be implemented to educate users about the area's natural resources and the need to protect these resources. Education efforts

Vision Statement

The future vision of the Jordan River Resource Planning Team is to provide a variety of safe, satisfying, and unique recreational opportunities for the park's broad user base by integrating the following vision elements into the team's recommendations:

- ✓ The welfare of users engaging in current recreational opportunities will not be diminished by this process; all recommendations regarding ultimate disposition of current activities will be achieved through team consensus
- ✓ Multiple recreational opportunities are offered within the area, are consistent with the park's mission, accommodate a broad-based visitor base, minimize user conflicts and preserve resources and provide connectivity with other trail-based opportunities outside of the park
- ✓ Programs are well structured, and organized and ultimately enhance the welfare of society by promoting safety, respect for other users and resource preservation; interpretive efforts educate all visitors about the park's natural resource base and elicit responsible behavior among users
- ✓ Facilities are well-designed, well-kept, adequately meet the diverse recreation needs, enhance the area's aesthetic and scenic values; future development is minimal to preserve open space
- ✓ Operational aspects such as fees,

will also elicit more responsible use and respect for different activities occurring in the park. Finally, objectives to improve area facilities and infrastructure will enhance the

area's aesthetic value, minimize impact on area neighbors and will provide users with a more safe, satisfying experience.

Vision Statement

The team's vision statement directs the courses of action that the team must take to achieve its mission. It consists of foundational principles to be ingrained in all specific plan recommendations.

The team vision statement contains seven foundational elements defined as follows:

1. The welfare of users engaging in current recreational opportunities will not be diminished by this process; all recommendations regarding ultimate disposition of current activities will be achieved through team consensus;
2. Multiple recreational opportunities are offered within the area, are consistent with the park's mission, accommodate a broad-based visitor base, minimize user conflicts and preserve resources and provide connectivity with other trail-based opportunities outside of the park;
3. Programs are well structured, and organized and ultimately enhance the welfare of society by promoting safety, respect for other users and resource preservation; interpretive efforts educate all visitors about the park's natural resource base and elicit responsible behavior among users;
4. Facilities are well-designed, well-kept, adequately meet the diverse recreation needs, enhance the area's aesthetic and scenic values; future development is minimal to preserve open space;
5. Operational aspects such as fees, concession opportunities and designated periods of operation are reasonable, cost effective, enhance resource protection and are consistent with Division goals

6. The park is a good neighbor; recreational activities do not pose negative impacts on local residents
7. Area resources are adequately protected; a professional staff ensures that the park is clean and orderly.

Incorporation of these principles into team recommendations will provide a variety of safe, satisfying, and educational recreational opportunities for the park's broad user base.

Resource Management Plan Purpose and Process

Purpose of the Plan

This Area Management Plan is intended to help guide the Utah Division of Parks and Recreation's stewardship obligations for Great Salt Lake State Park's Jordan River Shared Use Area. The 350 acre park lies directly west of the Jordan River – including a trail on the River's East Bank - and runs northward from Redwood Road at approximately 1800 North to Interstate 215.

The area's OHV center and model airport are the only public facilities for this kind within Salt Lake County's urban area. Other users utilize the site for wildlife and waterfowl interpretation and hiking. Concerns have been expressed about the compatibility of motorized and non-motorized use. Some individuals and groups express concern that motorized use negatively impacts their opportunities to view wildlife or experience serenity. Adjacent property owners express concerns about the noise and dust resulting from motorized activities.

Alternatively, OHV and model airplane enthusiasts express concern that with rapid growth along the Wasatch Front over the past two decades, many areas previously open to motorized use have now been developed or declared off limits. Jordan River Shared Use Area is the last publicly designated area with adequate facilities to meet their needs within the Salt Lake Valley. They express concern that they too will be forced out of the area and will thus lose the last remaining publicly designated OHV/Model Airport area within the valley. Many of these users are committed to resisting pressures to relocate or close the park to their preferred uses.

Potential conflicts - while perhaps the most pressing problem - is only one of the concerns requiring attention. Other issues such as the identification of new recreation opportunities, repair, renovation and enhancement of facilities, trails and area aesthetics, need to be addressed. Additional concerns - impacts upon adjacent landowners, the need for visitor information, sustenance of a healthy ecosystem, signage, and visitor safety – likewise require attention.

The Utah Division of Parks and Recreation (State Parks) is at the center of the dilemma. State Parks is mandated to serve the needs of *both* motorized and non-motorized recreation enthusiasts. This dilemma has been further complicated by recent budget cutbacks. In July 2002, State Parks turned management responsibility of Jordan River State Park over to Salt Lake City. The remaining Shared Use Area – now under the aegis of Great Salt Lake State Park- faces these issues under more austere conditions.

Because of these challenges, State Parks believes it is in the best public interest to support all of the park's current users by developing strategies to minimize potential use conflicts and to find the most effective, reasonable strategies to meet user needs. Consequently, the task placed before State Parks is to resolve these various concerns and provide solutions that are agreeable to current users, constituents and other park stakeholders.

It is essential that State Parks plan for these issues. Failure to implement such a planning process will result in reactive management schemes that cannot address longer-term problems. Without a forward-looking plan, the current opportunities could be jeopardized.

Planning is also needed for efficient allocation of available funding for operations, maintenance and capital development. It will also increase the park's likelihood of obtaining additional monies to implement team recommendations.

State Parks proposed development of a user-based comprehensive planning effort to resolve these issues. As noted above, a planning team was convened to identify a future vision for the area and provide recommendations to address the area's challenges.

The team identified five major issue areas related to area resources/resource protection, recreation use, education and information, facilities/infrastructure development and budgetary needs. Team members identified 12 strategies to resolve concerns within each of these issue areas. These strategies represent flexible guidelines for management of the park over the next five to ten year period.

The Planning Process

The Utah Division of Parks and Recreation's master planning document, *Frontiers 2000*, delineates the required planning actions needed to effectively meet customer recreation and leisure needs. The document identifies resource or area management planning as an essential action to be completed for each park within the agency's system. Under guidance of *Frontiers 2000*, each plan is to be designed around one core concept: meeting the needs and expectations of customers, citizens of the state of Utah and visitors while protecting each park's unique resource base.

In short, the process is "customer driven and resource based."

The planning process recommends limits of acceptable change or modification, and a future vision for the park. This Jordan River Area Management Plan: (1) recognizes the value of the park's resources, its varied recreation opportunities and commensurate user needs; (2) recognizes impacts will result from use and enjoyment of the site; (3) defines how much and what types of impacts may be accommodated while providing reasonable protection of the resources for future visitors; (4) incorporates values of resource sustainability, quality facilities, education and interpretation for visitors; and (5) seeks to determine the conditions under which this can be attained.

In September 2001, Division representatives met with community stakeholders to familiarize them with the proposed process and the need for creating an Area Management Plan (AMP) for the Jordan River Shared Use Area. During this meeting, State Parks solicited the names of community members and various users with an interest and expertise in the park to serve as members of an Area Management Planning Team. Team members were selected for a variety of reasons ranging from technical expertise to interest in the park. All team members participated on a voluntary basis and expressed a willingness to sacrifice a significant portion of their time and expertise to the process. Nine individuals were selected to serve on the planning team and several representatives from the Division served as staff to the team.

About the Park

Park History

Jordan River Shared Use Area: Background

Prior to its 2002 transfer to Salt Lake City, Jordan River State Park represented the northern portion of a multi-jurisdictional recreational waterway trail system within the Jordan River riparian corridor administered by the Utah Division of Parks and Recreation (State Parks). Previously, the State Park portion of this system extended northward along a 4.8-mile segment of the Jordan River corridor from the Utah State Fair Park on North Temple Street to Interstate 215. In its former designation, Redwood Road bisected the park at a point near 1800 North.



State Parks' jurisdictional area south of Redwood Road contained a par three golf course, Cottonwood Park and the trail system running adjacent to the Jordan River from North Temple to the river's intersection of Redwood Road. This area was ceded to Salt Lake City in the 2002 transfer. However, the 350-acre area lying to the northwest of the Jordan River/Redwood Road intersection remains with the Division under the auspices of Great Salt Lake State Park. The current planning effort focuses on this area.

This remaining 350-acre area, informally known as the "Jordan River Shared Use

Area," was originally conceived as a combination flood detention basin/recreation area. The U.S. Army Corps of Engineers, Salt Lake County and the Jordan River Parkway Authority proposed that the area be developed to provide an 800 acre-foot overflow area on the lower Jordan River to control flooding in the area.

The Jordan River Shared Use Area is comprised of undeveloped lands, previously utilized for growing alfalfa and provision of pasture. New residential development lies on the area's southern boundary while commercial and industrial properties bound the area to the east. A small strip of privately held land consisting mostly of equestrian stables and training facilities is sandwiched between the area's western boundary defined by Rose Park Lane and Interstate 215 (I-215). I-215 also forms the area's northern, semi-circular boundary. An unpaved walking trail located along the Jordan River's east bank forms the area's eastern boundary. Vehicular service roads, which also serve as equestrian trails, run along the river's west bank through part of the area.

Although originally designed to control flood events, the predominant role of the area is to provide recreation activities for an urban area. Accordingly, the area hosts a wide array of unique recreation activities including off-highway vehicle (OHV) riding, hiking and horseback (equestrian) riding and radio-controlled model airplane use. Area facilities include administration and maintenance buildings, motocross tracks, OHV trail systems and a model airport (including a paved runway and apron areas, shelters and restroom facilities).

The area's trail system along the adjacent Jordan River provides hikers, walkers, equestrian enthusiasts and bicyclists with opportunities to view riverine wildlife.

Canoeists also use the Jordan River to access points through the park between Cudahy Lane (about 3500 North) in Davis County southward to through the valley.

HISTORY OF DEVELOPMENT

The area was developed as part of the Provo Jordan River Parkway. In 1973, the Utah Legislature authorized creation of the Provo-Jordan River Parkway Authority and outlined goals and objectives directing the organization to provide for recreation, historical preservation, flood control, reclamation, wildlife enhancement, water conservation and land use control.

Land and Water Conservation Purchases

The Provo-Jordan River Parkway Authority purchased parcels along the Jordan River between 21st South to the Davis County line (current park location) in December 1975. The purchase was made with monies from the federal Land and Water Conservation Fund program. The stated purpose of the acquisition was to develop the land into a "...river parkway for use as a regional park with statewide significance."¹ It was also noted that the acquisition was made to help satisfy the demand for recreation opportunities existing within the Wasatch Front - Utah's largest urban area. At that time, the Utah State Comprehensive Outdoor Recreation Plan identified provision of outdoor recreation activities within the Salt Lake City urban area as a top priority.

A Master Implementation Plan Was Drafted by the Utah Outdoor Recreation Agency under a provision from the Land and Water Conservation Fund Act in August 1980. The plan presented a summary of existing conditions and provided recommendations

¹ U.S. Department of Interior, Bureau of Outdoor Recreation, Land and Water Conservation Fund Project Agreement #49-00173, March 28, 1975.

for each jurisdictional agency along the river.

Three major goals were identified within the plan:

1. Protect/preserve the Provo and Jordan River by improving water quality, archeological/historical preservation efforts, implementation of land use controls, preservation and enhancement of riverine wildlife habitat;
2. Utilize the river/river corridor to enhance recreational opportunities;
3. Encourage and support local involvement in river planning and development.

The plan identified potential sites along 19 separate geographical segments within the Jordan River corridor. The Jordan River AMP area falls into segment 2. Segment 2 was grouped with other similar segments that were primarily rural in nature, had abundant open spaces and/or recreation opportunities, and had slight to moderate development pressures.

These areas consisted of agricultural lands, marsh areas and salt flats. Potential for industrial development was seen as marginal because of soil and watertable limitations.

For these segments, the plan recommended that the Parkway Authority or Salt Lake County Flood Control establish a flood plain overlay zone with development of recreation activities. The plan also recommended that actions be taken to protect marshlands and waterfowl habitat and coordinate recreational activities to avoid user conflicts. Finally, the plan recommended implementation of tax incentive programs for agricultural landowners to ensure that such land remains in current use.

Designation of Jordan River State Park

The Jordan River State Park became part of the larger Provo-Jordan River Parkway in 1981 under the aegis of the Utah Division of Parks and Recreation following dissolution of the Provo-Jordan River Parkway Authority in 1981. As State Parks assumed management responsibility, formal recreational development of the area began as grazing rights on the parcels were concluded.

At the time of State Park designation in 1981, Park boundaries extended from about 21st South Street in Salt Lake City, to Interstate 215 on the North. Original facilities included an athletic ‘trials’ course near 1700 South, a canoe dock and picnic area at the 8th South Street Park and a “Frisbee” golf course which eventually was transformed into the current 3-par course near 1100 North Redwood Road.

Motorized use was the predominant development action proposed for the park’s northernmost segment - the current Jordan River Shared Use Area. Development actions were to include a motorcross track, a BMX race course, a model airplane “airport,” and an equestrian area including jumps and a training area.

Facilities Development – Jordan River Shared Use Area

Development of the Shared Use Area’s facilities was part of a multi-phased planning and development effort initiated in 1979 with construction of flood retention dikes and structures. Most of the proposed facilities within the park were initiated with a \$2 million appropriation from surplus state funds that same year. As noted above, after State Parks assumed management control of the area in 1981, it initiated construction of a motorcross track, a BMX race course, a model airplane “airport,” and equestrian trails. The area’s two major recreational development actions – the motocross/BMX tracks and the model airplane airport – represented an effort to meet the needs of two displaced user groups. A discussion of

each of these development actions is needed to provide an understanding of issues and concerns related to the area’s current use patterns.

▪ Modelport Development

Radio-controlled (RC) model airplane users worked for several years to obtain a permanent location for their activities. In 1975, the Ute RC Club leased a site in West Valley to pursue their flying activities. After a few years, however, residential development in the area was pronounced and neighbors began to complain about the noise and safety issues with model airplane activities. Modelers also used the State Fairgrounds parking lot, the Fort Douglas polo field, Salt Lake’s Airport No. 2, leased locations in the Kearns area and utilized open areas along the shores of the Great Salt Lake. As with the West Valley experience, residential and industrial development, neighbor complaints and other resource issues made these areas unsuitable. Modelers began to utilize outlying rural areas such as Grantsville. However, many Wasatch Front modelers felt that opportunities should be made available closer to home. Consequently, flyers expressed a desire to access a site within the Salt Lake Valley for their activities. In the early 1980s, modelers began to inquire about potential areas on the Jordan River Parkway. Of particular interest was the parcel currently under study because of the open space and because it was felt that given its location in an active flood plain, the site would likely be immune from residential development.



The Division agreed to allow model airplane use at the site if users could assist in securing funding for facility construction. In 1982, model airplane enthusiasts were able to raise over \$16,000 which was supplemented a \$21,000 investment by State Parks to construct a runway and rudimentary pit area. Delta Airlines also contributed over \$10,000 for landscaping and site work.

In 1991, the existing runway was upgraded and expanded. Construction/paving was also completed for the pit area, the parking lot and the area's access road.

▪ **OHV Facilities**

As early as 1971, State Parks identified the area as a potential OHV site. State Parks officials consulted with the Jordan River Parkway Authority to discuss utilization of the area as a potential motorcycle track. During this period of time, State Parks administered other areas in the valley, including Motoqua, a motocross track on about 5600 West and 2100 South as well as the Lark Dunes near the former town of Lark in the extreme southwest corner of Salt Lake County. By the early 1980s, industrial development, litigation and acquisition of private property closed both these areas to OHV use.



State Parks sought strategies to resolve the problem of displaced OHV users. With the formal acquisition of Jordan River State Park in 1981, State Parks designated the current Shared Use Area as a primary location for OHV use. Shortly after the acquisition, State Parks spent approximately \$100,000 to construct a simple OHV riding area. The initial development included a motocross track and a small trail system. By 1983, other facilities were added, including a staging and administration facility with related access roads, landscaping and required utilities.

OHV users made In-kind donations (earth moving equipment, labor) to help construct the initial motocross track and trails. These users also participated in designing the track, trails and providing planning assistance for other development items in the area.

Area flooding virtually halted the park's OHV activities shortly after the initial facilities were completed. Rising water levels from the Great Salt Lake combined with river flooding and high water tables left the area inundated on several occasions throughout much of the 1980s.

It wasn't until the early 1990s that the OHV area as it exists today became fully functional. During this period, the Division developed an OHV training course, and a maintenance shop within the area. It also provided additional amenities and improvements such as fencing, signage, parking lot improvement, picnic tables, landscaping and vending machines. The

area became popular, particularly with motocross enthusiasts, since it provided the only public OHV experience of its kind within the Salt Lake valley. The Division also became increasingly dependent on the area to meet its burgeoning OHV training and instruction needs.

- **Area Flooding**

Flooding and rising lake levels virtually inundated the area shortly after the area's facilities were constructed. However, it is no accident that flooding occurred (and will likely reoccur) within the area. In fact, the area was originally designed to help control flooding events along the lower Jordan River. This was part of a concerted effort to utilize the Jordan River Parkway for flood control purposes while simultaneously providing recreation opportunities.

In January 1976, the U.S. Army Corps of Engineers working in cooperation with Salt Lake County and the Provo-Jordan River Parkway Authority issued a feasibility study aimed at providing flood control along the lower Jordan River. The partners issued a proposal to utilize the river corridor from approximately 21st South Street to I-215 on the north as integrated floodway-parkway that included a major detention basin. The partners chose the floodway/parkway /detention basin alternative over a competing – and more costly - option to channelize the river. The preferred strategy integrated flood control measures with recreation development to provide needed urban recreation opportunities and preserve open space.

Under the plan, the Jordan River corridor from 21st South to I-215 on the north would be developed into a floodway-parkway. The plan also called for construction of an 800 acre-foot detention basin located directly south of I-215 adjacent to the river corridor to help limit downstream river flows to the existing channel capacity. These integrated flood control/recreation concepts would ultimately be developed and incorporated

into the Jordan River Parkway. Today, it is this flood retention basin that serves as the Jordan River Shared Use Area.

Area flooding and the subsequent cessation of OHV activities led State Parks to explore alternative locations in the late 1980s. Since a significant amount of funds were invested into the development OHV facilities, State Parks (unsuccessfully) sought monies to replace the land and capital developments lost to the flooding. These relocation efforts included discussions with the U.S. Fish and Wildlife Service to find an alternate location for OHV use less prone to flooding.

- **Wetlands Suitability Studies**

With the flooding events of the 1980s, Agencies including State Parks, the Utah Department of Natural Resources, Army Corps of Engineers (Corps) and the U.S. Fish and Wildlife Service investigated the area's suitability as a wetland. State Parks supported the concept provided an alternative, compensatory location for motorized use could be found.

In September 1988, the Corps evaluated the area's wetlands suitability characteristics. The Corps noted that the presence of relict hydric solids indicated that the area was historically a wetland and part of the Jordan River floodplain. However, with the development of diversions, levees and other structures, the Corps ultimately concluded that the hydrology of the site had been permanently altered to preclude the routine flooding necessary to maintain the area as a wetland. Because of these changes, the Corps concluded that the site (with the exception of potential areas directly adjacent to the park's levee) was not a jurisdictional wetland subject to Corps regulations.



Further investigation was made in 1997 to clearly delineate jurisdictional wetland areas in the park as defined by Section 404 of the Clean Water Act. Based on data collected in the study, approximately 1.8 acres of wetlands were identified on the property in the park's southeastern corner. Presently, no recreation activities or facilities development disturb this area.

DISPOSAL OF JORDAN RIVER STATE PARK

In July 2002, the Utah Division of State Parks and Recreation ceded management of Jordan River State Park as part of a legislatively mandated effort to cut costs stemming from a shortfall in state revenues. Intent language from House Bill 3, passed by the Utah State Legislature during the 2002 session directed State Parks to take the following actions:

“It is the intent of the Legislature that the State Parks Board, in coordination with the division director, analyze the costs and benefits of each state park, and by December 1, 2002, recommend parks for closure to meet the \$500,000 reduction in the state parks budget. It is further the intent of the Legislature that the reduction may be covered by both the operating and capital budgets for the state parks.”²

Since the budget reduction became effective on July 1, 2002, the Division was forced to

² House Bill 3, Supplemental Appropriations Act II, Item 75 2002 General Session, Utah State Legislature.

take quick action to meet the Legislative intent. Furthermore, these reductions were viewed as “permanent” cuts in the Division’s ongoing operations budget. Consequently, with the prospect dim for a dramatic budgetary turnaround (and accompanying restoration of previous funding levels), one-time annual revenues such as funding for capital expenditures would be of little use in covering ongoing operational costs in subsequent years. Hence, it was determined that park closures would be the only prudent long-term solution.

Jordan River State Park was selected as one of the parks for closure. One of the reasons why Jordan River was selected was due to the ability of Salt Lake City to manage many of the park’s facilities; the three-par golf course, its trails and open space areas. Moreover, Salt Lake found these areas to be desirable additions.

In March 2002, the Division entered negotiations with Salt Lake City to affect a transfer of responsibilities. In June 2002, the Division reached an agreement with Salt Lake regarding the formal transfer of Jordan River State Park. Among other things, provisions of the agreement included the following components:

- Salt Lake City assumes management of the Jordan River Parkway (those Parkway areas formerly managed under State Parks auspices), Cottonwood Park located adjacent to the Utah Department of Agriculture and Food on 350 North Redwood Road, and the par three golf course located on about 1100 North Redwood Road.
- State Parks maintains the 350-acre OHV/Modelport/Trail area (the current Jordan River Shared Use Area) located on the Jordan River’s west side from approximately 1800 north to Interstate 215.
- State Parks transfers, without cost, fee title ownership of the property along

with associated water rights; Salt Lake agrees to maintain restrictive covenants, such as Land and Water Conservation Fund restrictions.

- Salt Lake is provided with equipment for operations (mostly maintenance equipment for the golf course and parkway), and operational and storage space.

Under this agreement, the Great Salt Lake State Park assumed management of the Jordan River Shared Use Area. State Parks reassigned all former fulltime staff to other positions within the Division. Of the \$223,000 budget allocated to Jordan River State Park in the State's 2002 fiscal year, only about \$30,000 remains – as part of Great Salt Lake State Park's budget – to operate and maintain the area.

Park Resources

Many of the Jordan River AMP team's primary vision elements focus on the area's resources. These elements call for recommendations that:

- Manage recreation activities and programs to preserve resources;
- Provide interpretive information to effectively educate all users about the park's natural resource base;
- Preserve open space with design and development of facilities and infrastructure.

An inventory and analysis of area resources is needed to effectively carry out these goals. It is essential that area resources be understood prior to implementation of management actions – particularly those with physical impact upon the area. Clearly, management decisions affecting the park's natural resource base must be made upon the foundation of reliable scientific information. This provides an overview and an evaluation of the significance of area resources.

NATURAL RESOURCE INFORMATION

BIOLOGICAL RESOURCES

▪ Background

The Utah Division of Wildlife Resources (UDWR) is currently conducting a study to inventory the vertebrate and vascular plant species known to occur in the study area. The report will also provide information about additional vertebrate species that may potentially occur in the study area along with a description of habitats present at the site during historic times. The UDWR report will also discuss any habitats currently present on the site that are especially important to wildlife or native plants.

The study was initiated in late 2001. However, State Parks suspended work on the UDWR project in early 2002 as it explored closure and disposal of the area due to budget cutbacks mandated by the 2002 Utah Legislature. Work on the study was reinitiated in August 2002 when it became clear that State Parks would ultimately retain the area. As a result of these delays, the study will not be complete until all the seasonal attributes can be accounted for. UDWR estimates that the report will be finalized by July 2003. Study results will be appended to this document as they become available.

In accordance with the need to base management decisions on reliable information, team members recommend that all the UDWR's report findings be considered with implementation of relevant planning strategies. The team also recommended that State Parks work with UDWR to study wildlife connections/interactions and consider potential buffer zones with habitat areas in relationship to recreation use (*See Issue A.2, Recommendations 1 and 2 in the Issues and Recommendations section below*).

In July 2001, State Parks consulted with UDWR about the potential presence of threatened, endangered, sensitive species, and otherwise rare occurrences within the area. UDWR's Utah Natural Heritage Program (UNHP) maintains this data as part of its Biological and Conservation Data (BCD) system. At that time, the database did not contain records of occurrence for any such species within the 350-acre area.

UDWR's forthcoming on-the-ground biological survey will provide the definitive assessment regarding biological information. For the present time, a brief

overview of area flora and fauna derived from historical sources is provided below.

- **Physical Characteristics**

The park is located in a prime flood plain area characterized by pronounced geomorphological processes. Land use in the surrounding area has historically been undeveloped, commercial and industrial. The park's northern portion was formerly used for agricultural purposes, primarily for alfalfa growth and pasture land. Equestrian facilities lie to the west of park between the park boundary and I-215. Industrial development occurs north and east of the park. In recent years, residential development has occurred up to the park's southern boundary.

- **Flora and Fauna**

Park vegetation provides habitat and cover for a wide variety of wildlife – avian species in particular. Deciduous trees - low hanging willow trees, Poplars, Box Elders, Elms, Russian Olives – dominate the river bank along with tamarisk and a wide variety of grasses, bushes, shrubs and vines in addition to typical aquatic vegetation and some phreatophytes (cattails, etc). The most common area vegetation includes alkali bulrush, inland saltgrass, reed canary grass, quackgrass, cheatgrass, alfalfa, whitetop, fox-tail barley, smooth brome, Shepard's purse, storksbill and common dandelion.

The river corridor provides suitable habitat for pheasant, duck, dove, quail and other bird species as well as small animals (muskrat, beaver, raccoons, and other small rodents). Raptors (hawks, owls, etc.) can often be seen soaring near the river bank.

The park's open areas attract waterfowl such as geese and duck. Small animal life such as red fox can often be seen within the area. Within the river itself, fish species are limited, consisting largely of carp, with some catfish.

While the area is open and undeveloped, it is not considered "pristine." At the time of its acquisition much of the area indicated unnatural conditions due to the former use of the property for agricultural purposes. However, in its Environmental Assessment issued prior to acquisition of the area, the Jordan River Parkway Authority noted that habitat would be lost and some animals displaced with the establishment of formal recreation areas and the resulting human impact. To minimize these impacts, it was suggested that development be placed away from the river, to the extent feasible. It was also recommended that all desirable elements such as riparian natural vegetation and large trees be preserved.

AREA GEOLOGY: SUMMARY

In 2001, State Parks requested a geologic review of the area as part of the plan's resource information gathering effort. The Utah Geological Survey (UGS) provided a concise synopsis of the geology of the park and immediate area. Like the forthcoming UDWR review, team members recommend that salient points from the UGS report be considered as recommendations are developed. A summary of the UGS findings as prepared by Mark Milligan, Project Geologist, UGS Information Geology Section is provided below (a complete copy of the report can be found in appendix A).

The park lies at the northern end of Salt Lake Valley, which is bounded by the Wasatch Range to the east and the Oquirrh Mountains to the west. Great Salt Lake is west and north of the park. Except for abundant imported fill material, the park is located on unconsolidated, fine-grained sediments deposited by the Jordan River on its floodplain, and in Great Salt Lake mud flats and marshes. Sediments similar to those at the surface and perhaps gravels shed from the mountain front to the east, account for over 4,000 feet of valley fill underlying the park.

The park lies within the Intermountain seismic belt, a zone with active faults and heightened earthquake activity extending from Montana to northern Arizona. The Wasatch fault, located less than 1.5 miles to the east, and the West Valley fault, located as close as 0.5 miles to the southwest, are two nearby faults that pose an earthquake threat to the park. Both the Wasatch and West Valley faults are geologically active and capable of large magnitude earthquakes (up to magnitude 7.5). An earthquake could cause severe ground shaking (0.4 – 0.5 g peak horizontal acceleration), liquefaction (resulting in a temporary loss of ground strength), or flooding at the park.

Elevations at the park range from approximately 4210 to 4212 feet (excluding fill). Dependent upon lake level, Great Salt Lake can be as distant as over 10 miles to the west or can inundate the park. Because Great Salt Lake has no outlet, its surface elevation fluctuates widely; historical static elevations have ranged from 4191 to 4212 feet, and prehistoric static elevations reached 4217 feet as recently as 1700 A.D. Storm surge can be expected to add about 2 to 10 feet to the static water level.

As defined by the Department of Natural Resources, the Great Salt Lake floodplain extends to an elevation of 4217 feet. At this elevation the lake spills into the West Desert, abruptly increasing its surface area. Since lake level is controlled by input vs. evaporation, this increased evaporative surface area serves as a natural high-lake-level limit or flood-abatement mechanism. Similarly, the West Desert Pumping Project was designed to increase evaporation by pumping water into the West Desert. The pumps can operate when lake level exceeds 4208 feet. Although they have not operated since 1989, they are maintained for possible future use. Despite natural or engineered changes in evaporation surface area and rate, shoreline flooding in a closed basin is ultimately controlled by climate variability. Recurrent or prolonged wet and cold cycles can lead to high lake levels.

Flow of the Jordan River is largely controlled by releases from Utah Lake, which is in turn largely controlled by upstream reservoirs. Consequently, the potential for Jordan River flooding is relatively low. However, the park is within the Jordan River floodplain and thus potentially subject to river flooding.

The Jordan River was historically clear or slightly milky with trout common. However, studies indicate a variety of toxic substances, coliform bacteria, depleted dissolved oxygen levels, and turbidity (suspended material) that are now of concern in upstream reaches of the Jordan River. Such water-quality problems increase downstream toward the park. Within the park the river also contains large quantities of trash.

Waste storage practices at industrial properties adjacent to the park's eastern boundary may pose a threat to the park's soil and ground water or Jordan River water. Ground water and soil quality are also of concern in the area of an old abandoned dump site within and adjacent to the park.

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Issues and Recommendations

The recommendations developed by the planning team are at the core of this plan. The recommendations presented in this section will achieve the following goals in relationship to the Jordan River Shared Use Area:

- Minimize recreational impacts upon the park's natural resources and park neighbors;
- Reduce potential user conflicts and enhance visitor safety;
- Improve visitor awareness of the area's natural resource base and elicit more responsible recreation use through effective education and interpretation;
- Provide for necessary improvements and expansion of park facilities and infrastructure;
- Articulate the budgetary needs associated with plan elements and identify means to boost park revenues.

The planning team developed specific recommendations to achieve the objectives listed within each of the guiding vision elements. The team developed recommendations to address concerns about:

- Park resources and resource impacts;
- Recreational use;
- User education;
- Park facilities and infrastructure needs;
- Budgetary items, revenue generation and resale opportunities.

Team members identified 12 specific issues requiring attention. An analytical technique used to determine the park's strengths, weaknesses, opportunities, and future threats (otherwise known as a "SWOT" analysis) helped develop these issues. A specific description or statement summarizing each issues or problem was constructed to clearly identify and articulate the problem at hand.

Team members, planning staff and division experts identified some of the limiting factors that may hinder implementation of a specific team recommendation.

From these issues, and with the constraints in mind, the planning team developed specific recommendations. The team's recommendations were arrived at by consensus of opinion. Furthermore, team members worked to ensure that recommendations be consistent with the team's mission and vision statements. A discussion of specific team issues and recommendations under each issue area follows.

A. Resources and Resource Impacts

Issue A.1: Minimize Negative Impacts of Recreation Activities

There are concerns about the negative impacts or “externalities” posed upon nearby residents, visitors and area resources. Of particular concern is dust and noise resulting from recreational activities. The park also suffers from unsightly garbage and debris along the Jordan River trail and within the park itself. Actions are needed to meet the team’s objective that directs the park to be a “good neighbor” to nearby residents, visitors and park resources by minimizing these negative impacts. Constraints such as funding, available staff were considered with development of recommendations to resolve these issues. The planning team made an effort to ensure that no one recreational group will be made worse off with implementation of these strategies.

Recommendations

- 1) State Parks will consult with the Department of Environmental Quality, Air Quality Division (DAQ) to develop and implement a fugitive dust abatement and control plan. This plan will result in a program that allows management flexibility and provides optimal strategies for dust control. The team recommends that the following specific strategies be examined and implemented as appropriate:
 - a. Continue to work with DAQ in monitoring and identifying strategies to reduce dust emissions and determine operational thresholds for dust emissions.
 - b. Evaluate effectiveness of upgraded track water system and imported track constituents.
 - c. Consider timing of operation under unfavorable climatic conditions - e.g., periods of low wind, low

Resources and Resource Impacts

Key Issues:

- Minimize negative impacts of recreational activities.
- Identify and protect the area’s natural resource base.

- humidity, lack of precipitation, etc. - where fugitive dust is likely to be a problem.
 - d. Consider restricting where people ride on high dust area days.
 - 2) Explore strategies to minimize noise from motorized use. Identify optimal measures within a park landscaping plan (*see Issue A.2, recommendation 4*), information and education objectives, or other efforts, as appropriate.

Issue A.2: Identify and Protect the Area’s Natural Resource Base

The park lies in close proximity to the Jordan River and its associated base of natural resources. Specific actions may be needed to identify types of resources - especially those that may be of critical concern - resource concerns and resource protection strategies.

Recommendations

- 1) As findings become available, evaluate for potential implementation the recommendations of the Utah Division of Wildlife Resource’s (UDWR) field survey of the area’s Flora and Fauna; and the Utah Geological Survey (UGS) survey of the area’s geological resources into the draft plan (*see Natural Resource Information, pp. 15-17*).
- 2) Identify critical resource areas (crucial to habitat, etc.) and evaluate recreational impacts; Work with UDWR to study wildlife connections/interactions consider potential buffer zones with other habitat areas in relationship to

recreation use. Consider specific habitat actions for the following:

- a. Evaluate development of nesting/roosting structures in appropriate habitats.
- b. Protect large trees from impacts of beaver.
- c. Control raccoon population to protect other wildlife.
- d. Plant and protect cottonwood and willow stands.
- e. Install bat boxes.
- f. Consider agricultural planting of corn for geese and pheasants.

3) Work with appropriate agencies to identify, control and eradicate noxious weeds and non-native invasive species. Plan elements should consider the following specific issues:

- a. Mow or graze opens space as required to maintain health and productivity.
- b. Eradication of tamarisks, Russian olives and phragmites.
- c. Preserve as much open space as possible.
- d. Preserve tall grass for habitat.
- e. For trail areas, mow as appropriate, eradicate thistle or puncture weeds and trim overhanging branches.

4) Develop a park landscaping plan consistent with the Division's landscaping standards that considers the following elements:

- a. Surround the park with a greenbelt; Plant east side from trail to park boundary with trees and shrubs.
 - i. Surround the OHV area with "living fence" of trees and shrubs to reduce noise, and to cut down on dust and improve habitat as well; Consider utilizing grass cover on slopes not utilized by OHVs. (*see Issue A.1, recommendation 2*).
- b. Explore and enhance cooperative efforts with the Natural Resources Conservation Service (NRCS), Tree Utah, the Jordan River Natural

Areas Forum and Great Salt Lake Audubon and other appropriate entities to study, design and implement a revegetation project for park's riparian corridor and to provide for its ongoing maintenance and care.

- i. Consider prime riparian habitat areas within the park and revegetate as needed.
- ii. Work with S.L. County Flood Control to evaluate removal of deadfall and garbage from the river; Perform necessary trimming/control of vegetation to maintain navigation and prevent garbage trapping and build-up.
- iii. Examine feasibility of cleaning up the channel and altering the bank to allow for natural flooding.
- iv. Consider planting the area west of the river with trees and shrubs to establish a productive riparian corridor.
- c. Explore and identify feasible strategies to reclaim the "Big Bend" garbage dump along the east side trail area.
- d. Consider planting the park's west boundary with trees and shrubs.
- e. Consider establishing a pruning and thinning plan to maintain healthy vegetation.
- f. As appropriate, work with appropriate organizations for community tree planting projects.
- g. Consider replanting open areas with native grasses.

5) Develop a water resources management plan for the park that considers the following elements:

- a. Work with the Utah Division of Water Rights to develop a study regarding the park's water rights and other water-related issues relevant to subsequent development or operations.
- b. Work with Mosquito Abatement to minimize/control mosquito

- problems resulting from watered areas within the park.
- c. Utilize river water and existing ditches for watering needs wherever possible.
 - d. Explore the feasibility of developing a wetland marsh area and/or a shallow, semi-permanent pond within the park boundaries (on the most appropriate location for wildlife/waterfowl) to help diversify habitat.
 - e. Advocate for and participate in efforts to extend the TNT Auto Auction mitigation pond on east bank westward toward the river to maintain shorebird use; Evaluate the need/feasibility of flushing the TNT pond to prevent toxic build-up and avian botulism.

- 6) Develop a fire management plan for the area.

B. RECREATIONAL USE

ISSUE B.1: Effectively Manage Multiple Use Activities

The Jordan River Shared Use Area effectively supplies multiple recreation activities and programs demanded by the public. Because of this varied use, there are various issues and needs requiring attention to more effectively manage activities, meet user needs and minimize potential conflicts. Some of the following constraints may need to be considered as recommendations are implemented: ensuring that no single group is made “worse off” by actions; existing agency policies; funding; staffing.

Recommendations

- 1) Prior to July 1, 2003, a user-driven effort to research and evaluate the feasibility of relocating motorized activities to a suitable location will be conducted. The alternative must meet or exceed criteria articulated in the plan’s mission statement.

Recreational Use

Key Issues:

- Effectively manage multiple use activities.
- Minimize safety and liability risks.

- 2) Develop an area-wide plan for appropriate uses. The plan should:
- a. Provide guidance for all uses.
 - i. Develop a recreational use map of the site - involve representatives from the various user groups.
 - ii. Work towards developing a separation of trail systems to prevent user interaction and conflict; Clearly delineate (sign), educate and enforce areas of use for motorcycles/OHVs, model airplane users, equestrian users, or hikers; Utilize natural barriers (vegetation) or fencing to help prevent conflicting use.
 - b. Promote environmental preservation and demonstrate a commitment to effective management of park soils, water, air, plants, animals and the human components
 - i. Identify critical habitat areas and ensure that activities do not create interference or degradation; Make every effort to provide for those native species that reside and pass through the park.
 - c. Evaluate and adopt strategies for reducing noise generated from motorized activities. The following strategies should be considered:
 - i. Examine optimal locations –for potential relocation -of motorized use to areas within the park that are more conducive to noise generation.
 - ii. Define appropriate hours of operation for motorized activities to help address noise complaints (*note that the designation of dusk*

as the park's closing time may not be appropriate during summer hours); Effectively enforce modelport regulations regarding noise.

- iii. Utilize landscape architecture to improve area aesthetics and assist in separating and screening conflicting uses (*see issue A.2, recommendation #4*)
- d. Evaluate feasibility of allowing OHV use for a longer period of time (earlier/later in the year); Consider keeping the park open for OHV use more days of the week.
- e. Promote greater public use and exposure of the motocross track, particularly through events, races and other related activities; Utilize these activities to generate additional park revenues.
- f. Provide better maintenance and improvements to attract more riders.

ISSUE B.2: Minimize Safety and Liability Risks

Recommendations are needed to identify, clarify and, alleviate safety concerns within the area. Similarly, liability issues should be clearly identified and accompanying actions should be developed to minimize legal exposure.

Recommendations

- 1) State Parks staff should work with other law enforcement agencies.
- 2) Consult with State Attorney General's office and the State Division of Risk Management to identify and resolve potential liability issues.
- 3) Coordinate with the FAA to clarify potential safety issues related to the modelport.
- 4) Develop a Fire Management Plan to reduce fire hazards (*see issue A.2, recommendation #6*).

Education

Key Issues:

- Provide effective education and interpretation programs.

C. EDUCATION

ISSUE C.1: Provide Effective Education and Interpretation Programs

Education programs, especially those related to the area's natural resource base and OHV use should be enhanced. Actions are needed to identify program weaknesses and develop specific strategies to improve enhance user awareness of park resources, impacts and to elicit responsible use.

Recommendations

- 1) Develop a park interpretive plan that includes information on park habitat, wildlife historic land use and relationships to the adjacent environment. The plan should:
 - a. Emphasize outreach/education efforts with local school districts;
 - b. Promote cooperative agreements with school districts and other interested organizations;
 - i. Coordinate with local educators to determine "best fit" for respective education programs; Integrate with educators to fit programs into school curriculum.
 - ii. "Benchmark" and incorporate successful interpretive/education programs from other groups or organizations.
 - c. Provide interpretive information as necessary.
 - i. Identify needs and appropriate location for interpretive signs and information.
 - ii. Pay special attention to trail heads and along trails to

- highlight noteworthy natural features and history of the area.
 - iii. Coordinate with Division's Information Section for press releases, events, newsletters, and development of more detailed brochures about the park, its recreational opportunities and its natural resources.
- 2) As necessary, utilize a variety of news media to provide information to the public.
- 3) Enhance information/education outreach to elicit responsible behavior from all park users.
 - a. Evaluate the adequacy of signage and information displaying park regulations governing activities, correct deficiencies as needed.
 - b. Enforce existing rules or regulations and take appropriate action against irresponsible individuals and avoid punishing law-abiding groups as a whole.
 - c. Work with local community/city to ensure that Rose Park Lane is adequately signed and patrolled for compliance, i.e., suggest speed bumps, other compliance means with County.
- 4) Educate the public about the Jordan River watershed and its importance.
- 5) Develop and implement a joint, multiple-use education effort to enhance understanding of and consideration for the needs of the area's different users (*note that this recommendation is especially pertinent if all current uses remain within the area*).

D. FACILITIES AND INFRASTRUCTURE DEVELOPMENT

ISSUE D.1: Enhance Existing Facilities and Infrastructure

Facilities and Infrastructure Development

Key Issues:

- Enhance existing facilities and infrastructure.
- Provide for new facilities and infrastructure development.
- Reduce threats from residential development.

There are opportunities to enhance area facilities and infrastructure. Problems/opportunities for improvement need to be specifically identified and addressed. Some of the following constraints may need to be considered as recommendations are developed for this issue: funding; siting; feasibility; design and engineering; available staff to administer potential changes.

Recommendations

- 1) Create an existing facilities renovation plan for the park. Current needs to be addressed in the plan include:
 - a. Remodel and refurbishment of current OHV Center building; Include additional tables and chairs for rest and relaxation
 - b. Pave OHV center parking lot.
- 2) Minimize additional facilities construction to preserve open space within the area.
- 3) Work with the Division's OHV section to obtain funding for additional improvements and required staff.

ISSUE D.2: Provide for Additional Facilities and Infrastructure Development

Additional facilities and recreational infrastructure may be needed to better

support the park's different uses. Additional activities may require new facilities or infrastructure. Team recommendations are listed as follows.

Recommendations

Create a facilities development plan for the following recreational needs:

1) OHV Facilities

- a. Upgrade and expand OHV opportunities for the following activities: trials motorcycles, four-wheel drive activities and snowmobile activities. Consider relocation and expansion of OHV tracks/trails within other areas of the park that are most optimal for multiple use needs. Provide and/or upgrade beginner OHV/Motorcycle tracks and training areas to provide a safer experience for novice riders. As appropriate, utilize volunteer help from rider groups for these improvements.
- b. Utilize vegetation and fencing to maintain a hard separation of trail systems to keep motorized use off of foot trails and foot traffic out of motorized areas when in use (*see issue B.1, Recommendation #2*).
- c. Evaluate development of alternative water supplies for dust control.
- d. Consider developing a simple motorcycle/OHV wash located near the OHV center.

2) Archery Needs

- a. Evaluate the need to continue archery activities.

3) Model Port

- a. Eradicate weeds and seal cracks in asphalt to prevent disintegration of the pavement; Consider widening the entry road.

4) Wildlife Viewing

- a. Evaluate opportunities for the development of wildlife viewing areas.

5) Camping/Boating/Fishing

- a. Consider developing and maintaining a launch area west of Redwood road; Identify sites and place docks along the river inside the park; Provide better parking near trail head west of Redwood road to accommodate boaters; also consider/construct take-out sites. Coordinate with Jordan River Water Trail Planning effort, or other relevant efforts as appropriate.
- b. Evaluate feasibility of developing and urban fishery within the park.

6) Include a park trails plan that inventories existing trails and uses and identifies potential needs for the following areas:

East Side Trail

- a. Consider improving paths on the river's east side; The north $\frac{3}{4}$ mile of the east-side trail needs to be graveled and graded for all-weather use. Also, the entire trail should be mowed in late spring and again in the fall to reduce the fire danger and improve its usability. Ensure that development actions are consistent with proposed Legacy Parkway.
- b. Identify appropriate facilities for nature/wildlife viewing trail use.

Perimeter Trail

- a. Consider feasibility of establishing a boundary trail around the park perimeter west of the river; Identify and provide appropriate connections to this trail.
- b. Trail design should provide adequate surface and drainage and appropriate amenities for use.

Bridges

- a. Renovate the wood-cased footbridge on the existing water line along east side trail (near the center of the park). This bridge is currently in poor shape and could be a safety hazard. If this use is to continue it should be maintained and improved. Consider making improvements to the Bonneville diversion dam in the

park's north end (near the Davis County line). The dam is still in place and would function as an all-purpose bridge with improvements.

Trail Heads

- a. Evaluate creation of designated trailheads or entrance points complete with signage and/or information kiosks.
 - i. Consider developing a trailhead near the old BMX track adjacent to Redwood Road. This should be fenced, paved, lighted, and developed in conjunction with a boat launch area.
 - ii. Evaluate feasibility of trail head improvement at Rose Park Lane.
 - iii. Consider trail head development - when park is open - at the Modelport and the OHV area.

Trail Linkages

- a. Consider linking trails with those identified in the Northeast Quadrant Community Master Plan (Salt Lake City), Legacy Parkway or other trail systems if opportunities arise
- 7) Identify park boundaries and, if needed provide adequate fencing. Consider the following:
- a. Where feasible, provide secure fencing and/or dense plantings next to developed housing.
 - b. Provide fencing on the section of the east side trail that parallels Redwood Road in Davis County to isolate the trail from the road. Vehicles driving on this section often destroy the trail, dump garbage and hazardous waste along and in the river, and interfere with non-motorized use of the trail. Also consider fencing and grading the shoulder of Redwood Road to enhance the barrow pit, and eliminating the gates.
 - c. Ensure that existing fences adjacent to industrial areas are maintained and repaired.
 - d. Consider installation of distinctive posts at regular intervals where the

property line is not fenced to indicate park boundary, as appropriate.

- 8) Assess feasibility of developing an Environmental Education/Nature Center.
- 9) Provide trash containers as necessary; Work with Salt Lake County to have them help patrol frontage road to stop dumping and to clean up trash and debris.
- 10) Consider constructing a fee collection system to that generates additional revenues for the park.
- 11) Work with Division's Volunteer Coordinator to organize specialized user groups for a park clean-up and maintenance day.

ISSUE D.3: Residential Development May Threaten Recreational Opportunities

Site location, access, and buffers are positive attributes that help preserve the park's ample open area (350 acres) for recreation. However, nearby residential development may encroach upon current buffers and may ultimately lead to a loss of opportunities. Recommendations are needed to help prevent these losses. Some of the following constraints may need to be considered as recommendations are implemented for this issue: regulatory issues such as zoning laws, funding and available staff time.

Recommendations

- 1) Ensure that current zoning ordinances remain consistent with existing park uses and future management objectives.
- 2) Work with appropriate agencies to prevent encroachment.
- 3) Park Management should work with the Division's Planning Section to ensure developers and new homeowners are aware of the park and its activities.

- 4) Seek opportunities to involve adjacent landowners in park management decisions.

E. BUDGETARY ITEMS, REVENUE GENERATION and RESALE OPPORTUNITIES

ISSUE E.1: Budgets Need to be Developed for Plan Recommendations

There is a need to ensure sufficient funding to fully implement use plan components. Budgets should be prepared for all relevant team recommendations.

Recommendations

- 1) Budgets related to the recommended items approved in this plan should be developed prior to implementation. Specific plan recommendations requiring budgets include:
 - a. The proposed fugitive dust control program;
 - b. Habitat protection and mitigation measures;
 - c. Noxious weed control planning needs;
 - d. Park landscaping planning efforts;
 - e. Water resources management planning efforts;
 - f. Area-wide recreation management planning strategies;
 - g. Park interpretive planning needs;
 - h. Facilities renovation planning needs;
 - i. Facilities development planning needs (OHV, Modelport, Park Infrastructure, Trails).
- 2) All relevant budgets should ensure that basic operations, maintenance and security needs are met; If possible, all budgets should be appended to this Area Management Plan.

ISSUE E.2: Evaluate Park Merchandise Resale Opportunities

Budgetary Items, Revenue Generation and Resale Opportunities

Key Issues:

- Budgets need to be developed for plan recommendations.
- Evaluate park merchandise resale opportunities.
- Revue fee and revenue collection policies.
- Effectively budget for staff, operations and maintenance needs.

There is a need for sales of items such as snacks, drinks, accessories, etc. Small retail/resale opportunities may help enhance park revenues.

Recommendations

- 1) Consider development of retail opportunities. Such opportunities may include a concession stand or a “self-serve” vending service area.
- 2) Examine cooperative ventures with private enterprises to provide retail services.

ISSUE E.3: Review Fee and Revenue Collection Policies

There is a need to generate additional revenues to help cover operations and maintenance costs. Currently, fees are collected only at the OHV center and the modelport area. Strategies are needed to ensure that fee collection is equitable for all who use the area.

Recommendations

- 1) Consider establishing an entrance fee for *all* park users.
- 2) Continue to seek additional monies from the Division and the Legislature.
- 3) Seek other outside monies such as donors, sponsors, non-profit partnerships to write grants, etc.

- 4) Solicit volunteer help; Encourage organized groups that use the park to participate in its upkeep; Plan and coordinate volunteer help.
- 5) Become actively involved with local community groups and planning committees to assist in the development of new facilities; Utilize such groups to advocate for additional park funding needs.
- 6) Research and obtain other grants to be used in conjunction with the NRCS program, or others, as appropriate.

ISSUE E.4: Effectively Budget for Staff, Operations and Maintenance Needs

There are a number of operational issues – specifically those dealing with a lack of funding for maintenance, development and enforcement actions - that are cause for concern. Specific operations and maintenance issues need to be identified and resolved. Some of the following constraints may need to be considered as recommendations are developed for this issue: State Budgetary shortfalls; difficulties in hiring new staff; shortage of available human resources.

Recommendations

- 1) Evaluate staffing needs and develop a staffing plan for the park's operation and maintenance commensurate with plan recommendations. Consider the following:
 - a. Hire additional Ranger to manage OHV/modelport operations.
 - b. Hire additional staff for park maintenance needs.
 - c. Hire Naturalist for park area.
- 2) Evaluate the establishment of non-profit partnerships to procure grants for area operations and maintenance.
- 3) Continue to work with Division's OHV Section for funding commitments.

Conclusion

This plan is a blueprint to help implement the planning team's recommendations. As such, it outlines the initial steps to be taken in concert with park visitors, local communities and other interested users to develop reasonable, effective strategies to protect park resources, promote safe and responsible recreational use, minimize potential conflicts between users, neighbors and area resources and provide the necessary improvements and infrastructure to meet visitor demands. Plan recommendations will also help preserve the area's open space and ensure more efficient operations and maintenance.

The recommendations contained in this plan conform to the team's mission and vision. The guiding principles embedded in mission and vision statements were considered with the development of each recommendation.

The plan's recommendations effectively address the current needs for resource protection, recreation use, education and information needs, facilities renovation and development and budgetary activities. It is crucial that effective user partnerships be formed to implement these strategies. The plan's success is dependent upon the continued support of stakeholders. This support will be essential for the effective implementation of plan recommendations. Stakeholder support will also ensure continuity in the collaborative process upon which this plan was developed. It is imperative that this collaborative spirit continue as the plan's components are implemented.

It is also essential that the document be reviewed on a regular basis to ensure its viability, relevance and usefulness. This document has sufficient flexibility to be amended in response to changing resource conditions, visitor needs and expectations,

community needs and agency priorities. Such amendments may occur under the auspices of the Division of Parks and Recreation. Any such modification will include input from park visitors, local citizens, community leaders, park management or other stakeholders with interests relevant to the operation and maintenance of the park.

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Maps

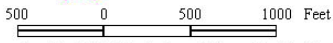
Plate 1: Jordan River Shared Use Area Facilities Map

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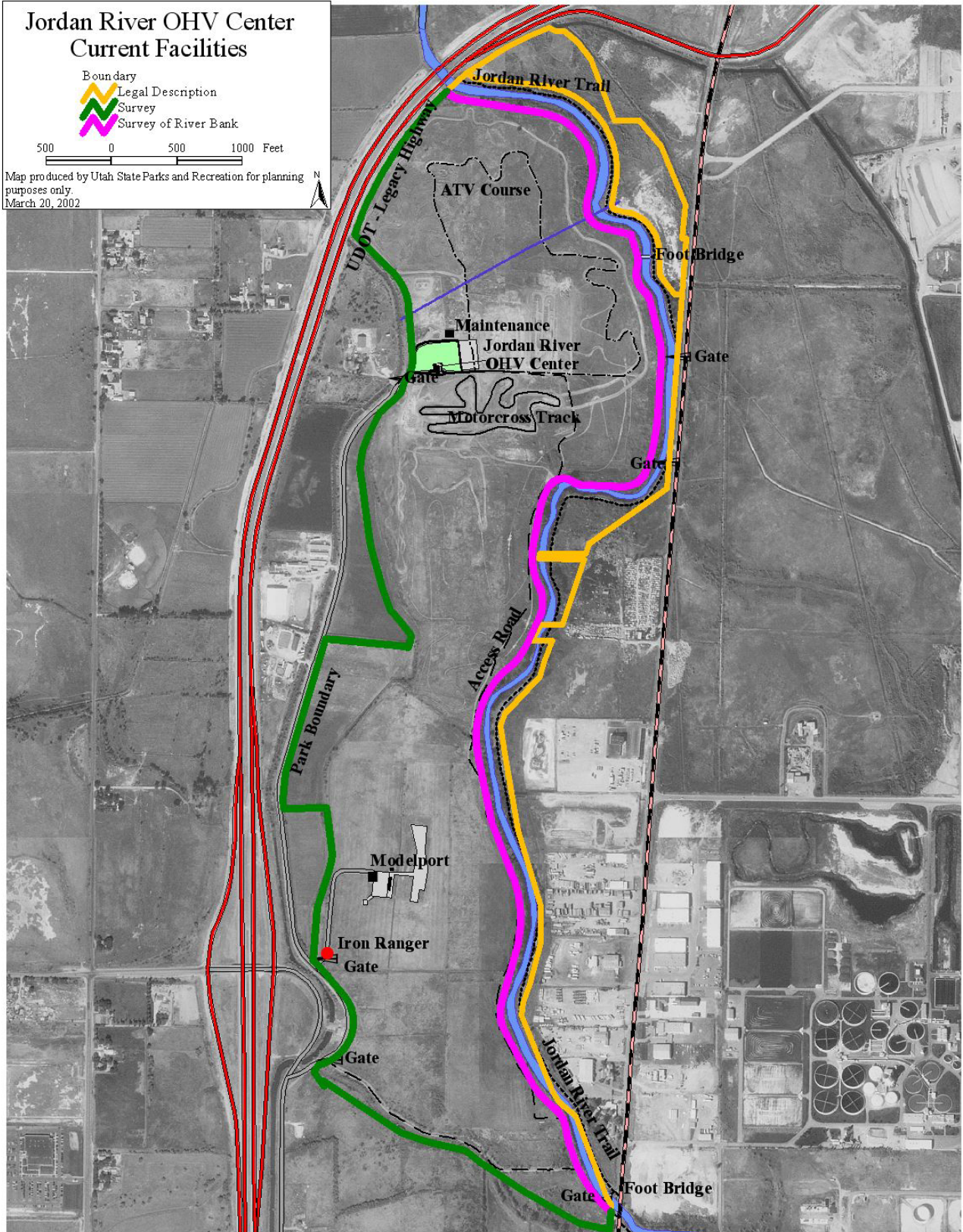
Jordan River OHV Center Current Facilities

-  Boundary
-  Legal Description
-  Survey
-  Survey of River Bank

500 0 500 1000 Feet



Map produced by Utah State Parks and Recreation for planning purposes only.
March 20, 2002



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Appendices

Appendix A: Northern Jordan River State Park Geologic Review

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Appendix A

Northern Jordan River State Park Geologic Review

Prepared for: Division of Parks and Recreation
Jordan River State Park – OHV Center Management Plan

Prepared by: Mark Milligan, Utah Geological Survey



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EXECUTIVE SUMMARY

As requested by the Division of State Parks, this report addresses the northern portion of Jordan River State Park (the park) from the 1800 North Redwood Road bridge to the I-215 bridge. This report presents a concise synopsis of the geology of the park and immediate area for the purpose of developing a resource management plan. The park lies at the northern end of Salt Lake Valley, which is bounded by the Wasatch Range to the east and the Oquirrh Mountains to the west. Great Salt Lake is west and north of the park. Except for abundant imported fill material, the park is located on unconsolidated, fine-grained sediments deposited by the Jordan River on its floodplain, and in Great Salt Lake mud flats and marshes. Sediments similar to those at the surface and perhaps gravels shed from the mountain front to the east, account for over 4,000 feet of valley fill underlying the park.

The park lies within the Intermountain seismic belt, a zone with active faults and heightened earthquake activity extending from Montana to northern Arizona. The Wasatch fault, located less than 1.5 miles to the east, and the West Valley fault, located as close as 0.5 miles to the southwest, are two nearby faults that pose an earthquake threat to the park. Both the Wasatch and West Valley faults are geologically active and capable of large magnitude earthquakes (up to magnitude 7.5). An earthquake could cause severe ground shaking (0.4 – 0.5 g peak horizontal acceleration), liquefaction (resulting in a temporary loss of ground strength), or flooding at the park.

Elevations at the park range from approximately 4210 to 4212 feet (excluding fill). Dependent upon lake level, Great Salt Lake can be as distant as over 10 miles to the west or can inundate the park. Because Great Salt Lake has no outlet, its surface elevation fluctuates widely; historical static elevations have ranged from 4191 to 4212 feet, and prehistoric static elevations reached 4217 feet as recently as 1700 A.D. Storm surge can be expected to add about 2 to 10 feet to the static water level.

As defined by the Department of Natural Resources, the Great Salt Lake floodplain extends to an elevation of 4217 feet. At this elevation the lake spills into the West Desert, abruptly increasing its surface area. Since lake level is controlled by input vs. evaporation, this increased evaporative surface area serves as a natural high-lake-level limit or flood-abatement mechanism. Similarly, the West Desert Pumping Project was designed to increase evaporation by pumping water into the West Desert. The pumps can operate when lake level exceeds 4208 feet. Although they have not operated since 1989, they are maintained for possible future use. Despite natural or engineered changes in evaporation surface area and rate, shoreline flooding in a closed basin is ultimately controlled by climate variability. Recurrent or prolonged wet and cold cycles can lead to high lake levels.

Flow of the Jordan River is largely controlled by releases from Utah Lake, which is in turn largely controlled by upstream reservoirs. Consequently, the potential for Jordan River flooding is relatively low. However, the park is within the Jordan River floodplain and thus potentially subject to river flooding.

The Jordan River was historically clear or slightly milky with trout common. However, studies indicate a variety of toxic substances, coliform bacteria, depleted dissolved oxygen levels, and turbidity (suspended material) that are now of concern in upstream reaches of the Jordan River. Such water-quality problems increase downstream toward the park. Within the park the river also contains large quantities of trash.

Waste storage practices at industrial properties adjacent to the park's eastern boundary may pose a threat to the park's soil and ground water or Jordan River water. Ground water and soil quality are also of concern in the area of an old (1940s?) abandoned dump site within and adjacent to the park.

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PLATES

- Plate 1. Selected Critical Facilities and Geologic Hazards, Salt Lake County.
Plate 2. Ground-Shaking Map for a Magnitude 7 Earthquake on the Wasatch Fault.

INTRODUCTION

This report addresses the northern portion of Jordan River State Park (the park), which is the section adjacent to the Jordan River from the bridge at 1800 North Redwood Road north to the I-215 bridge. The park includes a walking path, model airplane airport (“modelport”), off-highway vehicle (OHV) area, and archery area. As requested by the Division of State Parks, this report presents a concise synopsis of the geology of the park and immediate area for the purpose of developing a resource management plan. This report also addresses potential geologic and environmental hazards.

GEOLOGIC SETTING

Based on characteristic landforms North America is divided into areas called physiographic provinces. The park lies at the eastern margin of the Basin and Range physiographic province, an area characterized by steep, narrow, north-trending mountain ranges separated by broad, flat, sediment-filled valleys (basins). This distinguishing topography started taking shape when masses of rock were slowly uplifted and broken into huge fault blocks by extensional stresses. The extensional stress continues to stretch the earth’s crust between the Sierra Nevada in California and the Wasatch Range in Utah, resulting in many active earthquake faults. Sediments shed from the ranges are slowly filling the intervening basins of the province. Many of the basins, including Salt Lake Valley, have been further modified by shorelines and sediments left by lakes that intermittently covered the valley floors.

Exemplary of Basin-and-Range topography, the park lies at the northern end of Salt Lake Valley, which is bounded by the Wasatch Range and the Wasatch Fault Zone to the east and the Oquirrh Mountains to the west. Great Salt Lake lies west and north of the park; the lake is the modern remnant of Lake Bonneville which once covered the area of the park, Salt Lake Valley, and much of western Utah.

Lake Bonneville was a huge lake that existed from approximately 12,000 to 28,000 years ago covering about 20,000 square miles of western Utah and smaller parts of eastern Nevada and southern Idaho. A shift to wetter and colder climate conditions triggered its expansion. The lake grew from the location of the present Great Salt Lake and eventually expanded into surrounding valleys reaching a maximum elevation of about 5,200 feet (figure 2). A climatic shift to warmer and drier conditions (similar to present) caused Lake Bonneville to shrink, leaving Great Salt Lake as a saline remnant. Seen from the park, the shorelines left by Lake Bonneville look like bathtub rings around the valley.

SITE GEOLOGY

Except for abundant imported fill material, the park is located on unconsolidated, fine-grained sediments recently deposited (within the past 10,000 years) by the Jordan River on its floodplain, and in Great Salt Lake mud flats and marshes (figure 3). These

Figure 1: Northern Jordan River State Park Site Map

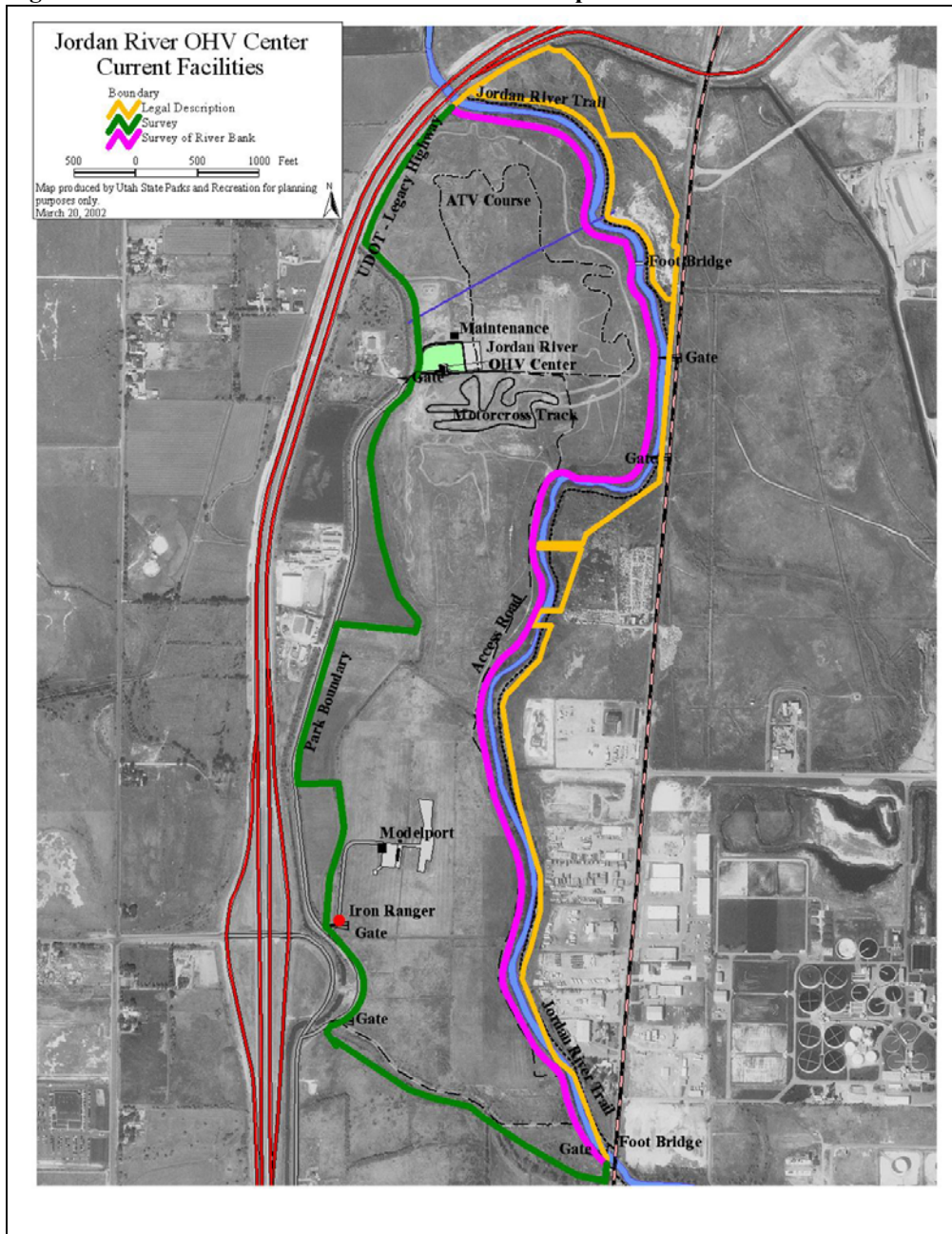




Figure 2. Maximum extent of Lake Bonneville approximately 15,000 years ago. During this time, the area that is now the park was under about 880 feet of water. A wetter and colder climate created the expansive lake as well as glaciers in many of Utah's high mountains.



ly – silt, clay, and minor sand deposited in Great Salt Lake mud flats and marshes. Subject to lake flooding and high water table

lbn – clay, silt, and minor fine sand and pebble gravel deposited in deep and/or quiet water of Lake Bonneville

al – sand, silt, and minor clay deposited by the Jordan River on its floodplain. Subject to flooding and high water table

f – imported fill material

Figure 3. Geologic map of the northern Jordan River State Park area (from Personius and Scott, 1992).

silts, clays, and sands are subject to lake, river, and high water-table flooding. East of the park, Great Salt Lake sediments grade into Lake Bonneville silts and clays.

The surface sediments found in and near the park reflect those below the park. Layers and lenses of clays, silts, sands, and perhaps gravels shed from the mountain front constitute a sequence of valley-fill sediments in excess of 4,000 feet thick (Lambert, 1995).

FAULTS AND EARTHQUAKE HAZARDS

Jordan River State Park lies within the Intermountain seismic belt, a zone of heightened earthquake activity that extends from Montana to northern Arizona. Earthquakes occur along faults, which are fractures having relative movement of adjacent earth and rock. No faults are known to exist within the park; however, the Wasatch fault zone lies less than 1.5 miles to the east and the West Valley fault zone lies as close as 0.5 mile to the southwest (plate 1, Selected Critical Facilities and Geologic Hazards, Salt Lake County, Utah). The Wasatch and West Valley fault zones are geologically active and capable of generating large earthquakes up to magnitude 7.5. In addition to earthquakes on these nearby faults, other parts of the Wasatch fault zone (to the north and south) and other faults could generate earthquakes large enough to affect the park. The probability of a large earthquake somewhere in the Wasatch Front area is approximately 16 percent in 50 years (McCalpin and Nishenko, 1996). The probability for a moderate earthquake is higher. Moderate earthquakes (5.5 to 6.5 magnitude) occur on average once every 20 years somewhere in the Wasatch Front area.

An earthquake could cause ground shaking, liquefaction, tectonic subsidence-induced flooding, or seiche-induced flooding at the park. The park lies within an area of the state with the greatest hazard from ground shaking (from approximately Nephi to Brigham City). The intensity of ground shaking at the park will depend upon the location and magnitude of the earthquake. At the park, a magnitude 7 earthquake on the Wasatch fault in Salt Lake County is expected to generate severe shaking (0.4 – 0.5 g peak horizontal acceleration) with slight damage in specially designed structures, considerable damage in ordinary substantial buildings, and great damage in poorly built structures (level VIII on the Modified Mercalli intensity scale) (plate 2, Ground-Shaking Map For a Magnitude 7.0 Earthquake on the Wasatch Fault, Salt Lake City, Utah, Metropolitan Area).

Shaking of sandy, water-saturated soil can cause it to temporarily lose strength and behave as a viscous fluid, a phenomenon called liquefaction. Liquefaction can be induced by magnitude 5 and greater earthquakes. The park lies within a zone of high liquefaction potential, meaning there is a 50% probability of an earthquake occurring within a 100-year period that will be strong enough to cause liquefaction (plate 1). Although the park is within a zone of high liquefaction potential, liquefaction generally occurs in localized areas. Which, if any, areas of the park will experience liquefaction will depend upon the magnitude and distance to the earthquake and specific local subsurface conditions at the time of the earthquake. The effects of liquefaction may include partial settling or tipping of buildings, the buoying up of lightweight buried objects such as empty underground storage tanks, and the movement of soils on very gentle slopes (called lateral spreading).

Tectonic subsidence results from large earthquakes when a fault ruptures to the surface and causes the ground surface on the valley side of the fault to drop, thereby tilting the valley floor towards the fault. Surface fault rupture to the east of the park on the Wasatch fault could permanently tilt the valley floor causing flooding from Great Salt Lake water in the park and elsewhere on the eastern shores of the lake (Keaton, 1987; Chang and Smith, 1998; Solomon and others, 2002). The occurrence or amount of flooding would depend on the amount of tectonic subsidence and the lake elevation (figure 4). In addition to lake flooding, tectonic subsidence could cause the Jordan River to escape its banks and re-establish a new course to the east of its

current channel. Again, the likelihood of this happening depends on river level, the effectiveness of the river's fortified embankments, and the distribution and height of imported fill material on the floodplain.

Also dependent upon Great Salt Lake level and dikes is flooding enhanced by or due to a seiche. A seiche is a sloshing of water in an enclosed basin such as a lake or bathtub. Rocking back and forth with the right period in a bathtub full of water can create a wave that will grow and overflow the bath. Similarly, the ground movement of

Figure 4. Potential tectonic subsidence induced flooding. Tectonic subsidence is tilting and downdropping of the valley floor adjacent to surface rupture of a fault zone (modified from Keaton, 1987).

Great Salt Lake water, shallow ground water, or Jordan River water (not shown) could flood Jordan River State Park OHV and Modelport areas after a large magnitude earthquake on an adjacent segment of the Wasatch fault zone.

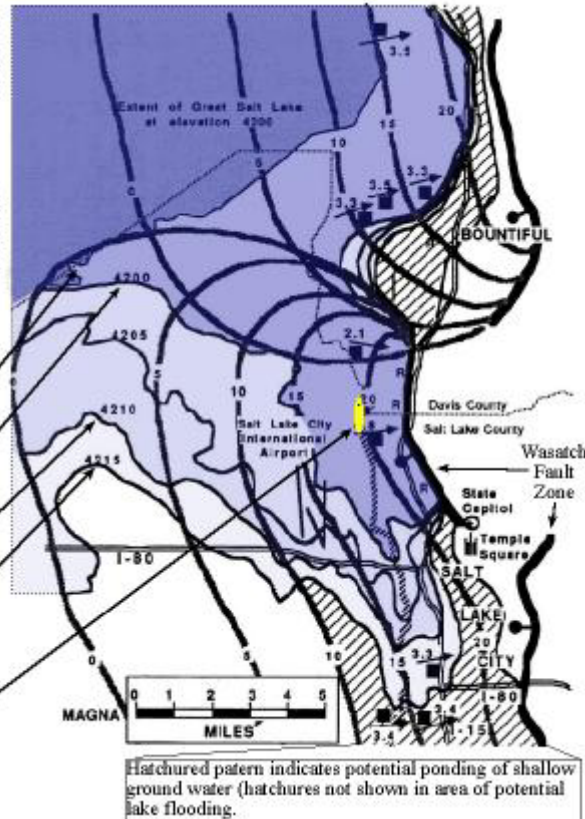
Extent of Great Salt Lake at elevation 4200 feet - approximate average and current static lake level.

Potential lake flooding from a static lake elevation of 4210 feet.

Potential lake flooding from a static lake elevation of 4215 feet.

Potential lake flooding from a static lake elevation of 4215 feet (the historic static high elevation is approximately 4212).

Approximate location of Jordan River State Park OHV Area and Modelport.



an earthquake (shaking and/or tectonic subsidence) can cause lake water to oscillate, building waves that flood shorelines. The 1909 Hansel Valley, Utah earthquake (magnitude 6) generated a Great Salt Lake seiche estimated to be more than 12 feet high (Pechmann, 1987; Lowe, 1993; Solomon and others, 2002).

GREAT SALT LAKE AND ITS FLOODPLAIN

Great Salt Lake is the largest U.S. lake after the Great Lakes, and the fourth-largest terminal lake (no outlet) in the world. Because Great Salt Lake has no outlet, its surface elevation fluctuates widely. During historical time lake levels have ranged from a low of approximately 4191 feet in 1963 to a high of approximately 4212 feet in 1873, 1986, and 1987 (Great Salt Lake Planning Team, 2000). Because Great Salt Lake lies in a broad, shallow basin, changes in lake elevation result in great changes in shoreline location. At the historical high lake

level the park is under water. At the historical low level the shoreline is over 10 miles away, west of Antelope Island.

Elevation at the park ranges from approximately 4210 to 4212 feet above sea level (elevation taken from Salt Lake City North 1:24,000-scale topographic map and excludes fill). Thus, much of the park lies below the historical static high elevation of Great Salt Lake.

During a storm, wind and waves can elevate shorelines above static levels. The height and impact of potential storm surge at the park is not known. However, the U.S. Army Corps of Engineers (1996a, 1996b) has calculated potential storm surges ranging from 1.95 feet at Syracuse to 7.64 feet along a railroad embankment on the east shore of Farmington Bay. During the high-water levels of 1986-1987, storm waves breached dikes higher than the static water level; shoreline debris was found as much as 11 feet above static lake level on Antelope Island, and facilities as much as 10 feet above static water level were undercut at Antelope Island State Park (Atwood, 2002). The Utah Department of Natural Resources considers the Great Salt Lake floodplain to extend 5 feet above the historical static lake high to an elevation of 4217 feet (Great Salt Lake Planning Team, 2000).

Great Salt Lake floodplain delineation is largely based upon historical lake-level records that only date back to settlement of Salt Lake Valley in 1847. Geologic and geomorphic evidence indicates that the lake has risen to elevations between 4212 and 4217 feet numerous times over the past 10,000 years, the most recent being around 1700 A.D. (Currey and others, 1984). Rises to the 4217-foot level occur with climate that is considered “normal” for the region (Great Salt Lake Planning Team, 2000). They result from a series of years with above-average precipitation.

At an elevation of 4217 feet the lake tops a topographic threshold and spills into the West Desert, abruptly increasing lake surface area by nearly one-third (Currey and others, 1984). Since lake level is controlled by input vs. evaporation, this large increase in evaporative surface area serves as a natural high-lake-level limit or flood-control mechanism. Similarly, the State built the West Desert Pumping Project as an engineered effort to increase evaporation. At elevations above 4208 feet, three large pumps can lift water from the north arm of Great Salt Lake to the West Desert, thereby increasing evaporative surface area by about 23% (at 4208 feet). The pumps were built in response to 1980s flooding and although they were completed too late to have had much impact on maximum lake-level, they did increase the rate of lake level drop by about 15 inches in 26 months (Great Salt Lake Planning Team, 2000). Although the pumps have not operated since 1989, they are maintained for possible future use.

Despite natural or engineered changes in evaporation surface area and rate, shoreline flooding in a closed basin is ultimately controlled by climate variability. Recurrent or prolonged wet and/or cold cycles lead to high lake levels.

JORDAN RIVER – FLOODPLAIN AND WATER QUALITY

Flow of the Jordan River is largely regulated by controlled releases from Utah Lake. In turn, Utah Lake levels are largely controlled by upstream reservoirs. Consequently, the potential for Jordan River flooding is relatively low (State Water Plan Coordinating Committee, 1997). However, the park is within the Jordan River’s floodplain, and immediately east of the park imported fill greatly reduces the floodplain’s capacity to carry flood-stage flow.

For most of its course, the Jordan River is a meandering stream that, in a natural state, would migrate across its floodplain both gradually and episodically during floods. Channel migration rates for meandering streams can range from less than 2 feet per year (CH2M Hill, 1992) to tens, hundreds, or even thousands of feet per year (Selby, 1985). Such channel migration compounds the risk of development in river floodplains. To assess risk, various channel stability studies have been conducted on the Jordan River (e.g., Urban Technology

Associates, 1971; Jensen, 1987; CH2M Hill, 1992; Resource Consultants & Engineers, Inc., 1992). However, none of these studies address the park or any part of the river downstream of 2100 South (approximately 6 miles from the park). Upstream of 2100 South channel stabilization work performed by U.S. Army Corps of Engineers in the 1950s contributed to river stability problems during the 1980s wet years (CH2M Hill, 1992). Straightening sections of the Jordan River shortened them, thereby increasing channel gradient, which in turn increased flow velocities, causing higher erosion and sediment transport rates. These factors destabilized the channel and accelerated bank and bed erosion. Within the park or upstream, any modification to channel gradient, width, or meander pattern warrants careful consideration of unintended consequences. A modified river will tend to try and re-establish its gradient, width, and meander pattern, requiring additional structural improvements such as riprap bank protection, grade control structures, and scour protection. The only obvious channel straightening in the park is the short stretch of river that parallels Redwood Road just south of Redwood's I-215 overpass (figure 1). Within the park, the east bank of the river has been heightened with fill.

A detailed, analytical assessment of Jordan River water quality is not within the scope of this report; however, the following discussion may be of concern and worthy of further consideration. The river was historically clean and "clear or slightly milky" with trout common (Jordan, 1889). However, a U.S. Geological Survey study (Thompson, 1984) showed that the concentrations of a variety of toxic substances are problematic at 90th South and increase downstream. The park is about as downstream as you can go. DDD, DDE, DDT, dieldrin, heptachlor, methoxychlor, PCB, 2,4-d, arsenic, cadmium, chromium, cobalt, copper, lead, mercury, selenium, silver, and zinc were detected in sediment samples. DDE, Silex, 2,4-d, and chloroform were detected in water samples. Mercury, ammonia, cadmium, copper, zinc, and lead concentrations exceeded state water-quality standards. The state's recreational water quality standard is 200 colonies per 100 milliliters for fecal coliform bacteria and 1,000 (for swimming, figure 5) or 5,000 colonies per 100 milliliters (for boating) for total coliform. A 1986 study (Eckhoff, Watson and Preator Engineering, 1986) identified coliform counts of 10,000 to 50,000 per 100 milliliters. The State Water Plan Coordinating Committee (1997) reports that downstream reaches of Jordan River water commonly exceeds 2,000 colonies per 100 milliliters fecal coliform and 5,000 colonies per milliliters total coliform. The Jordan River is also high in turbidity (suspended material) and exceedingly low in dissolved oxygen. Depletion of dissolved oxygen can adversely affect fish and other aquatic organisms. Ongoing water quality monitoring by the City-County Health Department shows the following to be a problem in the downstream portion of the Jordan River: phosphorus, ammonia, nitrate, lead, biochemical oxygen demand (BOD, a measure of oxygen depletion), dissolved oxygen, and total coliform bacteria (State Water Plan Coordinating Committee, 1997).



Figure 5. West bank of the Jordan River just north of 1700 North within the park. This makeshift rope swing suggests that kids may swim in the river at the park.

Although the park alone cannot feasibly control the water quality of the Jordan River, the large quantities of floating trash found within the park (figure 6) could feasibly be controlled or regularly removed.

POTENTIAL SOIL AND GROUND-WATER CONTAMINATION CONCERNS

A detailed, analytical environmental site assessment is not within the scope of this report; however, the following discussion may be of concern and worthy of further consideration.

Industrial properties adjacent to the park's eastern boundary may pose a threat to the park's ground water or Jordan River water. On April 7, 2002, 5-gallon and 55-gallon drums were stored immediately beyond a chain link fence visible from the park's east-side river-embankment foot trail (figure 7). Drums such as those observed commonly contain hazardous materials. Examination of these drums showed that one was overfilled with what appeared to be used oil, another had a "lubricating oil" label, and yet another had the remains of what appeared to be a "flammable" label. Staining, such as would be left by standing water from shallow flooding, was observed in the drum storage areas, as were pumps with hoses. Some of the hoses stretched across the fence toward or into the park and appeared long enough to reach the river. Sampling equipment attached to ground-water monitoring wells, located at a different property south of the drum storage area, suggests a history of soil or ground-water contamination at industrial properties immediately east of the park.

Within and adjacent to the park, between the Jordan River and the auto wrecking yard on Redwood Road, is an abandoned dump site. This dump contains the rusted remains of empty 55-

gallon drums and a plethora of miscellaneous bottles, wood debris, appliances, car parts, etc. (figure 8). It may have been used in the late 1940s (date on bottle). Currently relic collectors are digging through and sieving dump material. Such old abandoned dumps are often sites of soil and ground-water contamination.

A 55-gallon drum with a partially obscured hazardous-waste label was stored behind the large storage garage at the OHV area. The drum was partially filled with what appeared to be used motor oil. The drum's bung cap was missing, thus the drum was neither closed nor sealed, and no spill prevention or containment measures were observed. Such drums commonly contain hazardous materials and thus should be clearly labeled and properly stored away from park visitor access. For information on proper storage and labeling, contact the Utah Division of Solid and Hazardous Waste.

SUMMARY

Except for imported fill, the park is located on unconsolidated, fine-grained sediments deposited by the Jordan River on its floodplain, and in Great Salt Lake mud flats and marshes. Both the Jordan River and Great Salt Lake pose flood hazards to the park. The Wasatch fault, located less than 1.5 miles away, and the West Valley fault, located as close as 0.5 miles away, are the two closest geologically active faults that pose an earthquake threat to the park. Potential earthquake hazards at the park include severe ground shaking, liquefaction, and flooding.

Upstream reaches of the Jordan River have identified water-quality problems and water quality decreases toward the park. Within the park the river also contains large quantities of trash. An abandoned dump site within and adjacent to the park, and waste storage practices at industrial properties adjacent to the park may pose threats to the park's soil and ground water.



Figure 6. Some of the trash found within the park on the Jordan River.

Figure 7: Five- and 55-gallon drums stored immediately east of the park boundary. Note the pump hoses in the top photo



Figure 7. Five- and 55-gallon drums stored immediately east of the boundary. Note the pump hoses in the top photo.



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Figure 8. Abandoned dump site within and adjacent to the park, between the Jordan River and the auto wrecking yard on Redwood Road. The dump site may have been used in the 1940s (date on bottle).



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