



APPENDICES

Oxbow Regional Park

Master Plan

October 1997



Metro Regional Parks
and Greenspaces



APPENDIX A

■ Public Involvement

Metro Council Resolution Approving Oxbow Regional Park Master Plan

Public Comment Letters Received / Metro Responses Provided During Public Review Period for Draft Master Plan

Public Testimony Received During Metro Council Review of Draft Master Plan

Notices

Meeting Notes

Evaluation Forms

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF APPROVING) RESOLUTION NO. 97-2553A
THE OXBOW REGIONAL PARK)
MASTER PLAN) Introduced by Mike Burton
) Executive Officer

WHEREAS, In July 1992, through Resolution No. 92-1637, the Metro Council adopted the Metropolitan Greenspaces Master Plan which identifies a desired "regional system of natural areas, open space, trails and greenways for wildlife and people"; and

WHEREAS, The Metropolitan Greenspaces Master Plan calls for the preparation of master plans as a primary strategy for balancing public use of natural areas with protection of the natural resource values of the area; and

WHEREAS, The existing 1040 acre Oxbow Regional Park was designated as a greenspace of regional significance in the Greenspaces Master Plan, and

WHEREAS, Oxbow Regional Park lacks a master plan; and

WHEREAS, In 1973, 12.5 miles of the Sandy River, including Oxbow Regional Park, were designated as a State Scenic Waterway and in 1988 the same 12.5 mile stretch of river received federal Wild and Scenic River status; and

WHEREAS, The Bureau of Land Management's Sandy Wild and Scenic River and State Scenic Waterway Management Plan calls for concentration of public access and recreation facilities at three locations in the Sandy River Gorge, including Oxbow Regional Park; and

WHEREAS, The 1988-1993 Statewide Comprehensive Outdoor Recreation Plan (SCORP) reports a significant disparity between the supply and demand of facilities located in natural settings in the Portland Metro region that can accommodate activities including camping, group picnicking, hiking, non-motorized boating/fishing access, and nature study; and

WHEREAS, Since the park's development in the early 1960's much of the existing park infrastructure and facilities have reached or exceeded their useful life expectancy and should be renewed, replaced and upgraded; and

WHEREAS, In 1994 Metro assumed management responsibility from Multnomah County for Oxbow Regional Park; and

WHEREAS, A 1995 park user survey showed park visitors desire additional recreational facilities to enhance camping, picnicking and educational use; and

WHEREAS, In 1995 the Open Spaces, Parks and Streams bond measure provided \$1.25 million for improvements at Oxbow Regional Park and \$200,000 is available in a Metro trust fund for the environmental education center construction; and

WHEREAS, The goal of Metro's Sandy River Gorge acquisition refinement plan is to protect biological linkages for the protection of fish, wildlife habitat, water quality, geologic, scenic, and recreation values; and

WHEREAS, In February, 1996 through resolution No. 96-2271, Metro Council authorized release of a Request for Proposal for Oxbow Regional Park master planning services; and

WHEREAS, Various public involvement efforts occurred throughout the development of the Draft Master Plan; and

WHEREAS, The Oxbow Regional Park Draft Master Plan (see Exhibit A) was available to interested public on July 17, 1997 for public review and comment; and

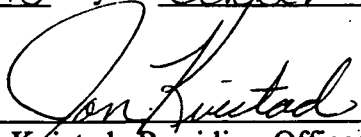
WHEREAS, On August 5, the Regional Parks and Greenspaces Advisory Committee heard public testimony and voted to recommend Council adoption of the Draft Master Plan; now, therefore,

BE IT RESOLVED,


1. That the Metro Council approves and adopts the Oxbow Regional Park Master Plan in its entirety as attached in Exhibit A, with the following amendments to be incorporated in the final document:
 - a. Remove the estimated budget from the Master Plan and place it in the appendix section as an information item only.
 - b. Reduce the total cost of the estimated budget by deleting the cost of the Environmental Education Center. Replace the dollar amount for the center with a note that funding for construction of the facility will come from grants and donations. Also, reduce the estimated budget as noted in Attachment B of the September 29, 1997 Ciecko memo.
 - c. Direct staff to apply to the State and Multnomah County for variances to restroom and paved parking requirements.
2. Metro Council directs staff to seek the necessary approvals of the Master Plan from appropriate federal, state and local jurisdictions.

3. Metro will begin implementation of the Master Plan in a manner consistent with current and/or future fiscal appropriations.

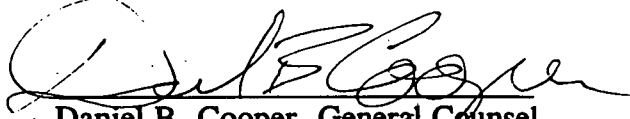
ADOPTED by the Metro Council this 23 day of October, 1997.


Jon Kvistad, Presiding Officer

ATTEST:


Recording Secretary

Approved as to Form:


Daniel B. Cooper, General Counsel



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Salem District Office
1717 Fabry Road S.E.
Salem, Oregon 97306

IN REPLY REFER TO:

August 12, 1997

Chair Ruth McFarland
and members of the Regional Facilities Committee
Metro Council
600 NE Grand Avenue
Portland, OR 97232

RE: Oxbow Regional Park draft Master Plan Approval

Dear Chair McFarland and Committee Members:

The Bureau of Land Management (BLM) would like to express its enthusiastic support for the Oxbow Regional Park draft master plan. We encourage the council to approve and adopt the plan. The management strategies and proposed park improvements are consistent with the Wild and Scenic Rivers Act and State Scenic Waterways Act. The recommendations and management guidance found in the plan is in compliance with the cooperatively developed 1993 Sandy Wild and Scenic River and State Scenic Waterways Management Plan. The Oxbow plan will help protect the unique character of the Sandy River and its resources while providing needed recreational opportunities, access and facilities. The BLM has a major interest in Oxbow Park management as it owns about 1/3 of the Park (including the old growth area) which it leases to Multnomah County and Metro. The BLM would not recommend the adoption of the plan or continuation of the lease unless management of the area was found to be consistent with resource protection and river management goals and policies -- the draft master plan fulfills these obligations.

The park is a wonderful asset for the people who wish to enjoy the unique attributes and recreational opportunities of the nationally recognized Sandy River. The Oxbow plan builds on the work initiated in the jointly developed river plan and is representative of the wishes of the diverse publics who helped develop both the river plan and Oxbow park management plan. The Sandy Wild and Scenic River Plan expressly recommended that recreational facilities and access be encouraged and developed at existing parks along the river -- specifically Oxbow Regional Park.

As a member of the Oxbow plan Project Advisory Committee (PAC), I found the plan to contain all the key recommendations approved by the group. This plan proposes an appropriate level of development and access for the unique setting and circumstances offered by Oxbow Park. The plan's recommendations for capital improvements, especially to install and expand facilities for camping, group use, river access and environmental education will help meet the rising demand for those type of recreational facilities in the region. The Statewide Comprehensive Outdoor Recreation Plan (SCORP) specifically emphasized the almost desperate need to develop and enhance recreational facilities -- like those found at Oxbow -- in Multnomah, Clackamas and

Washington Counties. Oxbow Park is one of the very few public providers of camping, river access and environmental education opportunities in the immediate Portland metro area -- highlighting the park's importance as a key player in the delivery of recreation opportunities in the fast growing metropolitan region.

Plan recommendations for infrastructure, water system, road system, utilities and sewer and toilet upgrades will result in increased conservation and protection of important natural resources -- especially water quality, wildlife habitat and riparian areas. Project implementation will go a long way in helping to maintain and enhance not only resource conditions but the character and experience opportunities of the Sandy River area as well.

In addition, the accessibility upgrades and improvements contained in the plan will make Oxbow open and available to persons of all abilities -- an important point which can not be over-emphasized.

The BLM will continue to be involved in the design and citing of the proposed road realignment and environmental education center building as they are planned and developed to insure that all environmental concerns are addressed and resources are protected. The environmental education center is an important and needed investment for children and families of the metro area -- one that will pay back a return for generations to come and hopefully result in an increased understanding and appreciation of this remarkable resource.

Above all, the Oxbow Regional Park draft master plan offers an excellent starting point for Metro to begin to play a leadership and coordinating role in the provision and delivery of recreation facilities and services in the Portland region -- especially in the Sandy River area. Because of the proximity and management presence of Oxbow Park, the BLM and Oregon State Parks encouraged Multnomah County, now a role played by Metro, to play a central and coordinating role in recreation management along the Sandy River. The BLM would recommend that Metro pursue opportunities to coordinate recreation and park management with the City of Portland (Water Bureau) and State Parks as well as the BLM and other Sandy River stakeholders as proposed in the plan. Numerous opportunities exist for the development of partnerships in the cooperative management of Sandy River recreation resources specifically Dodge, Oxbow and Dabney Parks. The result would be improved delivery of services/facilities, increased management presence, improved relationships with local landowners, increased resource protection and increased efficiency and savings in park maintenance and operation. This idea has been discussed since the inception of the Sandy State Scenic Waterway by Gov. Tom McCall in 1972 -- its time has come and Metro can play a critical role in insuring that it happens.

Thank you for your continued support of this plan and the Metro Parks and Greenspaces program.

Sincerely,



Robert T. Ratcliffe
Senior Recreation Specialist
Wild and Scenic River Coordinator

cc: Steve Brucher and Jack Wiles, State Parks; Dick Robbins, Portland Water Bureau;
Charles Ceicko, Jane Hart, Deb Scrivens, Metro



METRO

Mr. Robert T. Ratcliffe
Bureau of Land Management
1717 Fabry Road S.E.
Salem, OR 97306

Dear Mr. Ratcliffe:

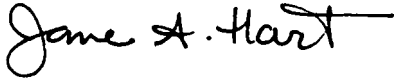
November 10, 1997

Thank you for your August 12, 1997 letter in response to the public comment period for the Oxbow Regional Park draft Master Plan. We appreciate the time you took to participate in the design charette process and for your show of strong support for the master plan through your written comments. Your letter was provided to the Metro Council for their review prior to delivering their decision on the master plan. For your information, the Oxbow Regional Park draft Master Plan was approved by resolution at the October 16, 1997 Metro Council public hearing. We appreciate your offer for BLM's continued involvement in aspects of the master plan implementation and look forward to working together in the future.

In response to your recommendation that Metro pursue opportunities to coordinate recreation management in the Sandy River Gorge, letters were written to Oregon Parks and Recreation Department (OPRD) and the City of Portland Water Bureau seeking their interest in Metro playing a role in delivery of recreational services and management at Dabney State Park and Dodge Park. Both agencies expressed interest in continuing a dialogue about broadening Metro's role in the delivery of recreational services at the respective parks but neither is interested in transferring management to Metro at this time. We welcome any support BLM can provide in keeping a dialogue going between OPRD and the Water Bureau toward achieving Metro's and BLM's shared goal for coordinated delivery of recreation and park management throughout the Sandy River Gorge.

Consistent with Metro's policy, comment letters received during the public comment period for the draft master plan (July 17, 1997 - August 13, 1997) will be included in the Public Involvement section of the Appendix in the final master plan document. You will receive notice when the final master plan has been printed and is available to the public. If I can be of further help regarding this project, please feel free to contact me at 797-1585.

Sincerely,

A handwritten signature in black ink that reads "Jane A. Hart". The signature is written in a cursive style with a horizontal line extending from the end of the name.

Jane Hart
Metro Project Manager

cc: Mike Burton
Metro Councilors

August 13, 1997

Jane Hart
Project Manager
Metro Regional Parks and Greenspaces Dept.
600 NE Grand Ave.
Portland, OR. 97201

Re: Oxbow Regional Park Draft Master Plan

Dear Jane,

Thank you for sending me a copy of the draft master plan for Oxbow Regional Park. As a member of the design charette process, it is heartening to see the final master plan product take shape assimilating the creative thinking of those involved with the technical expertise of the design team reflecting well upon the sensitivities of the park and its mission.

I was encouraged to see the balance between resource management and protection with managed recreation opportunities and facilities. You have struck a good balance and have been sensitive to the eroding flood plain, old growth forest, and geotechnical constraints. Recognizing that the park facilities are at or near their life expectancy is an important aspect of the plan. The current inefficient use of substandard facilities and operating systems is a drain on the financial and staff resources of the park, do not meet users needs, and create health and safety concerns. It has been our experience that further investment in patchwork repairs, and adding yet another coat of paint is ignoring the real problems.

One of the strong features of the park is its well-respected environmental discovery and educational outreach program. The development of the environmental education center would be a real boost to the park program and fill a real need in the Portland metro area. Incorporating a learning space with an outdoor program is ideal for an integrated environmental setting like Oxbow. Having a space for volunteers and staff to work, an area for teacher in-service training, learning laboratories, exhibits, and a creative work environment will achieve great benefits to the park and set the standard for appreciation of the park's unique environment. The link between the center and the park's natural environment is well-designed.

You advocate in the plan for closer ties with Dabney State Park, Oxbow, and the Sandy River corridor. Certainly that is a good management goal and we should initiate more coordinated programs and activities. Dabney is an important part of the state park system associated with the Columbia River Gorge and Historic Columbia River Highway. We would not contemplate a transfer to Metro at this time.

PARKS AND
RECREATION
DEPARTMENT

Portland/Columbia Gorge
Area 5

Mailing address:
PO Box 500
Portland OR 97207-0500

Location address:
2501 SW First Ave
Portland OR



The vision for Oxbow Regional Park is alive and well and captured in your master plan in a pragmatic yet enlightened way. You now have a good framework and blueprint to move into the next century in a bold way to establish a new legacy for the park. I look forward to further discussions and coordinated programs as keepers of the recreation promise. To steal a phrase from Charles Jordan, there are 600,000 good reasons to invest in Oxbow park and outdoor recreation opportunities in the metro area. Those 600,000 reasons represent the projected population increase to the region that is now occurring. We need to build the legacy and not see it deteriorate.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack Wiles", with a stylized, cursive script.

Jack Wiles
Area Manager



METRO

Mr. Jack Wiles, Area 5 Manager
Oregon Parks and Recreation Department
P.O. Box 500
Portland, OR 97207-0500

Dear Mr. Wiles:

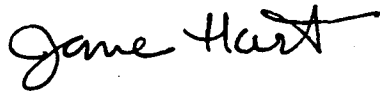
November 10, 1997

Thank you for your August 13, 1997 letter in response to the public comment period for the Oxbow Regional Park Draft Master Plan. We appreciate the time you took to participate in the design charette process and for your show of strong support for the master plan through your written comments. Your letter was provided to the Metro Council for their review prior to delivering their decision on the master plan. For your information, the Oxbow Regional Park draft Master Plan was approved by resolution at the October 16, 1997 Metro Council public hearing.

Consistent with Metro's policy, comment letters received during the public comment period for the draft master plan (July 17, 1997 - August 13, 1997) will be included in the Public Involvement section of the Appendix in the final master plan document. You will receive notice when the final master plan has been printed and is available to the public.

We appreciate your support of the master plan management goal that Metro pursue opportunities to coordinate delivery of recreational programs and services at public access locations throughout the Sandy River Gorge and look forward to working together with OPRD to further that goal. If you should have any questions about this project in the future, please feel free to contact me at 797-1585.

Sincerely,



Jane Hart
Metro Project Manager

cc: Mike Burton
Metro Councilors



CITY OF

PORTLAND, OREGON

BUREAU OF WATER WORKS

Erik Sten, Commissioner
Michael F. Rosenberger, Administrator
1120 S.W. 5th Avenue
Portland, Oregon 97204-1974
Information (503) 823-7404
Fax (503) 823-6133
TDD (503) 823-6868

August 11, 1997

Jane Hart
Regional Parks and Greenspaces Dept.
Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Dear Jane:

Thanks for the opportunity to review the Oxbow Park Master Plan. Your project team has put together a thoughtful and ambitious plan. We, and the rest of the region, look forward to the plans becoming reality over the next decade.

We reviewed the various references to the region's water supply coming from the Sandy Basin and found those references to be accurate.

We, naturally, also noticed the recommendation that Metro expand its management role in the Sandy Basin, including consideration of providing management and operational services for Dodge Park. The Water Bureau recognizes greater coordination of recreation services in the Sandy River Gorge as a worthy objective. While the outcome recommended in the master plan introduction strikes us as a bit specific, the Bureau is interested in an ongoing dialogue about coordinated recreation planning and management, including alternative operating arrangements for Dodge Park. The Dodge Park property is a critical link in our water supply infrastructure, so we will be seeking alternatives that are compatible with long-term water system needs. Please keep us informed as this discussion evolves.

Sincerely,

Janet S. Senior
Senior Planner -- Water Resources

**METRO**

Janet S. Senior
City of Portland
Bureau of Water Works
1120 SW 5th Ave.
Portland, OR 97204 - 1974

Dear Ms. Senior:

November 10, 1997

Thank you for your August 11, 1997 letter in response to the public comment period for the Oxbow Regional Park draft Master Plan. Your support and comments are valuable and appreciated. We share your interest for continuing a dialogue about coordinated recreation planning and management at Dodge Park. Your letter was provided to the Metro Council for their review prior to delivering their decision on the master plan. For your information, the Oxbow Regional Park draft Master Plan was approved by resolution at the October 16, 1997 Metro Council public hearing.

Consistent with Metro's policy, comment letters received during the public comment period for the draft master plan (July 17, 1997 - August 13, 1997) will be included in the Public Involvement section of the Appendix in the final master plan document. You will receive notice when the final master plan has been printed and is available to the public.

If you should have any questions about this project in the future, please feel free to contact me at 797-1585.

Sincerely,

Jane Hart
Metro Project Manager

cc: Mike Burton
Metro Councilors

33585 SE Francis St.
Gresham, OR 97080
August 11, 1997

Subject: Resignation from Oxbow Regional Park Master Plan Project
Advisory Committee

Dear Charlie,

As I stated at the RPAGAC meeting on August 5th, I am resigning from the Oxbow Regional Park Master Plan Project Advisory Committee and want my name removed from the Acknowledgments page of the master plan. I tried to explain to you my motivations, but am not sure that I was successful. Let me try once more and, at the same time, provide written comment on the master plan, which I will submit to METRO.

No one, as a member of the PAC, attended more meetings than I. I put a lot of time into reading the reports and thinking about the park of the future. I felt that this was not true of all the other members of the PAC. I never even met one of the members and saw one of them once. I realize that one does not always "win", but felt that my three major concerns were never sufficiently addressed to acknowledge that my views were truly considered.

First, the question of the road down into the park was never faced. It was brushed off more than once. The road, especially at the big curve where you first see the river, has always been a problem and demanded a lot of attention. I realize that it is the county's "problem" but Oxbow Park is one of only two stakeholders effected by its failure. I never saw or heard of a report on the status of this road. I just know that through the years it is closed, often more than once, every winter, it seems, and major work has been done on it, more than once, within the last ten years and it never really seemed to "cure" the problem. Walk down the road and you can see the guardrail hanging in space and the drop to the riverside growing more precipitous. Does it make sense to invest a lot of time, effort and money into the park while ignoring this Achilles' heel?

Second, the placement of the environmental education center in such close proximity to the Ancient Forest has never been formally studied. I brought up the possible negative impact of the eec there and was reassured

that the park employees were professionals and would never let this happen. The road to where is paved with good intentions??? I noticed in the latest draft of the master plan that a piece on monitoring (p. 113) under Habitat Enhancement was added. Building the eec and making a bunch of changes, then establishing a monitoring program seems backwards to me. Drop a 7,052 s.f. environmental ed center down right next to the ancient forest and then see what happens. [The consultants seem to have a difficult time actually stating the true square footage of the eec. It is listed in the June master plan as 4892 s.f., but this is without 2,160 s.f. of terraces (porches and decks). We are not talking about taxable square footage, but rather an area that will be covered by building.] The comment has often been made that there is a structure and parking lot there now. So what! We have heard how the park was originally laid out and how the road layout is possibly wrong. Couldn't this also be true of Group Picnic Area A and its parking spaces? Where are the hard facts, the science if you must, stating that it is O.K. to put in an environmental ed center, a parking area and the crowds that it will attract where it is proposed?

Third, there is the question of the park road layout as proposed. In the beginning of this process I was willing to swallow my doubts about having the parking and crowds all moving toward the river, as opposed to some to the riverside of the road and others to the hillside. It seemed to me that the people will gather closer to the parking, rather than farther, which would overtax the area and, possibly, lead to even more arbitrary trails to the river. Like I said, I gave up on this issue, that is until the big slide above the road up to Elk Meadows last winter. The park was lucky to have the gravel road to go around the slide, until it was removed. Move the road closer to the hill and then what happens? I realize that the Geotechnical Report was done previous to this slide, but it seemed to talk only about where the road is now and not where it will be. Shouldn't there be a report on where the road is purposed to be placed, especially (not exclusively) along the hillside that has been compromised by the road up to Elk Meadow?

As you can see I do have some grave reservations about the master plan. My vision of the results of the plan is very different than yours. I am not willing to condone, or appear to condone, the product of this process. Sunday evening, my family and I went to pick blackberries at a favorite spot at Blue Lake. I was appalled. As we drove in there was a large party with an incredibly loud sound system competing with an even larger church group

with a microphone. We then parked nearly next to one of those sad little pony rides that go in circles, that you usually see in hot parking lots. As we moved from this, a third source of noise became the personal watercraft out of Chinook Landing. Build it and they will come. This is more a vision of one of Dante's circles of Hell than a vision of what I hope for the future, my children and, someday, grandchildren.

Sincerely,

A handwritten signature in cursive script that reads "Paul Box".

Paul Box

cc: Mike Burton
Ruth McFarland
Jane Hart



METRO

Mr. Paul Box
33585 SE Francis St.
Gresham, OR 97080

Dear Mr. Box:

November 11, 1997

Thank you for copying me on your August 11, 1997 letter to Charlie Ciecko in response to the public comment period for the draft Oxbow Regional Park Master Plan. Your letter was provided to the Metro Council for their review prior to delivering their decision on the draft master plan. For your information, the draft Oxbow Regional Park Master Plan was approved by resolution at the October 16, 1997 Metro Council public hearing. Consistent with Metro policy, comment letters received during the public comment period for the draft master plan (July 17, 1997 - August 13, 1997) will be included in the Public Involvement section of the Appendix in the final Master Plan document.

With this letter I would like to respond to your August 11, 1997 comment letter:

1. *Concern for weather related closures of county owned SE Oxbow Parkway near the park entrance and the affect on service to Oxbow Park visitors:*

The section of SE Oxbow Parkway of concern to you is described in the Existing Conditions chapter of the draft master plan on Page 22. In the 30 years that the park has been in operation, the occasional weather related closures of SE Oxbow Parkway that have prevented cars from entering the park have occurred exclusively during the off-peak season during the winter months when park use is predictably at its lowest. When landslides have blocked the road in the past, Multnomah County has been responsive and fixed the road within a day or two. Based on the fact that Multnomah County owns and maintains SE Oxbow Parkway and that road closures have had no measurable impact on the service to Oxbow Park's visitors, there is no issue to address in the master plan. Should you desire more information about the county's maintenance of SE Oxbow Parkway, we recommend that you contact the county's transportation department.

2. *Location of the Environmental Education Center:*

During the master planning process, evaluation criteria were developed for determining the best location for the environmental education center in the park. Evaluation criteria included but were not limited to:

- Ecologically sustainable model (appropriate distance from wildlife corridors, buffer from river and forest, least impact on habitat, consistent with Wild and Scenic River Act, avoid building in flood plain)
- Proximity to natural resources (5 minute walk to the ancient forest and river)
- Parking (Access off road, bus turnaround)
- Security (visibility from park road)

Several locations were considered for the environmental education center but the final location in the existing parking lot next to the Group Picnic Area A scored highest. As you may recall at their April 1, 1997 meeting the Project Advisory Committee voted 4 to 1 in favor of the location of the environmental education center. In addition, the committee voted unanimously that the size and functions of the environmental education center need to be further reviewed during final design. The final master plan will include a statement that given the environmental education center design is conceptual and preliminary, its size and functions will be closely scrutinized prior to final design and engineering.

3. *Realignment of a section of the existing park road to improve recreational experience:*

The draft master plan is conceptual in nature and any proposed road realignment will need to be studied in more detail prior to construction. The final design and engineering phase of road realignment will take into consideration geotechnical concerns regarding existing and potential slide prone areas in the park.

Your participation was appreciated as a member of the Project Advisory Committee (PAC) throughout the Oxbow Regional Park master planning process. Your request to resign from the PAC was received four months after the committee's last formal meeting on April 1, 1997. The committee no longer performed as a group after that time. Although you do not necessarily agree with the final master plan you did choose to remain on the committee and as a result influenced the master planning process through your comments and subsequent testimony. There is no way to undo the process that you voluntarily participated in and to remove your name from the list of PAC members would not accurately reflect your participation in the committee process.

If you have any further questions about the master plan, please feel free to contact me at 797-1585.

Sincerely,



Jane Hart
Metro Project Manager

cc: Mike Burton, Metro Executive Officer
Metro Councilors

OXBOW PARK \$8-1/2 MILLION DOLLAR MASTER PLAN

remarks to the Regional Greenspaces Advisory Committee
to be presented August 5, 1997
by Marian Drake, Southeast Portland resident, 236-1736

I. 3 CURRENT CRITICAL POLITICAL REASONS TO REJECT THIS MASTER PLAN

1. Bill Sizemore is threatening a ballot initiative for a constitutional amendment to abolish Metro. With this kind of costly Master Plan for a park that park constituents from Metro's own survey say is fine the way it is, and the unpublicized rush-process plan approval seems to be taking I'd be tempted to vote to eliminate Metro, too. (I won't vote to eliminate Metro -- but this kind of spurious request for \$8-1/2 million dollars to "develop" a rural park/natural area, could be fatal for Metro at this time. Bad timing, to say the least!)

This plan -- and are there others like it? -- seem to fly in the face of all the great ideas Metro's own surveys of a couple or years ago received from the public. HOW MUCH DID IT COST TAXPAYERS TO DRAW UP THIS PLAN? HOW MUCH TO PAY THE CONSULTANTS FOR THEIR SERVICES? HOW MUCH FULL TIME SALARY FOR THE PLANNERS TO WRITE IT? HOW MUCH DID THE MEETINGS COST TO DISCUSS THE PLAN? HOW MUCH TO PRINT IT?

The park is basically fine as it is. I suspect that for the cost of drawing up this plan, the needed repairs to Oxbow Park could have already been accomplished! The park has functioned fine since it was built in the 1960's. I know one of the 1960's park construction supervisors who helped build the park, who is now a city councilor in another Oregon community. The park has functioned fine for over 30 years -- why not just do the things that have worked successfully in the past for the park. If it works, why try to fix it?

2. With the recent OSU distinguished scientist's telling us that we need to be "weaning ourselves away from hydrocarbon emissions", is it really wise to build more road surface and more paved parking at Oxbow Park, when a shuttle service from the end of the Max Line to the park on weekends would seriously cut back on traffic through the park? In fact, if Metro publicizes the new shuttle system, educates the public through the Metro GreenScene, signs to the park, and a year-long visitor information campaign, restricts vehicle entry into the park, and works out a practical-reasonable entry fee AT THE CITE OF THE PARK SHUTTLE this would work very well. It would also save on road maintenance costs, as well as protect the ozone layer and the esthetics of the park.

Tri-Met, quoted me a cost of \$500 per day (\$50/hour) Tri-Met quoted me for shuttle service with a regular, large bus, shuttle service. Tri-Met is not willing to provide this service at this time, but Metro could hire the shuttling done by contractor. At a run of one day per weekend -- that is, 4 days per month, 52 weeks a year -- the cost BEFORE RIDE TICKETS WERE SOLD would be \$26,000 per year. For \$7,000,000 of shuttle service EVEN IF RIDERS WERE GIVEN A FREE RIDE (which they probably wouldn't be given) Metro would receive 269 YEARS of bus rides to the park.

Of course, it wouldn't even cost that much, because riders would pay their "gas money" to Metro tickets to ride!

3. Recent report of salmon-spending extravagances, no results, shows more than ever: Leave nature to take care of herself.

II. OXBOW PARK ITSELF -- ESTHETIC, ECOLOGICAL & FISCAL REASONS TO REJECT THIS MASTER PLAN

1. Underground irrigation system is totally unrealistic, and very unneeded. The park has been just fine without it. Is some planner's prudishly taking-offense at the "non-uniform coverage" (p. 45) of the present watering system going to cost us the thousands of dollars to put in an irrigation system at Oxbow Park?
2. I see no evidence in the survey results that park visitors are dissatisfied with the pit toilets. That is the kind of primitive conditions that people who visit Oxbow Park enjoy, and have asked for in the survey. (p. 37 of Master Plan.) "Primitive" is the term used by the respondents to the survey.
3. Road costs: My estimate is "plus or minus" \$229,106 per mile. That is \$460,000 in 1997 dollars for 2 miles, which is about how far the road would run. (This estimate is based on figures I received from a local engineer, and my brother, who builds roads.) This DOES NOT INCLUDE THE PARKING LOTS. Parking lots would not be needed if there were a shuttle service from the end of the Max line.

What was originally considered before the final proposed master plan was presented, was to tear out the old road, and build a new road. That would have been bad enough -- but now, unfortunately, it is just build a new road and new parking lots!! MORE ASPHALT IN THE PARK -- PLEASE, NO!

4. Gateway/entryway construction costs. How much? Could the present booth be repaired? "Not aesthetically desirable" to whom? Everyone I talk to, including people in the parks and wildlife fields, agree that "rustic" is what the existing buildings now are, that that is what they need to be. The planners' esthetic sense is different from the that of the park users. (Judging from the drawing of the proposed new booth, I guess they are looking for what I'd call "neo-rustic", anyhow -- so what's the difference if we leave the older rustic buildings and just repair whatever needs repair?) Also -- is the \$16,000 estimate in 1997 to construct a brand-new booth realistic? I wonder, since I myself spent \$10,000 FOR MATERIALS ALONE, to remodel a structurally sound garage, with a slab floor, into a studio apartment in 1980. I did not pay any labor costs, as all the labor was done by me and friends. This was for an existing structure, not a new one.
5. Nature center -- use the schools as the classrooms. There is no good reason to construct a new building as a nature center. Here is a nearly 1-1/2 million savings right away! (p. 124, master plan) Any teacher knows that visiting teachers -- that can also be the naturalist -- customarily brings their teaching materials with them. Then bus kids to the park. The parks speaks for itself, and the naturalists can do what they do best -- take kids into the park.
6. The Eight-And-One-Half-Million-Dollar Master Plan calls the park visitors "consumers". I think this sums up what the planners think park visitors should do -- pay for decorating a park, then paying more money to be allowed to visually consume the decorations. The best things in life are free -- Nature gave us Oxbow Park. Eight-And One-Half-Million Dollars is guilting the lily.
7. The question of how to fund the park, with less vehicular traffic seems to me to be a less difficult question to solve than why not to spend \$8-1/2 million if this master plan were to be approved. Surely Metro planners and staff can come up with a cost-effective way to charge visitors.

8. The Master Plan mentions that there are places in the park that are "geologically unstable" and recommends that building things on these places be "avoided, insofar as possible". I say that the words "avoided insofar as possible" are not words that should be used in this case. Instead, any geological unstable areas should be declared 100% off-limits for any "improvements", construction, or anything else. No driving over them with vehicles, etc. No loud noises there, etc. I am not a lawyer, so I don't know how to list what to NOT do there -- but basically leave these areas alone.

III. IF MONEY IS APPROPRIATED, WHERE SHOULD IT BETTER BE SPENT?

1. On shuttle service from the end of the Max line to the park, on weekends year-round.
2. On producing maps and accessibility to the recently purchased new greenspaces.
3. On making newly purchased greenspaces such as Whittaker Ponds (which was a junk yard, and still is basically inaccessible and unuseable) into useable parks.

IV. MY MINIMAL REQUESTS:

1. If you are unable to reject this plan outright during the month of August, 1997, at least postpone decision on acceptance until the end of December, and:
2. More publicity is given, via the newspapers, the Metro GreenScene Fall edition, TV, and other Metro mail lists.
3. More public hearings are given, around the area.

September 16, 1997

Chair Ruth McFarland
and members of the Regional Facilities Committee
Metro Council
600 NE Grand Avenue
Portland, OR 97232

RE: Oxbow Regional Park Draft Master Plan

Dear Chair McFarland & Committee Members,

The recently formed Columbia Gorge Chapter, of the longstanding Oregon Equestrian Trails organization, reviewed the Oxbow Regional Park Draft Master Plan. The following comments have our group consensus.

Keeping the trail system status quo is acceptable. Improving the hardening trails for accommodating additional use would better protect natural resource values by preventing erosion. Trail deficiencies could be met with improved maintenance and some reconstruction in difficult areas. The switchbacks from Holman Road down to Alder Loop need additional hardening to withstand high use on steep slopes.

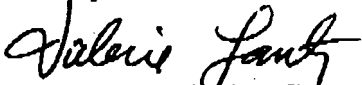
The equestrian parking improvement (widening road shoulders) isn't planned until five years out. It makes more sense to implement several smaller and simple projects in the first year and then move toward the more complex projects as additional funds are procured.

The restrooms should be considered a deferred maintenance issue as they should have been replaced 20 years ago! The pit toilets are an embarrassment and require replacement as soon as possible.

The outdoor education center and improvements to the maintenance operations area are features that will allow year round use for a wider range of park users while preserving the park's natural resources.

Thank you for this opportunity to comment upon the draft plan

Sincerely,


Valerie Lantz, Acting Chair
Columbia Gorge Chapter OET

cc: Mike Burton, Metro Executive Officer
Charles Ciecko, Metro Regional Parks & Greenspaces
Vern Wieble, OET President



YMCA

We build strong kids,
strong families, strong communities.

August 28, 1997

Chair Ruth McFarland
and members of the Regional Facilities Committee
600 NE Grand Avenue
Portland, OR 97232

RE: Oxbow Region Park Draft Master Plan Approval

Dear Chair McFarland and Committee Members:

YMCA Camp Collins would like to express its support of the Oxbow Park Master Plan. We encourage the council to approve the plan. As a member of the Project Advisory Committee (PAC) I have had several opportunities to review the various stages of the plan and the process in which the plan was developed. I am very pleased with the inclusionary practices of the staff as they solicited opinions from park users, the community in general and neighbors of the park.

YMCA Camp Collins has major interest in Oxbow Park. It has become an important part of our programming and the relationship between the Park and the Camp has grown strong over the years. Our environmental education programs as well as our summer camp programs rely on the natural wonders as well as the facilities within the park.

My experience with the PAC and the charrettes was a positive one. It was clear to me from the beginning that the park staff were sincerely interested in all opinions. They would not have convened such a diverse group if they weren't and this is not to say that all opinions were ultimately placed in the plan. The PAC was not a group with veto power but a group for the staff to "bounce" ideas. I do believe that in all cases the majority of the group was in favor of the various presentations and insuing changes in the plan.

Finally, I believe that the master planning process is an important process. It sets clear goals and direction for an institution. In this case it address all the significant issues that the park faces including infrastructure, management of natural resources and capital improvements including camping, environmental education and river access. Metro now has a plan to channel resources, as they become available, in a specific, planned, and responsible manner.

Sincerely,

Dimitri Stankevich
Director, YMCA Camp Collins

cc: **Mark Young**, CEO, YMCA of Columbia-Willamette; **Bob Hall**, Senior Vice President, YMCA of Columbia-Willamette; **Mike Burton**, Metro Executive Officer; **Jon Kvistad**, Presiding Officer, Metro Council; **Susan McLain**, Metro Council; **Don Morissette**, Metro Council; **Ed Washington**, Metro Council; **Charles Ceicko**, Metro Regional Parks and Greenspaces; **Jane Hart**, Metro Regional Parks and Greenspaces

YMCA of Columbia-Willamette • Camp Collins • 3001 S.E. Oxbow Parkway • Gresham, OR 97080
503-663-5813 • fax: 503-663-2323 • www.ymca-portland.org

YMCA mission: To put Christian principles into practice through programs that build healthy spirit, mind, and body for all through love, respect, honesty, responsibility and service.

1294 S.E. Laura Drive
Gresham, Oregon 97080
September 1, 1997

Chair Ruth McFarland and
Members of the Regional Facilities Committee
Metro Council
600 N.E. Grand Avenue
Portland, Oregon 97232

Re: Oxbow Regional Park Draft Master Plan Approval

Dear Chair McFarland and Committee Members:

It has been a privilege to serve as a member of the Oxbow Plan Project Advisory Committee. My role was to serve as a trail user advocate by virtue of being the chairman of the Oregon Recreation Trails Advisory Council and a resident of East Multnomah County. From the inception of my participation in this process it became quite clear that the scope of the study was far greater than I had anticipated and that the impact of our collective endeavors would have a profound effect upon park users, today and far into the future. It was essential that the committee start with a mission statement to define our purpose then explore all the data provided by Metro staff and the consultant team to reach a point of consensus. Granted we may not have been unanimous in all of our views but every committee member was passionate and compelling in many of the alternative scenarios which our committee examined. Our biases aside, we were asked to foresee the type of resource management plan that would protect the integrity of the natural resource, while at the same time provide for a diversity of uses along with a revenue generation plan. It is rather remarkable that our final recommendation is a rather nice balance between the two extremes of a natural preserve vs. a highly developed recreation area characteristic of many urban park areas.

Since the conclusion of the study I have made frequent visits to the park, on foot, by bicycle and by car. With each trip I have closely reflected upon our recommendations for the Master Plan. I continue to find merit in those views expressed by other colleagues on the committee and have found weaknesses in views I earlier advocated. While I once vacillated about the need for an environmental education center I now feel it is a very good decision and that the criteria used by environmental educators and Metro staff to place it on the edge of the Ancient Forest and adjoining an active use area, is ideal both in terms of convenience of access, versatility of use, and adjacent to a living laboratory where youth can readily understand the essential aspects of an ecosystem and accelerate their learning curve.

As an avid trail user I would prefer to always have the solitude of a natural area exclusively to myself but it is not realistic to expect such an indulgence of a shared-use natural resource base. To the extent that we can accommodate a variety of outdoor recreation users shows our tolerance for democratic principles. To the extent that we can offer an outdoor education opportunity shows the wisdom of our investment in the wise use of our natural resources and to preserve a legacy for future generations. We are part of a dynamic process and need to anticipate a future which is expressed by the quotation: "If we should change the world let it bear the mark of our intelligence."

As a retired public official who has participated in innumerable public meetings and hearings; as a public administrator who has been involved in the preparation of numerous public documents and master plans; as a member of the Oregon Recreation Trails Advisory Council since 1971, which has proposed trail projects in areas where there are often heated objections, I can assure you the Oxbow Plan has been one of the most conscientious efforts I have every witnessed. There were no hidden agendas and no preconceived opinions of what the final plan would look like until all the fact-finding was completed and various alternatives studied for the optimum design which met the objectives which supported our mission statement.

I can assure you this master plan represents our best efforts and is worthy of your approval and adoption to serve present and future visitors of Oxbow Park.

Respectfully,



Ernie Drapela, Chairman
Oregon Recreation Trails Advisory Council

cc: Mike Burton, Metro Executive Officer
Jon Kvistad, Presiding Officer, Metro Council
Susan McLain, Metro Council
Don Morissette, Metro Council
Ed Washington, Metro Council
Charles Ciecko, Metro Regional Parks and Greenspaces



Association of Northwest Steelheaders Sandy River Chapter

P.O. Box 1203
Gresham, OR 97030
Phone 503-735-6388, FAX 503-735-6500

Sep. 30, 1997

Officers

President
Norman Ritchie
503-760-5551

Vice President
Nick Galash
503-661-2400

Secretary
Gayle Soots
503-618-7347

Treasurer
Bill Beith
503-252-8278

Directors
Larry Beaver
River Access
503-669-0358

Bill Cluney
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503-661-1724

Jim Thurber
Parks & ODFW
Liaison
503-665-1977

Bob Levings
Fundraising
503-735-6995

Barb Bowler
At Large
503-667-3414

Larry Palmer
At Large
503-236-1632

Chair Ruth McFarland
& Members of the Regional Facilities Committee
Metro Council
600 N.E. Grand Avenue
Portland, OR 97232

RE: Oxbow Regional Park Draft Master Plan Approval

Dear Chair McFarland and Committee Members

The Association of Northwest Steelheaders, representing thousands of outdoor enthusiasts and fishermen and particularly the Sandy River Chapter fully support Oxbow Master plan. We also appreciate the part we were able to play in the plan's development. We know better than most the effort that went into the plan and the extensive opportunity given to all concerned citizens and interest groups to participate in this plan.

As an indication of how seriously we considered the future of Oxbow, we appointed Nick Galash, the Sandy Chapter Vice President, to represent us and our objectives to the Metro Council's Oxbow Committee. We were most pleased when Nick was accepted as a member of the committee. Nick worked as an advisor for supporting Fishermen, boaters, those constrained to wheelchairs and senior citizens. Of primary concern was access and appropriately placed facilities for all these groups.

A further indication of our support for Nick's many hours of effort and the plan as a whole, many of our members added representation at all the public meetings held on this subject.

We ask that the plan be held in tact and that Metro resist any efforts for eleventh hour changes. Thank you for the opportunity to be involved in the planning process and for sticking to the plan developed from this massive effort.

Sincerely,

Norman Ritchie
Norman E. Ritchie

cc Mike Burton, Metro Executive Officer
Charles Ciecko, Metro Regional Parks & Greenspaces

OXBOW PARK MASTER PLAN

TEAM CHARETTE #1 - AGENDA

Date: August 15, 1996
Time: 8:15 AM - 12:30 PM
Location: Camp Collins, Rec. Hall Bldg. (see attached maps)

	<u>Time</u>
Arrival / Team Assignments (coffee, juice, tea, cinnamon rolls provided)	8:15-8:30
<u>Welcome / Introductions</u>	Charles Ciecko 5 min.
<u>Today's Charette</u>	Jim Walsh 5 min.
<u>Master Plan Process</u>	8 min.
• Players	
• Work Steps	
• Time Table	
• Mission Statement	
<u>Existing Conditions Summary</u>	
• Land Use	Doug Lee 5 min.
• Vegetation	Esther Lev 10 min.
• Wildlife	Esther Lev
• Sandy River	Esther Lev
• River Hydrology / Geology	Rod Wojtanik 3 min.
• Present Uses / Trends	Jerry Draggoo 7 min.
• Interpretive Programs	Lora Gale 5 min.
• Existing Building	Tim Richard 5 min.
• Utilities	Patrick Tanner 5 min.
<u>Break</u>	9:30 - 9:45
<u>Workshop Teams / Park Uses</u>	Orientation 30 min. Jim Walsh
<u>Presentations</u>	by Teams 15 min.
<u>Break</u>	10:30 - 10:45
<u>Workshop Teams / Park Designs</u>	Orientation 40 min. Jim Walsh
<u>Presentations</u>	by Teams 20 min.
<u>Lunch</u> (provided)	11:45 - 12:15
<u>Closing Comments</u>	12:15 - 12:30

OXBOW REGIONAL PARK PLANNING CHARETTE ROSTER

Name	Affiliation
------	-------------

TEAM #1

Bob Ratcliffe <i>Facilitator</i>	PAC*/ BLM
Glenyce Densem	PAC/ Neighborhood Rep - East Side
Phil Underwood	Metro/ Park Ranger
Chris Rigby	Metro/ Coordinator-Sandy River Refinement Process
Esther Lev	Esther Lev Environmental Consulting
Deb Scrivens	Metro/ Park Naturalist
Michelle Richardson	Metro/ Park Seasonal (3rd year)
Jerry Draggoo	J. C. Draggoo & Assoc./ Recreational Consultant

TEAM #2

Ernie Drapela <i>Facilitator</i>	PAC
Mr. Gregory	PAC Alternate/ Boy Scouts-Mt. View District
Dick Caldwell	ODFW/ Fisheries Biologist
Barry Manning	Multnomah County Planning Dept.
Bill Doran	Metro/ Park Ranger
Dan Kromer	Metro/ O & M Division Manager
Kathie Smith	Metro/ Administrative Staff
Jim Gale	Interpetive Consultant
Patrick Tanner	Wallis Engineering/ Consultant

TEAM #3

Janelle Geddes <i>Facilitator</i>	Metro/ Regional Park Supervisor
Nick Galash	PAC/ NW Steelheaders
Paul Box	PAC/ Neighborhood Rep - West Side
Jack Wiles	OR State Parks & Rec/ Regional Supervisor
Jim Lind	Metro/ Oxbow Park Supervisor
Rod Wojtanik	J. D. Walsh & Associates/ Consultant
Tim Richard	J. T. Richard Architect/ Consultant
Lora Gale	Interpretive Consultant

AC - Project Advisory Committee Member

OXBOW REGIONAL PARK PLANNING CHARETTE ROSTER

TEAM #4

Julie Weatherby <i>Facilitator</i>	Metro/ Marketing Plan
Bill Markell	PAC Alternate/ Camp Collins
Lt. Peter VanDyke	Multnomah County Sheriff's Office
Eddie Huckins	Nature Conservancy/ Biologist
Mike Spencer	Metro/ Oxbow Park Ranger
Greg Wolley	Metro/ Capital Improvement Projects
Rick Scrivens	Metro/ Marine Facilities Park Ranger
Doug Lee	J. D. Walsh & Associates/ Consultant

PARTICIPANTS NOT ASSIGNED TO A TEAM

Charlie Ciecko	Metro/ Parks & Greenspaces Director
Jane Hart	Metro/ Project Manager
Jim Walsh	J. D. Walsh & Associates/ Consultant (Project Manager)

OXBOW REGIONAL PARK MASTER PLAN STUDY

Mission Statement

Oxbow park is an important segment within the larger Scenic Sandy River Management Area and in this context, the role of the park is to maintain and enhance the natural habitat while offering public access for appropriate recreation and educational opportunities.

Goals

- Preserve and enhance the natural habitat to promote:
 - healthy ecological communities compatible with natural features
 - diverse wildlife populations
 - fish spawning and rearing habitat
 - quality examples of ecological settings for educational and recreational opportunities
 - recreational opportunities with acceptable levels of impact
- Provide appropriate recreational opportunities to promote:
 - high quality recreational experience that is safe, aesthetically pleasing and compatible with the natural setting
 - revenue generation to support the maintenance and operation of the facility
 - access to the Sandy River to promote:
 - water craft (boat, canoe, kayak, raft, floats etc.) access to lower reach of the Sandy River Gorge
 - fishing
 - water contact (wading, swimming, sunbathing)
 - outdoor education
- Provide infrastructure to support:
 - quality recreational experience
 - efficient operation and maintenance of the facility
 - absorb more use due to population increase
 - compliance with code requirements

OXBOW REGIONAL PARK MASTER PLAN STUDY

Program Development Methodology

Unlike a new facility, Oxbow Park is established and its role is well accepted by the public. The task at hand is to evaluate the facility to determine what changes may be appropriate due to present or future conditions. The following is a preliminary outline noting the issues and questions that need to be reviewed in order to formulate design guidelines for the park master plan:

Present Conditions:

Natural Setting

- Geology / Soils
- Sandy River Hydrology
- Vegetation
- Wildlife

Recreational Uses

- Camping (individual, group)
- Hiking
- Bike Riding
- Horseback Riding
- Water Play
- Fishing
- Boating
- Field Games
- Picnicking (individual, group)

Educational Programs

Infrastructure

- Water System
- Electrical System
- Roads
- Parking
- Camp Sites
- Boat Ramp
- Buildings

Revenue

- Fees
- Services
- Program

Questions:

What are the dynamic changes occurring with the natural resource which will effect the park?
What adverse impacts due to recreational use require corrective measures?
What are the opportunities for enhancement?

What modification to present uses are appropriate based on the following?
- impacts to resource
- impacts to quality recreation experience
- population and desire changes
- increasing visitor revenue

What modification to present uses are appropriate based on the following?

What deficiencies need correction?
What additional development would improve the recreational experience or maintainability ?

What are the opportunities for increasing revenue generating services which are consistent with mission statement?
Should the park be a year round tourism destination site?



**J. D. Walsh
&
Associates,
P. S.**

Landscape Architecture

Land Planning

OXBOW PARK DESIGN CHARETTE #1

Natural Setting

- The atmosphere at Oxbow presents itself as a place of 'timelessness'
- A visit to Oxbow is like a 'step back in time'
- Oxbow is the 'gateway' to the scenic corridor
 - Dodge Park to Oxbow Park
 - Oxbow Park to Columbia River
- There are several important values that need to be addressed and/or maintained at Oxbow:
 - Preservation of wildlife and vegetative communities
 - Preservation of the 'richness' of the area
 - Preserve and promote wildlife corridors, habitat, and diversity
 - Preservation of the 'wild and scenic river'
 - Protect the riparian edge
 - Preservation of existing viewsheds
 - Enhancement of the quality of fish runs
- Oxbow is connected to the whole larger landscape (eco-region)
- Oxbow serves as habitat for larger mammals
- There are existing wildlife corridors and these should be considered in future development
- How will improvement of this area affect wildlife habitat and sensitive plant communities?
- Recreational use should be overlaid on the physical/natural landscape and the appropriate use situated accordingly
- Hiking and group camp areas may conflict with existing wildlife corridors
- Promote a wildlife management area
- What is the correct method for managing natural areas?
- How does the park effect the livability of the surrounding area?
- How does Oxbow fit in with other natural areas around it? (Nature Conservancy Land, BLM Land, City and State Park Land, etc.)
- Future use and planning needs to ensure that additional degradation does not occur
- Avoid conflict with adjacent landowners

Recreational Uses

- Oxbow serves as a refuge from the 'hustle & bustle' of urban life
- Oxbow is only public camping area in Portland Metro Area
- The focus of Oxbow should be 'wilderness' and should be experienced through more primitive transportation means, i.e. by foot, horseback, bicycle, etc.
- Preserve the quality of the visitor's experience, i.e. solitude, safety, security,

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serenity, etc

- People prefer to go to places that are safe
- The amount of 'craziness' increases as the number of users increase
- There is a need to 'de-emphasize' the 'company picnic' use
- Water is major element of the park
- Fishing is an important element at Oxbow
- Preserve the angling experience to be had
- Seasonal use by boaters is high
- Group campsites are popular

Educational Programs

- What is the best way to educate users of the importance of the area?
- Preserve the existing environmental education program
- Offer wildlife protection through education
- Provide areas for interpretive viewpoints
- Establish a 'nature center' for environmental education and study
- Establish an old growth interpretive center
- Establish an interpretive kiosk at the main river access points to tell stories of: the river and its hydrologic powers and processes, of the native fish and their life cycles, etc.)
- Provide an interpretive opportunity at the recent landslide site (tell of hydrologic, geologic, and wild & scenic river stories)
- Use media (maps, etc.) for self-guided exploration and appropriate use

Infrastructure

- What is the carrying capacity of the land?
- Is the infrastructure efficient for future use?
- Provide efficient utilization of space
- Upgrade existing infrastructure to meet current and future demands, i.e. accessibility, parking, water and sanitary service, etc.
- Better infrastructure may help to reduce conflicts in the park
- Is there the potential to create a second park on the east side?
- Establish a possible link between east and west banks
- Improve horse facilities at end of Homan Rd.
- There is no need for 'fancy' at Oxbow
- Avoid 'Too much, too fast!'

Utilities

- What level of water service, sanitary service and other utilities should be provided at Oxbow?
- Should the water service be improved for protection against fire?
- Improve the pump house for fire protection

Roads & Parking

- Provide orientation signage @ Oxbow Parkway and Hosner Rd (directional and informative, i.e. no RV's allowed)
- Provide hillside stabilization at the entrance road
- Realign the road to preserve the riparian edge
- Improve or relocate parking at the ancient forest trailhead due to resource concerns
- Provide surfaced path along roadway for bikes and pedestrians
- Provide accessible trails, viewpoints, and facilities
- Improve roadway for drive in to Group Camp #2
- Separate parking areas at boat ramp (design areas for vehicles w/ trailers and single vehicles)
- Establish an accessible angling point along the river
- Improve trail to Group Camp #3
- Remove all roads

Camp Sites

- Camping areas are at maximum capacity on weekends
- Reorganize the layout of the campgrounds to accommodate for privacy and the need to close areas down for rehabilitative measures
- Redesign the group camp and group picnic areas to provide a more efficient use of these spaces
- Upgrade but do not expand the camping areas
- Group camps areas may be eliminated, moved or designated for a different user group, i.e. equestrian camp, etc.
- Reconfigure the campground to allow for more grouped sites
- Provide for more screened, private campsites
- Redesign Group Camp #3 for equestrian use

Possible conflicts include:

- Trailers
 - Water quality
 - Trail impacts
 - Introduction of noxious weeds
 - Wildlife habitat degradation
- Redesign/improve the group camp areas (provide yurts)
 - Provide more group shelters and group sites

Hardened River Access Points

- There is a need to control access points to the river
- Improve access to the river
- Analyze access points along the river
- Remove the boat ramp?
- Establish an additional access point to the river near entrance
- Use both sides of river by developing east side access point
- Improve East side access and develop picnic and day use areas

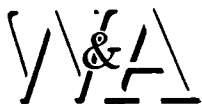
Buildings

- There is a need to provide orientation and interpretation at the park; utilizing the opportunities that are available
- Orientation plaza at entrance should include:
 - public restrooms
 - telephone
 - small facility for group use
 - viewing area
 - sense of security
- Establish kiosk/overlook area at large, existing landslide
- Relocate Park Supervisor residence to the park entry area

Revenue

- Who are the target user groups for Oxbow?
- What is the type of user that we want at Oxbow?
- Largest use is day use
- Should the types of use change?
- Should the amount of use change? i.e., limit use, reservations, etc.
- It is possible to accommodate 300,000-350,000 users a year
- How can we provide a similar experience at Oxbow yet accommodate increased use and new users groups?
- The master plan and design needs to reflect the type of user we want at Oxbow
- Are there ways of increasing the efficiency of operation at Oxbow?
- How does the parks carrying capacity effect the economic objectives of the park and Metro?
- Oxbow could serve as a orientation/interpretive center for the Sandy River corridor and the region
- Provide links between Oxbow and neighboring properties and opportunities in the corridor
- There is a need for better communication and coordination along the entire Sandy River corridor
- How will the changes in Oxbow affect the use of other neighboring parks?
- Should we be working with the neighboring parks on their goals and objectives?
- Public meetings should be held
- Link up with the Park Service and the Forest Service to create a larger, shared venture
- Oxbow Park is a cultural center
- Promote high productivity in revenue generation with minimum impact on the park
- Should this be a private/public venture?
- Limited vs. Larger
- Should staff be provided to monitor and maintain the east side?
- There shouldn't be a compromise to the quality of the experience for purposes of revenue

- Provide a mixture of uses to balance compatibility with resource demands
- Low impact uses are appropriate for maintaining the 'feeling' of the park, i.e. hiking, fishing, water play, camping, etc.
- Reduce or eliminate the 'party atmosphere' i.e. no alcohol
- Should the number of vehicles allowed into the park increase or decrease?
- Recreational vehicles should not be allowed in Oxbow
- There is a need for less vehicles in the park
- Do not introduce concessionaires as they have in Yosemite
- Introduce yurt camp areas to provide additional revenue



OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

J.D. Walsh & Associates, P.S.

-Evaluation Form for Charette #1

Overall Rating 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Average Excelent

1.) Did you feel that the charette session was worth your time to participate in?

_____ Yes
_____ No

Was the charette session:

_____ Too Long
_____ An Appropriate Length
_____ Too Short

2.) Do you feel that you had a meaningful opportunity to share your ideas?

_____ Yes
_____ No

3.) Do you feel that the "brainstorm" / work sessions were an effective way to facilitate group participation?

_____ Yes
_____ No

What changes would you suggest to improve these sessions?

Comment: _____

4.) Do you feel that the teams provided meaningful input for the master plan study?

_____ Yes
_____ No

Comment: _____

5.) What ideas or additional comments do you have regarding the charette session and the overall master plan study?

Comment: _____

J. D. Walsh
&
Associates,
P. S.

Landscape Architecture

Land Planning

1924 Broadway Street

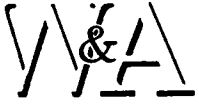
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**J. D. Walsh
&
Associates,
P. S.**

Landscape Architecture

Land Planning

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Planning Charette #1

Date: August 15, 1996 (see attached agenda)

Present: Planning Teams #1-4
Staff /Consultants

Welcome/Introduction - Charles Ciecko

A short review of the project and the purpose of this meeting was presented. Charles spoke of the character of Oxbow Park and the need for a 'face lift' but all the while maintaining the character. He spoke of some of the issues which would have to be dealt with, i.e. limited infrastructure, users conflicts, etc.

Today's Charette & Master Plan Process - Jim Walsh

Discussed how the charette process would work. Jim stated the intent of the charette was to provide the consultant team with information on the direction for Oxbow Park. He presented the mission statement and told the groups to always have this statment in the back of their heads as they undertake this process.

Existing Conditions Summay - By Consultants

Several members of the consultant team presented summaries of the existing conditons at Oxbow Park. Topics included: land use and zoning, vegetation communities, wildlife habitat, the role of the Sandy River in the park, geologic conditions, present uses and trends within the park, interpretive programs, existing buildings and their facilities, and existing utilities and infrastructure.

Work Shop Teams / Park Uses - By Teams

Each team was asked to brainstorm on their feelings about Oxbow park: The following is a summary of what was discussed within the groups:
Team #1

- Use both sides of river by developing east side access point
- Largest use is day use
- Water is major element of the park
- Seasonal use by boaters is high
- Camping areas are at maximum capacity on weekends
- Oxbow is only public camping area in Portland Metro Area
- Group campsites are popular
- Should the type and amount of use change? i.e., limit use, reservations, etc.
- It is possible to accommodate 300,000-350,000 users a year
- How can we provide a similar experience at Oxbow yet acc. increased and new users groups?
- There is a need to control access points to the river
- The amount of 'craziness' increases as the number of users increase
- There is a need to 'de-emphasize' the 'company picnic' use
- The atmosphere at Oxbow presents itself as a place of 'timelessness'.
- Oxbow serves as a refuge from the 'hustle & bustle' of urban life
- Oxbow is connected to the whole larger landscape (eco-region)

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- Oxbow serves as habitat for larger mammals
- Recreational use should be overlaid on the physical/ natural landscape and the appropriate use situated accordingly
- There are existing wildlife corridors and these should be considered in future development
- Hiking and group camp areas may conflict with existing wildlife corridors
- Group camps areas may be eliminated, moved or designated for a different user group, i.e. equestrian camp

Team #2

- Remove the entrance roads
- Who are the target user groups for Oxbow?
- What is the carrying capacity of the land?
- Should the number of vehicles allowed into the park increase or decrease?
- What level of water service, sanitary service and utilities should be provided?
- Public meetings should be held
- Is the infrastructure efficient for future use?
- Recreational vehicles should not be allowed in Oxbow
- Do not introduce concessionaires as they have in Yosemite
- The entrance should provide some sense of security
- Should the water service be improved for protection against fire?
- Introduce yurt camp areas to provide additional revenue
- Link up with the Park Service and the Forest Service to create a larger, shared venture
- Oxbow Park is a cultural center
- The focus of Oxbow should be 'wilderness' and should be experienced through more primitive transportation means, i.e. by foot, horseback, bicycle, etc.
- There is a need for less vehicles in the park
- Promote high productivity in revenue generation with minimum impact on the park
- Should this be a private/public venture?
- A visit to Oxbow is like a 'step back in time' to life as it was
- There is no need for 'fancy' at Oxbow
- Fishing is an important element at Oxbow
- Limited vs. Larger
- Should staff be provided to monitor and maintain the east side?

Team #3

There are several important values that need to be addressed and/or maintained at Oxbow:

- Preservation of wildlife and vegetative communities
- Preservation of the 'richness' of the area
- Preserve and promote wildlife corridors, habitat, and diversity
- Preservation of the 'wild and scenic river'
- Protect the riparian edge
- Preservation of existing viewsheds
- Enhancement of the quality of fish runs
- Preserve the angling experience to be had
- Preserve the quality of the visitor's experience, i.e. solitude, safety, security, serenity, etc.
- Preserve the existing environmental education program
- Future use and planning needs to ensure that additional degradation does not occur

- Avoid 'Too much, too fast!'
- Upgrade existing infrastructure to meet current and future demands, i.e. accessibility, parking, water and sanitary service, etc.
- There is a need to provide orientation and interpretation at the park
- What is the type of user that we want at Oxbow?
- The master plan and design need to reflect the type of user we want at Oxbow
- Are there ways of increasing the efficiency of operation at Oxbow?
- Improve access to the river
- Provide efficient utilization of space

Team #4

- How does the park effect the livability of the surrounding are?
- How does the parks carrying capacity effect the economic objectives of the park and Metro?
- There shouldn't be a compromise to the quality of the experience for purposes of revenue
- How does Oxbow fit in with other natural areas around it? (Nature Conservancy Land, BLM Land, City and State Park Land, etc.)
- What is the best way to educate users of the importance or the area?
- Oxbow is the 'gateway' to the scenic corridor
 - Dodge Park to Oxbow Park -Interpretive, educational, resource balance
 - Oxbow Park to Columbia River -Recreation, heavy use
- Avoid conflict with adjacent landowners
- How will improvement of this area affect wildlife habitat and sensitive plant communities
- Reduce or eliminate the 'party atmosphere' i.e. no alcohol
- How will the changes in Oxbow affect the use of other neighboring parks?
- Should we be working with the neighboring parks on their goals and objectives?
- Oxbow could serve as a orientation/interpretive center for the Sandy River corridor and the region
- Provide links between Oxbow and neighboring properties and opportunities in the corridor
- There is a need for better communication and coordination along the entire Sandy River corridor
- Use media (maps, etc.) for self-guided exploration and appropriate use
- Analyze access points along the river
- Better infrastructure may help to reduce conflicts in the park
- Provide a mixture of uses to balance compatibility with resource demands
- Low impact uses are appropriate for maintaining the 'feeling' of the park, i.e. hiking, fishing, water play, camping, etc.

Work Shop Teams / Park Designs- By Teams

Each team was asked to provide information on what they felt would improve Oxbow park. The following is a summary of what was discussed within the groups:

Team #1

- Provide orientation signage @ Oxbow Parkway and Hosner Rd (directional and informative, i.e. no RV's allowed)
- Provide surfaced path along roadway for bikes and pedestrians
- Provide orientation plaza at entrance including:
 - public restrooms
 - telephone
 - small facility for group use

- viewing area
 - Is there the potential to create a second park on the east side?
 - Remove the boat ramp?
 - Expand campgrounds to incorporate the larger fields
 - Provide more group shelters and group sites
 - Reconfigure the campground to allow for more grouped sites
 - Provide for more screened, private campsites
 - Redesign Group Camp #3 for equestrian use
- Possible conflicts include:
- Trailers
 - Water quality
 - Trail impacts
 - Introduction of noxious weeds
 - Wildlife habitat degradation
- Improve horse facilities at end of Homan Rd.

Team #2

- Improve East side access and develop picnic and day use areas
- Upgrade but do not expand the camping areas
- Establish a possible link between east and west banks
- Redesign/improve the group camp areas (provide yurts)
- Eliminate the ball fields
- Establish a 'nature center' for environmental education and study
- Improve the pump house for fire protection
- Establish an old growth interpretive center
- Establish kiosk/overlook area at large, existing landslide
- Provide signage at Oxbow Parkway and Hosner Rd. for vehicle restrictions
- Establish an additional access point to the river near entrance
- Establish a orientation center at the entrance

Team #3

- Relocate Park Supervisor residence to the park entry area
- Establish orientation area with public restrooms
- Establish an accessible angling point along the river
- Provide an interpretive opportunity at the recent landslide site (tell of hydrologic, geologic, and wild & scenic stories)
- Separate parking areas (design areas for vehicles w/ trailers and single vehicles)
- Improve or relocate parking at the ancient forest trailhead due to resource concerns
- Realign the road to preserve the riparian edge
- Reorganize the layout of the campgrounds to accommodate for privacy and the need to close areas down for rehabilitative measures
- Redesign the group camp and group picnic areas to provide a more efficient use of these spaces
- Establish an interpretive kiosk at the main river access points to tell stories of: the river and its hydrologic powers and processes, of the native fish and their life cycles, etc.)

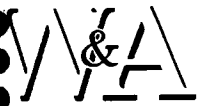
Team #4

- Provide hillside stabilization at the entrance road
- Provide visitor orientation
- Provide educational facilities
- Offer wildlife protection through education

- Provide areas for interpretive viewpoints
- Provide accessible trails, viewpoints, and facilities
- Promote a wildlife management area
- Improve trail to Group Camp #3
- Improve roadway for drive in to Group Camp #2

Closing Comments - Charles, Jane, Jim

A discussion of what was heard during the charette process was presented. Charles spoke about how there were really two different parks at Oxbow and maybe that should be looked at. Charles also mentioned that he was surprised that no one discussed the need for a separate surfaced trail for bicyclists and pedestrians. Jane reiterated the fact that the natural character is of the utmost importance at Oxbow park and that any development should be driven by this natural character. She spoke of the notion that Oxbow is a 'Gateway' to the Sandy River Gorge and the significance of this statement. She also spoke of the need for visitor orientation, education, interpretation and safety. Jim thanked the group and explained what would be done with the information gathered at this meeting. He informed the group that another charette would be held to discuss the consultant team findings.



J. D. Walsh
&
Associates,
P. S.

Landscape Architecture
Land Planning

August 27, 1996

Dear Oxbow Park Team Charette #1 Participants:

On behalf of Metro Regional Parks and Greenspaces Department I want to thank you for participating in our recent planning charette. Your participation was invaluable and we made great progress toward our goal; preserving Oxbow Park for future generations to enjoy. Your participation has really helped the consultant team understand the needs and demands of the users, staff personnel, neighbors and plant and wildlife communities at Oxbow Park.

Enclosed are the promised follow up materials. I would greatly appreciate it if you would fill out the enclosed charette evaluation form and return it to me at your earliest convenience.

What's Next?

On September 11, we would like to convene the same group to return to Camp Collins and review the first preliminary ideas and designs the consultant team has provided (see enclosed agenda). We are very excited about sharing these ideas. This will be the final charette in the master planning process so please join us and help shape the future of Oxbow Park. We will keep you informed of future public involvement opportunities throughout the master planning process.

Cordially,

James D. Walsh

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OXBOW PARK MASTER PLAN

TEAM CHARETTE #2 - AGENDA

Date: September 11, 1996
Time: 8:30 AM -12:30 noon
Location: Camp Collins, Rec. Hall Bldg. (see attached maps)

		<u>Time</u>
<u>Arrival / Team Assignments</u> (coffee, juice, muffins provided)		8:15-8:30
<u>Welcome / Introductions</u>	Jane Hart	8:30-8:40
<u>Today's Charette</u>	Jim Walsh	8:40-8:50
• Planning Process		
<u>Oxbow Park's Future</u>		
• Overall Recreation/Metro's Role	Jim Walsh	8:50-8:58
• Property Addition Concepts	Jim Walsh	8 min.
• Concept 'A'	Dean Apostol	8 min.
• Concept 'B'	Dean Apostol	8 min.
• Concept 'C'	Dean Apostol	8 min.
• Entry Arrival Area Concept	Tim Richards	5 min.
• Environmental Education Concept	Tim Richards	5 min.
• Camp Ground Area Concept	Dean Apostol	5 min.
<u>Break</u>		9:45-10:00
<u>Team Reviews</u>	Jim Walsh	10:00-10:10
<u>Review 4 Stations</u>	by Teams	10:10-11:30
<u>Team Reports</u>	by Teams	11:30-11:50
<u>Group Discussions</u>	Jim Walsh	11:50-12:20
<u>Closing Comments</u>		12:20-12:30

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J. D. Walsh
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OXBOW PARK MASTER PLAN

TEAM CHARETTE #2

Mission Statement

Oxbow park is an important segment within the larger Scenic Sandy River Management Area and in this context, the role of the park is to maintain and enhance the natural habitat while offering public access for appropriate recreation and educational opportunities.

Goals

- Preserve and enhance the natural habitat to promote:
 - healthy ecological communities compatible with natural features
 - diverse wildlife populations
 - fish spawning and rearing habitat
 - quality examples of ecological settings for educational and recreational opportunities
 - recreational opportunities with acceptable levels of impact
- Provide appropriate recreational opportunities to promote:
 - high quality recreational experience that is safe, aesthetically pleasing and compatible with the natural setting
 - revenue generation to support the maintenance and operation of the facility
 - access to the Sandy River to promote:
 - water craft (boat, canoe, kayak, raft, floats etc.) access to lower reach of the Sand River Gorge
 - fishing
 - water contact (wading, swimming, sunbathing)
 - outdoor education
- Provide infrastructure to support:
 - quality recreational experience
 - efficient operation and maintenance of the facility
 - absorb more use due to population increase
 - compliance with code requirements



OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

J.D. Walsh & Associates, P.S.

-Evaluation Form for Charette #2

- 1.) Should METRO expand its involvement in the Sandy River Gorge?

_____ Yes
_____ No

If yes, what in your judgement is the appropriate role METRO should play?

Comment:

- 2.) Please evaluate each of the following options:

OPTION 'A' - ENHANCED EXISTING PARK

Overall Rating 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Excellent
Average

A.) What features do you like?

Comment:

B.) Are there changes you would suggest?

Comment:

C.) Additional Comments:

OPTION 'B' - PEDESTRIAN ORIENTED PARK

Overall Rating 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Excellent
Average

A.) What features do you like?

Comment:

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B.) Are there changes you would suggest?

Comment:

C.) Additional Comments:

OPTION 'C' - DAY USE PARK

Overall Rating 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Excellent
Average

A.) What features do you like?

Comment:

B.) Are there changes you would suggest?

Comment:

C.) Additional Comments:

OPTION 'D' - URBAN WILDERNESS PARK

Overall Rating 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Excellent
Average

A.) What features do you like?

Comment:

B.) Are there changes you would suggest?

Comment:

C.) Additional Comments:

- 3.) To solicit public opinion, a preferred approach for the future of Oxbow Park will be presented at an upcoming community meeting. Do you have any suggestions on the preferred approach or on the presentation of this approach?

Comment:

Name & Agency (Optional) _____

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Planning Charette #2

Date: September 11, 1996 (see attached agenda)

Present: Planning Teams #1-4
Staff / Consultants

Welcome/Introduction - Jane Hart

A short review of the project, progress to date, and purpose of the meeting was presented.

Charette & Planning Process - Jim Walsh

Discussed how the previous charette was utilized by the consultant team and what the next steps would be in the planning process for the park.

Existing Use, Survey, Trends, Revenue - Jim Walsh

Discussed numbers, provided by Jerry Draggoo, indicating use patterns and trends.

Oxbow Park's Future - Consultants

Overall Recreation/Metro's Role - Jim Walsh

Discussed the 'Big Picture' of Metro's involvement in the Sandy River Gorge. Should Metro increase it's management role in the Gorge? Each of the parks along the Sandy River has its own unique character and qualities. Oxbow Park serves as a 'gateway' west to the recreational Sandy River and east to the wilderness Sandy River. Asked where do we want to go with Oxbow? What do we want it to look and feel like?

Concept Plan -Option 'A' (Enhanced Existing Park) - Dean Apostle

Discussed the concept option and how it would shape the park. No 'radical' changes and no shifts in use areas were being presented. Discussed the idea of getting people out of their cars as soon as possible after entering the park. Discussed relocating the road and the reasons supporting this decision. Discussed expanding and improving the existing campground areas.

Concept Plan -Option 'B' (Pedestrian Oriented Park)- Dean Apostle

Discussed the concept option and how it would require the acquisition of additional properties to implement. Discussed how cars would be removed at the entrance and users would be shuttled into the park and how cars would be allowed into park on off-peak days. Discussed relocating the boat ramp near the entrance of the park. Discussed the development of the north side and the uses that were proposed for that area. Discussed the removal of the camping area on the south side and concentrating solely on day use in this area.

Concept Plan -Option 'C' (Day Use Park)- Dean Apostle

Discussed the concept option and how it would require Metro to decide if they 'wanted to be in camping business'. This option would completely eliminate camping from Oxbow park. Discussed how the arrival/orientation area might work. Discussed relocating the boat ramp near the entrance of the park. Discussed the introduction of a bridge or ferry which would serve as a connection

between the east and south sides of the Sandy River.

Concept Plan -Option 'D' (Urban Wilderness Park)- Dean Apostle

Discussed the concept option and how it would essentially be 'starting over' with the park. This option would completely eliminate cars from Oxbow park and improve wildlife viewing and habitat. Discussed how the trail network would be expanded. Discussed relocating the boat ramp near the entrance of the park.

Entry Arrival Area Concept - Tim Richard

Discussed the importance of an arrival/orientation area and how this area could be modified to serve any option adopted. Discussed the need to reposition the entrance to the maintenance facility out of the main entry area; eliminating confusion and conflicts in this area of the park. Discussed the need to provide improved staff/public facilities and where these might be located.

Interpretation/Environmental Education Concepts - Lora Gale

Discussed the need for information and interpretive areas to educate users on the park and it's unique qualities. Discussed the need for orientation and how we need to "Hook people at get go" and let them know where they are and where they want to go. Discussed the need to analyze who the target audiences are and how we supply interpretation for that particular audience. Discussed how each of the interpretive areas would offer different information.

Team Reviews and Reports - By Teams

Option 'A' - Enhanced Existing Park

Pros

- Gateway Concept
- Interpretation opportunities spread throughout the park
- Orientation at entrance
- Safest of all the concepts, more user friendly
- Increased camping on East side (may present vandalism / management problems)
- Realignment of road to concentrate use areas north of road (limited by topography)
- Increased use is beneficial for revenue generation (need for camping)
- Access to East side properties
- Like Env. Ed. area at Ancient Forest area
- Development of entryway (need to be sensitive of relationship to YMCA Camp Collins)
- Overnight structures (not in proposed location)
- Remove sport uses to other facilities
- Need visitor orientation space at intersection of Hosner Road and Oxbow Parkway

Cons

- Don't realign road - no need
- Overnight structures in wildlife corridor
- Need more recreational opportunities at entry area
- Haven't reduced the amount of traffic flow
- Env. Ed. area in the cold, dark 'Old Growth'
- Parking in the 'Old Growth'
- Increased trespassing at YMCA Camp Collins
- Development in the floodplain

Option 'B' - Pedestrian Oriented Park

Pros

- New entry area at top of ridge would help decompress visitors; that is where you 'meet & greet' the public
- Could provide for group picnic area in the upper parking area
- Solves potential conflicts with YMCA Camp Collins and visitors and their cars
- Separates campgrounds from day use areas

Cons

- Increases land acquisition for recreation facilities would increase neighbor tensions
- Could possibly create more parking problems
- Create more management and cost problems
- Cost would be exorbitant for a 'parking lot'
- Boat ramp relocation eliminates miles of fishing and rafting opportunities
- R.V. camping would present problems for the neighbors

Option 'C' - Day Use Park

Pros

- Could develop a partnership w/ YMCA Camp Collins for the Env. Education area
- Connection to the East side with the bridge
- Bridge would be main attraction of the park (good & bad)
- Provides for ease in maintenance access to the East side
- Relieves other parks of their day use demands

Cons

- Ferry crossing not practical in regards to landing area, schedule, operation, etc.
- Bridge may not be wise use of funds, need to look at cost vs. benefits
- Loss of camping opportunities and the revenue which is generated from camping

Option 'D' - Urban Wilderness Park

Pros

- Concept was looked favorably upon but groups felt that the park could not return to this stage
- Improves natural resources and wildlife habitat
- Improves separation between day use and camping

Cons

- Discourages use by those with disabilities
- Limits river access for boats and fishing
- Doesn't allow for Environmental Education logistically
- Too radical an approach, public won't accept
- Day use would not be an option
- Interpretation could occur only at the entrance
- Couldn't access park for maintenance
- Boat river access on YMCA Camp Collins
- Does not meet user needs

Group Discussions - By Teams

The groups discussed what their preferred approach to take to the public would be. The following is a summary:

Team #1

- There is a need for a control point at the entrance
- Would prefer to move overnight structures away from YMCA Camp Collins

- Offer some form of overnight camping
- Locate env. ed. facility near the ancient forest area
- Provide more opportunities for 'walk-in & bike-in'
- Multi-use building is 2nd priority vs. multi-season env. ed. and interpretive area for public

Team #2

- Realign the road to improve the use areas
- Maintain and improve the camping facilities

Team #3

- Improve orientation at the entrance
- Eliminate uses which conflict with wildlife corridor
- Remove the parking at the pump house and revegetate
- Remove parking from the ancient forest area
- Develop the east side in the future

Team #4

- Improve the arrival sequence
- Propose the idea of the bridge
- Determine most suitable way to utilize the east side, there is a management need

Closing Comments - Jim Walsh

Jim thanked everyone for being incredibly helpful and insightful. He discussed the next phase of the master plan study and the presentation to the public on September 25, 1996.

OXBOW PARK MASTER PLAN

Project Advisory Committee Meeting # 1

Date: September 18, 1996
Time: 9:00 - 12:00 noon
Location: Camp Collins, Rec. Hall Building (see attached maps)

AGENDA

		Time
<u>Welcome / Introductions</u>	Jane Hart	9:00
<u>Project Advisory Committee Role</u> <ul style="list-style-type: none">• Distribute project notebooks• Optional PAC vacancy	Jane Hart	9:10
<u>Purpose of Meeting</u>	Jim Walsh	9:25
<u>Discussion Topics</u> <ul style="list-style-type: none">• mission statement and goals• planning process• Review results from Charettes #1 and #2• Review and discuss consultant's proposed preferred park design alternative	Jim Walsh	9:35
<u>Break</u> Coffee, tea and cookies provided		10:15 - 10:30
<u>Tour Oxbow Park</u>	Oxbow Park Staff	10:30 - 11:15
<u>PAC's recommendation of proposed park design alternative(s) to present at September 25th Public Meeting</u>		11:15
<u>Future Meeting Schedule</u>		11:45

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Project Advisory Committee
Meeting #1

Date: September 18, 1996 (see attached agenda)

Present: Jane Hart / Metro
Jim Walsh / Consultant
Dean Apostle / Consultant
Tim Richard / Consultant
PAC Members-
Bob Ratcliffe
Glenyce Densem
Ernie Drapela
Nick Galash
Paul Box

Welcome / Introductions - Jane Hart

Each member introduced themselves and noted their special interest.

Project Advisory Committee Role - Jane Hart

It was explained the Metro is responsible for regionally significant open spaces and, like Oxbow Park, each facility will be reviewed in a Master Plan Process. This process includes a public involvement process utilizing citizen advisory committees. The purpose of the citizen advisory committee is to assist the Metro staff and consultants by reviewing and providing input throughout the master plan study process. Jane noted that two other members would be added to the PAC; a teacher and someone representing the boating interest would be asked to join. The following people were suggested:

Byron Ball - Teacher
Owner of 'River Trails'

It was also mentioned that representatives from special interests could provide input, the following were suggested:

Tom McAllister - Former Oregonian Outdoor Education Reporter
Jeff Uball - Fish Biologist

Discussion - Jim Walsh

Based on Charette No. 1 & 2, preliminary plans have been prepared based on enhancing the existing park. These plans were discussed and then the group reviewed these ideas with an on-site tour of the park. The following is a summary of comments:

- The design of the park should not be influenced just because improvements are built in a certain location currently
- An optional approach for the entrance is to consider the entry road south of the present maintenance yard. This approach would allow a better buffer between the park and YMCA Camp Collins.
- All facilities should be ADA accessible
- The proposed design is a 'win/win' addressing the important considerations
 - respect for 'Old Growth Area'
 - increased 'people space'

- not eliminating any use areas
- An alternate location should be considered for the Environmental Education Area at the front entry portion of the park.
- East Side
 - potential equestrian center with trails, etc. which could be adopted by the users
 - land acquisition may be controversial
 - moving the parking area out close to the road will provide better supervision by the park staff
- The trail on the north side of the 'Old Growth' should be considered

Help plan the future of Oxbow Park in the Sandy River Gorge

Now's the time to get involved!

What

A public meeting to review and discuss the proposed preliminary concept for the future of the scenic Oxbow Regional Park.

When

7 to 9 p.m., Wednesday,
September 25, 1996

Where

Gresham Public Safety
and Schools Building,
Council Chambers
1331 N.W. Eastman Parkway
Gresham, OR

Sponsor

Metro Regional Parks
and Greenspaces

For more information,
call Jane Hart at
Metro 797-1585

Meeting Highlights

- View maps and aerial photographs of Oxbow Regional Park and study area.
- Refine mission statement and master plan goals.
- Review and provide input on proposed preliminary concepts for future improvements at Oxbow Regional Park.
- Meet the Oxbow Regional Park Project Advisory Committee.
- Learn about the next steps in the project and opportunities for your future involvement in the development of the master plan.

*Refreshments will
be served.*



OXBOW PARK MASTER PLAN STUDY

COMMUNITY MEETING No. 1

AGENDA

Date: September 25, 1996
Time: 7:00 PM - 9:00 PM
Location: Gresham Public Safety
and Schools Building,
Council Chambers
1331 N.W. Eastman Parkway

		<u>Time</u>
I. <u>Welcome / Introductions</u>	Jane Hart/ Charles Ciecko	7:00 PM
II. <u>Study Process / Work Effort to Date</u>	Jane Hart/ Charles Ciecko	7:10 PM
III. <u>Background Information / Concept Plan</u>	Jim Walsh/ Tim Richard	7:20 PM
IV. <u>Break / Review Drawings</u>	-	8:00 PM
V. <u>Discussion</u>	Consultants/ Metro Staff	8:10 PM
VI. <u>Closing Comments</u>	Jim Walsh	8:55 PM

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Community Meeting #1

Date: September 25, 1996 (see attached agenda)

Present: Jane Hart / Metro
Jim Walsh / Consultant
Rod Wojtanik / Consultant
Tim Richard / Consultant
Community Members (app. 40)

Welcome / Introductions - Jane Hart

Jane welcomed everyone and talked of Metro's mission of regional management of significant greenspaces.

Study Process/Work to Date - Jane Hart

Jane explained that the purpose of the study was to prepare a master plan and that citizen input was vital to the success of the master plan. She introduced the Project Advisory Committee members present and explained their role. She explained how the design team was compiled and how they gathered information and held two charette sessions, to help develop an understanding of the needs of the park and its users.

Background Information - Jim Walsh & Tim Richard

Jim talked about the park and it being a significant natural resource area which is heavily utilized by the Portland metropolitan area. Jim explained the concept of Metro's expanded recreation management role in the Sandy River gorge. He talked of the parks and other publicly owned natural areas along the river and how Metro could easily develop themselves as the agency which handled the recreation management aspect for these areas.

Jim Walsh and Tim Richard explained, with the aid of a slide presentation and a graphic handout, the conceptual plan which had been developed for the park. They discussed the concept and how it would shape the park. They explained the various use areas, their functions and the concept of getting people out of their cars as soon as possible after entering the park. They discussed:

- the entry/arrival sequence and improvements
- the park staff office and service facility improvements
- the Environmental Education opportunities and facilities
- the ancient forest
- the Day Use areas
- parking facilities and the relocation of the road and the reasons supporting these decisions
- expanding and improving the existing campground areas
- river access for boaters and water play

Jim finished the presentation by talking about the east side and the need for a more effective management practice in this area.

Discussion - Jim Walsh

Following the slide presentation, Jim opened the meeting for discussion. He fielded questions, from the attendees, relating to the park, its proposed improvements and the role of Metro in this region (See attached Questions & Answers).

OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

Community Meeting No. 1

Questions & Answers

- 1.) Question: What improvements are being proposed for the East side?
Answer: Very minimal; day use river access at Buck Creek and rustic trails.
- 2.) Question: What will be the size of the orientation signage area at the Hosner Road & SE Oxbow Parkway intersection?
Answer: Minor pull-off from main road for 2-3 cars, with appropriate signage. Improvements would also include an area to turn-around.
- 3.) Question: Could you describe what is intended when you say bridge or ferry?
Are you aware of any safety issues which could result from these improvements, i.e. unlimited access to the park?
Answer: The bridge or ferry would be another way for park maintenance and park users to access the north side of the park without having to drive 40 minutes one way. Pedestrian access from the north could increase the potential of inappropriate use within the park. In addition, we are aware that the ferry presents an additional set of liability and special operational considerations.
- 4.) Question: Will the expanded campsite proposal in fact reduce the size of the existing campsite area?
Answer: We are assuming the overall total number of camp areas will increase and this will require a slightly larger area. However, within the existing camp ground, we may remove some crowded camps.
- 5.) Question: Although the idea of a ferry is intriguing, what are the liability ramifications of such an improvement?
Answer: The design team has been advised that the concept of a ferry has a substantial number of legal requirements and liability which may make this concept unfeasible.
- 6.) Question: Wouldn't the construction costs be reduced if the Environmental Education area were located near the entry area?
Answer: Not significantly.
- 7.) Question: What is the potential for utilizing the East side as an equestrian area?
Answer: This would require significant improvements for parking and trails.
- 8.) Question: What will happen to the existing trail systems on the East and West sides?
Answer: The intention is to retain trails with appropriate upgrades (i.e. erosion control, surfacing, etc.)
- 9.) Question: Have you addressed the need for individual day use areas for those less fortunate, who can not afford the larger group site shelters and accommodations?
Answer: Yes, improvements to the area near the boat ramp and Area D will be for more individual day use.
- 10.) Question: What are the costs for these proposed improvements?
Answer: This issue will be addressed at the next design refinement level.
- 11.) Question: Will the group camping parking area be retained?
Answer: It will be relocated.

- 12.) Question: What number of restroom facilities are you proposing and will this number accommodate the demands on peak days?
Answer: The number of restrooms have not been determined at this time.
- 13.) Question: What will be the design/appearance of the restroom facilities?
Answer: The initial ideas are that the overall park look will be 'rustic lodge'. Preliminary designs will be prepared for the next community meeting.
- 14.) Question: Will the restroom/shower facilities be coin operated or will there be a fee?
Answer: Have not determined if fees are appropriate at this time.
- 15.) Question: What are you proposing for the overnight structures?
Answer: Initial thoughts are to utilize yurt structures similar to those used in State parks or rustic cabins.
- 16.) Question: What will happen to the existing boat ramp?
Answer: It will remain in place with improvements.
- 17.) Question: Has there been any consideration for implementing any restroom facilities along the Sandy River Corridor, below Oxbow Park and above Dabney Park?
Answer: Not at this time.
- 18.) Question: Could we possibly offer a second hardened access point, where river rafters could pull out and utilize a loop system within the park?
Answer: Interesting idea; we can look at the feasibility.
- 19.) Question: Has Metro developed a way in which community support and volunteerism can be better utilized and more efficient?
Answer: Metro has and will continue to work with volunteers and community groups.
- 20.) Question: What number of group structures/shelters are there currently and what number are you proposing?
Answer: Four (4) current; approximately six (6) in the future.
- 21.) Question: Is a bridge and its appearance appropriate for the wild and scenic Sandy River?
Answer: Technically yes, Oxbow Park is in the recreational portion of the Wild and Scenic River but it is an obvious concern and is potentially the wrong message for Metro to be a part of.
- 22.) Question: What will keep this park alive?
Answer: Current use is 180,000 annually with approximately 60% visiting the park more than once and 16% visiting the park more than 10 times per year. The user numbers and demand is increasing.
- 23.) Question: What improvements are proposed for the entrance to Holman Road?
Answer: None are anticipated at this time.
- 24.) Question: Are there improvements slated for the environmental education programs?
Answer: Yes, an environmental education building (i.e. class room, labs, storage, etc.) is proposed.
- 25.) Question: What does the Environmental Education facility look like? What is it's size? What sort of things will go on there? Where will it be located?
Answer: The size of the facility has not been determined but the structure should accommodate app. 60 children. The program will be focused on outdoor education with an emphasis on the 'Old Growth' and the Sandy River. Several Areas are being considered: the Dismal Swamp, Shelter Area A, or the Entry Area.

26.)Question: If parking is removed from the roadside edge through the 'Old Growth' area, haven't the elderly and disabled been severely limited in their enjoyment of this area?

Answer: Nice observation, we will reconsider the location of available parking.

27.)Question: Will the placement of the Interpretive Area at the entrance conflict with YMCA Camp Collins and the existing wildlife corridor?

Answer: The proposed location is just East of the existing park supervisor's home and only minor conflicts are anticipated.

28.)Question: Is a loop trail on the East side cost effective? This area was improved by SEDA years ago and it wasn't utilized, what's to say it will work this time?

Answer: Maintenance is an issue and you are correct that no improvements should be made unless commitments for long term maintenance are available.

29.)Question: Has there been an analysis of the traffic problems which occur at the intersection of Hosner Road and SE Oxbow Parkway?

Answer: No, but based on tonight's comments we can address this problem.

30.)Question: Has there been any consideration for buying portions of the property to the west of the intersection and removing the existing Arborvitae hedge?

Answer: No.

31.)Question: Has there been any consideration for changing the equestrian trail system accessed at Holman Road? Have any alternative locations been looked at?

Answer: No. Metro intends to keep the existing equestrian trails where they are.

32.)Question: Has any analysis been done on the existing road and it's condition into the park?

Answer: Yes, geotechnical engineer feels areas are not in imminent danger but some corrective measures should be taken.

33.)Question: Where will the monies come from to fund the park improvements?

Answer: As part of Metro's Parks and Open Spaces Bond passage, approximately 1.5 million was established for renovation of Oxbow Park.

34.)Question: What is being done about pets being brought into the park and is there any measure being considered to control this?

Answer: Rangers control this situation when they are aware of a violation.

35.)Question: Is it wise to encourage use at the access point to the river near Buck Creek?

Answer: The proposed approach is to limit use by allowing a small parking lot and then continuing to ticket and tow cars parked along the road.

36.)Question: Are there any improvements slated for the Elk Meadow?

Answer: The only improvements mentioned to date would be vegetation control (i.e. noxious and exotic plant species).

37.)Question: What improvements will be done to the existing water system? Is there a need to have the water pump house located in the 'Old Growth'?

Answer: The civil engineer is working on improvements to the existing water system and it is likely that the existing pump house would be removed or altered.

38.)What is the timeline for the proposed improvements?

Answer: The current time line is to complete the master plan in January of 1997. Design and construction documents for improvements could be made in the early part of 1997; with actual construction of improvements beginning in late 1997 or early 1998.

OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

Community Meeting No. 1

Evaluation Form

1.) Should METRO expand its involvement in the Sandy River Gorge?

_____ Yes

_____ No

If yes, what in your judgement is the appropriate role METRO should play?

Comment:

2.) ENHANCED EXISTING PARK

Please evaluate the overall concept plan and the various use areas:

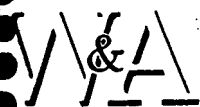
Overall Rating: 1 2 3 4 5 6 7 8 9 10
(circle one) Below Average Excellent
Average

A.) What features do you like?

Comment:

B.) Are there changes you would suggest?

Comment:



**J. D. Walsh
&
Associates,
P. S.**

Landscape Architecture

Land Planning

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2.) **PARK FEATURES:**

Please evaluate the overall concept plan and the various use areas:

A.) What features of the Arrival & Orientation Area do you like/dislike?

Are there other uses which you feel this area could serve?

Comment:

B.) Do you feel that a bridge or ferry is appropriate at Oxbow Park? Are there other means for crossing the river that are more appropriate?

Comment:

C.) Do you feel that Day Use in this area should be increased/decreased? Should additional shelters be constructed? Do you feel that a relocation of the road in the day use area would improve the park?

Comment:

D.) Do you feel that the old growth area is one of significant importance both recreationally and ecologically? Should this area be addressed in a manner appropriate to this significant stature, i.e. removal of parking and picnic areas, replanting road edges, special surfacing to the road, speed bumps, accessible trail improvements, new trails, etc.?

Comment:

Comment:

Comment:

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**J. D. Walsh
&
Associates,
P. S.**

Landscape Architecture

Land Planning

OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

Community Meeting No. 1

Evaluation Form-Results

8-Responses

- 1.) Should METRO expand its involvement in the Sandy River Gorge?

Yes - 4

No - 1

If yes, what in your judgement is the appropriate role METRO should play?

- Help plan usage and help draw money to help improve park (2)
- Help protect steep slopes, river cliffs, and wildlife corridors (1)
- Promote trail opportunities (1)
- Help to acquire additional greenspace adjacent park (1)

- 2.) **ENHANCED EXISTING PARK**

Please evaluate the overall concept plan and the various use areas:

Overall Rating	1	2	3	4	5	6	7	8	9	10
(circle one)	Below			Average				Excellent		
	Average									

4 - (1)

5 - (1)

6 - (1)

7 - (2)

8 - (1)

A.) What features do you like?

- New restrooms (1)
- Environmental Education Facilities (2)
- Improving overnight campsites (2)
- Arrival & Orientation Area (1)
- Old Growth Isolation from Concentrated Use (1)
- Improved circulation patterns (1)
- Increase in number of sheltered picnic areas (1)

B.) Are there changes you would suggest?

- Develop east side for equestrian use (1)
- Analyze traffic problem at Homan Rd. & Oxbow Parkway (1)
- Install boat ramp at the East side (1)
- Need to install more restrooms (1)
- Improve equestrian entry to the park at Homan Rd. (2)
- Improved equestrian trails (1)
- Install telephone at the campground (1)
- Install ice machine at the campground (1)

- 2.) **PARK FEATURES:**

Please evaluate the overall concept plan and the various use areas:

A.) What features of the Arrival & Orientation Area do you like/dislike?

Are there other uses which you feel this area could serve?

- Gathering place for volunteer work parties (1)
- Public and staff restroom facilities at entrance (1)
- Provide information for equestrian users (1)
- Locate Environmental Education facilities here (1)

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B.) Do you feel that a bridge or ferry is appropriate at Oxbow Park? Are there other means for crossing the river that are more appropriate?

Yes - 1

No - 6

- Degrades scenic qualities (3)
- Install bridge above flood plain (1)
- Too expensive, money better spent elsewhere (2)
- Safety concerns (2)

C.) Do you feel that Day Use in this area should be increased/decreased? Should additional shelters be constructed? Do you feel that a relocation of the road in the day use area would improve the park?

- Use levels will be increased and planning should facilitate this increase (4)
- Parking offered in designated parking lots will improve safety (3)
- Additional structures should be offered (2)
- Road should be moved closer to the river (1)
- Day use numbers should be limited (1)

D.) Do you feel that the old growth area is one of significant importance both recreationally and ecologically? Should this area be addressed in a manner appropriate to this significant stature, i.e. removal of parking and picnic areas, replanting road edges, special surfacing to the road, speed bumps, accessible trail improvements, new trails, etc.?

- Parking should be maintained in the 'Ancient Forest' for handicapped and elderly (3)
- Remove the parking areas but maintain picnic areas (2)
- Trail improvements needed (1)
- Old growth area is significant (4)

E.) Which location do you feel would best serve the Environmental Education Area?

What functions would you like to see this area serve?

- At current pump house location (1)
- At Group Picnic Area D (1)

F.) Do you feel that there is a need to increase the number of campsites? Should improved restrooms and shower facilities be installed? Would you use an overnight structure, i.e. yurt, tepee, etc.?

- Increase campsite numbers (3)
- Maintain or decrease campsite numbers (2)
- Create overnight camps on east side for equestrian use (1)
- Install shower facilities and improved restrooms (2)
- Install overnight structures (3)
- Do not install overnight structures (1)

G.) Additional Comments:

- Need to install signage on Sandy River re: Private vs. Public Lands and trespassing (1)
- Offer composting toilets at equestrian trail head (1)
- Offer interpretive signage at the Elk Meadow (1)
- Improve equestrian parking facilities at Homan Rd. (2)
- Improve equestrian trails (1)
- Eliminate reservations at campsites; utilize 'First come, first serve' basis (1)
- Offer more group campsites (1)
- Eliminate bikes from the equestrian trails (2)
- Offer manure disposal opportunity to alleviate equestrian/private owner conflicts (1)
- Utilize private concessionaire to manage a boat ramp on East side (1)

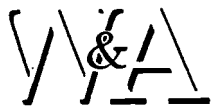
OXBOW PARK MASTER PLAN STUDY

Project Advisory Committee Meeting # 2

Date: October 30, 1996
Time: 9:00 - 12:00 noon
Location: Camp Collins, West Meeting Hall (same location as 1st PAC meeting)

AGENDA

		Time
<u>Welcome</u>	Jane Hart	9:00
<u>Review Planning Process</u>	Jim Walsh	9:05
<u>Review Public Meeting Questionnaire Results</u>	Jim Walsh	9:15
<u>Presentation of Refined Master Plan Design</u> to be presented at November 6th public meeting.	T. Richard/ D. Apostol/ J. Walsh	9:25
Break <i>Refreshments provided</i>		10:15 - 10:30
<u>PAC Discussion</u> of refined master plan design to be presented at November 6th public meeting.	PAC	10:30
<u>Future PAC meeting(s)</u>	Jane Hart	11:55



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Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Project Advisory Committee
Meeting #2

Date: October 30, 1996 (see attached agenda)

Present: Jane Hart / Metro
Pat Lee / Metro
Jim Walsh / Consultant
Rod Wojtanik / Consultant
Tim Richard / Consultant
Patrick Tanner / Consultant
Jerry Draggoo / Consultant
PAC Members-
Glenyce Densem
Ernie Drapela
Nick Galash
Paul Box
Keith Jensen
Byron Ball
Jeff Beals

Welcome / Introductions - Jane Hart

Each member introduced themselves and noted their interest in the master planning process.

Explanation of Materials - Jim Walsh

Jim and the consultant team presented the proposed plan they intended to present to the public. Each of the specific use areas was discussed and the supporting graphics presented. The Project Advisory Committee tended to support the proposed design but raised the following questions:

- What sports areas are proposed for the park and should we consider eliminating some of the more organized play opportunities, i.e. baseball, etc.?
- How will the environmental education area be buffered if it is erected in its proposed location?
- Could the Group Picnic Area C be used for the environmental education center?
- Is an environmental education center a facility that is needed at the park? If so, is the approach for the facility satisfactory?
- What improvements or issues are proposed for the East side?

Discussion - Jerry Draggoo

Jerry was called upon to explain several issues which needed to be decided upon so he could proceed with his revenue generation study. (See attached materials) The issues and the PAC comments which followed were:

- Firewood
Currently, firewood is offered for sale to campers. The Park staff acquires the wood and sells it as part of the service to the visitors. It is estimated

that when personnel costs are counted, the firewood service basically breaks even. Added to this issue is the fact that this service takes time away from other maintenance duties. There are several ways in which camp firewood could be made available.

PAC Comments:

- Campers need it, we just need to determine who sells it

- Camp Hosts

Many parks that offer camping have a camp host. This is a person who answers routine questions and watches over the facility. They usually provide their own RV unit and are located near the entrance of the camping area. Most often they are retired couples who are looking for a place to stay for the summer.

Their duties can vary depending upon the needs. It is recommended that a camp host be located in the camping area.

PAC Comments:

- There needs to be a determination of their responsibilities
- There is a need to provide basic services to attract a good, quality host
- The idea was favorable by the PAC

- Fees for Showers

The offering of showers in the restrooms will be a new service offered at the Park. There will be considerable costs associated with this service both in terms of water heating and cleanup. There does not seem to be an accepted approach for recovering this cost. Oregon State Parks indirectly collects it through the entrance fee. Some county parks and many marinas utilize a coin operation. One advantage of the coin operation is that it helps to reduce the amount of hot water used. Also, a lower entrance fee can then be charged and only the user pays for this service.

PAC Comments:

- Water and energy conservation support coin operation
- The idea was favorable by the PAC

- Garbage Pick Up

Garbage pickup has become a major time consuming activity. As the park expands, this will become an even more time consuming activity. The options available depend upon the amount of convenience desired to offer visitors vs. the labor cost associated with the task.

PAC Comments:

- Should the park utilize dumpsters vs. individual garbage cans
- More garbage cans would possibly mean less garbage
- Garbage cans are less dominant in the landscape as opposed to dumpsters
- More cans mean more visual interruptions in the landscape
- Issue garbage bags at entrance and have user dump garbage at entrance as they leave
- There was no clear consensus on this issue amongst the PAC members

- Collection of Camping Fees

At the present time, a camp ranger drives to each camp site to collect the camping fee. It is estimated that about four hours are needed to complete

this task. While it is a nice way to interact with the camping public, it does take staff time. If the same approach is used in the future, this time requirement will be even greater due to the potential addition of camp sites.

PAC Comments:

- Fee collection is a time intensive job (4-6 hrs every Friday and Saturday night)
- Fee collection could be provided by the camp host
- Queuing problems would be created if fees were collected at the entrance
- There could possibly be problems with the large amounts of cash
- No clear consensus on this issue amongst the PAC members

- **Provisions for a store**

If the user base becomes large enough, it will support a small store that would offer convenience items. The problem with this type of service is that labor cost could easily exceed the amount of revenue produced. One advantage of the store, however, is that it would reduce the amount of outside trips. While we recommend the presence of a small store, the real issue is how it will be managed. It is possible to have a 'portable' store that is mobile and leaves the park during the off-season.

PAC Comments:

- Mixed feelings about this idea
 - + A store is more convenient and requires less trips by park users
 - If delivery trucks are required it would detract from the park's character
- No clear consensus on this issue amongst the PAC members

Discussion - Patrick Tanner

Patrick was called upon to explain several issues (see attached Memo) dealing with water source from YMCA Camp Collins, irrigation water, and fire protection.

Closing Comments - Jim Walsh

Jim discussed that this material was going to be presented to the community and that the PAC would likely reconvene in late November to further discuss the master plan draft.

ISSUE NO. 1 FIREWOOD

Background:

Currently, firewood is offered for sale to campers. The Park staff acquires the wood and sells it as part of the service to the visitors. It is estimated that when personnel costs are counted, the firewood service basically breaks even. Added to this issue is the fact that this service takes away time from other maintenance duties. There are several ways in which camp firewood could be made available. Some of these are described below.

Options:

1. Continue as in the past.
2. Turn the entire operation over to a non-profit organization who would secure the wood and sell it. A wood shed would be constructed in the camping area by Metro and used by this organization.
3. Turn the operation over to a concessionaire who would run this operation plus a small store. (see also camp store)
4. Allow a camp host to acquire and sell the wood. (see also camp host).
5. Do not sell firewood

DRAFT

Recommendation:

Either option #2 or #3 is recommended. A concessionaire is favored if it can become a profitable operation.

ISSUE NO. 2 CAMP HOST

Background:

Many parks that offer camping facilities have a camp host. This is a person who answers routine questions and watches over the facility. They usually provide their own RV unit and are located near the entrance of the camping area. Most often they are retired couples who are looking for a place to stay for the summer.

Their duties can vary depending upon the needs. It is recommended that a camp host be located in the camping area. The options related to their responsibility are listed below.

Options:

1. Provide no camp host.
2. Provide a camp host who would live on the site during the 3-4 prime summer months. Their prime responsibility would be to answer questions and to call a park ranger if a problem arises.
3. Same as option #2 except their responsibility could include one or more of the following duties.
 - Sell firewood
 - Collect camping fees
 - Control disturbances
 - Operate the store
4. Have a park staff person act as the camp host and be responsible for one or more of the duties described above.

DRAFT

Recommendation:

Provide a camp host location whose duties are described in option #2 above.

ISSUE NO. 3 FEES FOR SHOWERS

Background:

The offering of showers in the restrooms will be a new service offered at the Park. There will be considerable costs associated with this service both in terms of water heating and cleanup. There does not seem to be an accepted approach for recovering this cost. Oregon State Parks indirectly collects it through the entrance fee. Some county parks and many marinas utilize a coin operation. One advantage of the coin operation is that it helps to reduce the amount of hot water used. Also, a lower entrance fee can then be charged and only the user pays for this service.

Options:

1. Use a coin operation for shower use
2. Do not charge directly for the use of the showers and instead increase the camping fee.

DRAFT

Recommendation:

Use the coin operation. This will reduce the camping fee and help conserve water use and energy.

ISSUE NO. 4 GARBAGE PICKUP

Background:

Garbage pickup has become a major time consuming activity. As the park expands, this will become an even more time consuming activity. The options available to you depend upon the amount of convenience you want to offer to your visitors vs. the labor cost associated with the task.

Options:

1. Continue as in the past using the small garbage cans distributed conveniently in every public space..
2. Go to the large dumpster operation. They would be located throughout the Park but not near as conveniently located as in Option #1. The pickup would be handled by a commercial hauler. Some recycling bins would also be made available.

DRAFT

Recommendation:

Go to a dumpster operation

ISSUE NO. 5

COLLECTION OF CAMPING FEES

Background:

At the present time, a camp ranger drives to each camp site to collect the camping fee. It is estimated that about four hours are needed to complete this task. While it is a nice way to interact with the camping public, it does take staff time. If the same approach is used in the future, this time requirement will be even greater due to the additional camp sites.

Options:

1. Continue as in the past.
2. Collect the camping fee at the park entrance. They would be issued a sticker that would be placed inside the windshield of the vehicle. If the camper decides to stay another day, the Park Ranger would collect the fee.
3. Have the camp host collect the fee.

DRAFT

Recommendation:

Collect the fee at the entrance.

ISSUE NO. 6

PROVISION OF A STORE

Background:

If the user base becomes large enough, it will support a small store that would offer convenience items. The problem with this type of service is that labor cost could easily exceed the amount of revenue produced. One advantage of the store, however, is that it would reduce the amount of outside trips. While we recommend the development of a small store, the real issue is how it will be managed.

Options:

1. Have Park staff manage it
2. Have a non-profit group manage it and the firewood.
3. Have the camp host manage it.
4. Turn the store and the firewood sales over to a concessionaire.

DRAFT

Recommendation:

Try for Option #4 if a concessionaire can be found. If not, go to option #2.

COMMUNITY WORKSHOP TO REFINE THE OXBOW PARK MASTER PLAN

What:

A community workshop to view detailed designs in the works for the Oxbow Park Master Plan. Come to the meeting to help refine proposed facility and program improvements for Oxbow Park. The master plan is being finalized and now's the time to tell us what you think.

When:

Wednesday, November 6, 7:00 to 9:00 PM

Where:

Gresham Civic Center Complex
Gresham City Hall
1333 NW Eastman Parkway
Gresham, OR

Meeting will be held on the first floor in the adjoining rooms called Oregon Trail and Springwater Trail Corridor.

For more information call Jane Hart at Metro 797-1585.

Refreshments will be served.



METRO

OXBOW PARK MASTER PLAN STUDY

COMMUNITY MEETING No. 2

AGENDA

Date: November 6, 1996
Time: 7:00 PM - 9:00 PM
Location: Gresham City Hall
Oregon Trail/Springwater Trail Corridor
1331 N.W. Eastman Parkway

		<u>Time</u>
I. <u>Welcome</u>	Jane Hart	7:00 PM
II. <u>Work Effort to Date</u>	Jane Hart	7:10 PM
III. <u>Proposed Master Plan</u> <u>Slide Presentation</u>	Jim Walsh/ Tim Richard	7:20 PM
IV. <u>Discussion</u>	Consultants/ Metro Staff	8:00 PM
V. <u>Closing Comments</u>	Jane Hart	8:55 PM

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Community Meeting #2

Date: November 6, 1996 (see attached agenda)

Present: Jane Hart / Metro
Jim Walsh / Consultant
Rod Wojtanik / Consultant
Tim Richard / Consultant
Community Members (app. 40)

Welcome / Introductions - Jane Hart

Jane welcomed everyone and introduced the Project Advisory Committee members.

Study Process/Work to Date - Jane Hart

Jane explained Metro's Parks Department role of protecting and managing regionally significant natural areas and how master plans are used to guide improvements that enhance natural areas and parks. She discussed the status and next steps in the Oxbow Park master planning process.

The consultant team conducted two brainstorming sessions early in the planning process to identify the underlying design concepts for the master plan. Two broad themes surfaced from the brainstorming sessions:

- 1.) a policy recommendation that Metro consider a larger role in delivering recreational services throughout the Wild and Scenic Area of the Sandy River Gorge and
- 2.) that the Master Plan focus on enhancing the existing park while maintaining it's natural and unique character.

Metro's Expanded Recreation Role - Jane Hart

Jane reviewed the reasoning behind the consultant's recommendation that Metro explore an expanded role in delivering recreational services in the Sandy River Gorge and gave examples of the types of services Metro could provide.

The Sandy River Wild and Scenic Management Plan calls out three points for public access within the Wild and Scenic section of the Gorge: Dodge Park; Oxbow Park; and Dabney Park. Oxbow Park is the central and largest portal with full time staff. All three parks operate independently of each other; each has it's own regulations and fees and no effort is made to coordinate operations. The system does not serve the best interests of the public.

The consultants have recommended that Metro formally approach the agencies involved to discuss Metro's role in delivery of seamless recreational services in the Gorge. Topics to bring to the table include long range planning and recreational facility development, safety and security, and standard operations and maintenance policies.

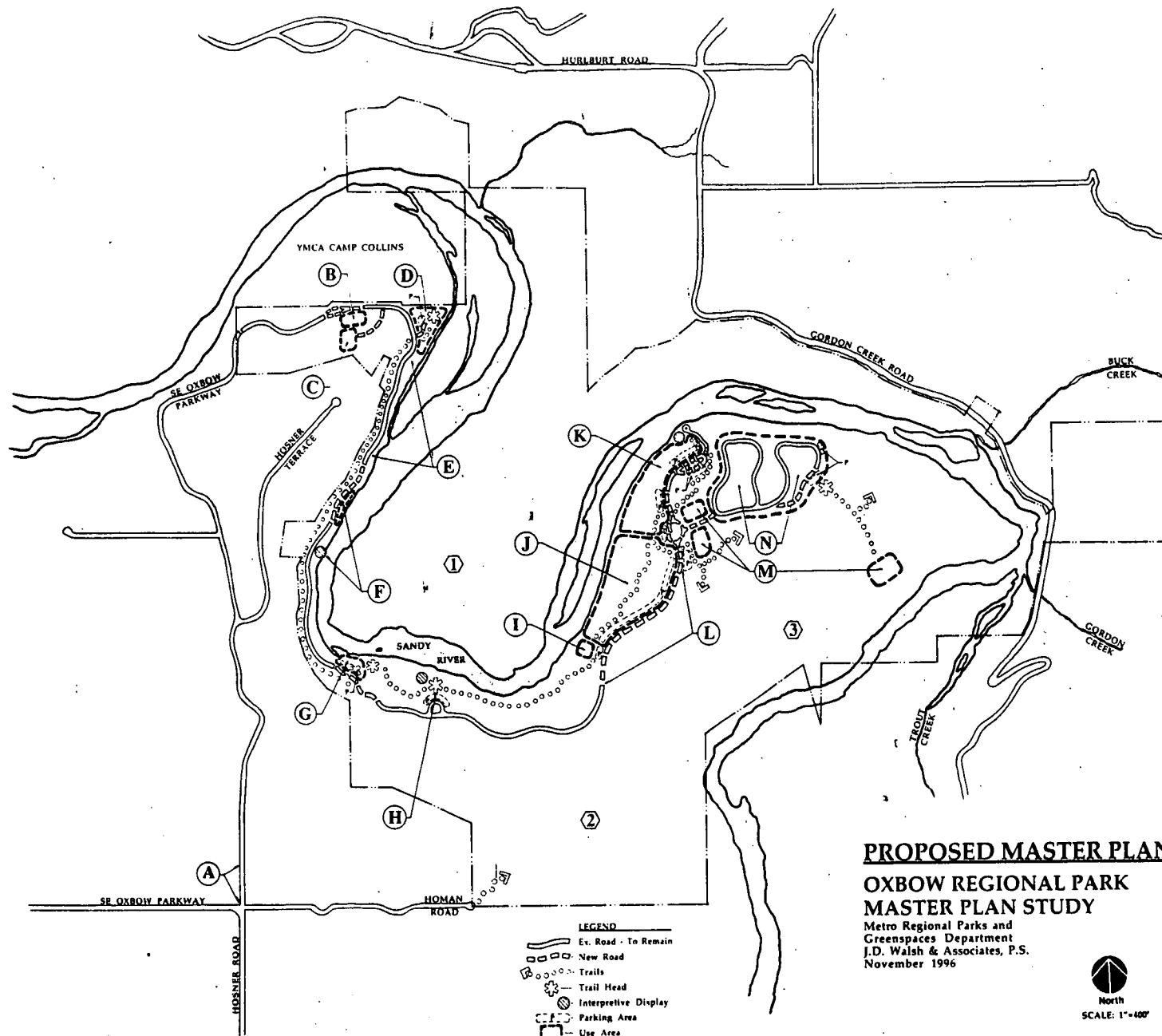
Background Information - Jim Walsh & Tim Richard

Jim Walsh and Tim Richard explained, with the aid of a slide presentation and a graphic handout, the proposed master plan which had been developed for the park. They discussed the original concept brought forth at the first community meeting and the refinement of this concept into design ideas. They explained the various use areas, the improvements proposed for each and their function. They discussed.

- the intersection of Oxbow Parkway and Hosner Road
 - the East side and the need for more study of this area
 - the entry/arrival sequence and improvements
 - the park staff office and service facility improvements
 - the Environmental Education opportunities and facilities
 - the ancient forest
 - the Day Use areas
-
- parking facilities
 - expanding and improving the existing campground areas
 - the concept of a concessionaire
 - river access for all-abilities fishing, boating and water play

Discussion - Jim Walsh

Following the slide presentation, Jim opened the meeting for discussion. He and Tim fielded questions, from the attendees, relating to the park, its proposed improvements and the role of Metro in this region. (See attached Community Meeting No.2 - Questions & Answers).



OXBOW REGIONAL PARK MASTER PLAN STUDY

METRO Regional Parks & Greenspaces Dept.

Community Meeting No. 2

Questions & Answers

1.) Question: What improvements are being proposed for the trails?

Answer: The trails will be addressed in the Master Plan. The intent is to improve the trails with appropriate upgrades (i.e. erosion control, surfacing, etc.)

2.) Question: Are the improvements being proposed for the trails on the East side?

Answer: Yes, there are improvements being considered but to what extent is not known at this time.

3.) Question: What are the numbers for current use vs. projected use?

Answer: Current use numbers are 250,000 people per year in the park and 1,000 cars per day in the park during peak periods. The numbers for projected use are still being generated. If this park is like the State of Oregon, the numbers of users will increase as the population increases. The capacity for use is based on the parking numbers and we have accommodated an increase of approximately 11%.

4.) Question: With the introduction of the environmental education area and yurts will the character of the park change?

Answer: The feel will undoubtedly be different because much of the existing parking along the road will be relocated and concentrated into parking areas. The environmental education facility is sited so that it will be relatively hidden from view as you enter the day use area.

5.) Question: What will the character of the turn-around area (see Area L on attached Map) be like? Will it be lighted?

Answer: We are striving to achieve a rural quality to this area. We have avoided the true urban round-about and so there will be no lighting of this area.

6.) Question: What exactly is your definition of a concessionaire?

Answer: A concessionaire could conceivably be a private enterprise which could provide services within the park. This private group could do as little as distributing firewood to as much as running the campground.

7.) Question: How will the public be able to comment on this proposed master plan?

Answer: The public will be able to attend public hearings and comment on the written draft which will be available for their review.

8.) Question: What are the current campground use numbers and how often is the campground at peak demand?

Answer: Currently the campground is full every Friday and Saturday night during the summer. There is a need for increased sites. We must, however, weigh increasing site numbers against the numbers for which the area will support.

9.) Question: With these modifications will we sacrifice the essence of Oxbow and compromise its 'jewel' like atmosphere?

Answer: Oxbow is largest of the three portals to the Wild and Scenic Sandy River Gorge and with the increase in population of the Portland metropolitan area we must plan for increases in use of the park. We are not suggesting improvements which would degrade Oxbow in anyway. We have proposed improvements which will utilize the existing use areas more efficiently - with only a 5-1/2% overall increase.

- 10.) Question: How much revenue is really going to be generated by these improvements?
Answer: The improvements will generate some additional revenue but the costs of the improvements are not exponential because the major infrastructure items are already there.
- 11.) Question: Is the turning away of visitors also a problem at Dodge and Dabney Parks?
Answer: We do not have that information currently but if Metro were to expand there role in the Sandy River Gorge the visitor which might be turned away at one park could be relocated at another.
- 12.) Question: With the improvements which are being proposed are we attracting more people than we really want in the group use areas ?
Answer: It is not the entention of Metro to attract the large company picnic groups at Oxbow Park. The relative number of group picnic facilities is yet to be determined.
- 13.) Question: Is anything being done to control access and the littering problem at the East side?
Answer: The master plan will reccomend limiting use of the East side.
- 14.) Question: What is the timeline for the master plan study?
Answer: A draft of the proposed master plan is intended to be prepared by the end of January to the first part of February.
- 15.) Question: When will the cost estimates for the improvements and the trail network design be available?
Answer: We intend on having these items identified in the draft master plan which will be available for public review.
- 16.) Question: What is the history of Dodge and Dabney Park and are they receptive to the idea of the expansion of Metro's role in the Gorge?
Answer: We haven't looked into their history and we don't know of their intentions yet.
- 17.) Question: Who is looking into the concessionaire issue and how can the public comment on this concept?
Answer: Jerry Draggoo, our recreation planning consultant, is looking into this issue. The public can comment on this concept during the written public comment period and at public hearings.
- 18.) Question: What is being done with the materials which are being provided by the sub-consultants and is it available to the public?
Answer: Walsh and Associates is gathering all the information created by the sub-consultants and editing this information and inputing it into the master plan report. Materials must be requested through Metro.
- 19.) Question: What issues are being proposed in the Master Plan for Homan Road and the equestrian access?
Answer: Some ideas that are being considered are widening of Homan Road at the equestrian parking area and providing a space for 4 to 6 trailers. Multnomah County could install signage for alternate trail locations, parking restrictions, private property access restrictions and trail etiquette.
- 20.) Question: Will the access point off Homan Road be improved?
Answer: The access point off Homan Road will be preserved, with only equestrian parking being improved.

- 21.)Question: Will the aesthetics of the environmental education facility detract from the quality of the experience of Oxbow?
Answer: We have nothing but the best intentions for the environmental education facility utilizing only quality materials for the construction of this facility. We will be providing a list of materials for use in the Master Plan report.
- 22.)Question: Does Oxbow Park restrict the number of users now?
Answer: No, but there are instances where visitors will return to the entry booth and say that there are no available parking spaces which means the park is full.
- 23.)Question: Is the environmental education facility going to be for rent to the public?
Answer: Possibly.
- 24.)Question: What is the location of the restroom facilities?
Answer: The exact location has not been staked out in the field but the restrooms will be situated so that they provide for such a facility within the distances recommended by the ROS (Recreation Opportunity Spectrum) published by the USDA Forest Service.
- 25.)Question: Will bicycles be planned for in the proposed master plan?
Answer: The trail system proposed for Oxbow Park does not warrant use by bicyclists but their current level of use will not be deterred.
- 26.)Question: What is proposed for the Group Picnic Area 'C'?
Answer: This area will remain as a group picnic area. The shelter will be replaced with a upgraded facility structure.
- 27.)Question: Will the proposed shelters be supplied with electricity?
Answer: Some of them will.
- 28.)Question: Will the natural resource be affected by the introduction of leach fields and septic systems if flush toilets are introduced?
Answer: Engineers have looked into this issue and feel that the sandy soils of the Sandy River basin can accommodate this use without damaging the resource.
- 29.)Question: Has the consultant team looked into composting toilets?
Answer: Yes, but there are problems with the use of composting toilets. They have limited life spans and require considerable maintenance for them to work properly. Those who have installed them in the past for this type of use have been disappointed with the performance of the composting toilet.
- 30.)Question: Is rental of the environmental education facility a good idea? Will public use of this facility be hindered by the use of paying groups?
Answer: Metro feels that this is a major facility with a major expense and this could be a source of revenue generation. Currently there is already revenue generation from education programs delivered at the park.
- 31.)Question: What are the reasons for positioning the environmental education facility near the 'old growth' area and not at Group Picnic Area 'C'?
Answer: The location has been determined through the use of an evaluation matrix and it is proposed to be located at the edge of the 'old growth' in the current picnic Shelter A parking lot. If the facility were located at Group Picnic Area 'C' this would split the proposed use area in two quadrants and place the EE Area in a very active area of the park, making access more difficult. The facility would also be roughly 500 feet from a hardened parking area.

**METRO**

TO: Project Advisory Committee
FROM: Jane Hart, Project Manager, JH
SUBJECT: April 1 Project Advisory Committee Meeting
DATE: March 10, 1997

Enclosed please find:

1. Internal working draft of the Oxbow Regional Park Master Plan
2. February 11, 1997 Memo from Metro to Project Consultant
3. March 7, 1997 Memo from Metro to PAC

This enclosed information will be the subject of discussion at our next Project Advisory Committee meeting. The PAC meeting will be held on **Tuesday April 1, in the West Meeting Hall at Camp Collins from 8:30 am to 11:30 am.** Breakfast refreshments compliments of Camp Collins.

Agenda

8:30	Welcome	Metro
8:30 - 8:40	Progress to Date	Walsh & Assoc.
8:40 - 9:00	Review Refinement of Metro Recommendations	Metro
9:00 - 9:50	PAC Discussion	
9:50 - 10:00	Break	
10:00 - 11:25	Formulate PAC recommendation to forward to Metro Review Committees for their consideration.	
11:25	Next Steps	



**J. D. Walsh
&
Associates,
P. S.**

Landscape Architecture

Land Planning

Project: Oxbow Regional Park
Master Plan Study

Subject: Oxbow Regional Park
Project Advisory Committee
Meeting #3

Date: April 1, 1997 (see attached agenda)

Present: Jane Hart / Metro
Charlie Ciecko / Metro
Pat Lee / Metro
Jim Lind / Metro
Jim Walsh / Consultant
Rod Wojtanik / Consultant
Tim Richard / Consultant
PAC Members-
Ernie Drapela
Nick Galash
Paul Box
Keith Jensen
Dimitri Stankevich

Welcome - Jane Hart

Jane opened the meeting and explained that the purpose of the meeting was for the PAC members to express their input and concerns for the draft Master Plan.

Explanation of Consultant Expectations of Meeting - Jim Walsh

Jim stated that the consultant team was not there to present, but to listen. The concept of the draft Master Plan was in line with the what had come out of each of the Design Charettes, PAC and Community meetings. The concept was as previously described to the PAC and nothing should be dramatically changed.

PAC Discussion of Master Plan

The floor was open to a round table discussion and comment period. Questions and answers are as follows:

1. Have any of the issues or concerns presented by Metro, in their memo, been addressed by the consultant team yet?
 - No, we felt that we would bring the draft in its original form to the PAC and get their comments.
2. Where exactly will the entry booth be located?
 - The exact location has not been placed in the field but it would be located east of the service drive to the YMCA Camp Collins.
3. The Metro staff requests that all parking be removed from the 'Old Growth'.
 - The consultant team preserved parking in the 'Old Growth' because of public comments and concerns for universal accessibility to the inner areas of the ancient forest. Jim asked the Advisory Committee if they objected to removal of all parking in the 'Old Growth' and no one on the Advisory Committee objected.
4. If the pump house is to no longer be used, will it in fact be used for restrooms and/or shower facilities?
 - It is not the intent to use it as such at this point.

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5. There is an issue of concern for ADA accessibility at the Boat Ramp.
 - The consultant team has revised the original drawing which is presented in the draft to reflect what was discussed at a site visit conducted by Metro staff, a PAC member and a consultant team member.
6. The issue of parking and the number of proposed spaces need to be refined and more clearly explained for a better understanding of what is proposed.
 - The consultant team has proposed parking and parking numbers (+10%) at locations that have been previously approved by Metro staff and the PAC. Campground parking should be increased by 5 to facilitate the combined camp site numbers.
 - Metro stated that the total change in parking should be reduced to +1% to achieve the goal of maintaining existing peak capacity, and locating parking to more closely represent actual uses. The individual day use areas shall be reduced in their numbers as follows:
 - Picnic #1 from 22 to 15
 - Hosner from 45 to 30
 - Dismal from 50 to 45
 - Old Growth from 60 to 0

The Project Advisory Committee agreed to these reductions.
7. Is the individual day user getting 'squeezed' by offering 35 picnic tables for 307 parking spaces?
 - The 35 picnic tables would be for the individual day use area but the parking would support the individual day use area and the boat ramp.
8. Will the existing play facilities and the more organized play structures (i.e. backstops, volleyball nets, horseshoe pits) remain. Is this sort of activity what Oxbow Park wants? Are we gearing the park toward the best preservation of the resource or are we gearing the park toward the best user experience as you will have a trade off between the two?
 - Yes, the two existing play facilities will remain but may be relocated and the lawn areas have been located so that more organized play activities can be facilitated. There is, without a doubt, a compromise to be made between user experience and resource preservation. Metro staff feels that offering play structures is a way of allowing children to play constructively.
9. The Project Advisory Committee was of mixed opinion on the issue of location, appropriateness, and cost of the Environmental Education Facility.
 - The location was determined through evaluation criteria established by Metro staff and consultant team members. The Metro staff concluded that the location and function of the facility was of appropriate nature. The PAC needs to determine if this facility is appropriate but does not need to agree with Metro. It is true that additional time and effort will be required to answer all the questions about this facility before it will ever be constructed. This is only a Master Plan and these are only illustrative, guiding ideas. It is in agreement that the cost of such a facility is enormous. However, education of our youth is priceless.

The PAC voted 4 in favor to 1 against on the proposed location of the E.E. center. The PAC agreed unanimously, however, that during the final design the size and functions needed to be further reviewed.
10. There was a concern for clarification of picnic shelters and their size.
 - There is a new chart which will be put into the Master Plan which will help to clarify these issues. Along with the shelters, there will be group use areas which will also be for rent to facilitate much larger groups. All old shelters will be replaced with new shelters with a net gain of 2 shelters.
11. Metro staff recommends that the enclosed shelter facilitate groups of 100.
 - There are issues of size and program which need to be discussed. The

proposed location of the enclosed shelter was in the vicinity of the proposed Environmental Education Center. This location was in agreement that it made 'programmatic sense' as it could be used in conjunction with the activities of the Center.

12. Are there any monitoring methods of the impacts that the Environmental Education Center will have on the 'Old Growth'?
 - Currently, monitoring does take place for impacts to 'Old Growth' trails. There is disagreement as to whether the Center itself will have an impact on the 'Old Growth'. People impact the 'Old Growth' and by having the Center in this location adjacent education opportunities will help to make them aware of this fragile environment.
13. What is the status of the Yurts or overnight structures. A PAC member had a conversation with a State Park employee who expressed extreme favoritism for these structures.
 - It is in agreement that the State looks favorably upon these structures and that they will provide a source of revenue and year-round usage. Metro is of the opinion that these structures are worth looking at but many issues need to be resolved, i.e. housekeeping, etc. Currently, Metro can foresee implementing possibly two structures on a trial basis to determine their value to the park and the user.
14. There is a concern for a private concessionaire within the park and their interest for protection and preservation of the park.
 - Metro is of the opinion that due to the size and use of the park that a private concessionaire would take an interest in the park. Concessions, if implemented, would be reviewed and a strict contract would be enforced. The concept of an in-park store is being eliminated. Metro and PAC in agreement.
15. The issue of Camp Hosts needs to be reviewed as it is in a figure but not in the text.
 - Due to limited amenities at the Park, Oxbow has had little success with prior hosts. With increased amenities maybe the success and quality of host will change.
16. The issue of the East side and how it will be handled is still unsettled.
 - Metro has met with several of the neighbors on the East side and they have expressed an extreme displeasure with any improvements to the East side. Metro has agreed, as of June 1, 1997, the access drive into the park will be gated just past the existing residences drive. This gate will be unlocked during fishing season and there will be expanded signage to control access to this sensitive area. This gate will be installed on a trial basis and is all experimental at this stage. The East side will be virtually undeveloped with the exception of a renovated trail system. The focus of the improvements will be on the west side due to the existing infrastructure.
17. What improvements will be proposed for the equestrian area?
 - There will be an improved parking area with no further penetration into the park. Access to the East side will be preserved.
18. Will there be vehicular access maintained to Group Camp 'D'?
 - It is the intent of the Master Plan to eliminate public access to this area. If this situation proves to be unsatisfactory, public access and vehicular parking will be reinstated.
19. The price tag of \$8.7 million was shocking to some. They were under the impression that the whole cost for improvements would be \$1.5 million.
 - There was a misunderstanding. Metro has \$1.5 million in their coffers to begin the improvements. The Master Plan is an optimal development guideline and with this comes a large price tag. There is a great potential that not all elements of the Master Plan will be implemented. The

improvements will be phased with the electrical and water infrastructure probably in the first phase. Metro is looking at the phasing at this point and will take input from the Project Advisory Committee on phasing recommendations. Parks are not cheap; they are a public investment and this takes a public commitment.

Closing Comments - Jim Walsh and Metro

Both parties expressed extreme gratitude to the Project Advisory Committee for their involvement and their in-sight into the Oxbow Regional Park Master Plan Study.



Metro Regional Parks and Greenspaces Advisory Committee

Tuesday, May 6, 1997

6:30p.m. to 8:30p.m.

Oxbow Regional Park



The committee will tour Oxbow Park to review the proposed features of the draft Oxbow Regional Park Master Plan. A discussion of the plan elements will follow the tour at Camp Collins. The field trip is intended to give committee members an opportunity to see the proposed facility concepts in the context of the existing park. The committee will take citizen testimony and vote on the plan at the June 3 meeting.

Meet at the Oxbow Regional Park parking lot in front of the park office at 6:30PM

Call Ron Klein at 797-1774 to indicate your attendance or if you have questions.

**Metro Parks and Greenspaces Advisory Committee
May 6, 1997 Summary Meeting Minutes
5:30 p.m. to 8:30 p.m., Oxbow Regional Park**

Present: Bob Akers, Michael Reid, Seth Tane, Brian Scott, Faun Hosey, Katharine Diack, Charles Ciecko, Ron Klein, Jane Hart, Jim Walsh (consultant), Jim Lind, Mary Vogel

The purpose of the meeting was to provide an opportunity for committee members and citizens to tour Oxbow Regional Park and visit the areas proposed for changes as identified in the draft Oxbow Regional Park Master Plan. Jim Walsh and Jane Hart began the tour with an orientation of the park and an overview of the issues and challenges in the master planning process.

The master plan is intended to guide the future management and development of Oxbow Park. Plan highlights include: Metro should expand its role in the management of the Sandy River gorge; the natural habitat in the park (about 90% of area) will be maintained and enhanced; the recreational facilities (10% of the park) will not be expanded but made more efficient to increase capacity and meet the current and future needs of park visitors.

Implementation will be done in phases and include: adding 20 camp sites; expanding group picnic facilities by 20% (6 shelters); upgrade electric and water utilities; realign the road system and parking to improve safety and visitor experience; renovate park entrance to include a new ticket booth, office, restroom, the visitor orientation kiosk; environmental education building; automatic irrigation system for turf areas.

The tour featured visits to the new central parking area at Dismal, group picnic area A and the large drive-in group camping area to discuss proposed fundamental changes. The committee members discussed the plan at Camp Collins over a light dinner. The draft master plan will be mailed to committee members prior to their July meeting. In July the committee will take public testimony, deliberate and make a recommendation on the draft Oxbow Regional Park Master Plan.

As a parting committee member, Katharine Diack received a certificate of appreciation from Charles Ciecko for her service on the Regional Parks and Greenspaces Advisory Committee, 1995-97.

Meeting adjourned at 8:30 p.m.

**Next RPAGAC meeting on Tuesday, July 1, 1997, Metro Regional Center,
Room 270**

MetroNews



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Draft Oxbow Regional Park Master Plan available for review.

Metro has released a draft of a master plan for Oxbow Regional Park for public review and comment. Visitors enjoy hiking, picnicking, camping, boating, swimming, fishing, wildlife viewing and more at the park, located eight miles east of Gresham on the Sandy River.

The draft plan describes the existing 1,040-acre park in the Sandy River Gorge and identifies future improvements and public uses including additional camp sites and picnic shelters, restrooms and showers, an environmental education center, upgraded infrastructure, improved recreational access to water, wildlife habitat enhancement and more.

The natural beauty of the park were formally recognized when the same section of the Sandy River was designated as a state Scenic Waterway and federal Wild and Scenic River. Master plan improvements are intended to enhance the existing park while maintaining its special character. Partial funding to begin master plan implementation is available from Metro's 1995 open spaces, parks and streams bond measure, passed by the region's voters in 1995.

A limited number of copies of the draft master plan are available. To make arrangements to pick up a copy or have one mailed, call Metro Regional Parks and Greenspaces at 797-1870. Review copies are also available at Oxbow Regional Park and the Central, St. Johns and Gresham branches of the Multnomah County Library.

Written comments about the plan can be sent to Jane Hart, Metro Regional Parks and Greenspaces, 600 NE Grand Ave., Portland, OR 97232. Comments will be accepted until 5 p.m. Aug. 13.

Citizens will also have opportunities to testify on the draft master plan at the following public meetings:

Metro Regional Parks and Greenspaces Advisory Committee
6 p.m. Wednesday, Aug. 5
Metro Regional Center, 600 NE Grand Ave., Portland

METRO REGIONAL PARKS AND GREENSPACES ADVISORY COMMITTEE MEETING NOTICE

Date: Tuesday, August 5, 1997
Time: 6:00PM - 8:00PM
Place: Metro Regional Center, 600 NE Grand Ave, Portland
Room 270

AGENDA

- I. Introductory comments and announcements (5 min)
- II. Oxbow Regional Park Master Plan (Jim Walsh, Jane Hart) (45 minutes)
 1. Overview presentation
 2. Public Comments and Testimony
 3. Committee Q&A
 4. Committee Recommendation
- III. Regional Framework Plan Park Policies (Charles Ciecko) (45 minutes)
 1. Presentation of GTAC recommendations to MPAC
 2. Next steps for RPAGAC discussion/Q&A
- IV. Nominations for Committee Vice-chair
- V. Consideration of September 9, 1997 as next RPAGAC meeting

The August meeting will hear the final presentation of the Oxbow Regional Park Master Plan before it moves on to Metro Council consideration. Citizens will have an opportunity to testify before the committee makes its recommendation.

The draft Regional Framework Plan policies related to the provision and management of parks, natural areas, trails, greenways and recreation services recently went through a refinement process with the Greenspaces Technical Advisory Committee. Charles Ciecko will present the GTAC recommendations to the Metro Policy Advisory Committee (MPAC). The committee will also discuss what role they can play in the framework plan process.

Bob Akers will be stepping down as Chairman of the RPAGAC with Mike Reid (current vice chair) taking the helm in September. The consider nominations for vice chair.

Because the first Tuesday of September (9/2) falls the day after Labor Day and on the first day of school, the committee will consider an alternative meeting date in September.



METRO
Regional Parks and Greenspaces
600 NE GRAND AVE. PORTLAND, OR 97232-2736 (503) 797-1850

Metro Parks and Greenspaces Advisory Committee
August 5, 1997 Summary Meeting Minutes
6:00 p.m. to 8:30 p.m., Metro Regional Center

Present: Bob Akers, Seth Tane, Faun Hosey, Jim Battan, Jay Hamlin, John Griffiths, Brian Scott, Mike Reid, Michael Morrissey, Charles Ciecko, Ron Klein, Jennifer Budhabhatti, Nancy Chase, Jim Walsh, Jane Hart, Jim Lind, Scott Forrester, Marian Drake, Paul Box

Bob Akers called the meeting to order at 6:05 p.m.

Charles Ciecko indicated that the managing concession at Glendoveer Golf Course requested a 10-yr extension of their contract. The contractors would invest \$1 million over 4 years in capital improvements for a 10-yr commitment. Ciecko asked for 3 members of the advisory to volunteer on a community task force to review the proposal. Bob Akers and Mike Reid volunteered. It was suggested that Rick Charierre be asked to serve.

Jim Battan and John Griffiths were nominated candidates for vice chairman of the Regional Parks and Greenspaces Advisory Committee. Ron Klein said he would call other committee members and solicit their nomination. Ballots will be sent out in the next mailing and the successful candidate announced at the next meeting (September 9).

Charles Ciecko introduced the Oxbow Regional Park Master Plan presentation by explaining the need for the plan is simply that the park is "worn out" with its 30+year infrastructure. Jim Walsh provided an overview of the planning process, plan goals and the primary plan components:

- Old growth habitat protected
- New park entry area (not in conflict with Camp Collins, no road to maintenance area, new office, restroom, orientation, ticket booth)
- Formalize camp sites near entrance
- Interpretive viewpoint at "hosner hole"; consolidate picnic areas along access road; restore vegetation
- Dismal swamp: restore wetland; centralize picnicking; move road out of wetland
- Environmental Education Center
- More efficient, safer transportation pattern with road turn-around for access to camping, boat ramp and group picnic areas

Public Testimony

Marion Drake: The estimated \$8.5 million estimated to implement the plan is too much-there are greater needs in our region. Recommended Tri-met or other shuttle service to park to provide better air quality; no evidence presented for the need for flush toilets (ie no documented public demand); money better spent on shuttle rather than roads in park; recommended postponing decision until the end of the year to allow for additional public comment or do not approve staff recommendation.

Paul Box: Served on the master plan committee. Opposes plan; wants to resign from the committee and his name removed from the plan document; \$8.5 million too much to spend on park "overkill"; agrees park needs fixing up; planned amenities will encourage greater use of the park and cause more damage to the resources; access road will fall in the river eventually; adding more group picnic areas will sacrifice and degrade the current pristine park experience; "Oxbow Park is too beautiful to upgrade"

Scott Forrester: Help reduce traffic by using alternative transportation like shuttles; costs about \$100,000 shuttle bus and operation; plan does not mention future land acquisition opportunities; [Ciecko said acquisitions are addressed in the Sandy River Target Area Refinement Plan; management parameters in federal wild and scenic management plan]; these other plans should be mentioned in master plan; p 125, Table 11 states the park currently runs at a 59.5% deficit with the master plan the park would be projected to operate at a 40.8% deficit; \$8.5 million is too much money to spend to continue to run the park at a large deficit; don't load the park up with "yurt people"; public hearing should be held at or near Oxbow.

Ciecko: the plan is a vision document; there's too much emphasis being placed on how much things cost; it's important to consider the needs and efficient uses of the park in the event funds become available; the intent is not to run out and spend \$8.5 million, but to identify and articulate the needs and desired facilities for Oxbow. There is \$1.25 million dollars available from bond measure funds restricted to water and other infrastructure needs and \$200,000 in the environmental education center trust fund.

Tane: Plan is merely a wish list; perhaps a carpool discount [Ciecko: park visitors currently average about 3.5 passengers per car; people are already grouped]

Hosey: Plan is a management tool; support ee center

Reid: Only 7 of the 300+ state parks operate at a profit; Tri-met runs at a 70% deficit

Battan: Oxbow park needs improvements; need to scale back the measures if this is intended as a short term implementation because it is unrealistic to expect to find \$8.5 million in the short-term; plan should better address the financing ; road improvement recommendations are good; operating costs are likely to increase with the upgraded facilities in a current climate of a growing capital replacement backlog.

Scott: Tyron Creek State Park can serve as a model; need the improvements soon to serve a growing urban population.

Griffiths: there does not seem to be a specific timeframe for the plan. [Ciecko- time and circumstances will determine the "shelf-life" of usefulness of the plan. The Blue Lake master plan needs updating after 12yrs. You should get about ten years out of a plan before it needs revisiting]. Need to consider alternative transportation to the park. [Ciecko- think family or small groups, that's who currently visits the park; there is currently no mass demand for public transportation to the park; people arriving with bikes, tents, coolers, and other gear are not thinking about taking the bus; perhaps there will be greater demand in the future]. \$8.5 million seems like a reasonable estimate considering the proposed amenities. Is the plan based a the park's carrying capacity? [Walsh-yes]. Gift in the nature center would bring in some revenue. You need to set up a reserve for capital renewal based on capital depreciation so that the agency managing the park does not get themselves in the same situation of having critical needs and no funding.

Akers: supports the plan as a vision document.

Griffiths moves to approve the plan with the addition for a provision to set up a capital replacement fund for future maintenance needs. Reid 2nd. Approved 6-1

Jennifer Budhabhatti presented the refinement of the Regional Framework Plan (RFP) policies related to parks and recreational services. Seth Tane served as the parks advisory committee representative to review and refine the parks policies in the RFP. A subcommittee of the Greenspaces Technical Advisory Committee (GTAC) and the Coalition for a Livable Future (CLF) worked on the policies.

The City of Portland recommended that Metro conduct an inventory of community and neighborhood park facilities as well as natural areas. CLF suggested that the Greenspaces Master Plan should be updated. The City of Lake Oswego suggested doing a regional master plan of all park facilities and recreational services. The provision of having a park within ½-mile of every home was dropped. The policy recommendations of the working group were approved by GTAC to be forwarded to the metro Policy Advisory Committee for their consideration on August 27.

The RPAGAC thought the policies needed benchmarks and performance standards; the removal of the "walk to" clause was a disappointment. The committee also expressed concern over the lack of a functional plan in the works to implement the park policies when adopted. Akers encouraged individual comments should be made to Metro Council, but the committee should also be heard on the RFP. The committee will consider a draft letter from the committee to Metro Council regarding the RFP. Issues addressed in the letter will include the inventories needed, that all people should have access to parks (ie walkable) and that a plan is needed to implement the adopted park policies along with other aspects of the RFP. Meeting adjourned at 8:40 p.m. **Next RPAGAC meeting on Tuesday, September 9, 1997, Metro Regional Center, Room 270**

IMPORTANT MEETING REMINDER

What: Metro Council Regional Facilities Committee
Public Hearing to receive public comment on the
Oxbow Regional Park Draft Master Plan.

Why: A resolution bearing the Executive Officer's
recommendation for approval of the draft
master plan will be presented to the committee
for their consideration and action.

When: Tuesday, September 2, 1997 at 9:00 am

Where: Metro Regional Center, 600 NE Grand Ave.,
Portland, Council Chambers. If you would like
to testify, fill out a card when you arrive and
give it to the Council Clerk.

Parking: Metro parking garage off NE Irving St.

For further information, call Jane Hart at 797-1585.



METRO
Regional Parks and Greenspaces
600 NE GRAND AVE. PORTLAND, OR 97232-2736 (503) 797-1850



METRO

Notice of Metro Council Meeting to consider Oxbow Regional Park Draft Master Plan

This is to notify you that the Oxbow Regional Park draft Master Plan is on the agenda for the Metro Council Regional Facilities Committee's October 7, 1997 meeting. The agenda item is scheduled for discussion and *possible* action at 9:45am.

This notice, albeit short, is being sent to you at first notice from the Regional Facilities Committee of their October 7th agenda.

The next possible time this issue could be considered by the Metro Council would be on October 16th. Given the last minute nature of agenda placement, we recommend that you call the Council office at 797-1540 to learn when this issue will appear before Metro Council in the future.



APPENDIX B

■ Zoning

■ Zoning

Oxbow Park and the surrounding land areas are controlled by the land use regulations of Multnomah County. The current zoning of the area encompasses the following land use zones:

RR - Rural Residential

"The purposes of the Rural Residential District are to provide areas for residential use for those persons who desire rural living environments; to provide standards for rural character, the capability of the land and natural resources; to manage the extension of public services; to provide for public review of non-residential use proposals and to balance the public's interest in the management of community growth with the protection of individual property rights through review procedures and flexible standards."

MUA-20 - Multiple Use Agriculture-20

"The purposes of the Multiple Use Agriculture District are to conserve those agricultural lands not suited to full-time commercial farming for diversified or part-time agriculture uses; to encourage the use of non-agricultural lands for other purposes, such as forestry, outdoor recreation, open space, low density residential development and appropriate Conditional Uses, when these uses are shown to be compatible with the natural resource base, the character of the area and the applicable County policies."

EFU - Exclusive Farm Use

"The purposes of the Exclusive Farm Use District are to preserve and maintain agricultural lands for farm use consistent with existing and future needs for agricultural products, forests and open spaces; to conserve and protect scenic resources, to maintain and improve the quality of the air, water and land resources of the County and to establish criteria and standards for farm uses and related and supportive uses which are deemed appropriate."

CFU - Commercial Forest Use

"The purposes of the Commercial Forest Use District are to conserve and protect designated lands for continued commercial growing and harvesting of timber and the production of wood fiber and other forest uses; to conserve and protect water sheds, wildlife habitats and other forest associated uses; to protect scenic values; to provide for agricultural uses; to provide for recreational opportunities and other uses which are compatible with forest use and to minimize potential hazards or damage from fire, pollution, erosion or urban development."

In addition, the areas within the Wild and Scenic Sandy River boundary are designated as lands of Significant Environmental Concern (SEC). This designation applies additional protective measures for this natural resource area.

SEC Significant Environmental Concern

"The purposes of the Significant Environmental Concern subdistrict are to protect, conserve, enhance, restore, and maintain significant natural and man-made features which are of public value, including among other things, river corridors, streams, lakes and islands, domestic water supply watersheds, flood water storage areas, natural shorelines and unique vegetation, wetlands, wildlife and fish habitats, significant geological features, tourist attractions, archaeological features and sites, and scenic views and vistas, and to establish criteria, standards, and procedures for the development, change of use, or alteration of such features or of the lands adjacent thereto."



APPENDIX C

■ SANDY WILD and SCENIC RIVER and STATE SCENIC WATERWAY MANAGEMENT PLAN

The following information is excerpted from the Sandy Wild and Scenic River and State Scenic Waterway Management Plan.

FEDERAL AGENCIES

Bureau of Land Management: (The lead agency for the plan.)

The mission of the Bureau of Land Management (BLM) is the responsibility of the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the people of the United States of America. Management is based on the principles of multiple-use and sustained yield; a combination of uses that takes into account the long term needs of future generations for renewable and non-renewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values.

United States Department of Agriculture Forest Service

The United States Department of Agriculture (USDA) Forest Service administers the National Forest System lands. The Forest Service is responsible for the administration of the upper portion of the Sandy River and will take the lead for that segment of the river through the development of a separate management plan. The Forest Service will work closely with Clackamas and Multnomah Counties and other state agencies that have jurisdiction around the Sandy River.

The Mount Hood National Forest will be the primary public contact for issues relating to wild and scenic river management. Some of the issues include: safety, public information and education, special use permit compliance, resource protection, project planning and implementation, monitoring of social and physical conditions etc.

The federal government has no authority regulating private lands in or around the wild and scenic river boundaries. Land use is the concern of local and state government.

The Wild and Scenic River Act (WSRA) prohibits the use of condemnation in the fee title purchase of lands if 50 percent or more of the land is already in public ownership. The act does allow the federal government to:

- 1) purchase land from willing sellers,
- 2) enter land exchanges, or
- 3) acquire scenic easement agreements, if necessary.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act of 1973 (as amended). The Bureau of Land Management consults with USFWS to obtain a biological opinion on appropriate courses of action when a determination has been made that a threatened or endangered species, or a critical habitat may be affected by a proposed management action. A decision could mean the proposed action is modified or abandoned.

State Agencies

Department of Agriculture

The Department of Agriculture has the authority to work towards long-term planning for agricultural resources. This authority allows the department to assure adequate water supplies for all phases of agricultural resources. The department is assisted by the Soil and Water Conservation Division, the Soil and Water Conservation Commission, and 45 Soil and Water Conservation Districts (one per county) around the state.

Department of Environmental Quality

The Department of Environmental Quality (DEQ) regulates and guards against the deterioration of air and water quality in the state of Oregon. DEQ implements the Statewide Water Quality Management Plan. The plan establishes standards of water quality for each of the Oregon Water Resources Department's 18 river basins. Beneficial uses of rivers and streams that are protected by DEQ are:

- aesthetic quality, anadromous fish passage, boating
- fishing and hunting, industrial water supplies, irrigation
- livestock watering
- private
- public
- resident fish and aquatic life, salmonid rearing and spawning, water contact
- recreation, and wildlife

The standards set for water quality are to maintain the highest possible levels of dissolved oxygen and the lowest possible levels for temperature, bacteria, dissolved chemicals, and toxic materials. The DEQ's anti-degradation policy states that high quality waters would be protected from degradation, unless the Environmental Quality Commission, based on economic or social needs, finds it necessary to make an exception. DEQ also sets standards and procedures for onsite sewage systems, issues permits for dredge and fill of wetlands, and maintains water quality monitoring stations throughout Oregon. Any person proposing an action with a potential

impact to water quality or that would create wastes that would flow into public waters must first obtain a permit from DEQ.

Department of Geology and Mineral Industries

The Department of Geology and Mineral Industries (DOGAMI) has no authority over sites within the beds and banks of rivers. DOGAMI's role in developing a wild and scenic river would be in designating past mining sites and indicating current activity in the area.

Department of Land Conservation and Development

The Department of Land Conservation and Development (DLCD), along with the guidance and authority of the Oregon Land Conservation and Development Commission (LCDC) works with cities, counties, and state agencies to develop and maintain Oregon's comprehensive land use plans and regulations. As part of these responsibilities, DLCD ensures that cities, counties, and state agencies have included scenic waterways in their Goal 5 planning pertaining to natural resources. Goal 5 planning requires comprehensive plans that will 1) ensure open space, 2) protect scenic and historical areas and natural resources, and 3) promote healthy and visually attractive environments. In Goal 5 planning, cities, counties, and state agencies must inventory the resource, identify conflicting uses which could impact the resource, and develop implementation strategies to resolve conflicting uses. They must notify State Parks and Recreation Department of proposed changes in land use within scenic waterway corridors. Counties are required to protect identified resources through mandatory plans, policies, and zoning requirements.

Division of State Lands

The Division of State Lands (DSL) is the administrative arm of the State Land Board (the Governor, Secretary of State, and State Treasurer). Under constitutional and statutory guidelines, the Board is responsible for managing the assets of the Common School Funds as well as for administering the Oregon Removal-Fill Law. The School Fund's assets include the river beds and banks of Oregon's navigable waterways, and are managed for the "greatest benefit for the people of this state consistent with the conservation of this resource under sound technique of land management."

DSL is responsible for protecting and conserving the beds and banks of scenic waterways. Any alteration to the bed or banks of a scenic river requires approval by the Land Board and a permit issued by the DSL. DSL works closely with the State Parks and Recreation Department to ensure that any changes to the bed or banks of a scenic river are consistent with the scenic waterway management plan.

Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife (ODFW) manages fish and wildlife resources in the state, regulates all commercial and recreational harvests of fish and game, and coordinates with other agencies regarding habitat preservation. ODFW is authorized to request instream water rights to protect fish and wildlife resources. ODFW technicians and biologists provide technical assistance, to other agencies, for riparian habitat protection and maintenance, river bed and bank alterations, water withdrawal, and any use of the water's surface. ODFW surveys many game and non-game species. The statistics may be used to determine habitat needs.

Oregon Department of Forestry

The Oregon Department of Forestry (ODF) manages state-owned forests and enforces the Forest Practices Act. The Forest Practices Act protects water quality, soil, fish, and wildlife from adverse impacts from forest activities. The Forest Practices Act regulates reforestation, road construction and maintenance, harvesting, chemical application, and disposal of slash. An ODF notification is required for logging and other forest operations.

On non-federal lands, the Forest Practices Act the Forest Practices Act does not address special requirements for operations within scenic waterway corridors. The act does, however, have rules to protect riparian management areas. Riparian management areas include the riparian area and the riparian area of influence. Under these rules, a proposed commercial forest operation within the riparian management area of a Class I stream must be described in a written plan. The plan includes any operation within 100 feet of a class 1 stream. The plan must describe how the operation will meet standards determined by the Forest Practices Act, and then be submitted to ODF for approval. In these sensitive areas, close coordination is required. ODF directive 6-1-0-002 outlines specific procedures for coordinating the Forest Practice program and the Oregon Scenic Waterways program for operations in a scenic waterway corridor. The goal of coordination is keeping all the parties informed, of the responsibilities, requirements, and planned activities, so that the process is efficient and effective.

Oregon State Parks and Recreation Department

The Oregon State Parks and Recreation Department, under the authority of the Oregon State Parks Commission (Oregon Revised Statute (ORS) 390.805 to ORS 390-925) is responsible for the purchase, improvement, maintenance, and operation of Oregon's state park system. Additional responsibilities are supplying technical assistance to local governments concerning park matters, developing and maintaining the Statewide Comprehensive Outdoor Recreation Plan (SCORP), administering the Federal Land and Water Conservation Fund matching grant program in Or-

egon, and administering the Oregon Scenic Waterway Program (OSWP). OSWP is operated through a notification and review process. The general guidelines for OSWP are Oregon Administrative Rules (OAR) 736-40-005 to 736-40-095. Specific guidelines have been devised for this segment of the Sandy River as they are for all river segments.

The Scenic Waterways Act and the Oregon State Parks and Recreation Commission's rules require the evaluation of land use changes and development proposals within 1/4 mile from each side of the river. Land use changes and development proposals must be evaluated for their potential impacts on aesthetic and scenic values, considering the river. Property owners who want to build roads or houses, develop mines, harvest timber or begin with similar projects, must provide written notification to the Oregon Parks and Recreation Department before beginning the project. The Department's evaluation of the project will be coordinated with the local, state, and federal natural resource agency that has regulatory responsibilities. The State Parks and Recreation Department will determine if the project or development is compatible with the scenic waterway within the Department's river classification administrative rules. The landowner may begin the project upon written approval of the Department. The Department, and the Commission if necessary, will work with the landowner to reach a settlement of any conflicts. When an agreement cannot be reached within one year of the original notification, the Commission must either pay the property owner for the land, or the development rights, or allow the project to proceed.

The State Parks work closely with Federal agencies such as the United States Forest Service, and the Bureau of Land Management to ensure their actions are compatible with scenic waterway laws, rules, and resource management recommendations. In addition to working with federal agencies, the state Parks Department works closely with county planning staff and other State agencies to ensure development on private lands is compatible with the river environment.

Oregon Water Resources Department

Oregon Water Resources Department (OWRD) is responsible for the management and distribution of the state's water resources. The Water Resources Commission, a seven-member panel appointed by the Governor, develops policy through the preparation of river basin plans for each of Oregon's 18 river basins. The Commission uses river basin plans to classify stream flow for domestic, municipal, recreation, industry, irrigation, and other uses. The plans, which reflect how water is currently used, and its future use and distribution, are adopted as administrative rules.

OWRD issues water rights on all waters in the state and enforces the exclusion of dams, impoundments, and placer mining in scenic waterways, and on tributary streams within scenic waterway boundaries. The Scenic Waterways Act requires the

Water Resources Commission to review proposed land condemnations, and to review scenic waterway management plans and additions proposed by State Parks and Recreation Department for designation by the governor. The Water Resources Commission must assure that any adverse effects to fish, wildlife, and recreation are not created by a water right in or above a scenic waterway.

Minimum perennial stream-flows are administrative designations established by the Water Resources Commission. A law passed in 1987 by the Legislature allows for the conversion of minimum perennial stream-flows to instream water rights. Three State departments may apply for these instream rights: Oregon State Parks and Recreation Department, Oregon Department of Fish and Wildlife, and the Department of Environmental Quality. Once granted, the instream right is held by OWRD in trust for the people of Oregon.

Oregon Department of Transportation - Highway Division

The Oregon Department of Transportation (ODOT) is responsible for planning, designing, re-constructing, posting signs, maintenance of the State highways for public safety, and the management of motor vehicle use. The state highway that passes through the Sandy Wild and Scenic corridor is Crown Point Highway.

A Memorandum of Understanding, approved by the State Highway Engineer and Regional Forester for the Pacific Northwest Region Forest Service, provides the basis for coordinating issues related to state highways through National Forest lands. ODOT lacks special requirements for highways within State scenic waterways. However, ODOT must prepare a section 4(f) evaluation under the Federal-Aid Highway Act of 1968 for any federally funded highway project which requires the use of any publicly owned land used as a recreation area beyond the existing highway improvement. Since the Sandy Wild and Scenic River is classified as a recreation river, the 4(f) requirement applies to the Sandy Wild and Scenic River corridor.

Oregon State Historic Preservation Office

The State Historic Preservation Office (SHPO) was created by the National Historic Preservation Act of 1966. Among SHPO's many roles, is the evaluation of cultural property in consultation with federal agencies or public nominations, to determine if the property qualifies for listing on the National Register of Historic Places. Properties that qualify for listing are protected according to the type and nature of the property.

Oregon State Marine Board

The State Marine Board registers motorized watercraft, establishes equipment and operating requirements for the safety of the environment, regulates the use of boats on Oregon waters, and provides training for county sheriffs and state police

officers who patrol the waters. State Marine Board regulations prohibit motorized craft on the Sandy upstream of the Stark Street Bridge.

In accordance with OAR 250-30-030, permit systems for commercial and noncommercial boating activities can be established by the Board for both state scenic waterways and federal wild and scenic rivers. Outdoor guides and outfitters must register with the Board.

LOCAL OR REGIONAL GOVERNMENTS, AGENCIES, AND PRIVATE ORGANIZATIONS

Local Governments

The local governments involved with Sandy River Scenic Waterway are Clackamas County and Multnomah County. The counties must include the scenic waterway in their comprehensive land use planning and zoning under Goal 5 (natural resources). The counties must also provide law enforcement and search and rescue.

Northwest Power Planning Council

The Northwest Power Planning Council (NPPC) was authorized by the Northwest Power Act of 1980. Four states (Idaho, Montana, Oregon, and Washington) make up the Northwest Power Planning Council. The council consists of two persons from each state whose job is to: (1) develop a reliable and economical 20-year electrical power plan (2) protect and re-build fish and wildlife populations, and (3) involve the public in the decision-making process. The council works with a variety of local, state, and federal agencies, as well as with concerned environmental groups and individuals, to strike a balance between the needs of electrical power and the survival of the fish and wildlife.

Portland General Electric

Portland General Electric (PGE) provides electrical power to approximately 40% of Oregon's residents. Part of the source of the electrical power comes from the operation of the Marmot Diversion Dam on the Upper Sandy River. The diversion dam diverts water to Roslyn Lake and the Bull Run Powerhouse which creates the electricity.

PGE coordinates water flows on the Sandy River with the Oregon Department of Fish and Wildlife (ODFW) to maintain minimum flow levels required for fisheries management systems which ODFW oversee. PGE also coordinates water flow levels with the Portland Water Bureau to maintain the needs of the city depending on the time of year.

Portland Water Bureau

The Portland Water Bureau (PWB) provides water for residential, commercial, and industrial use for 730,000 customers in the Portland Metropolitan region. The primary source of municipal water supply is the Bull Run watershed, a 106 square mile drainage area within the Sandy River basin. The Bull Run is an unfiltered source and is managed in cooperation with the U.S. Forest Service under the terms of PL 95-200 (Bull Run Act), a memorandum of understanding, and the Mount Hood Forest Plan. Water quality is monitored to ensure compliance with state and federal drinking water standards and to detect short and long-term trends. The PWB cost-shares with the U.S. Geological Survey to monitor stream flow and reservoir levels throughout the Bull Run watershed and at a gaging station located on the Sandy River below its confluence with the Bull Run River. Portland General Electric operates hydropower facilities on the two major reservoirs in the watershed. Reservoir levels and flow rates through the hydropower facilities are managed in coordination with water supply operations. The PWB owns land on the upstream boundary of the Sandy Wild and Scenic River Corridor. The agency also manages Dodge Park, located near the confluence of the Bull Run River and the Sandy River.

The Nature Conservancy

The Nature Conservancy is an international membership organization committed to the global preservation of natural diversity. The Conservancy's mission is to find, protect, and maintain the best examples of communities, ecosystems, and endangered species in the natural world. Since incorporation in 1951, the Conservancy has protected five and a half million acres throughout the United States, Canada, and Latin America. In Oregon, The Conservancy manages 49 preserves totalling over 40,000 acres. Approximately 450 acres are within the Sandy Wild and Scenic corridor.

Chapter II: Management Goals, Standards, and Guidelines

Area Overview

Chapter II identifies and discusses outstandingly remarkable values found within the Sandy River corridor. It provides an overview of general management direction and goals for the Sandy. This chapter also outlines the standards and guidelines the BLM will use to assess land or resource use activities and will apply when implementing various management practices. Resource specific management objectives and actions are discussed in Chapter III.

Regional Setting and Description

The Sandy River is located near Portland, Oregon on the west side of the Cascade Range, a region exhibiting significant faunal, floral, and topographic diversity. The river originates on the glacial and snow-covered flanks of Mount Hood, at 11,235 feet Oregon's highest mountain. From Mount Hood, the river flows 55 miles west and north to its confluence with the Columbia River near Troutdale, Oregon. In this relatively short distance, the river descends over 6,000 feet, flowing through alpine meadows, steep and densely forested canyons, and deep gorges before winding its way to the Columbia. The Sandy meets the Columbia at the west end of the Columbia River Gorge, an unusual and spectacular physiographic feature that has had a major effect on the biotic diversity of the area. Carving a near-sea level route through the Cascade Range, the Columbia is a primary factor in the area's rich natural and cultural history.

The wet coastal or maritime climate of western Oregon is characterized by mild temperatures, wet winters, a long frost-free period, and narrow daily fluctuations in temperature. Annual precipitation in the Sandy drainage ranges from 40 inches near the mouth to 110 inches near its source with the heaviest rainfall occurring in the late fall and early winter. The river area incorporates portions of two major physiographic zones, the Willamette Valley and Western Cascades regions. This unique physiographic setting supports many endemic and relict populations of plants as well as important habitat for numerous animal species.

The Sandy River and its tributaries drain an area of 508 square miles, constituting the smallest major river basin in the state. It is the only major river on the west side of the Cascades to be glacial in origin and character. Major tributaries include the Bull Run River on the north, and the Zigzag and Salmon Rivers on the south side of the main stem. The Bull Run River has its headwaters in the high mountain lakes northwest of Mount Hood and is Portland's major municipal water source. The Salmon River begins on the south side of Mount Hood near Timberline Lodge. The entire Salmon River is designated as a component of the National Wild and Scenic Rivers System.

The upper reaches of the Sandy River and its tributaries flow through rolling mountainous terrain falling 1,600 feet in the first 13 miles. The upper river is characterized by narrow chutes and boulder-choked channels. The middle portion of the river from the confluence of the Zigzag River (River Mile 42) to Marmot Dam (RM 30), flows through a wider river valley with a moderate gradient. Below Marmot Dam the river descends into narrow and incised bedrock gorges with a moderate to steep gradient of over 40 feet per mile to an elevation of 200 feet at the mouth of the Bull Run River near Dodge Park (RM 18.5).

The lower 12.5-mile designated segment lies 6 miles upstream from the river's mouth and includes the regionally known Sandy River Gorge. This 800-foot deep gorge is heavily forested and, although considerably shorter in length, exhibits characteristics similar to the much larger Columbia River Gorge. Within the gorge, the river flows past

Outstandingly Remarkable Values

low elevation old growth forests, riparian woodlands and fern and moss-laden cliffs. At the gorge's lower end, the Sandy meanders through two large "oxbows" and begins to widen, having large gravel bars, shallow riffles and fewer rapids. The river below Dabney Park has a low gradient and is surrounded by rolling hills and pastures. It is the accumulation of sand and sediment along this lower reach from which the river gets its name.

The intent of the Wild and Scenic Rivers Act is to maintain the free-flowing character of the lower Sandy River corridor and protect its important or unique values. These values were termed by Congress as "outstandingly remarkable values." Outstandingly remarkable values are values or opportunities in a river corridor which are important, rare or unique from a regional or national perspective. An objective analysis of the river's resource values, referred to as the resource assessment process, was conducted as the first step in the development of the river plan and environmental assessment. The values found to be outstandingly remarkable through the federal resource assessment process are also the same values found to be "special attributes" through the OPRD resource analysis process. The final plan for the Sandy River provides for balanced protection and enhancement of all values found to be outstandingly remarkable: recreation, wildlife, vegetation, water quality, scenery, the anadromous sport fishery, and botany/ecology of the lower Sandy River corridor. The following summary describes the findings of the resource assessment and reviews characteristics of the resource that led to a finding of outstandingly remarkable value.

Scenic

Results of the resource assessment confirm the Congressional Record that the scenic quality within the Sandy River corridor is an outstandingly remarkable value. This distinctive canyon landscape is characterized by its near-pristine condition, steep topographic relief, and varied and diverse vegetation. The scenic quality is further enhanced by rushing rapids and still pools with occasional riverside cliffs and waterfalls. The proximity of the lower Sandy River to the Portland metropolitan area and to the Columbia River Gorge National Scenic Area adds significance to this scenic resource.

Fisheries

The fisheries value of the lower Sandy River is considered outstandingly remarkable based on the diversity of populations, quality of spawning and rearing habitat, and its regional importance and reputation as an excellent sport fishery. The Northwest Power Planning Act and subsequent Northwest Power Planning Council goals to increase the anadromous fishery in the Columbia River system represent recognition of the national importance of the Sandy River's fishery (Sandy River Sub-basin Plan 1990).

The Sandy River contains populations of at least eight runs of anadromous fish species (includes wild and hatchery stock), as well as up to ten resident species. The Sandy River system exhibits a relatively large number of anadromous species in comparison to other rivers in the region and other major tributaries of the Columbia River. Species diversity and relatively healthy populations are due, in part, to the river's location on the Columbia River, below the restrictions and impacts created by large dams and water projects. Habitat within the river segment is considered good to excellent, and provides nearly ideal conditions for anadromous fish species. Riparian vegetation in the sub-basin is afforded much more protection than that in other drainages in the state, contributing to generally good stream shading in the upper and middle portions of the drainage, which in turn keeps water temperatures relatively cool.

Recreation

In addition to the Sandy's outstandingly remarkable recreational sports fishery, the river offers exceptional recreational opportunities for nature study, land-based recreational day use, and non-motorized boating or floating.

State restrictions on motorized boating, easily accessible parks, and river-oriented facilities and the river's proximity to the northwest's second largest population center combined with its near-pristine condition, make it a unique recreational resource within the region. The area's popularity is evidenced by high visitor use (900,000 - 1,000,000 visitors per year). The recreational importance of this segment of the Sandy River is supported by numerous documents, studies, and guidebooks.

Geology

The geologic history of the Sandy River is complex and has given rise to a number of rare or unique features including incised oxbows from the Pliocene river channel (a phenomenon rare in the Northwest), volcanic deposits from the Old Maid Eruptive Period, and buried forests resulting from volcanic activity 200 years ago. These rare and unique features offer exceptional opportunities for scientific study and interpretation.

Wildlife

Wildlife values within the river corridor are outstandingly remarkable because of the regional significance of habitat diversity and number of species present. The Sandy River Gorge offers one of the greatest levels of diversity in both wildlife species and habitat of any river in the region. In addition, the educational and scientific values are correspondingly varied and significant. The river is used extensively for local wildlife and natural history educational and interpretive programs.

The Sandy River Gorge and vicinity provides a diversity of habitat for the full complement of wildlife species typical of a low elevation site in the north Cascade Range of Oregon as well as provides habitat for species typical of the Willamette Valley. The Gorge is especially valuable because the area is relatively isolated and undisturbed, yet is located within 30 minutes of the largest metropolitan area in the state. The habitats bordering the river and major tributaries provide critically important travel corridors for wildlife movement along the river and to and from the Larch Mountain area to the east, especially for important big game species such as Roosevelt elk.

Water Quality

Water quality is an outstandingly remarkable value based on its importance to the regionally and nationally significant fisheries of the Sandy River. The water quality of the Sandy River exceeds most state water quality standards set for the watershed. In addition, the river exhibits an unusual milky gray coloring in late summer due to glacial erosion. Termed glacial "milk" or "flour," the Sandy's gray waters are a rare phenomenon for Oregon rivers originating on the west slopes of the Cascade Range.

Botanical and Ecological

The botanical/ecological resources of the lower Sandy River are considered outstandingly remarkable because of the diversity of vegetation (plant species and communities), the presence of a unique low-elevation old-growth forest ecosystem, and its importance to scenic and wildlife values.

Management Issues and Public Involvement

The heterogeneity of the vegetation found in the Sandy River Gorge is one of its most distinctive and important characteristics. These unique vegetation assemblages contribute significantly to the scenic, scientific and wildlife values of the river. In addition, the river corridor contains the last remaining stand of low-elevation old-growth forest representative of pre-European transitional vegetation in the Willamette Valley region. Few stands of this type of old-growth can be found in the Pacific Northwest today.

Cultural

Current information on prehistoric cultural resources within the Sandy River Gorge does not support a finding of outstandingly remarkable. Although prehistoric use of the area is indicated by historic reference, reports of artifact occurrence, inference from cultural site locations along other rivers in the western Cascades and by the high site density along the Columbia River, no specific prehistoric cultural sites have been documented in the Sandy River Gorge.

The identified existing historic sites and features within the Sandy River Gorge also do not support a finding of outstandingly remarkable. A variety of activities associated with the exploration, settlement, economic development and recreation history of northwestern Oregon took place in the Gorge and vicinity. However, the few evident sites and features representing these historical activities are common throughout the region and are not considered rare or unusual.

Early in the planning process and throughout the development of the management plan, public meetings and workshops were held to identify issues and concerns people had regarding management of the river. The public involvement process is fully discussed in the environmental assessment (EA). The public's overwhelming response and emphasis concerning management of the Sandy River Gorge and vicinity was to keep the character of the river similar to the way it currently exists and protect its values. Conflicts centered mainly around private land use and development, timber harvest, fisheries management and recreation use. Key issues are summarized below and are broken down by resource. These key issues are the driving force behind the development of the plan and its proposed management actions.

Fisheries Management: What will or can be done to improve fish habitat and protect wild fish populations? Can sport fishing opportunities be enhanced as well?

Recreation: How can recreation be better managed to reduce impacts caused by visitors? How can access and facilities be improved without changing the character of the river or negatively affecting the quality of the recreation experience?

Water Quality and Quantity: What is being done to insure protection of the river's water quality and adequate flows?

Wildlife/Habitat Management: What will or can be done to protect wildlife habitat and populations?

Botanical/Ecological Resources: What will be done to protect the ecology of the area, including plants and riparian areas?

Cultural Resources: What can be done to enhance awareness of the area's cultural resources and how can we insure resources will be protected?

Management Goals

Timber Harvest: What level of timber harvest should or can be allowed in the river corridor?

Private Land Development: Will there be a loss of property rights through restrictive management practices? Will owners receive compensation if property rights are lost? What restrictions or opportunities will there be for landowners inside the boundaries as opposed to outside the boundaries? What can be done to ensure good conservation practices on private lands? What can be done to control trespassers and illegal dumping or littering?

The following river management goals were derived from the intent and direction contained in the Wild and Scenic Rivers Act, the Oregon Omnibus Act, federal agency guidelines for Wild and Scenic Rivers, and from input and comment received from the public and the interagency planning group.

The following management goals are intended to guide and help focus the management plan to ensure that any recommended actions or set of actions result in the intended outcome:

- Protect the rivers' free-flowing character and protect and enhance its outstandingly remarkable values and special attributes: scenery, recreation, geological, botany/ecology, hydrology, water quality, wildlife and fisheries.
- Provide opportunities for a wide range of non-motorized river-oriented recreational activities managed in a fashion to prevent degradation of the outstandingly remarkable values.
- Protect and enhance the quality and quantity of river water. Maintain acceptable levels of water temperature, suspended sediment, chemicals and bacteria.
- Protect and enhance habitat for fish and wildlife species. Protect and enhance stream channel conditions that provide high quality fish habitat.
- Maintain and/or enhance the integrated ecological functions of rivers, streams, floodplains, wetlands, lakes and associated riparian areas.
- Provide for plant and animal community diversity and maintain and/or enhance healthy functioning ecosystems to sustain long-term productivity.
- Help reduce conflicts between recreationists and private property owners and reduce trespass on private property.
- Strive for a balance of resource use; permit other activities to the extent that they protect and enhance the quality of the river's outstandingly remarkable values and special attributes.
- Develop a partnership among landowners, county and state governments, and federal agencies to determine the future of the Sandy River and share in management responsibilities for the river.
- Recognize and respond to the socioeconomic effects of management strategies. Recognize the variety of needs of citizens and involve them as partners and participants in managing the river corridor through awareness, interaction, and communication.

Agency Roles in River Management and Plan Implementation

- Emphasize user education and information. Strive for all public use to be educated use. Establish as few regulations as possible and assure that any regulations established are enforceable and enforced.
- Encourage cooperative interpretation and environmental education efforts.
- Develop a management plan that is reasonable, cost-effective, viable, and protects the rivers' outstandingly remarkable values.
- Identify, provide, and protect instream flows which are necessary to maintain and/or enhance the outstandingly remarkable values of the Sandy River.
- Recognize that no action will prevent or limit the City of Portland of use of the water in the Bull Run and Little Sandy Rivers to the extent that such water is necessary for the purpose of municipal water supply.
- Strive to develop effective, compatible, and consistent land use management through coordination with local land use planning authorities.

Management Standards and Guidelines

The BLM has primary responsibility for managing the river corridor and implementing management actions outlined in this document. However, as directed by Congress, BLM shares this responsibility with State Parks and local counties. Oregon State Parks and Recreation Department through the State Scenic Waterways Program is still obligated to fulfill its mandate and manage the Sandy State Scenic Waterway as required by law. Multnomah and Clackamas Counties still maintain the authority to zone and control development on private lands according to their respective comprehensive plans. Conditions and jurisdictions within the corridor are inseparably tied to the management of neighboring lands. This, along with growing budget constraints among many federal, state, and local agencies, make coordination and cooperation between these and private entities a key component for successful plan implementation. As guided by this plan, it is the BLM's role to establish and promote cooperative relationships and partnerships in the management of areas both within and bordering the river corridor boundary.

The standards and guidelines listed below provide direction for and stipulate the constraints within which all land use activities or management practices must comply. Additional management objectives and actions specific to various Sandy River resources are contained in Chapter III. These standards and guidelines are applied in coordination with the Oregon State Scenic Waterways Act and the specific Administrative Rules (see appendix A) adopted for the Sandy River. For joint Federal and State management purposes, the more restrictive of the rules, classifications, standards or guidelines will apply.

The Wild and Scenic Rivers Act established a method for providing Federal protection for remaining free-flowing rivers, and preserves them and their immediate environments for the use and enjoyment of present and future generations. The Act provides for coordinated and protective management for rivers included in the national system. The Act sets forth a management policy that calls for the maintenance or enhancement of the resource values for which the river was designated.

This non-degradation and enhancement policy applies to all designated river areas regardless of classification. Section 10 (a) of the Act states:

"Each component of the National Wild and Scenic Rivers System shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent herewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration, primary emphasis shall be given to protecting its aesthetic, scenic, historic, archaeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area."

Congressional guidance for resource management practices along Wild and Scenic Rivers states:

Resource management practices will be limited to those which are necessary for protection, conservation, rehabilitation or enhancement of the river area resources.

For the sake of clarity, management standards and guidelines are presented for separate river classifications (scenic and recreational river areas). The following requirements are found in BLM Manual section 8351.5 and supplement the September 7, 1982 (47 FR 39454), joint U.S. Department of Interior and U.S. Department of Agriculture guidelines.

Scenic River Areas

Scenic river areas defined by the Wild and Scenic Rivers Act include:

Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Management Objective for Scenic River Areas

Management of scenic river areas should maintain and provide outdoor recreation opportunities in a near-natural setting. The basic distinctions between a "wild" and a "scenic" river area are the degree of development, types of land use, and road accessibility. In general, a wide range of agricultural, water management, silvicultural, and other practices or structures could be compatible with scenic river values, providing such practices or structures are carried on in such a way that there is no substantial adverse effect on the river and its immediate environment.

Management Standards for Scenic River Areas

Allowable management practices in *wild* river areas might include construction of minor structures for such purposes as: improvement of fish and game habitat; grazing; protection from fire, insects or disease; and rehabilitation or stabilization of damaged resources, provided the area will remain natural appearing and the practices or structures are compatible and in harmony with the environment. Developments such as trail bridges, occasional fencing, natural appearing water diversions, ditches flow measurement or other water management devices, and similar facilities may be permitted if they are unobtrusive and do not have a significant direct and adverse effect on the natural character of the river area.

The same considerations set forth above for *wild* river areas should be considered for *scenic* river areas, except that motorized vehicle use may, in some cases, be appropriate and that development of larger scale public-use facilities within the river area, such as

moderate-sized campgrounds, interpretive centers, or administrative headquarters would be compatible if such facilities were screened from the river. The following program management standards apply:

Forest Practices: Silviculture practices including timber harvesting could be allowed provided that such practices are carried on in such a way that there is no substantial adverse effect on the river and its immediate environment. The river area should be maintained in its near-natural condition. Timber outside the boundary (public lands) but within the visual seen area, should be managed and harvested in a manner which provides special emphasis on visual quality. Preferably, re-establishment of tree cover would be through natural revegetation. Cutting of dead and down materials for fuel/wood should be limited. Where necessary, restriction on use of wood for fuel may be prescribed.

Water Quality: Water quality shall be maintained or improved to meet Federal criteria or federally approved State standards. (River management plans shall prescribe a process for monitoring water quality on continuing basis, see water quality section.)

Hydroelectric Power and Water Resource Development: No development of hydroelectric power facilities would be permitted. Flood control dams and levees would be prohibited. All water supply dams and major diversions are prohibited. Maintenance of existing facilities and construction of some new structures would be permitted provided that the area remain natural in appearance and the practices or structures harmonize with the surrounding environment.

Mining: Subject to existing regulations (e.g., 43 CFR 3809) and any future regulations that the Secretary of the Interior may prescribe to protect the values of rivers included in the national System new mining claims, and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation and pollution, and visual impairment. Reasonable mining claim and mineral lease access shall be permitted. Mining claims, subject to valid existing rights, within the scenic river area boundary can be patented only as to the mineral estate and not the surface estate. Proof of discovery must be shown prior to the effective date of Wild and Scenic River designation.

Road and Trail Construction: Roads or trails occasionally bridge the river area and short stretches of conspicuous or long stretches of inconspicuous and well-screened roads could be allowed. Maintenance of existing roads and trails, and any new roads or trails, shall be based on the type of use for which the roads/trails are constructed and the type of use that will occur in the river area.

Agricultural Practices and Livestock Grazing: In comparison to wild river areas, a wider range of agricultural and livestock grazing uses are permitted to the extent currently practiced. Row crops are not considered as an intrusion of the "largely primitive" nature of scenic corridors as long as there is not a substantial adverse effect on the natural-like appearance of the river area.

Recreation Facilities: Larger-scale public use facilities, such as moderate-sized campgrounds, interpretive centers, or facilities, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters are allowed if such facilities are screened from the river.

Public Use and Access: Recreation use including, but not limited to; hiking, fishing, hunting, and boating is encouraged in scenic river areas to the extent

consistent with the protection of the river environment. Public use and access may be regulated and distributed, where necessary, to protect and enhance scenic river values.

Rights-of-Way: New transmission lines, natural gas lines, etc., are discouraged unless specifically authorized by other plans, orders, or laws. Where no reasonable alternate location exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques shall be selected to minimize adverse effects on scenic river area related values and fully evaluated during the site selection process.

Motorized Travel: Motorized travel on land or water may be permitted, prohibited, or restricted to protect river values. Prescriptions for management of motorized use may allow for search and rescue and other emergency situations.

Instream Flow Assessment: To the extent practical, consistent with resource management objectives, quantify instream flow and protection requirement related to outstandingly remarkable and other resource values identified through the Resource Management Plan process. Where possible, conduct a comprehensive, interdisciplinary, resource value-based assessment in order to delineate resource values, relate flows to resource conditions, and formulate flow protection strategies which incorporate legal, technical, and administrative aspects in order to secure instream flows which address values associated with the scenic river segment.

Recreational River Areas

Recreational river areas are defined by the Wild and Scenic Rivers Act (WSRA) to include:

Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Management Objective for Recreational River Areas

Management of recreational river areas should give primary emphasis to protecting the values which make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a recreational setting. Recreational classification is a determination of the level of development and does not prescribe or assume recreation development or enhancement. Management of recreational river areas can and should maintain and provide outdoor recreation opportunities. The basic distinctions between a "scenic" and a "recreational" river area are the degree of access, extent of shoreline development, historical impoundment or diversion, and types of land use. In general, a variety of agricultural, water management, silvicultural, recreational, and other practices or structures are compatible with recreational river values, providing such practices or structures are carried on in such a way that there is no substantial adverse effect on the river and its immediate environment.

Management Standards for Recreational River Areas

Recreational facilities may be established in proximity to the river, although recreational river classification does not require extensive recreational development. Recreational facilities may still be kept to a minimum, with visitor services provided outside the river area. Future construction of impoundments, diversions, straightening, riprapping, and other modification of the waterway or adjacent lands would not be permitted except in

instances where such developments would not have a direct and adverse effect on the river and its immediate environment. The following program management standards apply:

Forestry Practices: Forestry practices including timber harvesting would be allowed under standard restrictions to avoid adverse effects on the river environment and its associated values.

Water Quality: Water quality shall be maintained or improved to meet Federal criteria or federally approved State standards (River management plans shall prescribe a process for monitoring water quality on a continuing basis.)

Hydroelectric Power and Water Resource Development: No development of hydroelectric power facilities would be permitted. Existing low dams, diversion works, rip rap, and other minor structures may be maintained provided the waterway remains generally natural in appearance. New structures may be allowed provided that the area remains generally natural in appearance and the structures harmonize with the surrounding environment.

Mining: Subject to existing regulations (e.g., 43 CFR 3809) and any future regulations that the Secretary of the Interior may prescribe to protect values of rivers included in the National System, new mining claims are allowed and existing operations are allowed to continue. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation and pollution, and visual impairment. Reasonable mining claim and mineral lease access shall be permitted. Mining claims, subject to valid existing rights, within the recreational river area boundary can be patented only as to the mineral estate and not the surface estate. Proof of discovery must be shown prior to the effective date of Wild and Scenic River designation.

Road and Trail Construction: Existing parallel roads can be maintained on one or both river banks. There can be several bridge crossings and numerous river access points. Roads, trails, and visitor areas must conform to construction and maintenance standards and be free of recognized hazards.

Agricultural Practices and Livestock Grazing: In comparison to scenic river areas, lands may be managed for a full range of agriculture and livestock grazing uses, consistent with current practices.

Recreation Facilities: Interpretive centers, administrative headquarters, campgrounds, and picnic areas may be established in proximity to the river. However, recreational classification does not require extensive recreation development.

Public Use and Access: Recreation use including, but not limited to hiking, fishing, hunting, and boating is encouraged in recreational river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance recreational river values. Any new structures must meet established safety and health standards or in their absence be free of any recognized hazard.

Rights-of-Way: New transmission lines, natural gas lines, water lines, etc, are discouraged unless specifically authorized by other plans, orders, or laws. Where no reasonable alternate location exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques shall be selected to minimize adverse effects on recreational river area related values and fully evaluated during the site selection process.

Motorized Travel: Motorized travel on land shall generally be permitted on existing roads. Controls shall usually be similar to that of surrounding lands. Motorized travel on water shall be in accordance with existing regulations or restrictions.

Instream Flow Assessment: To the extent practical, consistent with resource management objectives, quantify instream flow and protection requirements related to outstandingly remarkable and other resource values identified through the RMP process. Where possible, conduct a comprehensive, interdisciplinary, resource value-based assessment in order to delineate resource values, relate flows to resource conditions, and formulate flow protection strategies which incorporate legal, technical, and administrative aspects in order to secure instream flows which address values associated with the recreational river segment.

Management Objectives Common to Scenic and Recreational River Areas

Wilderness and Wilderness Study Areas: Management of Wild and Scenic rivers which overlap designated wilderness areas or wilderness study areas will meet whichever standard is highest. If an area is released from wilderness study status and the associated Wilderness Interim Management Policy, the applicable Wild and Scenic river classification guidelines and standards would then apply.

Fire Protection and Suppression: Management and suppression of fires within a designated Wild and Scenic river area will be carried out in a manner compatible with contiguous Federal lands. Wildfire suppression methods will be used that minimize long-term impacts on the river and river area. Pre-suppression and prevention activities will be conducted in a manner which reflects management objectives for the specific river segment. Prescribed fire may be used to maintain or restore ecological condition or meet objectives of the river management plan.

Insects, Diseases, and Noxious Weeds: The control of forest and rangeland pests, diseases, and noxious weed infestations shall be carried out in a manner compatible with the intent of the WSRA and management objectives of contiguous Federal lands.

Cultural Resources: Historic prehistoric resource sites shall be identified, evaluated, and protected in a manner compatible with the management objectives of the river and in accordance with applicable regulations and policies. Where appropriate, historic or prehistoric sites shall be stabilized, enhanced, and interpreted.

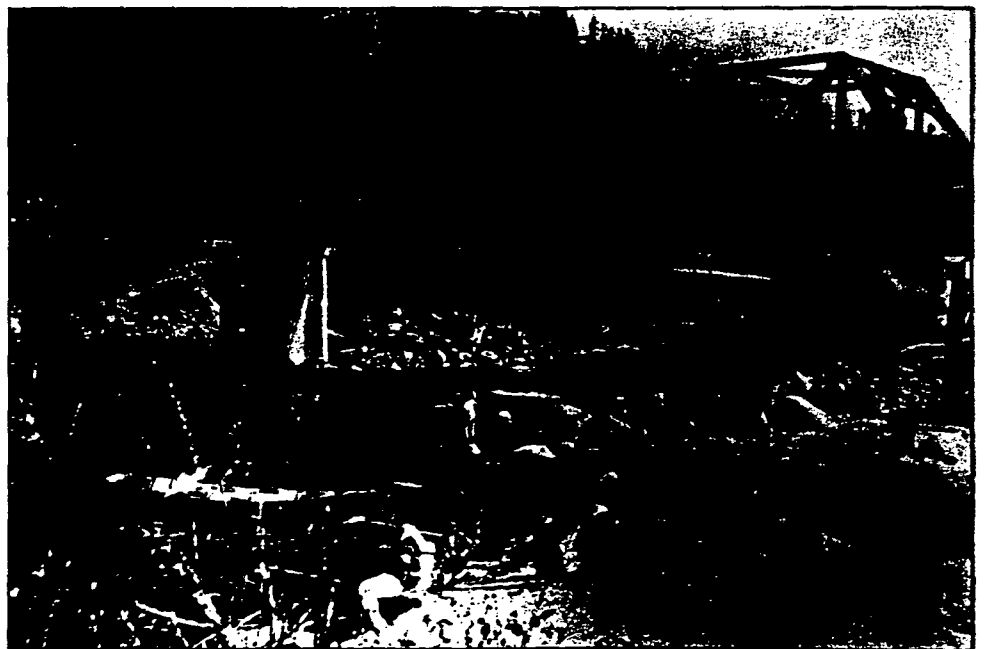
Fish and Wildlife Habitat Improvement: The construction and maintenance of minor structures of the protection, conservation, rehabilitation, or enhancement of fish and wildlife habitat are acceptable provided they do not affect the free-flowing characteristics of the Wild and Scenic river, are compatible with the river's classification, that the area remains natural in appearance, and the practices or structures harmonize with the surrounding environment.

Water Rights: In the process of evaluating river segments, authorizing officials are held to established principles of law with respect to water rights. Under provisions of Section 13 of the Wild and Scenic Rivers Act (WSRA) as well as other statutes, river studies shall not interfere (except for license under Section 7(b) of the WSRA pertaining to Section 5(a) Wild and Scenic river studies) with existing rights, including the right of access, with respect to the beds of navigable streams, tributaries, or river segments. In addition, under the Federal Land Policy and Management Act and the Federal Power Act, the BLM has conditioning authority to control any proposed projects which would be incompatible or potentially degrading to river and/or other identified resource values. (See appendix for additional discussion of water rights and water resource projects).

Implementation Summary Table

SANDY RIVER IMPLEMENTATION PLAN SUMMARY TABLE

SCHEDULE OF PLANNED ACTIVITIES AND COST ESTIMATES



Sandy River Management Plan

SANDY RIVER IMPLEMENTATION PLAN SUMMARY TABLE
SCHEDULE OF PLANNED ACTIVITIES AND COST ESTIMATES

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
RECREATION Facilities	* Develop a management plan for Dodge Park and vicinity, in coordination with PWB's long-term potential use for the site.	BLM/PWB/Others	93-94	5,000
	* Provide primitive sanitation facilities at key public use access areas if water quality testing or area monitoring documents impacts.	BLM	Ongoing	Unknown
	* Work cooperatively with BLM, DSL, Multnomah County and local landowners in developing any management plan, facility or activity at Dabney Park.	State Parks	Ongoing	None
RECREATION Trails and Public Access	* Work with Multnomah County and State Parks to improve existing parking/trailhead areas along Gordon Creek Rd.	BLM/State Parks/Mult.	94-96	30,000+
	* Inventory, close and rehabilitate, if necessary, dispersed camping sites and user trails along the river and in riparian areas where resource damage is present on Federal or other public lands.	BLM and State Agencies	95-97	20,000
	* Close federal lands to OHV (motorized) access and cooperate with state agencies to restrict motor vehicle access on public lands in the gorge.	BLM/State Agencies	94	None

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
RECREATION Interpretation, Information and Environmental Education	* Develop a comprehensive interagency interpretation/public information and education plan for the entire river corridor.	BLM/State Parks/Others	94	15,000
	* Provide cooperative funding for interpretation and a volunteer coordinator position with Multnomah County and work with Oxbow Park and State Parks to develop interpretive facilities.	BLM/Multnomah Co.	94	15,000/yr
	* Continue to pursue support for the annual Salmon festival at Oxbow Park.	BLM/ODFW/State Parks	93	4,000/yr
	* Place signs/kiosks displaying river maps and other information at all key access points.	BLM and State Parks	95	15,000
	* Develop and publish interpretive materials concerning the river, including a river map/brochure.	BLM/ODFW/State Parks	95	7,500
	* Work with local businesses to provide recreation and interpretive information and displays.	BLM/Multnomah Co.	96	2,500
	* Provide and post informational signs marking public and designated private lands in or near high use areas if trespass problems have been identified.	BLM and State Parks	96	5,000

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
RECREATION Management and Monitoring	* Develop and implement a comprehensive recreation monitoring program and visitor use survey (year round study).	BLM and State Parks	96	40,000+
	* Increase the level of agency/ranger patrols, visitor contact and law enforcement during high use periods. Coordinate with other managing agencies to provide seasonal ranger patrols.	BLM and State Parks	94-95	40,000/yr
	* Provide additional signing and information along roads and at key access points to channel recreation use to appropriate locations, encourage resource protection practices and inform users of private lands and landowner concerns.	BLM/State Parks/Counties	95	10,000
	* Pursue the use of Oregon State Patrol Cadets to help enforce fishing and other regulations on the river.	State Parks/OSP/BLM	94	35,000/yr
	* Conduct cooperatively sponsored annual river clean-up events and other river clean-up efforts.	BLM/State Parks/ ODFW/Multnomah Co.	94	3,500/yr
	* Continue to restrict motorized boating use in the designated segment.	BLM and OSMB	Ongoing	None
	* Establish Limits of Acceptable Change (LAC) process for recreation use and impacts to determine use level capacities and needs for management action.	BLM and State Parks	96-98	45,000
	* Recommend that Clackamas County adopt ordinances to increase county penalty for illegal dumping and conduct regular dumping/litter patrols.	BLM	94	None
	* Institute an outfitter and guide policy and permit outfitted use as required.	BLM	93	None

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
WATER QUALITY AND QUANTITY	* Develop a monitoring program for water quality and quantity, including chemical, biological, physical property indicators and stream discharge.	BLM	93	5,000/yr
	* Develop water quality standards using the LAC planning process and notify ODEQ of parameters and thresholds.	BLM	95-97	5,000
	* Establish an action plan outlining notification procedures and mitigation measures if pollution levels are exceeded.	BLM	94	4,000
	* Develop an interagency policy on the use of pesticides/herbicides and chemicals within the riparian zones on all lands in the watershed and prohibit the use of pesticides in riparian zones on federal lands.	BLM and ODF	96	3,000
	* Pursue "Outstanding Waterbody of the State" designation for the river.	BLM	95	2,000
	* Work with county and the state on enforcement of existing water quality laws, zoning codes and development regulations.	BLM	95	1,000/yr
	* Encourage ODEQ to establish a water quality monitoring site near the mouth of the river.	BLM	95	1,000
	* Allow stream bed and bank work to improve fisheries habitat.	BLM	Ongoing	3,000/yr
	* Pursue and conduct watershed enhancement opportunities through cooperative efforts with other agencies and organizations to reduce non-point source pollution.	BLM	Ongoing	5,000+
	* Work with state agencies to conduct a comprehensive instream flow study for fish and recreation values.	BLM/ODFW/OPRD	95-98	50,000+
	* Encourage ODEQ, ODFW and OPRD to apply for instream water rights to protect fish and recreation values.	BLM	98	1,000
	* Develop and/or assist in interpretive programs to promote water conservation in a manner consistent with existing educational programs.	BLM/WRD/PWB	Ongoing	2,000/yr
	* Monitor and participate in the resolution of issues which have the capacity to impact instream flows to the point that outstandingly remarkable values are adversely affected.	BLM	Ongoing	5,000+

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
FISH Habitat Management and Monitoring	* Conduct a habitat inventory of mainstem secondary channels to determine the number, types and locations of habitat improvement needed. Initiate habitat improvement projects as determined necessary.	BLM	93-96	84,000+
	* Conduct habitat inventory on Gordon, Buck, Trout, Walker and lower Big Creeks. Conduct species monitoring/population estimates on Gordon and Trout Creeks.	BLM and USFS	93-94	10,000+
	* Work cooperatively with ODFW, Multnomah and Clackamas counties, private landowners and organizations to improve anadromous fish habitat on the mainstem and several major tributaries.	BLM	94-95	120,000
FISH Stock Management	* Coordinate interagency planning and develop a management strategy with emphasis on wild stock production.	BLM and ODFW	94-98	250,000+
	* Recommend to ODFW a management emphasis that would encourage rehabilitation of and improved production of native/wild salmonids while providing close to existing levels of consumptive fishing.	BLM and ODFW	94	None
BOTANICAL AND ECOLOGICAL	* Develop a botanical inventory and monitoring program for the river corridor.	BLM	94-96	12,000+
	* Provide educational material and technical assistance to landowners concerning the identification and conservation of wildlife found in the corridor, including hiring and SCA student to assist landowners.	BLM and Others	94-99	5,000+/yr
	* Establish agreements with willing landowners to facilitate inventory and monitoring projects on private lands and mitigate potential impacts to plants or plant habitat on private lands.	BLM and Others	94-95	5,000+
	* Revise the fire management plan for the river corridor in conjunction with counties and ODF.	Inter-Agency	94-95	5,000+
	* Establish interpretive displays and programs about Sandy River Gorge botany/ecology at Oxbow and Dabney parks.	State Parks/Mult. Co. BLM/TNC	94-95	14,000+
	* Coordinate with State Department of Agriculture and counties to develop a noxious weed and exotic species control policy.	Inter-Agency	94-95	Variable

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
WILDLIFE	* Form an interagency management group to facilitate wildlife and other management decisions and actions.	BLM and ODFW	94-95	5,000
	* Conduct general wildlife surveys and habitat inventories and monitor osprey nesting activity.	BLM	Ongoing	10,000/yr
	* Create a Sandy River Gorge site-specific wildlife observation file compiled from agency, organization and landowner information.	Mult. Co./BLM/ODFW	95	3,500
	* Evaluate wildlife impacts related to dispersed campsites in and adjacent to riparian areas. Close and rehabilitate areas found to have unacceptable impacts.	BLM/Mult. Co./DSL	94-97	
	* Evaluate need to restrict recreational use in the riparian area to maintain travel corridors for wildlife and reduce disturbance for wildlife during critical seasons.	BLM and ODFW	94-95	6,500
	* Provide technical assistance and information to private landowners for mitigation and enhancement opportunities in sensitive habitat areas.	BLM and ODFW	94-ongoing	3,000+
	* Pursue willing seller easements, cooperative agreements or purchases of critically important habitat on private lands.	BLM/ODFW/TNC	Ongoing	
	* Maintain healthy populations of beaver through habitat restoration, trapping restrictions, and development of an inventory and monitoring program.	BLM and ODFW	Ongoing	
	* Develop an elk management agreement in coordination with other agencies and interested landowners. ODFW would monitor elk populations within the corridor.	BLM	Ongoing	
	* Work with private landowners to limit motor vehicle access to certain area on private lands to protect winter range and decrease disturbance.	BLM/ODFW/USFWS	93-95	
	* Increase law enforcement management presence and ranger patrol to reduce poaching.	BLM/ODFW/State Parks /State Police	Ongoing	1,500

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
CULTURAL RESOURCES	* Conduct a cultural inventory in the river corridor on public lands and in cooperation with the State Historic Preservation Office and counties through the Goal 5 process.	BLM	96-97	35,000
	* Collect specific oral histories for the Sandy River Area.	BLM	Ongoing	10,000+
	* Evaluate and determine NRHP eligibility of all sites.	BLM	As needed	5,000+/site
	* Manage identified NRHP sites for scientific, conservation and interpretive purposes, as appropriate.	Land managing agency or landowner	Ongoing	2,000/yr
	* Interpret cultural resources to emphasize cultural history as well as resource protection.	BLM and State Parks	Ongoing	1,500+/yr
VISUAL RESOURCES and LAND USE	* Establish an inventory and monitoring program for scenic values in the river viewshed, map viewshed using GIS and compile periodic (5-year) reports summarizing monitoring results.	BLM	94-95	3,500/yr
	* Improve coordination, effectiveness and efficiency of existing land use, Scenic Waterway and zoning regulations between federal, state and county agencies.	BLM/Counties/ODF /State Parks	Ongoing	17,000+
	* Establish a river liaison position within county planning departments to review development activity and provide technical assistance and information.	BLM/counties/state	94-96	
	* Acquire land or scenic easements from willing sellers in the scenic corridor.	BLM/counties/state	94-96	750,000
	* Develop landowner incentive, education and stewardship programs to foster cooperation and partnerships in the management of the river.	BLM and State Parks	95-96	25,000
	* Coordinate forest management practices within and adjacent to the river corridor.	BLM/State Parks/ODF	94-96	3,500

Sandy River Management Plan

RESOURCE	DESCRIPTION OF ACTIONS AND ACTIVITIES	RESPONSIBLE AGENCY	FISCAL YEAR	ESTIMATED COSTS
GEOLOGY	* Develop a geologic field trip guide and other interpretive material for the public.	BLM/Mult. Co./TNC	96	3,000
	* Develop a slide show of known unique geologic features to share with the public and provide interpretive information at parks in the corridor.	BLM/Mult. Co./TNC	95	2,500
	* Inventory and monitor the buried forests.	BLM/TNC/DSL	95,Ongoing	1,500
	* Request that the state place the Sandy River Gorge on the List of Unique Geologic Features.	BLM/TNC/State Parks	94	700
	* Withdraw all federal lands along the Sandy River from mineral entry.	BLM	95	3,500



APPENDIX D

■ GEOTECHNICAL REPORT

PATRICK B. KELLY
CONSULTING ENGINEER

November 15, 1996

K226.01

Mr. Jim Walsh
J. D. Walsh & Associates, P.S.
1924 Broadway Street Suite A
Vancouver WA 98663-3380

**RE: GEOTECHNICAL RECONNAISSANCE FOR MASTER PLANNING STUDY; OXBOW
REGIONAL PARK; SANDY RIVER GORGE, MULTNOMAH COUNTY; METRO
REGIONAL PARKS AND GREENSPACES DEPARTMENT**

Dear Jim:

I have completed a geotechnical reconnaissance study for the Oxbow Regional Park and present herein the results of my work. In addition to conducting two field surveys, available geologic and soils data was studied and park improvement recommendations were reviewed.

A primary focus of the study was the large landslide that occurred last winter and an adjacent area of slope movement that has impacted the park access road and main water line for many years. In this report, following descriptions of the geologic and near-surface soil conditions, general geotechnical engineering comments and suggested actions/remedial measures are presented for the slope movement concerns as well as other aspects of possible future park improvements.

GEOLOGY OF PARK AREA

Three bedrock formations are exposed within the park boundaries; these are, from oldest to youngest: The Sandy River Mudstone (SRM) formation; the Troutdale formation (TF) and the Estacada formation (EF). Below an elevation of approximately 140 feet above mean sea level (MSL), the park area is covered with recent alluvial deposits, slope colluvium and landslide debris. In the following paragraphs, each of the geologic units is described sequentially by age, beginning with the oldest unit.

Sandy River Mudstone (SRM)

The Sandy River Mudstone is exposed at the site below approximately elevation 200 feet MSL in Sections 10 (SE corner) and 15, slightly higher (elevation 250 feet MSL) in Section 14 and slightly lower (elevation 150 to 175 feet MSL) in the east portion of Section 10. The variation in elevation is due in large part to the 2% westerly dip of the formation; erosion of the original surface and covering by colluvium and slide debris may also obscure the top of the SRM. The thickness of the SRM is estimated at 400 feet in the Oxbow Park area based on a water well log at Camp Collins. The greatest exposed thickness of the SRM is between 200 and 300 feet MSL at a location 2 to 3 miles southeast of the park in the valley of Bear Creek.

The Sandy River Mudstone consists mainly of lake-deposited beds of silt or very fine sand. Hence, the units comprising the formation are classified as mudstone, siltstone, claystone and very fine sandstone. A thin lapilli

tuff exists about 100 feet below the top of the formation. Because the SRM is relatively impermeable, it forms a barrier to downward percolating groundwater; and the faces of most bluff exposures are wet and slippery.

Relatively rapid weathering of the SRM causes the unit to be susceptible to slumping (rock falls and slope movement or landsliding). That condition resulted in several landslides at the park last winter. The weathering and slumping causes undermining and periodic slumping of the overlying Troutdale formation. Hence, considerable slide debris with numerous cobble and boulder sized rocks is present along the toe of the slopes in the park.

Troutdale Formation (TF)

The Troutdale formation overlies the SRM and the top of the formation extends to as high as approximately elevation 600 feet MSL in the Oxbow Park vicinity. Its maximum thickness within the park is approximately 450 feet; the minimum occurs below the Estacada formation on the top of Alder ridge. The TF is comprised of sandstone and conglomerate formed from deposits made by a great piedmont fan of Pleistocene age (approximately 2 million years before present).

The Troutdale formation, particularly the sandstone and conglomerate units, is well indurated; the cementing agent consists mainly of clay minerals. Some of the sandstone layers, because of their composition, decompose and weather relatively rapidly. Hence, the TF is subject to localized slumping and rock falls.

Estacada Formation (EF)

The Estacada formation is present in the park below a 2,000 foot long by 700 to 800 foot wide portion of Alder ridge; it is also present at the top of the park ridge on the north side of the Sandy River. This formation is approximately 100 feet thick and generally consists of sand in the lower half and cobble gravel and bouldery cobble gravel in the upper portion. The formation is estimated to be late Pleistocene in age (i.e., more than 8,000 years old). Due to the granular nature of the formation and its relatively young age, slumping or landsliding in the formation is rare except as the result of slumping in the underlying Troutdale and Sandy River Mudstone formations.

Recent Deposits

Below approximately elevation 100 feet the park area is covered by deposits of recent (Holocene) age. These recent deposits consist mainly of silt and granular soils deposited by the Sandy River, i.e., alluvial deposits. Near the toe of slopes that extend above elevation 100 feet are deposits resulting from deterioration of the bedrock formations above. These include colluvium and landslide debris deposits consisting of silt through boulder size material.

SOIL CONDITIONS

Based on Soil Conservation Service (SCS) maps for the site area, near-surface soils (i.e., the upper 5 to 6 feet) in Oxbow Park are predominately silty SAND and SAND. The upper 12 to 15 inches is typically very dark brown and very dark grayish brown silty fine to medium SAND; below 15 inches is dark gray coarse and medium SAND to a depth of 60 inches or more. Rapid permeability and slight erosion hazard further characterize the soil. Adjacent to the Sandy River are deposits of well rounded sand, gravel, cobbles, stones and boulders derived from basalt or andesite. Deposits of slope colluvium and landslide debris are present on the steep slopes along the river. These are well drained soils consisting of, in general, approximately 12 inches of very dark brown to dark grayish brown sandy SILT or clayey sandy SILT overlying dark yellowish brown to brown mixture of sand, gravel, cobbles and boulders (SCS reports indicate that 65 percent of this layer is gravel

and cobbles). The SCS also indicates that permeability in the colluvium and landslide debris materials is moderate to slow, that runoff is slow to rapid, and erosion hazard is slight to high. Another comment by the SCS report is that these deposits are subject to slope movement during high rainfall periods.

SITE RECONNAISSANCE OBSERVATIONS

Three recent landslides were noted in the Troutdale and Sandy River Mudstone formations. One slide appears to be associated with filling for the maintenance access road to alder ridge. The others appear to be the result of natural processes, i.e., excess groundwater pressure, steep slope gradients, and deterioration of the bedrock material.

The large landslide area located 0.75 road miles from the park entrance station occurred in the Troutdale and Sandy River Mudstone formations and may have been partly the result of concentrated drainage from uphill sources. The slide area has experienced some erosion and sloughing over the last six months but does not appear to threaten the access road at this time. Improved surface drainage at this location will reduce or eliminate the kind of erosion damage that occurred in this area below the road last winter.

The slide area adjacent to (i.e., east/southeast of) the February 1996 slope failure is nearly 250 feet wide and extends 10 to 15 feet (at maximum) above the road. The road surface in this area has dropped at least 2.5 inches since the last pavement was placed. It appears that the road movement is related to poor surface water drainage from the area uphill of the slide and the fact that this section of the road is on a Man-Made Fill up to 12 or 14 feet thick constructed on what appears to have been a relatively a steeply sloping original ground surface. It is understood that breaks in the park's main water line have occurred in this area several times.

There were no signs of other unstable slope conditions (landslides) on or immediately adjacent to the access road. In addition, the erosion of slopes above and below the road has not been a significant problem except near the large landslide of last February. Although erosion by the Sandy River is an on-going geologic process, there do not appear to be any river slope areas near the access road that would be considered active at this time.

An area of overhanging Troutdale formation rock is visible across the access road from the park pump station at an estimated elevation of 150 feet MSL. The overhang appears to be above the contact between the Troutdale and Sandy River Mudstone formations.

COMMENTS AND SUGGESTIONS

Geotechnical Hazards

The large slide of last February should be monitored on a regular basis to watch for increased potential of large rock pieces breaking loose and moving onto the road. Additional barriers may be appropriate if the slope continues to deteriorate. Reducing or eliminating concentrated storm water flow onto the slide area from above should be examined.

The adjacent slide area where the road has dropped has a factor of safety near 1.0 during the winter and spring months and, in my opinion, would experience significantly larger movements or complete failure if an earthquake occurred during this time of the year. Failure due to a seismic event is less likely during the summer and fall months. Creep type movements of the slide will likely continue at the current rate unless remedial action is taken (see below for suggested intermediate measures).

In my opinion, the best remedial approach for this slide area is to move the road west (away from the river) a distance of 15 to 20 feet, preferably at a grade several feet below the existing ground surface in the relocation area. The water line should also be moved away from the river; a remedial approach that would leave a higher risk of future movement would be to leave the pipe in place and re-grade the existing road area to reduce the soil load on the sloping original ground surface.

Intermediate measures to reduce the risk of additional movements or failure of the road include improved surface water drainage above the road, a subsurface interceptor drain, and a retaining wall on the downhill side.

Rock falls are also a hazard in the park where the Troutdale formation has been undermined by either one of its own weaker zones or by the Sandy River Mudstone. All trail areas should be surveyed and areas of rock fall danger should be signed and possibly fenced off.

Site Improvements

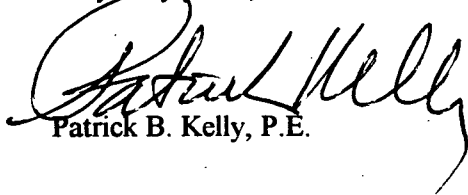
The soil conditions along the toe of the slope near elevation 100 feet consist of silt, sand, gravel, cobbles and boulders in a highly irregular mixture; the boulders probably are up to 8 or 10 feet in diameter. As a result, excavations in this area may require blasting if large boulders are encountered. Scattered large boulders are also possible throughout the area of geologically recent deposits.

The slope colluvium and landslide debris present in this area appears to contain enough silt that the material would be considered moisture sensitive. That is, drying or wetting of the soil may be required for proper compaction; typically, soils with more than 10 to 12 percent silt cannot be used effectively as fill in the Portland area during the winter and spring months.

Slopes cut into the slide debris and colluvium material will exhibit variable behavior with respect to erosion and sliding. Where excavations will exceed 3 or 4 feet high, care should be taken to select slope angles and surface/subsurface drainage strategies that will limit future maintenance problems.

I appreciate the opportunity to be of service on the Oxbow Regional Park Master Plan Study. If there are any questions please do not hesitate to call.

Very truly yours,



Patrick B. Kelly, P.E.



APPENDIX E

■ VEGETATION COMMUNITIES

OXBOW REGIONAL PARK MASTER PLAN

Ecological Conditions and Management Concerns: Vegetation

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September 3, 1996

Submitted to J.D. Walsh and Associates, P.S.
Vancouver, WA



Oxbow Regional Park
Mid-seral western hemlock forest

Oxbow Regional Park Master Plan
Ecological Conditions and Management Concerns
Ayn J. Shlisky, Ecological Consultant
September 3, 1996

BACKGROUND

Oxbow Regional Park is located within the Sandy River watershed in East Multnomah County, Oregon. It is over 1,000 acres in size and has been identified in the Metropolitan Greenspaces Master Plan as a regionally significant greenspace. Poracsky et al. (1992), in the *Metropolitan Greenspaces Program Data Analysis*, concluded that the Sandy River is notable for its numerous oxbows, forested slopes and streambanks, and native salmon and steelhead populations. Oxbow Park was identified as one of the most natural urban parks in the state; it borders four miles of State Scenic and Federal Wild and Scenic River (Sandy River).

EXISTING VEGETATION - CONDITION AND TREND

Six primary vegetation types or seral stages currently exist within Oxbow Regional Park (The Park): late seral western hemlock forest (ancient forest), mid-seral western hemlock forest, early seral western hemlock forest (red alder-bigleaf maple forest), meadow, flood plain riparian forest and altered rural residential/agricultural sites. Figure 1 illustrates the location of these vegetation types and seral stages within The Park and management area boundaries. Appendix A provides scientific names for the plant species discussed below.

Considering the amount of human use experienced by The Park, the overall ecological condition of the vegetation within The Park appears to be healthy. There is a diversity of seral/structural stages providing horizontal landscape diversity, while maintaining a block of ecologically significant late seral forest (ancient forest). However, exotic/noxious plant species occur in all areas of The Park, and in some areas may physically displace native species, reducing native biodiversity. Their eradication may prove to be the greatest ecological goal within The Park. Appendix B provides general guidance on developing an effective integrated noxious weed management program for The Park, consistent with any current State or County policies.

Ecological processes, conditions and management concerns are discussed by vegetation type or seral stage, below. Rural residential/agricultural sites will not be discussed further except in relation to future acquisition to expand The Park.

Late Seral (Ancient Forest) and Mid-Seral Western Hemlock Forests

Late seral, 300+ year old western hemlock forest covers the north-facing slopes of The Park on the south side of the Sandy River from approximately the pump station east to group picnic areas A and B. A smaller area of late seral forest occurs farther to the east just south of the campground. Mid-seral western hemlock forests (approximately 100 years of age) can be found on steeper northwest- and southeast-facing slopes, and on broad flats on the south side of the Sandy River, and on steeper west-, southeast- and south-facing slopes on the north side of the Sandy river not occupied by hardwood flood plain riparian forest or red alder-bigleaf maple forest.

The late and mid-seral forests of The Park consist of a complex of the western hemlock/swordfern-oxalis and western hemlock dwarf Oregongrape/swordfern plant associations (Halverson et al. 1986). These plant associations generally represent warm, moist, low to mid-elevation sites within the western hemlock zone. In general, the western hemlock/dwarf Oregongrape plant association is found on steep and somewhat unstable slopes, and the western hemlock/swordfern-oxalis plant association is found on flatter slopes, alluvial areas or moist toe slopes.

The late and mid-seral forests of The Park are characterized by a tree canopy dominated by western hemlock, Douglas-fir, western redcedar and bigleaf maple. The shrub layer primarily consists of varying densities of dwarf Oregongrape, red huckleberry, salal, baldhip rose and creeping snowberry. The herb layer is dominated by swordfern and/or Oregon oxalis, and frequently includes pathfinder, ladyfern, starry solomonseal, inside-out flower pig-a-back plant, wild ginger and Hooker's fairybells. All of these herbs, with the exception of swordfern and pathfinder, are moist site indicators. The ancient forest, in general, appears ecologically healthy, supporting a vertically diverse multi-layered canopy, relatively high plant species diversity, relatively abundant amounts of snags and downed large woody debris, and horizontal diversity in the form of canopy gaps.

Poracsky et al. (1992) identified 31 plants considered to be relatively rare, or indicators of undisturbed or important habitats in forests within the Metropolitan Greenspaces System. Of these species, at least 20 species were found to occur in the late and/or mid-seral forests of The Park. These 20 species include: northern maidenhair fern, maidenhair spleenwort, deerfern, mountain woodfern, licorice fern, wood fern, Pacific yew, western hemlock, bead lily, Hooker's fairybells, large-flowered fairybells, tiger lily, wild ginger, vanillaleaf, coolwort foamflower, Oregon oxalis, western white anemone, Pacific dogwood, red huckleberry and pathfinder.

Agents of Change

Natural agents of change within the late and mid-seral forests of The Park include fire, insects, pathogens, wind and landslides. Human-caused agents of change include erosion, fire suppression and introduction of exotic/noxious plant species.

The fire regime within these forests is probably closest to those within Fire Group Eight, as described by Evers et al. (draft 1994). In general, forests in this group lack fine fuels through most of their successional history. "Old growth" stand conditions are common in areas relatively undisturbed by humans, indicating infrequent natural disturbance. Fuel loadings tend to build rapidly once the overstory begins to die from insects and disease attack, and drier conditions of canopy gaps can provide a suitable fuelbed for fire starts. Deep duff and large logs are typical in this group. Wildfire hazard is usually low to moderate, depending on weather conditions and the existence of canopy gaps. In most years forests in this group are slow to dry, but once the duff dries, it will carry fire. Fire frequencies in these forests, based on data from the Mt Hood and Gifford Pinchot National Forest, average 50-200+ years between fires. On similar sites north of Mt St. Helens, Yamaguchi (1986) found a fire regime of infrequent large stand replacing fires and relatively infrequent low intensity fires occurring every 40-50 years for the first 150 years of stand development. After the first 150 years of stand development, a fire burned every 125-500 years within the study area. Evers et al. (1994) found that, in general, fire sizes in this group are either small (less than 10 acres) or very large (greater than 1000 acres). Conditions which result in prolonged drought, strong east winds and large fires occur about every 30 years.

Current fire regimes within late and mid-seral forests within The Park are probably somewhat different than prior to white settlement. Fire suppression has most likely eliminated the degree of underburning (low intensity ground fire) and stand replacement events that naturally occurred in these forests. However, the difference between current and pre-settlement fire regimes is probably less in these plant associations due to the natural infrequency of fire than that observed in other, more frequently disturbed plant associations in the region.

Endemic levels of insects and pathogens in late and mid-seral forests in The Park serve to initiate gap-phase regeneration and create horizontal and vertical diversity. Herb, shrub and tree seedling cover increases with the creation of canopy gaps, and helps maintain tree species diversity through the maintenance of shade-intolerant species in the stand. There are no indications currently that human intervention or impacts have significantly altered natural insect and pathogen processes. However, activities such as fire suppression which contribute to ecological stress (e.g. through prevention of natural stand thinning processes) have the potential to create conditions which facilitate acceleration or expansion of insect and pathogen infestation.

On steep north-facing slopes, unstable slopes in conjunction with high wind and/or insects/pathogens, or landslides are an agent of change creating canopy gaps through individual tree-fall. A few recent landslides have occurred within the late seral forests of The Park (Figure 1). This process is a major contributor to the current level of large downed woody debris within late seral forests of The Park. Mid-seral forests generally have less downed large woody debris than late seral forests within The Park due to differences in natural disturbance processes (i.e. insect/pathogen activity) between these two structural stages.

Human-induced change within late and mid-seral forests of The Park include trail construction and use, fire suppression and introduction of exotic/noxious plant species. Trail construction and mountain bike use on unstable slopes has caused accelerated soil erosion and degradation of ancient forest values through soil loss and increased landslide hazard (e.g. see trail between trail markers E and G, recently closed due to mountain bike impacts). Exotic plant species such as Himalayan blackberry, common St. John's wort, evergreen blackberry, scotch broom, holly, Canada thistle and tansy ragwort have been introduced by man and have expanded along trails and disturbed areas through hiking and horseback riding. Fire suppression has had relatively minor impact on late and mid-seral forests in The Park since fire return intervals for stand replacement fires prior to white settlement are believed to have been relatively long. Fire suppression may have lengthened fire return intervals for lower intensity underburning from pre-white settlement intervals, particularly in mid-seral forests. This may have created greater understory tree densities than would historically be found on these sites, thus creating greater ecological stress in existing trees, slightly greater risk for insect and/or pathogen attack and slightly greater fire hazard. Currently, there is no sign that this is a major concern, or that an insect epidemic on the scale that has occurred on the east side of the Cascades in recent years is imminent.

Succession

Following a stand replacement disturbance, the western hemlock plant associations of The Park can be expected to be dominated by herbs and shrubs, followed predominantly by red alder, bigleaf maple and Douglas-fir seedlings and saplings. In the absence of disturbance, these sites will develop through red alder and/or Douglas-fir pole and mature structural stages, paving the way for western hemlock and western redcedar to develop in the understory, creating multistory forest conditions. With time, a late seral, multi-story, western hemlock-Douglas-fir-western redcedar forest will develop. Low intensity fire in mature or late seral structural stages will tend to maintain those conditions. High intensity fires in any stage will tend to move the site back to an early seral, herb/shrub stage. Moderate intensity fires in the pole, mature or late seral structural stages will tend to thin tree densities, favoring more fire-tolerant species (i.e. Douglas-fir over western hemlock).

Management Concerns

The management priority for late seral forests in The Park should be their protection. Although stand replacement fire is a significant natural process on these sites, and the age of these stands are currently within the "window" of fire return intervals observed for these plant associations elsewhere, the current distribution of late seral forests in The Park represents a unique and significant block valuable to wildlife and human use. Until adequate blocks of replacement late seral habitat are protected or acquired adjacent to The Park, existing areas of late seral forest should be protected against stand replacement disturbance.

Current endemic levels of insects and pathogens, and landslide activity will likely maintain adequate levels of downed large woody debris consistent with similar, more natural sites. Allowance of low intensity underburning will not likely cause ecological concern, and may assist in maintaining healthy tree densities. However, risks of low intensity fire developing into a higher intensity burn due to ladder fuels, and impacts on human use should be carefully weighed against the benefits. Monitoring of the impacts of fire suppression on forest composition and structure, and resultant impacts on fire regimes, insect and pathogen risks and wildlife habitat should be initiated and implemented to ensure protection of late and mid-seral forest values.

Along trails, management should be focused on eradication of exotic/noxious plant species and prevention of future introduction into The Park. Priority should be placed on eradication of aggressive invading species such as Himalayan blackberry, holly and scotch broom, all found intermittently along trails within the late and mid-seral forests. These species have the potential to displace native species and reduce natural biodiversity. Manual control is probably the best method to control exotic plant species on these sites. Horse use should be prohibited in late seral (ancient) forest to reduce future invasions of species transported by seeds on or in the livestock. Public awareness programs can be initiated to reduce introduction of exotic species through transport of seed on hiking shoes or vehicles.

Trail maintenance should focus on reduction of erosion through limitation of uses which contribute or accelerate erosion in sensitive areas (e.g. limit mountain biking to less sensitive areas), and maintenance of drainage. For example, within the late seral forest, the trail between trail markers F, I and J crosses many springs and seeps, some of which have plugged or inadequate culverts and may cause accelerated erosion of the trail. This will probably be a common concern for trail construction and maintenance anywhere within the park where the Sandy River Mudstone is exposed; where there is often year-round seepage from the top of this formation (Ciecko 1990).

Early to Mid-Seral Western Hemlock Forest (Red Alder-Bigleaf Maple Forest)

Red alder-bigleaf maple forests occur on upland, northwest facing slopes and ridges south of the Sandy River, and on upland west- and south-facing slopes north of the river within The Park (Figure 1). These forests represent an early to mid-seral, harvest-initiated stage of the western hemlock/swordfern-oxalis and western hemlock/dwarf Oregon grape/swordfern plant associations. They are mostly dominated by an overstory canopy of red alder and bigleaf maple, with seedling to pole-sized Douglas-fir, western hemlock and western redcedar subordinate in the understory. North of the Sandy River, some of these sites have greater conifer development, and may have early mature Douglas-fir, western hemlock and/or western redcedar individuals co-dominating the overstory along with red alder and bigleaf maple. Understory shrubs and herbs are similar to those found in later seral stages, as described above.

Agents of Change

Natural and human-induced agents of change are the same as those described for late and mid-seral western hemlock forests, above. In addition, these early to mid-seral red alder-bigleaf maple forests have been impacted by past timber harvest (clearcut harvest).

Succession

Successional processes are the same as those described for late and mid-seral western hemlock forests, above. These seral stands were created through timber harvest, and are beginning to show development toward late seral conifer-dominated compositions. Douglas-fir, western hemlock and western redcedar of varying sizes and ages from seedlings to pole or larger are developing under the hardwood canopy. With time and lack of disturbance, the hardwood overstory will give way to emerging conifers, finally developing into a late seral western hemlock forest (most likely western hemlock/swordfern-oxalis and western hemlock/dwarf Oregon grape/swordfern plant associations).

Management Concerns

The existing red alder-bigleaf maple forests provide for horizontal and vertical habitat diversity within the landscape of The Park. With time and lack of disturbance, these forests can contribute to the area of late seral habitat protected within The Park in the long-term. The primary management concern in the short-term is the relative lack of large downed woody debris due to its removal during past timber harvest activities. A recent slide was observed within this type on the upper end of the trail segment between trail markers H and F (Figure 1). Additionally, the westernmost trail on the north side of the Sandy River within this vegetation type is being eroded by poor drainage of a seep above the trail. Currently, it is acting as a small creek, with water draining directly down the trail toward the flood plain.

Management for eradication or prevention of exotic/noxious plant species invasion is similar to that for late seral forest, discussed above.

Meadow

Elk Meadow is located on the flat ridge in the southeast portion of The Park (Figure 1). It was created in 1995 through clearing and grass seeding, and is surrounded by red alder-bigleaf maple forest.

Agents of Change

Since Elk Meadow is man-made, natural disturbance and successional processes have been altered, and their impacts on the landscape depend on future activities implemented to maintain the meadow. The potential natural vegetation, unless human activity has altered site capability, will remain western hemlock forest. With maintenance of the meadow, infrequent, high intensity fire will be replaced by grazing and ground disturbance by burrowing animals as the primary natural agents of change.

Succession

Natural successional forces toward dominance by forest conditions will likely continue unless site capability has been altered through human activities. Currently, the meadow is surrounded in part by increasing stands of Canada thistle. Degradation of meadow health (soil compaction, soil erosion, reduction in plant density, overgrazing by wildlife or livestock, etc.) can initiate succession toward earlier herbaceous seral stages, including exotic or noxious plant species.

Management Concerns

The primary management concern in this type is maintenance of healthy meadow condition. Degradation of meadow health may allow exotic plant invasion from adjacent stands of Canada thistle, or from direct introduction by wildlife or livestock. Public awareness programs stressing the impacts of livestock grazing and transport of undesirable seed can be implemented to reduce future impacts. Manual and biological control, if possible, are probably the best methods to eradicate Canada thistle adjacent to Elk Meadow. Fertilization of the meadow can be considered as a progressive measure to minimize the potential for exotic/noxious plant species invasion. With time, it is likely that hardwood and conifer seedlings will become established within the meadow, and will need to be mechanically removed to maintain meadow vegetation.

Flood Plain Riparian Forest

Riparian vegetation occupies the flood plains within The Park. Vegetation on these sandy, alluvial, frequently disturbed sites includes: black cottonwood, Douglas-fir, western redcedar, red alder, Oregon ash, bigleaf maple, willow and grass species, and equisetum. Introduced exotic/noxious plant species include scotch broom, Himalayan blackberry and Canada thistle.

Agents of Change

The primary agent of change in these riparian forests is the river itself. Floods wash some terraces, uprooting and removing some of the vegetation, while depositing cobble, silt and sand elsewhere. Between flood events, vegetation becomes reestablished. Horses, and to a lesser extent humans, act as an agent of change through their introduction of seed from exotic/noxious plant species.

Succession

Successional relationships within flood plain riparian systems are complex due to frequent disturbance of both the vegetation and the substrate within which it grows.

Management Concerns

Poracsky et al. (1992) concluded that the general health of the Sandy River and its tributaries is good, and efforts should be made to maintain and enhance these conditions. They state that "protection,

enhancement and restoration of the Sandy River Delta, and the headwaters and entrance into the Sandy of all its tributaries is critical to protection of this ecosystem. Linkage between the waterways and the adjacent uplands to Mt. Hood is critical...Protection of [Gordon, Buck and Trout] creeks and the vegetated riparian buffer should be a priority for its habitat value as well as the critical linkage they provide between Mt. Hood and the Columbia River." Management of the riparian and flood plain systems in The Park should focus on maintenance of native vegetative diversity, eradication of exotic/noxious plant species and prevention of their future introduction, prevention of disturbance to native wildlife habitat and maintenance of natural stream and riverine processes. Eradication of scotch broom and Himalayan blackberry and prevention of future invasion will be the greatest challenge in this vegetation type. Manual and biological control, if possible, should be considered to reduce existing populations. Alteration of stream channel morphology through trail or other facility construction should be minimized to protect riverine processes and riparian vegetation.

LANDSCAPE ECOLOGY

Oxbow Regional Park is a relatively diverse landscape within largely rural residential and agricultural lands, and in conjunction with adjacent lands held by The Nature Conservancy, provides critical wildlife habitat and ecological values for human recreational use. Poracsky et al. (1992) concluded that acquisition to increase acreage and connectivity to Oxbow Park and the Sandy River Scenic Waterway should be a priority for the Metropolitan Greenspaces Program, and I wholeheartedly agree.

PUBLIC AWARENESS PROGRAMS

Aside from the intrinsic value of protecting ecological values of ecosystems within The Park, the location and health of these ecosystems provide a valuable opportunity to educate the public about natural systems in the Metro area. Interpretive and educational programs can take the form of guided hikes, interpretive signage, and self-guided walks with brochures and subtly marked points of interest along trails. Potential interpretive opportunities, if not already covered by existing educational programs within The Park, include:

- forest succession (including gap-phase succession)
- plants as site indicators
- N₂ fixation (e.g. alder)
- fire ecology
- impacts/prevention of exotic plant invasion
- geology
- soil formation
- soil erosion hazard
- watersheds

- plant identification
- environmental stewardship
- ancient forest values
- ecosystem interrelationships
- flood processes
- stream morphology
- nutrient cycling
- riparian values
- biodiversity

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APPENDIX A(1) - Sorted by common name

PARTIAL LIST OF PLANT SPECIES OF OXBOW REGIONAL PARK, MULTNOMAH COUNTY, OREGON

Compiled from field reconnaissance and from Ciecko (1990).

COMMON NAME	SCIENTIFIC NAME
Trees	
bigleaf maple	<i>Acer macrophyllum</i>
black cottonwood	<i>Populus trichocarpa</i>
creek dogwood	<i>Cornus stolonifera</i> var. <i>occidentalis</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
grand fir	<i>Abies grandis</i>
lodgepole pine	<i>Pinus contorta</i>
Oregon ash	<i>Fraxinus latifolia</i>
Pacific dogwood	<i>Cornus nuttallii</i>
pacific yew	<i>Taxus brevifolia</i>
red alder	<i>Alnus rubra</i>
western hemlock	<i>Tsuga heterophylla</i>
western redcedar	<i>Thuja plicata</i>
Shrubs	
black raspberry	<i>Rubus leucodermis</i>
blue elderberry	<i>Sambucus cerulea</i>
broadpetal strawberry	<i>Fragaria virginiana</i> var. <i>platypetala</i>
buck brush	<i>Ceanothus sanguineus</i>
California hazel	<i>Corylus cornuta</i> var. <i>californica</i>
cascara	<i>Rhamnus purshiana</i>
chinquapin	<i>Castanopsis chrysophylla</i>
Columbia River willow	<i>Salix fluviatilis</i>
common snowberry	<i>Symphoricarpos albus</i>
Douglas' sagebrush	<i>Artemisia douglasiana</i>
dwarf Oregongrape	<i>Berberis nervosa</i>
evergreen blackberry	<i>Rubus laciniatus</i>
goatsbeard	<i>Aruncus sylvestris</i>
Himalayan blackberry	<i>Rubus discolor</i>
holly	<i>Ilex</i> spp.
indian plum	<i>Oemleria cerasiformis</i>
kinnikinnick	<i>Arctostaphylos uva-ursi</i>
little pipsissewa	<i>Chimaphila menziesii</i>
mock orange	<i>Philadelphus lewisii</i>
ninebark	<i>Physocarpus capitatus</i>
oceanspray	<i>Holodiscus discolor</i>
poison oak	<i>Rhus diversiloba</i>
prince's pine	<i>Chimaphila umbellata</i>
red elderberry	<i>Sambucus racemosa</i> var. <i>laevigatus</i>
red huckleberry	<i>Vaccinium parvifolium</i>
salal	<i>Gaultheria shallon</i>
Salix spp.	willow
salmonberry	<i>Rubus spectabilis</i>
scotch broom	<i>Cytisus scoparius</i>
scotch broom	<i>Cytisus scoparius</i> var. <i>andreas</i>
serviceberry	<i>Amelanchier alnifolia</i>
spirea	<i>Spiraea douglasii</i> var. <i>douglasii</i>

Shrubs - continued**COMMON NAME**

stink currant
straggly gooseberry
tall Oregongrape
thimbleberry
trailing blackberry
vine maple
wild rose
wood rose
wood strawberry

SCIENTIFIC NAME

Ribes bracteosum
Ribes divaricatum
Berberis aquifolium
Rubus parvifolius
Rubus ursinus
Acer circinatum
Rosa nutkana var. *nutkana*
Rosa gymnocarpa
Fragaria vesca var. *bracteata*

Herbs

alumroot
American brooklime
barestem desert parsely
bead lily
bellflower
big deervetch
big St. John's wort
big-leaf sandwort
bird vetch
bishop's cap
bittercress
bittersweet nightshade
black twinberry
bleeding heart
blue-eyed Mary
bracken fern
brittle bladder-fern
broad-leaf stonecrop
broadleaf lupine
brown knapweed
buck-bean
butter-and-eggs
buttercup
California-tea
Calypso orchid
Canada thistle
candyflower
Cascade penstemon
collomia
common centaury
common chickweed
common forget-me-not
common horsetail
common monkey flower
common plantain
common sow-thistle
common St. John's wort
common vetch
coolwort foamflower
cow-parsnip
creeping Charlie

Heuchera micrantha var. *micrantha*
Veronica americana
Lomatium nudicaule
Clintonia uniflora
Campanula scouleri
Lotus crassifolius var. *subglaber*
Hypericum anagalloides
Arenaria macrophyllum
Vicia cracca
Mitella caulescens
Cardamine pensylvanica
Solanum dulcamara
Lonicera involucrata
Dicentra formosa
Collinsia grandiflora
Pteridium aquilinum
Cystopteris fragilis
Sedum spathulifolium
Lupinus latifolius var. *latifolius*
Centaurea jacea
Thermopsis montana var. *venosa*
linaria vulgaris
Ranunculus repens var. *repens*
Psoralea physodes
Calypso bulbosa
Cirsium arvense
Montia sibirica
Penstemon serrulatus
Collomia heterophylla
Centaureum umbellatum
Stellaria media
Myosotis scorpioides
Equisetum arvense
Mimulus guttatus
Plantago major
Sonchus oleraceus
Hypericum perforatum
Vicia sativa var. *angustifolia*
Tiarella trifoliata var. *trifoliata*
Heracleum lanatum
Glechoma hederacea

Herbs - continued

COMMON NAME	SCIENTIFIC NAME
cut-leaved water horehound	<i>Lycopus americanus</i>
Damask violet	<i>Hesperis matronalis</i>
deer fern	<i>Blechnum spicant</i>
deervetch	<i>Lotus corniculatus</i>
enchanter's nightshade	<i>Circaea alpina</i>
English plantain	<i>Plantago lanceolata</i>
evening primrose	<i>Oenothera strigosa</i>
false lily-of-the-valley	<i>Maianthemum dilatatum</i>
false solomonseal	<i>Smilacina racemosa</i>
field mint	<i>Mentha arvensis</i>
fireweed	<i>Epilobium angustifolium</i>
foxglove	<i>Digitalis purpurea</i>
fragrant bedstraw	<i>Galium triflorum</i>
fringecup	<i>Tellima grandiflora</i>
geranium	<i>geranium pusillum</i>
giant trillium	<i>Trillium chloropetalum</i>
grass pink	<i>Dianthus armeria</i>
great betony	<i>Stachys cooleyae</i>
great oxalis	<i>Oxalis trilliifolia</i>
great purple monkey flower	<i>Mimulus lewisii</i>
hairy cats-ear	<i>Hypochaeris radicata</i>
hairy rockcress	<i>Arabis hirsuta</i> var. <i>eschschooltziana</i>
harsh paintbrush	<i>Castilleja hispida</i>
horsetail	<i>Equisetum hyemale</i>
indian pipe	<i>Montropa uniflora</i>
inside-out flower	<i>Vancouveria hexandra</i>
ladies tresses	<i>Spiranthes romanzoffiana</i> var. <i>romanzoffiana</i>
lady fern	<i>Athyrium felix-femina</i>
large-flowered fairy-bell	<i>Disporum smithii</i>
larkspur	<i>Delphinium menziesii</i> var. <i>pyramidale</i>
licorice fern	<i>Polypodium glycyrrhiza</i>
little-leaved montia	<i>Montia parvifolia</i> var. <i>parvifolia</i>
longstalk starwort	<i>Stellaria longipes</i>
low pussy-toes	<i>Anatennaria dimorpha</i>
maidenhair spleenwort	<i>Asplenium trichomanes</i>
marter-parsley	<i>Oenanthe sarmentosa</i>
meadow goldenrod	<i>Solidago canadensis</i>
meadowrue	<i>Thalictrum occidentale</i>
Mexican betony	<i>Stachys mexicana</i>
miner's lettuce	<i>Montia perfoliata</i>
mountain sweet cicely	<i>Osmorhiza chilensis</i>
mountain wood-fern	<i>Dryopteris austriaca</i>
mouse-eared chickweed	<i>Cerastium vulgatum</i>
musk monkey flower	<i>Mimulus moschatus</i>
narrow-leaved montia	<i>Montia linearis</i>
nodding onion	<i>Allium cernuum</i>
northern maidenhair fern	<i>Adiantum pedatum</i>
northern saits	<i>Brodiaea congesta</i>
orange honeysuckle	<i>Lonicera ciliosa</i>
Oregon bedstraw	<i>Galium oreganum</i>
Oregon goldaster	<i>Chrysopsis oregona</i>

Herbs - continued

COMMON NAME

Oregon iris
Oregon wood-sorrel
oxeye-daisy
Pacific coral-root
Pacific sanicle
Pacific waterleaf
pathfinder
pearly-everlasting
peppermint
Persian speedwell
phantom orchid
pig-a-back plant
pink fleabane
poison-hemlock
prickly lettuce
prickly sow-thistle
Puget butterweed
rattlesnake plantain
red clover
red columbine
red sorrel
rose campion
sand-dwelling wallflower
self-heal
shepherd's cress
showy fleabane
Silene cucubalus
skunk cabbage
small-flowered blue-eyed mary
spreading dogbane
starflower
starry solomonseal
stinging nettle
stream violet
streambank arnica
suckling clover
sweet colt's foot
sweetpea
sword fern
tall bugbane
tansy ragwort
tiger lily
towermustard
twinflower
twisted stalk
vanillaleaf
wall lettuce
wallflower
water-hemlock
watercress
western buttercup

SCIENTIFIC NAME

Iris tenax
Oxalis oregana
Chrysanthemum leucanthemum
Corallorhiza maculata
Sanicula crassicaulis var. *crassicaulis*
Hydrophyllum tenuipes
Adenocaulon bicolor
Anaphalis margaritacea
Mentha piperita
Veronica persica
Eburophyton austinae
Tolmiea menziesii
Erigeron philadelphicus
Conium maculatum
Lactuca serriola
Sonchus asper
Senecio macounii
Goodyera oblongifolia
Trifolium pratense
Aquilegia formosa
Rumex acetosella
Lychnis coronaria
Erysimum arencola var. *torulosum*
Prunella vulgaris
Teesdalia nudicaulis
Erigeron speciosus
bladder campion
Lysichitum americanum
Collinsia parviflora
Apocynum androsaemifolium var. *androsaemifolium*
Trientalis latifolia
Smilacina stellata
Urtica dioica var. *lyallii*
Viola glabella
Arnica amplexicaulis var. *amplexicaulis*
Trifolium dubium
Petasites frigidus
lathyrus torreyi
Polystichum munitum
Cimicifuga elata
Senecio jacobaea
Lilium columbianum
Arabis glabra
Linnaea borealis
Strptopus amplexifolius var. *amplexifolius*
Achlys triphylla
Lactuca muralis
Erysimum asperum
Cicuta douglasii
Rorippa nasturtium-aquaticum
Ranunculus occidentalis

Herbs - continued

COMMON NAME

western corydalis
western dock
western white anemone
white clover
white hawkweed
white trillium
wild carrot
wild cucumber
willow-weed
wintercress
woodland phacelia
woods nemophila
woodsia
wooly sunflower
yarrow
yellow oxalis
yellow salsify
yellow-and-blue forget-me-not
yerba buena

SCIENTIFIC NAME

Corydalis scouleri
Rumex occidentalis var. *procerus*
Anemone deltoidea
Trifolium repens
Hieracium albiflorum
Trillium ovatum
Daucus carota
Marah oreganus
Epilobium watsonii var. *occidentale*
Barbarea orthoceras
Phacelia nemoralis
Nemophilla parviflora
Woodsia oregana
Eriophyllum lanatum
Achillea millefolium
Oxalis suksdorfii
Tragopogon dubius
Myosotis discolor
Satureja douglasii

APPENDIX A(2) - Sorted by scientific name

PARTIAL LIST OF PLANT SPECIES OF OXBOW REGIONAL PARK, MULTNOMAH COUNTY, OREGON

Compiled from field reconnaissance and from Ciecko (1990).

COMMON NAME	SCIENTIFIC NAME
<u>Trees</u>	
grand fir	<i>Abies grandis</i>
bigleaf maple	<i>Acer macrophyllum</i>
red alder	<i>Alnus rubra</i>
Pacific dogwood	<i>Cornus nuttallii</i>
creek dogwood	<i>Cornus stolonifera</i> var. <i>occidentalis</i>
Oregon ash	<i>Fraxinus latifolia</i>
lodgepole pine	<i>Pinus contorta</i>
black cottonwood	<i>Populus trichocarpa</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
pacific yew	<i>Taxus brevifolia</i>
western redcedar	<i>Thuja plicata</i>
western hemlock	<i>Tsuga heterophylla</i>
<u>Shrubs</u>	
vine maple	<i>Acer circinatum</i>
serviceberry	<i>Amelanchier alnifolia</i>
kinnikinnick	<i>Arctostaphylos uva-ursi</i>
Douglas' sagebrush	<i>Artemisia douglasiana</i>
goatsbeard	<i>Aruncus sylvestris</i>
tall Oregongrape	<i>Berberis aquifolium</i>
dwarf Oregongrape	<i>Berberis nervosa</i>
chinquapin	<i>Castanopsis chrysophylla</i>
buck brush	<i>Ceanothus sanguineus</i>
little pipsissewa	<i>Chimaphila menziesii</i>
prince's pine	<i>Chimaphila umbellata</i>
California hazel	<i>Corylus cornuta</i> var. <i>californica</i>
scotch broom	<i>Cytisus scoparius</i>
scotch broom	<i>Cytisus scoparius</i> var. <i>andreanus</i>
wood strawberry	<i>Fragaria vesca</i> var. <i>bracteata</i>
broadpetal strawberry	<i>Fragaria virginiana</i> var. <i>platypetala</i>
salal	<i>Gaultheria shallon</i>
oceanspray	<i>Holodiscus discolor</i>
holly	<i>Ilex</i> spp.
indian plum	<i>Oemleria cerasiformis</i>
mock orange	<i>Philadelphus lewisii</i>
ninebark	<i>Physocarpus capitatus</i>
cascara	<i>Rhamnus purshiana</i>
poison oak	<i>Rhus diversiloba</i>
stink currant	<i>Ribes bracteosum</i>
straggly gooseberry	<i>Ribes divaricatum</i>
wood rose	<i>Rosa gymnocarpa</i>
wild rose	<i>Rosa nutkana</i> var. <i>nutkana</i>
Himalayan blackberry	<i>Rubus discolor</i>
evergreen blackberry	<i>Rubus laciniatus</i>
black raspberry	<i>Rubus leucodermis</i>
thimbleberry	<i>Rubus parvifolius</i>

Shrubs - continued

COMMON NAME

salmonberry
trailing blackberry
Columbia River willow
blue elderberry
red elderberry
spirea
common snowberry
red huckleberry
Salix spp.

SCIENTIFIC NAME

Rubus spectabilis
Rubus ursinus
Salix fluviatilis
Sambucus cerulea
Sambucus racemosa var. *laevigatus*
Spiraea douglasii var. *douglasii*
Symphoricarpos albus
Vaccinium parvifolium
willow

Herbs

yarrow
vanillaleaf
pathfinder
northern maidenhair fern
nodding onion
pearly-everlasting
low pussy-toes
western white anemone
spreading dogbane
red columbine
towermustard
hairy rockcress
big-leaf sandwort
streambank arnica
maidenhair spleenwort
lady fern
wintercress
Silene cucubalus
deer fern
northern saitas
Calypso orchid
bellflower
bittercress
harsh paintbrush
brown knapweed
common centaury
mouse-eared chickweed
oxeye-daisy
Oregon goldaster
water-hemlock
tall bugbane
enchanter's nightshade
Canada thistle
bead lily
blue-eyed Mary
small-flowered blue-eyed mary
collomia
poison-hemlock
Pacific coral-root
western corydalis

Achillea millefolium
Achlys triphylla
Adenocaulon bicolor
Adiantum pedatum
Allium cernuum
Anaphalis margaritacea
Anatennaria dimorpha
Anemone deltoidea
Apocynum androsaemifolium var. *androsaemifolium*
Aquilegia formosa
Arabis glabra
Arabis hirsuta var. *eschsoltziana*
Arenaria macrophyllum
Arnica amplexicaulis var. *amplexicaulis*
Asplenium trichomanes
Athyrium filix-femina
Barbarea orthoceras
bladder campion
Blechnum spicant
Brodiaea congesta
Calypso bulbosa
Campanula scouleri
Cardamine pensylvanica
Castilleja hispida
Centaurea jacea
Centaureum umbellatum
Cerastium vulgatum
Chrysanthemum leucanthemum
Chrysopsis oregona
Cicuta douglasii
Cimicifuga elata
Circaea alpina
Cirsium arvense
Clintonia uniflora
Collinsia grandiflora
Collinsia parviflora
Collomia heterophylla
Conium maculatum
Corallorhiza maculata
Corydalis scouleri

Herbs - continued

COMMON NAME

brittle bladder-fern
wild carrot
larkspur
grass pink
bleeding heart
foxglove
large-flowered fairy-bell
mountain wood-fern
phantom orchid
fireweed
willow-weed
common horsetail
horsetail
pink fleabane
showy fleabane
wooly sunflower
sand-dwelling wallflower
wallflower
Oregon bedstraw
fragrant bedstraw
geranium
creeping Charlie
rattlesnake plantain
cow-parsnip
Damask violet
alumroot
white hawkweed
Pacific waterleaf
big St. John's wort
common St. John's wort
hairy cats-ear
Oregon iris
wall lettuce
prickly lettuce
sweetpea
tiger lily
butter-and-eggs
twinsflower
barestem desert parsley
orange honeysuckle
black twinberry
deervetch
big deervetch
broadleaf lupine
rose campion
cut-leaved water horehound
skunk cabbage
false lily-of-the-valley
wild cucumber
field mint
peppermint

SCIENTIFIC NAME

Cystopteris fragilis
Daucus carota
Delphinium menziesii var. *pyramidale*
Dianthus armeria
Dicentra formosa
Digitalis purpurea
Disporum smithii
Dryopteris austriaca
Eburophyton austinae
Epilobium angustifolium
Epilobium watsonii var. *occidentale*
Equisetum arvense
Equisetum hyemale
Erigeron philadelphicus
Erigeron speciosus
Eriophyllum lanatum
Erysimum arencola var. *torulosum*
Erysimum asperum
Galium oreganum
Galium triflorum
geranium pusillum
Glecoma hederacea
Goodyera oblongifolia
Heracleum lanatum
Hesperis matronalis
Heuchera micrantha var. *micrantha*
Hieracium albiflorum
Hydrophyllum tenuipes
Hypericum anagalloides
Hypericum perforatum
Hypochaeris radicata
Iris tenax
Lactuca muralis
Lactuca serriola
lathyrus torreyi
Lilium columbianum
linaria vulgaris
Linnaea borealis
Lomatium nudicaule
Lonicera ciliosa
Lonicera involucrata
Lotus corniculatus
Lotus crassifolius var. *subglaber*
Lupinus latifolius var. *latifolius*
Lychnis coronaria
Lycopus americanus
Lysichitum americanum
Maianthemum dilatatum
Marah oreganus
Mentha arvensis
Mentha piperita

Herbs - continued

COMMON NAME	SCIENTIFIC NAME
common monkey flower	<i>Mimulus guttatus</i>
great purple monkey flower	<i>Mimulus lewisii</i>
musk monkey flower	<i>Mimulus moschatus</i>
miner's lettuce	<i>Montia perfoliata</i>
candyflower	<i>Montia sibirica</i>
indian pipe	<i>Montropa uniflora</i>
yellow-and-blue forget-me-not	<i>Myosotis discolor</i>
common forget-me-not	<i>Myosotis scorpioides</i>
woods nemophila	<i>Nemophilla parviflora</i>
marter-parsley	<i>Oenanthe sarmentosa</i>
evening primrose	<i>Oenothera strigosa</i>
mountain sweet cicely	<i>Osmorhiza chilensis</i>
Oregon wood-sorrel	<i>Oxalis oregana</i>
yellow oxalis	<i>Oxalis suksdorfii</i>
great oxalis	<i>Oxalis trillifolia</i>
Cascade penstemon	<i>Penstemon serrulatus</i>
sweet colt's foot	<i>Petasites frigidus</i>
woodland phacelia	<i>Phacelia nemoralis</i>
English plantain	<i>Plantago lanceolata</i>
common plantain	<i>Plantago major</i>
licorice fern	<i>Polypodium glycyrrhiza</i>
sword fern	<i>Polystichum munitum</i>
self-heal	<i>Prunella vulgaris</i>
California-tea	<i>Psoralea physodes</i>
bracken fern	<i>Pteridium aquilinum</i>
western buttercup	<i>Ranunculus occidentalis</i>
buttercup	<i>Ranunculus repens</i> var. <i>repens</i>
watercress	<i>Rorippa nasturtium-aquaticum</i>
red sorrel	<i>Rumex acetosella</i>
western dock	<i>Rumex occidentalis</i> var. <i>procerus</i>
Pacific sanicle	<i>Sanicula crassicaulis</i> var. <i>crassicaulis</i>
yerba buena	<i>Satureja douglasii</i>
broad-leaf stonecrop	<i>Sedum spathulifolium</i>
tansy ragwort	<i>Senecio jacobaea</i>
Puget butterweed	<i>Senecio macounii</i>
false solomonseal	<i>Smilacina racemosa</i>
starry solomonseal	<i>Smilacina stellata</i>
bittersweet nightshade	<i>Solanum dulcamara</i>
meadow goldenrod	<i>Solidago canadensis</i>
prickly sow-thistle	<i>Sonchus asper</i>
common sow-thistle	<i>Sonchus oleraceus</i>
ladies tresses	<i>Spiranthes romanzoffiana</i> var. <i>romanzoffiana</i>
great betony	<i>Stachys cooleyae</i>
Mexican betony	<i>Stachys mexicana</i>
longstalk starwort	<i>Stellaria longipes</i>
common chickweed	<i>Stellaria media</i>
twisted stalk	<i>Strptopus amplexifolius</i> var. <i>amplexifolius</i>
shepherd's cress	<i>Teesdalia nudicaulis</i>
fringecup	<i>Tellima grandiflora</i>
meadowrue	<i>Thalictrum occidentale</i>
buck-bean	<i>Thermopsis montana</i> var. <i>venosa</i>

Herbs - continued

COMMON NAME

coolwort foamflower
pig-a-back plant
yellow salsify
starflower
suckling clover
red clover
white clover
giant trillium
white trillium
stinging nettle
inside-out flower
American brooklime
Persian speedwell
bird vetch
common vetch
stream violet
woodsia

SCIENTIFIC NAME

Tiarella trifoliata var. *trifoliata*
Tolmiea menziesii
Tragopogon dubius
Trientalis latifolia
Trifolium dubium
Trifolium pratense
Trifolium repens
Trillium chloropetalum
Trillium ovatum
Urtica dioica var. *lyallii*
Vancouveria hexandra
Veronica americana
Veronica persica
Vicia cracca
Vicia sativa var. *angustifolia*
Viola glabella
Woodsia oregana

APPENDIX B

Integrated Weed Management Guidelines

The following guidelines were taken from those developed for the Bureau of Land Management lands for Oregon and Washington and may be helpful in developing a strategy for eradication of exotic/noxious plant species within The Park in addition to, or consistent with current State and/or County strategies. The following guidelines may be helpful in reducing impacts and/or threats of exotic/noxious plant species invasion during implementation of the Master Plan.

A variety of exotic plant species can be found throughout Oxbow Regional Park and within the management area for the Oxbow Regional Park Master Plan. These species include: scotch broom, Himalayan blackberry, evergreen blackberry, Canada thistle, St. John's wort, tansy ragwort and holly. Of these species, St. John's wort, tansy ragwort, Canada thistle and scotch broom are "B" designated weeds as determined by the ODA.

Guidelines

Cultural

Prevention

1. Develop available prevention measures, such as quarantine and closure, to reduce the spread of the infestation.
2. Determine whether policy and laws allow for the use of all preventive measures, including local quarantine and closure.
3. If past management activities have allowed the introduction and spread of noxious weed, determine how to change management after selecting a treatment method.

Livestock Manipulation

1. Determine whether changes in movement of horses is necessary to reduce or contain the infestation due to movement of seeds on or in the animals.

Soil Disturbance Activities

1. Re vegetate all bare soil following disturbance.
2. Select plant species that will reduce the spread of noxious weeds.
3. Defer soil disturbance if possible until weeds are controlled or under management.

Rock Sources

1. Obtain rock from uncontaminated sources.

Public Use

1. Determine the most feasible land use to reduce and prevent infestations.
2. Determine whether specific public awareness programs could reduce the infestation or control the spread of weeds.
3. Determine whether exclusion is a possibility and how it would affect the weed infestation.

Physical Control

Manual Control

1. Determine whether hoeing or grubbing will reduce (or increase) the infestation.
2. Determine whether hand pulling the weeds reduces the seed source.

Biological Control

Natural Competition

1. Determine whether there are naturally occurring agents within the ecosystem which can reduce the infestation.
2. Determine which elements affect naturally occurring control agents.

Introduced Competition

1. Determine whether biological control agents can be introduced into the ecosystem to reduce the amount of infestation.
2. Determine which introduced biological agents provide an acceptable control method for the infestation.
3. Evaluate if the biological control agent has been tested for adverse effects against all non target species within the treatment area.
4. Determine whether the introduced biological agent can survive in the environment of the treatment area.
5. Determine whether policy and laws allow for the introduction of biological control agents.

Chemical Control

Fertilization

1. Determine whether chemical fertilization would reduce the amount of weeds by increasing competition of beneficial plant species.
2. Determine whether increased nitrogen (or other nutrients) would reduce weeds due to direct effect.

Pesticides

1. Evaluate the acceptability of herbicides (or other pesticides) to control the infestation.
2. Determine whether pesticides are labeled for:
 - a. use on target weed
 - b. use on the infested site (consider non target plants, soil type, groundwater location, topography, climate, state labeling, etc.).
 - c. determine the most effective application techniques.
3. Determine the most effective and cost-efficient types of conventional application equipment.
4. Determine whether properly trained personnel are available to apply the pesticides.



APPENDIX F

■ WILDLIFE HABITAT

WILDLIFE OF OXBOW REGIONAL PARK

Esther Lev

I. NATURAL AREA AND WILDLIFE HABITAT QUALITY

The quality of a natural area as habitat for wildlife species is very much linked to its quantity. Structure, including large trees, snags, downed and dead wood, water, and a wide range of plant species at all canopy levels is an important component of overall natural area quality (Ambuel and Temple, 1983). Within a natural area, each wildlife species has a unique set of habitat requirements, an ecological niche consisting of preferred conditions within the physical environment as well as with its interaction with other species. In order to maintain viable populations of wildlife species, ample resources and adequate environmental conditions must provide for reproduction, foraging, resting, cover and dispersal of animals at a variety of scales across space and time (Morrison, Marcot and Mannan, 1992). Sufficient amounts, types, and arrangements of resources must provide for the needs of reproductive individuals on daily, seasonal and yearly bases. Habitat also must be well distributed over a broad geographic area to allow breeding individuals to interact within and among populations.

The diversity and quantity of habitat types within Oxbow Regional Park provides suitable habitat conditions for most wildlife species found in northwestern Oregon between the Willamette Valley and the western crest of the Cascade Mountains. In addition to the park's 1,000 acre resources, it is also connected to the larger landscape of the Sandy River watershed, linking Mt. Hood to the Columbia River.

The resources within the park boundary provide the requirements for many of its wildlife residents and seasonal visitors. However, some of the medium- and large-size mammals that have been observed in The Park, (i.e. elk, bobcat, cougar and black bear) have larger home ranges and are dependent upon the connection to the larger landscape.

II. WILDLIFE SPECIES

Habitat types found in the study area include deciduous, coniferous and mixed forest in various successional stages, riparian, river and meadow. Unlike the primarily edge forest habitats of much of the Metro region, Oxbow has large areas of contiguous forest creating large patches of interior forest which create specific habitat for some wildlife species. The Appendix provides a list of the species likely to be found within Oxbow Regional Park. In addition to species name, the occurrence level, time of year found in the park and activities are also shown. This list may not include all the wildlife species that have been observed in the park. Maps 1-7 in the appendix show some of the medium and large sized mammals that have been observed in the park (maps are field notes and represent partial data).

III. HABITAT TYPES/VEGETATION COMMUNITIES AND WILDLIFE SPECIES

Many of the wildlife species observed at Oxbow Regional Park utilize more than one of the habitat types or vegetation communities described in Section * of this report. The following are descriptions of each of the habitats types and the wildlife species most commonly associated with them.

Riparian Forest and Floodplain

The Sandy River itself is excellent anadromous fish habitat. In addition the river, riparian zone and canyon provide habitat for hawks, owls, eagles, osprey and heron to hunt and nest. Kingfisher, mergansers, dippers and other waterfowl and shorebirds are common. River otter, mink, flying squirrel beaver, raccoon, coyote, fox, and black-tail deer are also common along the Sandy River gorge. Elk, bobcat, cougar and black bear are occasional visitors to the Sandy River and its adjacent riparian habitats, probably using the river as their travel corridor. Maps 1 -7 show the areas of the floodplain utilized by beaver, cougar, elk, fox, mink and otter. The information mapped was provided by Deb Scrivens, Oxbow Park naturalist.

Gordon Creek one of the healthiest creek systems in the metropolitan area, enters the Sandy River within Oxbow Park. Trout, steelhead and salmon are known to inhabit the cool shaded waters of Gordon Creek. Deer and elk are common along the creek as well as dippers in faster portions of the stream.. Mergansers, kingfishers and woodpeckers are commonly observed.

Western Hemlock Forest

The late and mid seral hemlock forests of Oxbow are large enough blocks of habitat to provide some interior forest habitat. In the Pacific Northwest, "edge effect" is commonly assumed to occur 150m (500 ft) into forest patches from a forest-opening interface (Diaz and Apostol 1992). That part of the forest not influenced by edge is considered interior forest habitat. Examples of species tending to occur in portions of forest far from edges (interior areas) or those requiring large trees, snags, dead downed material include the varied thrush, owls, pileated woodpeckers, salamanders and newts. Bear, Cougar and medium to large size carnivores also utilize this vegetation community. Map 7 shows the location of bobcat tracks observed in the ancient forest 11/17/95.

Red Alder Bigleaf Maple Forest

As discussed in section of this report,, vegetation communities are always in a state of succession. This community is an early successional phase and will gradually change to mixed coniferous forest and eventually a conifer dominated forest. Edge loving and species that live in a variety of habitats which feed within the upper and mid canopy and ground feeders are found in the red alder/maple forest. Many of the common songbirds are found in this habitat; flycatchers, wrens, towhees, warblers and orioles.

Elk Meadow

This vegetation community was recently created at Oxbow. It offers an open grassland, previously limited within the park. Elk and deer, small mammals and hawks and owls hunting for food can be expected to use this area.

Table 1 shows species and their preferred vegetation communities within Oxbow Regional Park. Generalized wildlife groups were developed to represent the habitat requirements and activities of the bird, mammal, reptile and amphibian species found or expected to occur within Oxbow. Species with similar habits were organized together in groups.

TABLE 2. OXBOW REGIONAL PARK WILDLIFE GROUPS AND SIGNIFICANT HABITAT TYPES

Wildlife Group	Late/Mid Seral	Alder-Bigleaf maple	Riparian	Meadow
WATERFOWL	N	N	P	N
CAVITY MAKERS	P	S	L	N
CAVITY USERS	P/S	S	S	N
OPEN-AREA RAPTORS	L	L	L	P
FOREST RAPTORS	P	S	L	N
FOREST DEPENDENT				
CANOPY USERS	P	S	L	N
MIDSTORY USERS	P	S	S	N
UNDERSTORY USERS	P	P	S	N
EDGE DEPENDENT	S	P	P	N
INTERIOR DEPENDENT	P	L	N	N
MEADOW DEPENDENT				
GROUND USERS	N	N	L	P
SMALL MAMMALS	S	S	P	S
SMALL CARNIVORES	P	P	P	L
LARGE CARNIVORES	P	S	P	N
UNGULATES	S	P	P	S
BATS	P	P	P	N
AMPHIBIANS	P	P	S	L
REPTILES	L	L	S	P

P-Primary Habitat

S-Secondary Habitat

L- Limited Use

N- Not an important Habitat Component

III. POTENTIAL CONFLICTS

The current balance of human uses and the landscape appears to be capable of supporting viable populations of resident species native to the area. Maintenance of Oxbow Regional Park as a interconnected mosaic of habitats including healthy watersheds and riparian systems, large blocks of continuous forest and meadow will assure the protection of the wildlife.

The current location of trails and campgrounds do not conflict with wildlife use. Increased access or use of the ancient forest or elk meadow may limit or impact wildlife use of these vegetation communities.

As seen on maps 1-7, the floodplain area adjacent to the floodplain trail is used by many of the medium and large mammals that utilize the park. Some of these species are very sensitive to human presence. Therefore, no new trails or development should occur in this area.

The informal trails that have been creted down to the river should be stabilized and replanted with native vegetation.

IV. OPPORTUNITIES FOR ENHANCEMENT

The Park resources are providing for the wildlife using them. However, there are some opportunities to enhance the existing communities.

1. Add more woody debris to the ancient forest and mid-seral hemlock forest. This will improve the habitat for some amphibian species. Logs and rootwads that washed down The Sandy in the flood could be moved from the floodplain.
2. Begin to plant Douglas fir on Alder Ridge. This will advance the succession process.
3. Remove exotic plants and begin a serious control program, especially for Scot's broom, English ivy, tansy ragwort and Japanese knotweed. May want to also look at a control program for California ground squirrels.
4. Stabilize and re-plant using native shrubs the informal trails that have been created down to the river.

There are also opportunities for research on species in the park.

1. Study the kingfisher population which has decreased over the past 11 years.
2. The nighthawks have virtually disappeared since 1985. What happened.
3. Study the movement pattern of the cougars using the park.
4. Determine if there has been any impact on the pileated woodpecker population by essentially the 2,500 barrier posts that have been put throughout the park. Many of the pileated siting have been on these posts. The population of pileated is unusually high for a second growth forest. Now staff is using the non-treated posts with treated post. Will this change the woodpecker numbers?

APPENDIX .WILDLIFE SPECIES LIKELY TO OCCUR IN OXBOW PARK

Data compiled from field reconnaissance, knowledge of the watershed and personal communication with Scrivens, 1996.

Species	Level	Season	Activity
Eastern Cottontail (<i>Sylvilagus floridanus</i>)	O	Sp,S,F,W	F,B,R
Beaver (<i>Castor canadensis</i>)	C	Sp,S,F,W	F,B,R
California Ground Squirrel (<i>Spermophilus beecheyi</i>)	U	Sp,S,F,W	F,B,R
Western Gray Squirrel (<i>Sciurus griseus</i>)	U	Sp,S,F,W	F,B,R
Townsend's Chipmunk (<i>Eutamias townsendii</i>)	O	Sp,S,F,W	F,B,R
Bobcat (<i>Lynx rufus</i>)	O	Sp,S,F,W	FR
Gray-Tailed Vole (<i>Microtus canicaudus</i>)	O	Sp,S,F,W	F,B,R
Nutria (<i>Myocastor coypus</i>)	C	Sp,S,F,W	F,B,R
Coyote (<i>Canis Latrans</i>)	C	Sp,S,F,W	F,B,R
Red Fox (<i>Vulpes vulpes</i>)	U	Sp,S,F,W	F,B,R
Gray Fox (<i>Urocyon cinereoargenteus</i>)	O	Sp,S,F,W	F
Raccoon (<i>Procyon lator</i>)	C	Sp,S,F,W	F,B,R
River otter	U	Sp,S,F,W	F,B,R
Muskrat (<i>Ondatra zibethica</i>)	O	Sp,S,F,W	F,B,R
Cougar	O	Sp,S,F,W	F
Porcupine (<i>Erethizon dorsatum</i>)	O	Sp,S,F,W	F
Mink (<i>Mustela vison</i>)	O	Sp,S,F,W	F,B,R
Black tailed deer (<i>Odocoileus hemionus</i>)	C	Sp,S,F,W	F,B,R
Elk (<i>Cervus elaphus</i>)	U	Sp,S,F,W	F,B,R
Great Blue Heron (<i>Ardea herodias</i>)	C	Sp,S,F,W	F,B,R
Green-backed Heron (<i>Butorides striatus</i>)	C	Sp,S,F,W	F,B,R
Canada Goose (<i>Branta Canadensis</i>)	C	Sp,S,F,W	F,B,R
Wood Duck (<i>Aix sponsa</i>)	C	Sp,S,F,W	F,B,R
Mallard (<i>Anas platyrhynchos</i>)	C	Sp,S,F,W	F,B,R
Common Merganser (<i>Mergus merganser</i>)	U	Sp,S,F,W	F,B,R
Turkey Vulture (<i>Cathartes aura</i>)	U	S	FR
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	U	Sp,S,F,W	FR
Cooper's Hawk (<i>Accipiter cooperii</i>)	U	Sp,S,F,W	FR
Red-tailed Hawk (<i>Buteo jamaicensis</i>)	C	Sp,S,F,W	F,B,R
Northern Harrier (<i>Circus cyaneus</i>)	U	Sp,S,F,W	F,B,R
American Kestrel (<i>Falco sparverius</i>)	C	Sp,S,F,W	F,B,R
Great Horned Owl (<i>Bubo virginianus</i>)	U	Sp,S,F,W	F,B,R
Belted Kingfisher (<i>Ceryle alcyon</i>)	C	Sp,S,F,W	F,B,R
Vaux's Swift (<i>Chaetura vauxi</i>)	U	S	F
Northern Flicker (<i>Colaptes auratus</i>)	C	Sp,S,F,W	F,B,R
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	U	Sp,S,F,W	F,B,R
Downy Woodpecker (<i>Picoides pubescens</i>)	U	Sp,S,F,W	F,B,R
Hairy Woodpecker (<i>Picoides villosus</i>)	U	Sp,S,F,W	F,B,R
Willow Flycatcher (<i>Empidonax traillii</i>)	U	Sp,S	F,B,R
Olive-sided Flycatcher (<i>Contopus borealis</i>)	U	Sp,S	F,B,R
Western flycatcher	U	Sp, S,	F,B,R
Black-capped Chickadee (<i>Parus africanus</i>)	C	Sp,S,F,W	F,B,R
Chestnut-backed Chickadee (<i>Parus rufescens</i>)	U	Sp,S,F,W	F,B,R
Brown Creeper (<i>Certhia americana</i>)	C	Sp,S,F,W	F,B,R
Marsh Wren	C	Sp,S,F,W	F,B,R
Bewick's Wren (<i>Thryomanes bewickii</i>)	C	Sp,S,F,W	F,B,R
Golden-crowned Kinglet (<i>Regulus satrapa</i>)	C	Sp,S,F,W	F,B,R
Ruby-crowned Kinglet (<i>Regulus calendula</i>)	C	Sp,S,F,W	F,B,R
Swainson's Thrush (<i>Catharus ustulatus</i>)	U	Sp,S	F,B,R
Varied Thrush (<i>Ixoreus naevius</i>)	C	Sp,S,F,W	F,B,R

WILDLIFE SPECIES LIKELY TO OCCUR IN OXBOW PARK

Species	Level	Season	Activity
Solitary Vireo (<i>Vireo solitarius</i>)	U	S	F,B,R
Warbling Vireo (<i>Vireo gilvus</i>)	U	S	F,B,R
Yellow-rumped Warbler (<i>Dendroica coronata</i>)	U	Sp,S,F	F,B,R
Townsend's Warbler (<i>Dendroica townsendi</i>)	U	Sp,S,F	F,B,R
Yellow Warbler (<i>Dendroica petechia</i>)	U	S	F,B,R
Lazuli Bunting (<i>Passerina amoena</i>)	U	S	F,B,R
Chipping Sparrow (<i>Spizella passerina</i>)	U	S	F,B,R
Dark-eyed Junco (<i>Junco hyemalis</i>)	C	Sp,S,F,W	F,B,R
Savannah Sparrow (<i>Passerculus sandwichensis</i>)	U	Sp,S,F,W	F,B,R
Northern Oriole (<i>Icterus galbula</i>)	U	Sp, S	F,B,R
Western Tanager (<i>Piranga ludoviciana</i>)	U	Sp,S	F,B,R
Pine Siskin (<i>Carduelis pinus</i>)	U	Sp,S,F,W	F,B,R
Ring-billed Gull (<i>Larus delawarensis</i>)	U	Sp,S,F,W	FR
Ruffed Grouse (<i>Bonasa umbellus</i>)	U	Sp,S,F,W	F,B,R
Ring-necked Pheasant (<i>Phasianus colchicus</i>)	C	Sp,S,F,W	F,B,R
White Crowned Sparrow (<i>Zonotrichia leucophrys</i>)	C	Sp,S,F,W	F,B,R
Rufous Hummingbird (<i>Selasphorus rufus</i>)	C	Sp, S	F,B,R
Band-Tailed Pigeon (<i>Columba fasciata</i>)	U	S	FR
MacGillvray's Warbler (<i>Oporornis tolmiei</i>)	U	Sp,S	F,B,R
Yellow Breasted Chat (<i>Icteria virens</i>)	O	Sp, S	F,B,R
American Bittern (<i>Botaurus lentiginosus</i>)	U	Sp,S,F,W	F,B,R
Sora Rail (<i>Porzana carolina</i>)	U	Sp, S	F,B,R
Virginia Rail (<i>Rallus limicola</i>)	U	Sp,S,F,W	F,B,R
Black-Crowned Night Heron (<i>Nycticorax nycticorax</i>)	U	Sp, S	F,B,R
Bank Swallow (<i>Hirundo rustica</i>)	U	Sp, S	F,B,R
Cliff Swallow (<i>Hirundo pyrrhonota</i>)	U	Sp, S	F,B,R
Tree swallow	U	Sp, S, F	F,B,R
Common Garter Snake (<i>Thamnophis sirtalia</i>)	C	Sp,S,F,W	F,B,R
Northwestern Garter Snake (<i>Thamnophis sirtalia</i>)	U	Sp,S,F,W	F,B,R
Northwestern Salamander (<i>Ambystoma gracil</i>)	C	Sp,S,F,W	F,B,R
Ensatina (<i>Ensatina eschscholtz</i>)	C	Sp,S,F,W	F,B,R
Rough-skinned Newt (<i>Taricha granulosa</i>)	C	Sp,S,F,W	F,B,R
Bullfrog (<i>Rana catesbeiana</i>)	C	Sp,S	F,B,R
Red-legged Frog (<i>Rana aurora</i>)	O	Sp,S,F,W	F,B,R
Pacific Tree Frog (<i>Hyla regilla</i>)	U	Sp,S,F,W	F,B,R
Western Pond Turtle (<i>Clemmys marmorata</i>)	O	Sp,S,F,W	F,B,R

Level

- C Common
- U Uncommon
- O Occasional

Season

- Sp Spring
- S Summer
- F Fall
- W Winter

Activity

- F Feeding
- B Breeding
- R Resting

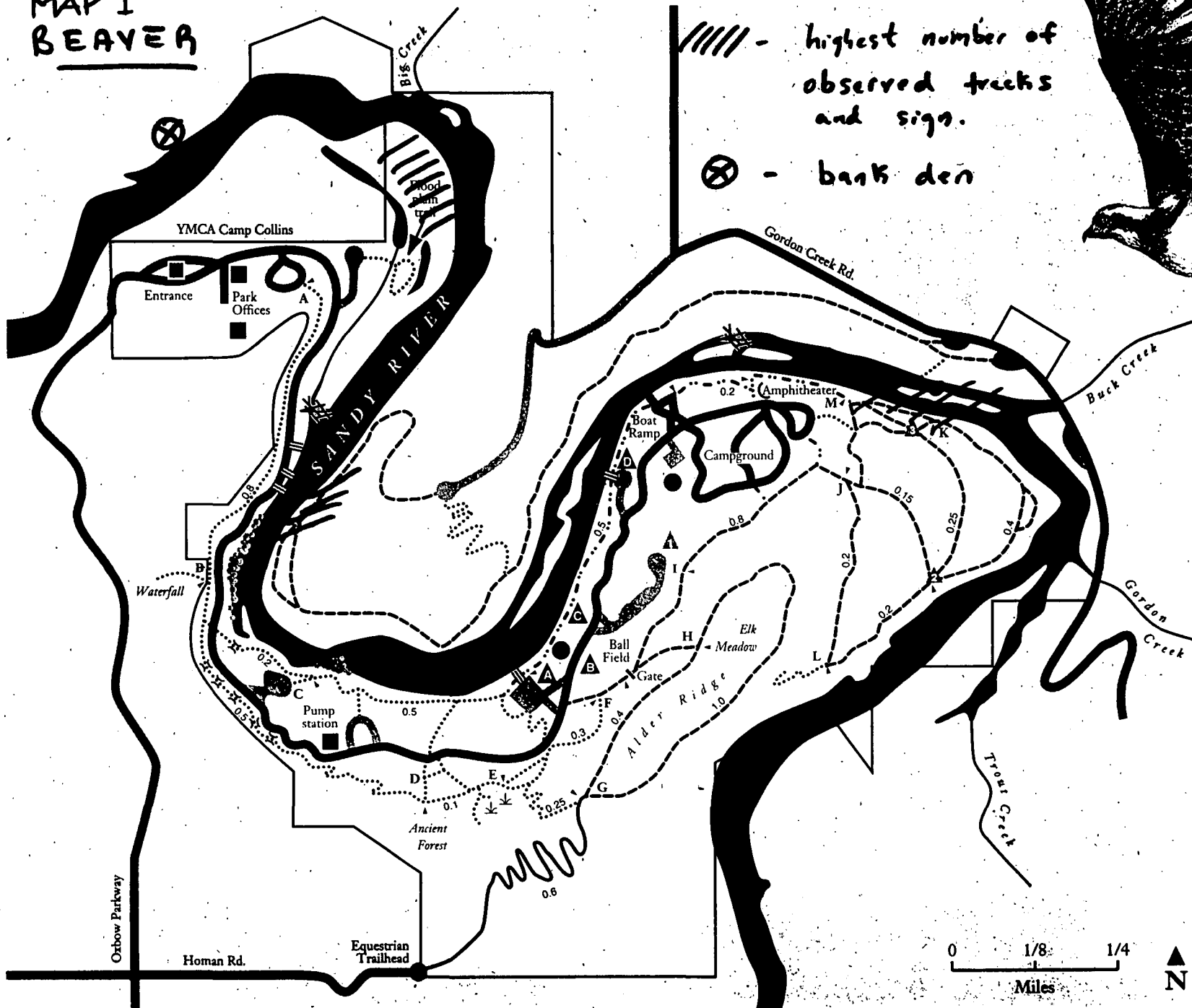


Metro
Regional
Parks and
Greenspaces

Oxbow Regional Park

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MAP 1 BEAVER



//// - highest number of
observed tracks
and signs.

⊗ - bank den



Legend

- ▲ Group picnic area
- ▲ Group camping area
- Children's play area
- Building
- ≡ Hardened river access
- 0.5 Distance between point
- A - M Trail markers
- ⌒ Bridge
- ⌘ Log jam
- ⌘ River boulders
- ⌘ Wetlands
- Pedestrians only
- - - Pedestrians and bicycles only
- Pedestrians and horses only
- - - Pedestrians, bicycles and horses
- Paved road
- Gravel road

0 1/8 1/4
Miles



METRO

94455 SG

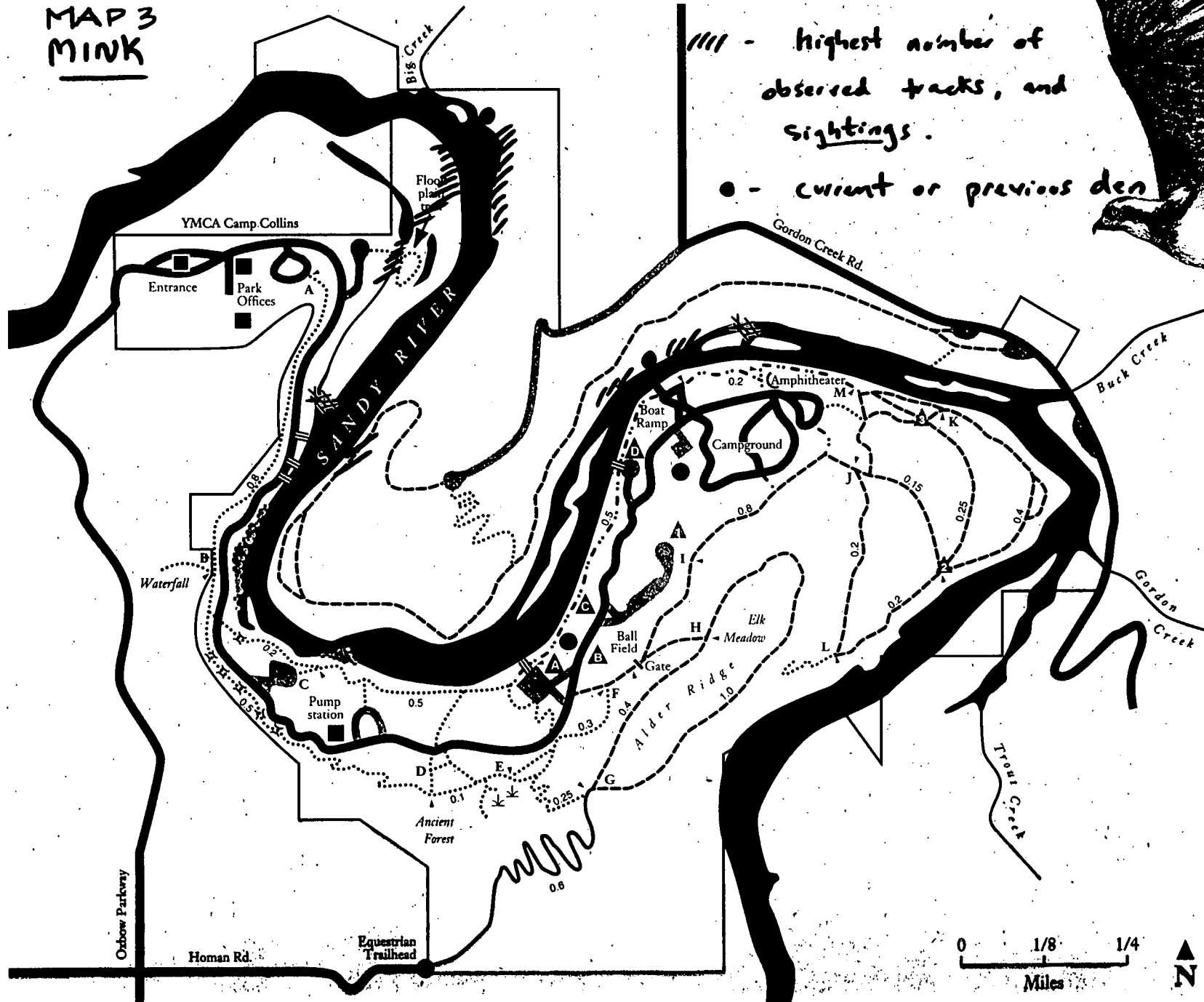


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Oxbow Regional Park

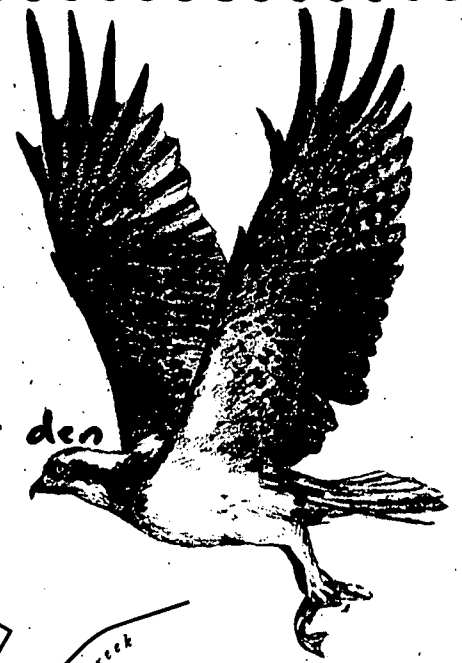
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MAP 3
MINK



|||| - highest number of
observed tracks, and
sightings.

● - current or previous den



Legend

- ▲ Group picnic area
- ▲ Group camping area
- Children's play area
- Building
- ≡ Hardened river access
- 0.5 Distance between points
- A - M Trail markers
- Bridge
- Log jam
- River boulders
- Wetlands
- Pedestrians only
- - - - Pedestrians and bicycles only
- Pedestrians and horses only
- - - - Pedestrians, bicycles and horses
- Paved road
- Gravel road



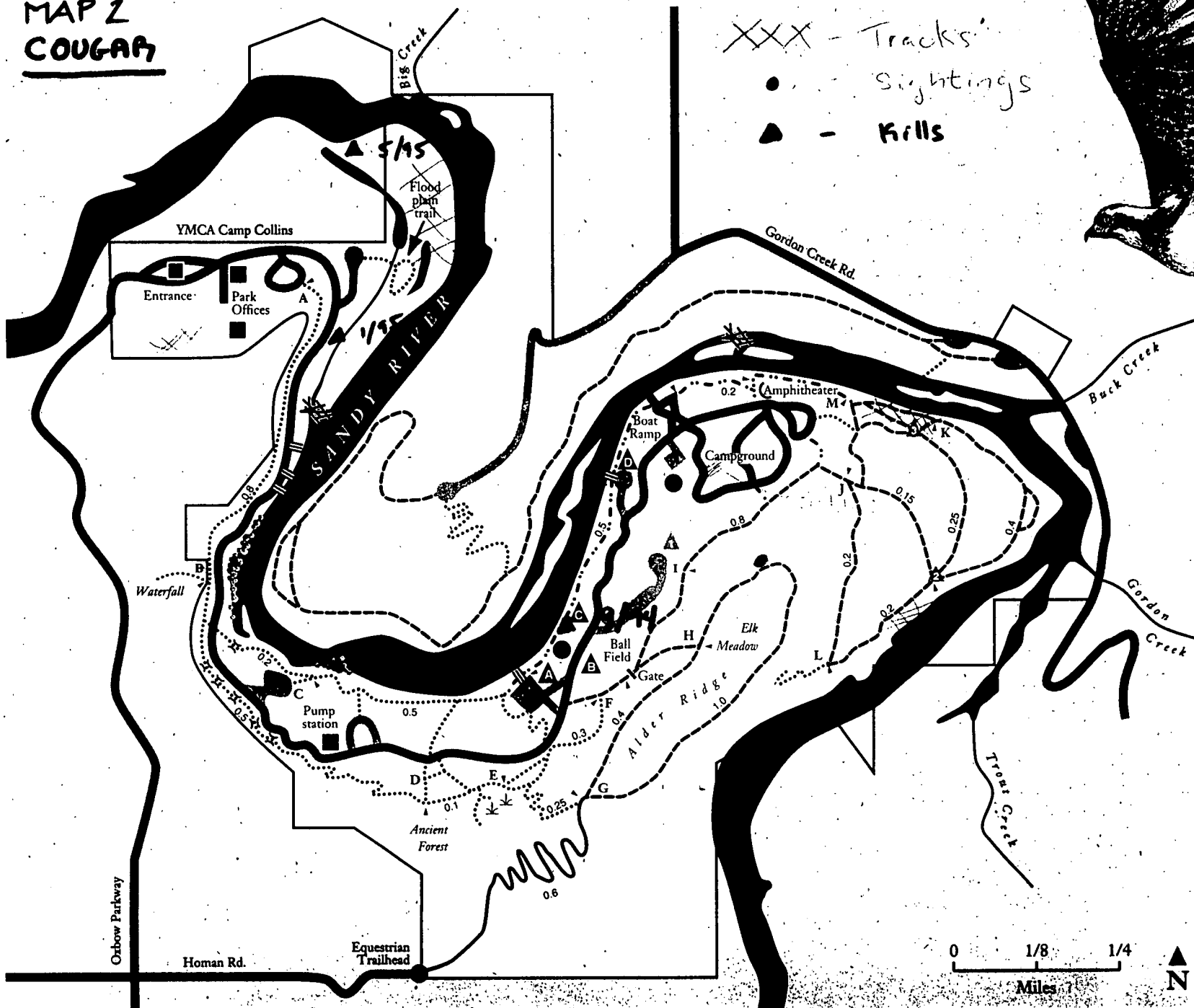


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MAP 2 COUGAR



XXX - Tracks
● - Sightings
▲ - Kills



Legend

- ▲ Group picnic area
- ▲ Group camping area
- Children's play area
- Building
- ≡ Hardened river access
- 0.5 Distance between points
- A - M Trail markers
- ⌒ Bridge
- ⌘ Log jam
- ⌘ River boulders
- ⌘ Wetlands
- Pedestrians only
- - - Pedestrians and bicycles only
- Pedestrians and horses only
- - - Pedestrians, bicycles and horses
- Paved road
- Gravel road

0 1/8 1/4
Miles



METRO

94455 SG

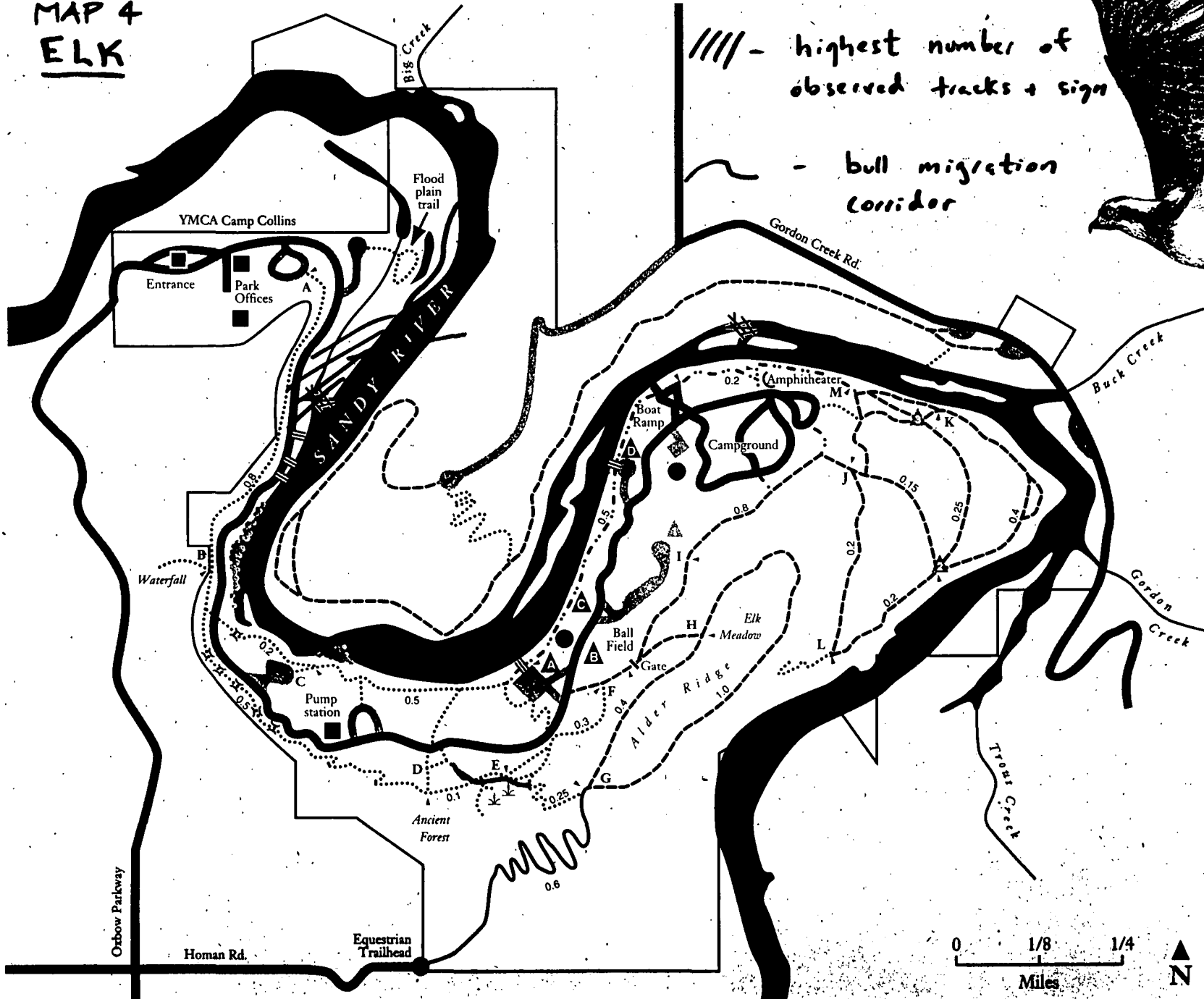


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MAP 4 ELK



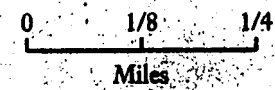
//// - highest number of
observed tracks + sign

- bull migration
corridor



Legend

- Group picnic area
- Group camping area
- Children's play area
- Building
- Hardened river access
- Distance between points
- Trail markers
- Bridge
- Log jam
- River boulders
- Wetlands
- Pedestrians only
- Pedestrians and bicycles only
- Pedestrians and horses only
- Pedestrians, bicycles and horses
- Paved road
- Gravel road



METRO

94455 8G

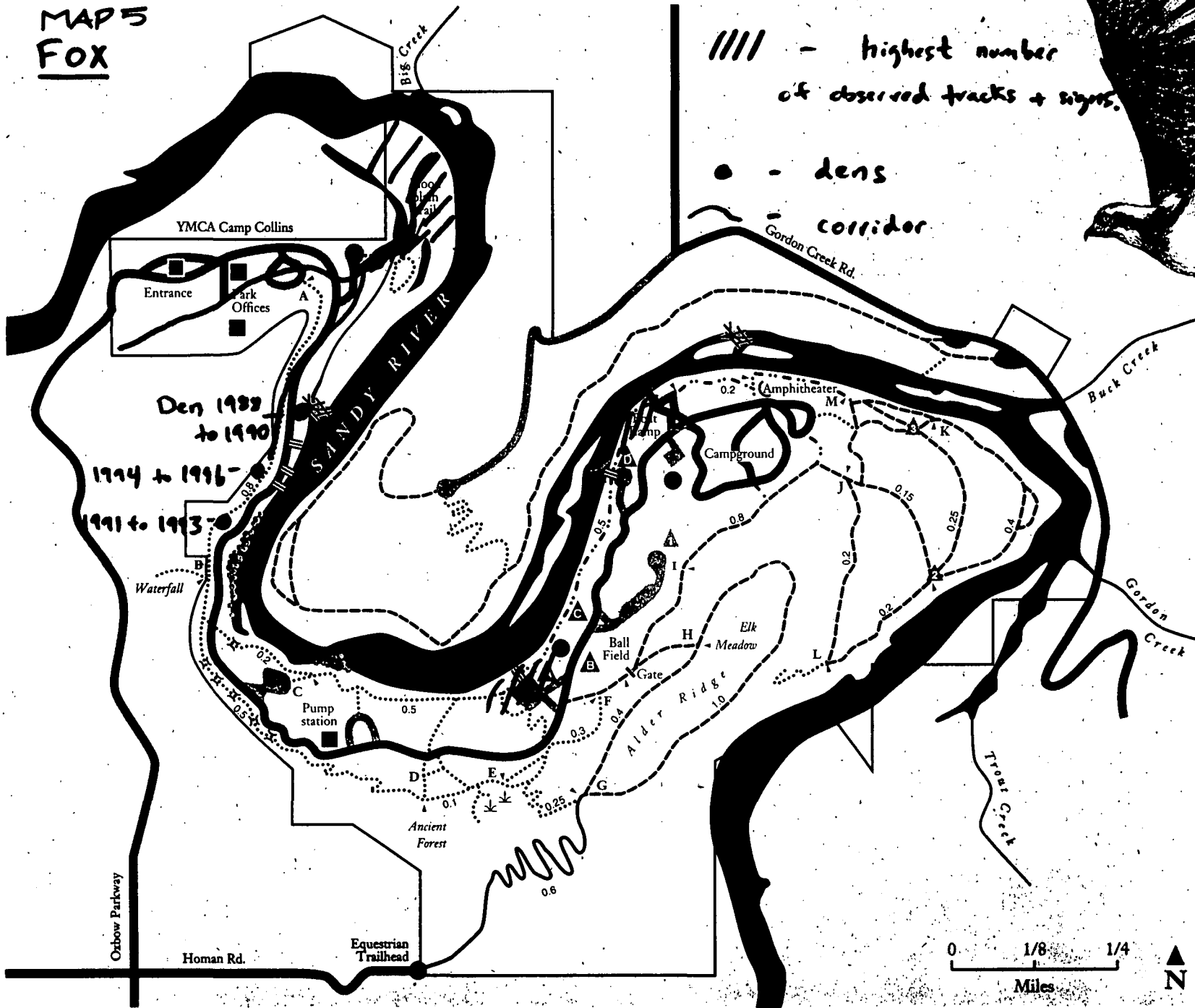


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MAP 5
FOX



//// - highest number
of observed tracks + signs.

• - dens
- corridor

Legend

- ▲ Group picnic area
- ▲ Group camping area
- Children's play area
- Building
- ≡ Hardened river access
- Distance between points: 0.5
- A - M Trail markers
- ≡ Bridge
- ⚡ Log jam
- ⚡ River boulders
- ⚡ Wetlands
- Pedestrians only
- Pedestrians and bicycles only
- Pedestrians and horses only
- Pedestrians, bicycles and horses
- == Paved road
- == Gravel road

0 1/8 1/4
Miles



METRO

94455 CG

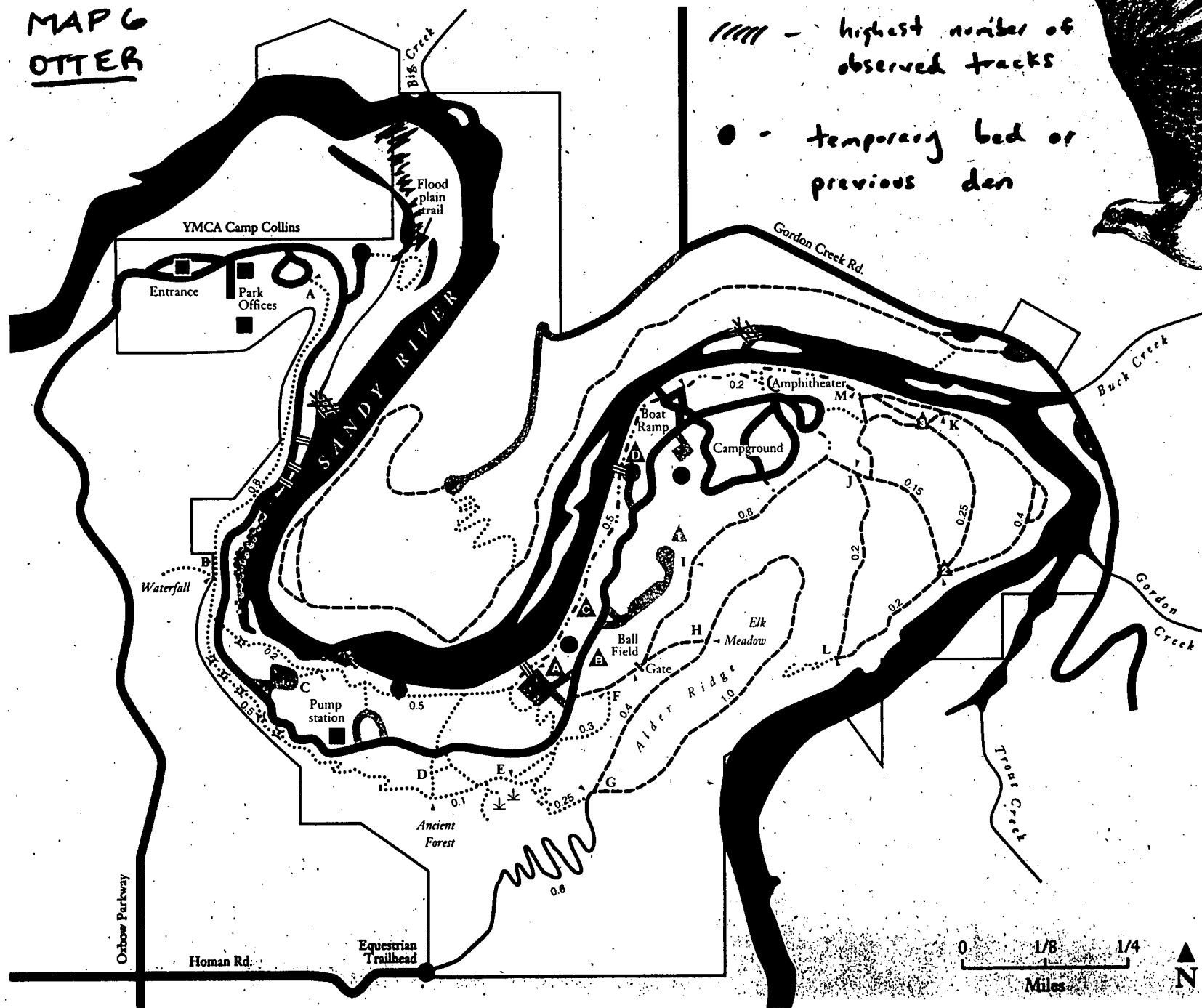


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Parks and
Greenspaces

Oxbow Regional Park

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MAP 6
OTTER



||||| - highest number of
observed tracks

● - temporary bed or
previous den



Legend

- ▲ Group picnic area
- ▲ Group camping area
- Children's play area
- Building
- ≡ Hardened river access
- 0.5 Distance between points
- A - M Trail markers
- Bridge
- Log jam
- River boulders
- Wetlands
- Pedestrians only
- - - Pedestrians and bicycles only
- Pedestrians and horses only
- - - Pedestrians, bicycles and horses
- Paved road
- Gravel road

0 1/8 1/4
Miles



METRO

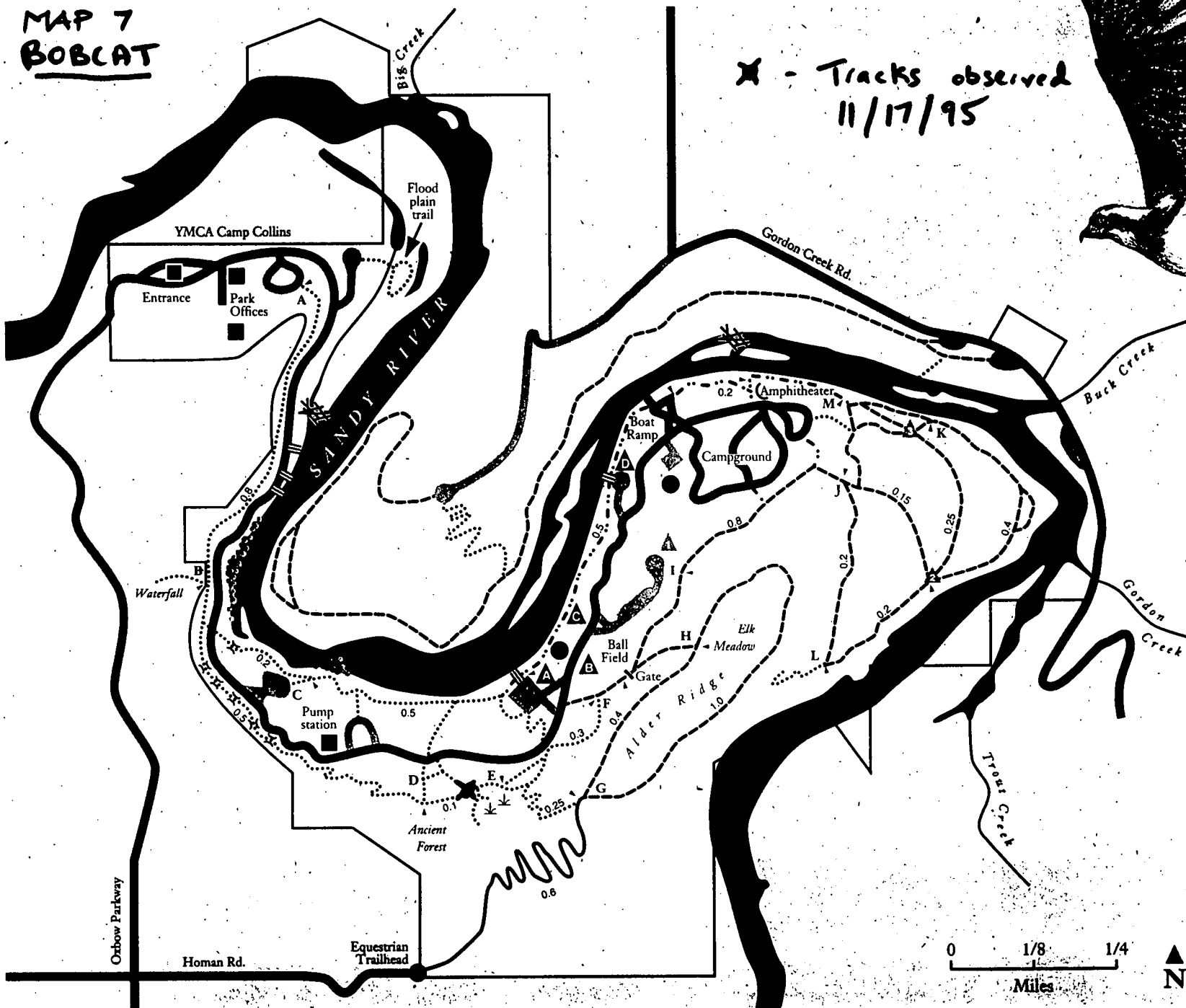


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Parks and
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MAP 7 BOBLAT



* - Tracks observed
11/17/95



Legend

- Group picnic area
- Group camping area
- Children's play area
- Building
- Hardened river access
- Distance between points
- Trail markers
- Bridge
- Log jam
- River boulders
- Wetlands
- Pedestrians only
- Pedestrians and bicycles only
- Pedestrians and horses only
- Pedestrians, bicycles and horses
- Paved road
- Gravel road





APPENDIX G

■ INTERPRETIVE PROGRAMS

Oxbow Regional Park

Interpretive Narrative

Background

Interpretive Planning Goals

Visitor Goals and Objectives

Site Parameters

Overview of Neighboring Interpretive Facilities

Key Issues

Recommendations

Themes and Key Stories

Implementation Levels

Self-guided Media

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October 18, 1996

Introduction

This narrative was prepared as part of the Oxbow Regional Park Master Plan Study. The interpretation presented in this narrative is intended to encourage fun and engaging experiences which will introduce visitors to the special features to be found at Oxbow Park.

Oxbow has amazing stories to tell... of the wild and free-flowing Sandy River, spawning salmon, old growth forests and all the life in between. Currently, a small percentage of visitors are exposed to these stories through guided educational and interpretive programs. A basic level of self-guided opportunities is recommended in this narrative to offer interpretation to a majority of all visitors. Interpretive signs give voice to the stories as a means for increasing visitor understanding and appreciation for the life at Oxbow Park.

People are continually drawn to the park by the river and the surrounding natural beauty. Interpretation in this narrative is consistent with retention of this scenic setting.

A big thank-you is extended to Deb Scrivens for the numerous conversations which sparked the ideas in this narrative and to Jim Lind and the Metro and Oxbow Park staff for all of their input.

Overall Interpretive Planning Goals

Provide improved visitor orientation.

Offer self-guided interpretive opportunities in order to introduce a majority of visitors to key Oxbow features and stories.

Provide facilities to serve current educational programs and increase use during off-season months.

Provide quality interpretation and educational media and experiences to increase visitor appreciation and sensitivity to Oxbows' river and forest environment and the importance of this habitat to fish, wildlife and people.

Provide educational opportunities which also promote visitor self-discovery, contemplation and appreciation of the surrounding natural beauty.

Promote respectful attitudes and behavior toward Oxbow Park in order to maintain the integrity of the natural environment and visitor services it provides.

Enhance and increase visitor enjoyment of Oxbow by providing barrier-free, interpretive opportunities.

Demonstrate excellence in design and construction of interpretive sites and facilities to blend with the natural setting and insure construction does not exceed set boundaries.

Visitor Objectives

The following objectives outline the intended visitor experience for interpretive facilities, media and programs related to the rich natural history of Oxbow Regional Park. These should answer, "What do we want to encourage visitors to know, feel, and do while at Oxbow ?."

Knowledge

Visitors should have the opportunity to know:

River

Oxbow Park is the heart of the Sandy River watershed, where the river meanders to connect forest, wildlife and people.

The wild and free flowing Sandy River is part of an intricate web of life.

The special qualities of the Sandy River have been nationally recognized in its' designation as a National Wild and Scenic River affording it special protection.

The drinking water for most Portland residents originates within the 503 square mile watershed of the Sandy River.

Salmon

Salmon serve as barometers of watershed health.

In an age old cycle, fall Chinook return to their spawning grounds within Oxbow Park bringing nutrients as they link ocean to river to volcano.

There are several physical characteristics of the Sandy River which are critical to survival of salmon.

Old Growth Forest

Oxbows' old growth forest is a remnant pocket of habitat for a unique array of life which exhibits fantastic and interesting relationships.

A Pacific Northwest old growth forest can be recognized by the presence of certain physical characteristics.

Wildlife

Oxbow is a crossroads, corridor and contiguous habitat for a wealth of wildlife.

Tracks and traces reveal the secret lives of animals.

People and wildlife have been coming to Oxbow for thousands of years.

Oxbow plant, fish and wildlife occupants are a valuable part of Oregon's heritage and are protected by laws.

General Orientation

There are specific locations to easily explore and learn more about Oxbows' forest, river and salmon stories.

Attitudes

Visitors should have the opportunity to feel:

A sense of discovery, adventure and solitude in exploring the ancient forest, and sections of the Sandy River within the park.

A sense of awe in walking exploration of the old growth forest.

A sense of excitement in searching for wildlife tracks.

A sense of encouragement to slow down, let go of busy agendas and patiently observe the wild spirit of Oxbow.

Actions

Visitors will have the opportunity to:

Be oriented by a map, directional information and interpretive messages to self-discover the stories of Oxbow Regional Park.

Use interpretive media to successfully locate key river and forest features as well as evidence of fish and wildlife inhabitants.

Self-explore Oxbow Park to observe fish, birds and wildlife in natural settings.

Celebrate the return of the Salmon each fall and commemorate year round its contribution to the richness of river, forest and human culture.

Easily access an interpretive trail to explore the old growth forest.

Overlook the Sandy River and utilize self-guided media to be introduced to the rivers' constantly changing "Oxbow" personality and the wealth of life it supports.

Participate in a naturalist conducted activity such as campfire talk or trip to a wildlife mecca to learn the rivers' hidden stories.

Leave trees, rocks and other fish and wildlife homes in place and discourage others from vandalizing natural resources.

Participate in environmental education or interpretive programs to learn more in-depth information.

Site Parameters

Parameters are circumstances, opportunities or characteristics of Oxbow Regional Park which may influence the design and operation of interpretive facilities and programs. Identifying these parameters helps to define options for design, leading to the most efficient interpretive strategy. The following general parameters have been identified as being important to the development and function of interpretive facilities, media and programs at Oxbow.

Oxbow Park is open year round.

A majority of visitors live in Multnomah county.

Oxbow has "repeat" visitors.

The features that most attract visitors to the park are the river, scenery and natural setting.

Day users have to exit the park by sunset.

The river constantly changes the landscape, moving beaches and salmon spawning areas which impacts visitor access.

The visual landscape along the river corridor is protected under the Wild and Scenic River Act as a resource to be considered through the implementation of any interpretive strategy.

The current length of stay for most visitors is unknown.

Access through the forest along the park road promotes a feeling of "going back in time".

There is a need for information strategies which allow for change of seasonal messages such as fishing restrictions etc.

General public orientation to the site is currently offered from dawn to dusk by park personnel.

Except for Salmon Festival programs and EE programs, the self-guided map and informational brochures offer primary visitor orientation to key stories.

Limited staffing is a current constraint.

Steepness of hill along entry road occasionally makes winter park access dangerous or impossible.

Oxbow stories also relate to the rest of the Sandy River watershed which is managed by a variety of agencies requiring coordination to avoid duplication of messages.

Retention of the natural setting is a primary goal of park master planning.

Late summer visitors seem more interested in recreation and leisure activities than nature study.

Views of the river from the park road are hidden and river overlook sites may not easily accommodate parking.

Trash, noise, parties, pets, firearms and vandalism are visitor issues on the north side of the river.

BLM, TNC, Oregon State Parks and Oxbow Regional Park lands border each other providing opportunity for joint interpretive projects related to Sandy River watershed interpretation and protection.

Media design within the park should fit with the natural setting and its' sense of "going back in time".

Oxbow is the only public camping area within the Portland Metro Area.

Demand for guided programs remains high with turn away rates equal to numbers served.

It is estimated by park staff that less than 10% of park visitors currently participate in guided programs.

Overview of Neighboring Interpretive Facilities

An inventory of related interpretive facilities is included as part of this narrative in order to avoid duplication of messages and focus on the most site specific interpretive themes and opportunities for Oxbow Regional Park. Future visitation patterns for Oxbow Park may also be affected as nearby interpretive facilities and signs are completed in the next two years. Focus is given to the transportation corridors of Highway 26 and I-84 and the geographic area in and around the Sandy River watershed.

Portland Water Bureau

Bull Run Watershed

Dodge Park

The Water Bureau currently gives naturalist led tours of the Bull Run watershed. The watershed is closed to the public except for tours by reservation which allow guided access. Talks focus on water and watershed themes. A future old-growth trail is planned to offer a guided walk for visitors scheduled on reservation tours. There are no plans at this time for interpretation at Dodge Park.

Oregon State Parks

Dabney State Park

Lewis and Clark State Park

Columbia River Gorge National Scenic Area in cooperation with Oregon State Parks has just finished design for a series of interpretive signs to be installed along the Historic Columbia River Highway. Installation is projected for 1997.

One sign will be installed at Dabney State Park entitled *"The Sandy River... WILD, beautiful and PROTECTED "* which will interpret the Wild and Scenic River System and Act with brief focus on the Sandy River. Another sign will be installed at Lewis and Clark State Park entitled *"The Sandy River...Flows of Ice and Fire"*. Focus is given to the eruption of Mt.Hood that was in progress when Lewis and Clark came through the Gorge and to the origin of the rivers' name labeled by settlers for the presence of sand bars at the river mouth. (See Attached)

US Forest Service Columbia River Gorge National Scenic Area

Troutdale Orientation Kiosks

As part of the Historic Columbia River Highway Interpretive Sign Project, Troutdale will have two duplicate kiosks to orient potential visitors to the Historic Highway. As well as a map, there will be an interpretive sign with an historic theme focusing on the tourist history of Troutdale during the era of the opening of the Historic Highway. (See attached).

Troutdale is evolving as a "hub" for the Historic Highway and has already been identified as a "gateway" personality for the Columbia River Gorge. Troutdale is also a gateway to the Sandy River watershed. These kiosks offer a possibility for Metro to offer an orientation map to Oxbow Regional Park and perhaps Blue Lake Regional Park and the recreation opportunities they provide. Another approach might be to do a joint partnership with BLM, Mt. Hood NF, Oregon State Parks and The Nature Conservancy to interpret the Sandy River watershed and the opportunities or personality of experiences available along the Sandy River and upper tributaries.

**Wasco County Museum
The Dalles Discovery Center
USFS/Wasco County Historical Society
The Dalles, Oregon**

The US Forest Service and Wasco County Historical Society will be opening a new interpretive center in May 1997. Exhibits which relate to Oxbow Park are themes about salmon and the Columbia River watershed and fishery. Exhibits include a 34 foot working model of the Columbia River, a graph display on the decline of fish runs from historic times, historic photos related to fishing, and identification of a majority of fish living in the Columbia River.

**Cascade Streamwatch
Wildwood Recreation Site
Bureau of Land Management/US Forest Service**

Wildwood Recreation Area located along Hwy. 26 will offer visitors a new wetland interpretive boardwalk in the spring of 1997. Related wetland trail themes include the role of a mountain wetland as a nursery and rearing area for coho salmon and the characteristics of small streams which support healthy fisheries. A larger salmon viewing complex is in design phase and scheduled for construction in the spring of 1987. Water flow was restored in a side channel of the Salmon River, a major tributary of the Sandy River. Two underwater viewing structures will allow visitors to see adult and fingerling Coho. A series of stations containing sculptural models and 18 sign panels will interpret the themes of the Sandy River watershed from Mt.Hood to the ocean with specific focus on the importance of *streams* as habitat for salmon. Topics include: salmon identification, salmon life cycle, qualities of pools and riffles, dynamics of change related to the Salmon river web of life, importance of stream side habitat and alder leaves for nutrients and ecological relationships and stewardship stories.

**Bonneville Dam
Bureau of Reclamation**

New exhibits at Bonneville Dam will focus on the life cycle of salmon within the Columbia River system, the journey of salmon to the sea, physical adaptation changes from fresh to salt water and management attempts to increase their population levels.

**Bonneville Fish Hatchery
Army Corps of Engineers**

A small group of exhibits at the Fish Hatchery focuses on the life cycle of hatchery raised salmon. A viewing window offers opportunity to view adult hatchery salmon.

Key Issues

Issue

For a majority of visitors to easily locate and learn about key Oxbow features and stories, interpretation needs to play a stronger role in their visit. This is also a key to protecting the natural beauty and integrity of wildlife habitat for the future.

Sharing the stories of Oxbow with increasing numbers of park visitors can only help to foster appreciation and protection of its' natural beauty and fish and wildlife inhabitants.

A recent visitor survey of July/August visitors and Salmon Festival participants reveals 31% of respondents to be first time visitors to Oxbow Park. (Dragoo, 1996) These visitors especially expect easily accessible orientation, "what there is to see and do and how to get there". *New recreational visitors expect information on prominent features or stories they have heard or read about.* Offering self-guided interpretive experiences related to the river, forest, wildlife and salmon allows a majority of visitors to walk away with a basic level of exposure to key stories.

New and repeat visitors alike generally don't have all the pieces of Oxbows' story when they arrive. Many visitors need prompting messages to look and listen, which helps kindle their imagination. They need information to self-discover stories and to avoid site hazards. Interpretation can give focus to recreational use and helps to paint a picture in the visitor's mind, filling in some of the blanks in understanding Oxbow stories.

Quality self-guided interpretation will also help discourage destruction of the natural environment by promoting informed caring attitudes. Interpreting the "why" behind regulations helps people to understand the reasons for laws which protect the park and wildlife inhabitants. Creative messages about staying on the trails, why not to feed wildlife, impacts of fishline and trash on river and forest inhabitants, why dogs are not allowed etc. can help encourage people to obey laws and inform others as well. *People must experience and learn about the values of what's there in order to care about it.*

Approximately 62% of survey respondents were repeat users, visiting the park more than once per year. *Offering a variety of self-guided interpretive experiences will increase the number of opportunities available to repeat as well as off-season visitors.*

A diverse audience at Oxbow indicates an increasing need for creative multi-cultural text and graphics in design of interpretive messages. Use of metaphors for text, graphics or international symbols helps to hook each specific audience such as anglers, swimmers, boaters, hikers, campers or nature enthusiasts. This is where we try to "match the hatch" by carefully designed site specific messages.

Issue

Interpretive signage can blend with the natural setting , be inexpensive to maintain and discourage vandalism by proper placement.

Site design and material choices which complement the natural setting promote interpretive experiences compatible with the landscape. Design for each interpretive site incorporates all potential visitor uses such as visitor flow, functional parking, walking distance to key features to be interpreted, grouping of signs at orientation points and use of natural vegetative screening. Cascadian architectural style has been proposed for site design as typical of the nostalgic rustic style associated with recreational structures in natural settings of the Pacific Northwest. Use of rich colors on signage such as golds, dark browns or greens, historic navy blues and sepia tones combined with dark brown frames easily complement this architectural style. We want visitors to notice signs so they will be attracted to read them yet the media should still be *subservient* to the natural beauty that surrounds the visitor.

Media placement for each site also involves answering simple questions such as "How do we want to focus the visitors attention here?" Do we want them to look up at the forest canopy or search for tracks along the river as they read the sign? Is our goal contemplation or solitude? How can the trail or bench location support our goals for solitude?" "Is there a serious safety hazard here that interpretation can help communicate by hooking visitors into reading signs?"

Choice of materials should consider pros and cons related to longevity, maintenance and communication effectiveness. Orientation signs have no choice but to be placed prominently on the roadside. Interpretive sites should be also be visible along roadways but interpretive signage should not face directly outwards to the road or be placed where a vehicle could drive alongside. Each site needs to be considered carefully to discourage vandalism. A locking nighttime gate at the park entrance is already a great deterrent for random roadside vandals. One regional interpretive sign manufacturer even offers a 50% replacement cost for 5 years if damage occurs for any reason even vandalism! The good news is that we are seeing a decrease in vandalism at new interpretive sites even in very remote, unstaffed locations across Oregon. Quality service seems to communicate that someone cares about the place, eliciting new respect and generally means more people on-site longer which also discourages vandalism.

Issue

Budget constraints will probably continue to limit the number of staff available to run educational or interpretive programs.

A small percentage of park visitors currently participate in guided programs and Salmon Festival activities at Oxbow Park. Current demand is high and turn away rate is equal to numbers served. A visitor survey in July/August 1995 indicates that 30% of respondents were first time visitors. Demand for recreational experiences in a natural setting seems certain to continue in response to Metro Portland population changes. As mentioned previously, offering self-guided interpretive experiences related to the river, forest, wildlife and salmon stories allows a majority of visitors to walk away with a basic level of exposure to key stories.

Participation in guided programs will probably remain a bonus for most visitors. The development of a non-profit association such as a Friends Group could assist in financial support and staffing of future interpretive and educational facilities and programs. Although the training and supervision of a Friends groups, potential sales program and volunteer program can become several full-time jobs with a life of their own.

Due to the science content of interpretive and educational programs, it will be important to attract well-educated applicants for positions as volunteer educators and interpreters- sometimes a rare commodity. Perhaps a local university class offering credit taught by Deb Scrivens and other specialists could be an incentive to attract and train potential science students to be volunteers. Other ideas discussed include a partnership with Wolfree to expand their program to include Oxbow Park and working with Defenders of Wildlife to use "nature mapping" which would offer a curriculum for teachers for educator self-guided use. It will be important to explore future partnership opportunities with school districts and other regional non-profits to insure the existing high level of educational offerings is maintained. Promoting "self-guided" curriculum for use by teachers and offering teacher training before site visits is a good way to maximize the student experience.

Theme Organization

Themes provide important organization for interpretation. A common problem with scientific information presented in museums or on signing is lengthy wording, not organized for readability. Scientific information often includes numerous facts, names, and locations. Without linkages to show relationships, it is meaningless to the reader. This is information but not *interpretation*.

Themes clarify key messages for the visitor, and serve as a "funnel" to sort out topics like "geology", "wildlife", "hydrologic story", "history", and "salmon" into whole ideas. The themes for Oxbow should answer, "What is it about these topics that is so important?" A good theme can also make information relevant, personal and meaningful to the visitor. (Ham, 1993). Ultimately it should help the visitor answer, "Why should I care about this place?".

Criteria for theme choices at Oxbow includes asking questions such as, "Does this statement communicate what is so special about Oxbow?", "Does it define why Oxbow is different than the Columbia River Gorge Scenic Area or Cascade Streamwatch on the upper Sandy River watershed?" and "Does it promote a sense of discovery and inquiry?"

In choosing themes, it's also important to remember why visitors come to Oxbow, what they expect to find, and what kinds of stories are popular with visitors. *One has to churn up the stories and shift through the sand to find the glittering pieces of information that are most important to share with visitors.* Successful application of the theme message then depends upon focusing the visitor on the physical evidence of the story they can visibly see today at Oxbow.

Peering along the river in search of a beaver tail drag, experiencing a salmon run, boating, swimming or sitting in solitude along the river bank and wandering beneath the canopy of the ancient forest can be memorable experiences for many visitors. Organized messages help fuel visitor exploration, creating a sense of adventure and discovery around each corner. Key messages bring a personality to the river/forest environment and its' fish and wildlife occupants.

Oxbow Themes

The following major theme and four supporting themes propose a message organization for Oxbow' most significant stories to be told through self-guided media.

Major theme

Oxbow Park is the heart of the Sandy River watershed, where the river meanders to connect ancient forests, fish, wildlife and people.

This is the big picture story to convey the river personality observable within Oxbow Regional Park.

Fed by glaciers on the east slope of volcanic Mt. Hood, the river carries sand and rock which is deposited in the terraces of Oxbow Park. Oxbow Park is a participant in the rivers' sudden catastrophic events from 100 year flood to volcanic eruption. The river bisects the park on its journey from the Cascade Mountains to the ocean. The park lies in the geographic heart of the Sandy River watershed where river flows break free of the canyon to bend and meander forming oxbows. River oxbows are notorious for their rich wildlife personality and Oxbow Park is no exception. The rivers' natural beauty and pristine values have been formally recognized in its' designation and protection as a National Wild and Scenic River.

The more detailed story of the river used with educational groups communicates that the river is full of tough yet fragile life forms, detailed and interesting to look at, that form an intricate web of life connecting plants, insects, fish and wildlife. The Sandy River offers a contiguous corridor of habitat from glacier to its' mouth at the Columbia River.

Sub-theme

Oxbow Parks' old growth forest offers a precious pocket of habitat for a unique community of life that is fast diminishing elsewhere.

One hundred and sixty acres of Pacific Northwest ancient forest grace the banks of the Sandy River within Oxbow Park. This forest offers the largest, easily accessible example of old-growth in the region. Visitors find themselves surrounded by large trees and the sky becomes layered with branches of the forest canopy. Here visitors observe large diameter trees, huge nurse logs and search for the unique diversity of insects, plants, birds, amphibians and a myriad of micro invertebrates to be found here. This is the story about how an old forest functions. The physical characteristics of forest inhabitants, type of forest structure are given focus through ecological relationships such as dependence on large diameter trees, long life of standing "dead but life giving" trees, how trees "comb" moisture from the sky and the interactions between all that live here from microrhiza to mushroom, flying squirrel and winter wren.

The Oxbow ancient forest story also includes the river relationship with the forest and how both are influenced by the other. Water quality, temperature and salmon habitat are all affected by the presence of the forest. The forest in turn was historically replenished by the river and salmon through periodic flooding. The on-site interpretive story should avoid text book or museum depth of information but rather focus on what is observable and site specific to the old growth inhabitants of Oxbow Park.

Sub-theme

Tracks and traces reveal the secret lives of animals.

Oxbow Park is an entryway to a wildlife corridor that extends into the Cascade mountains. It is a magic door to wildness, supporting a wealth of wildlife populations including cougar, bear, mink, river otter, beaver, red fox, flying squirrel, and osprey. This story focuses on the natural history and behavior of the various wildlife inhabitants by encouraging visitor exploration of animals signs and tracks. The river corridor and surrounding forests offer connected habitat for many species that is critical to their survival. In order to read the subtle signs left by animals, visitors must be encouraged to slow down and detach from hurried agendas to be open to sudden and unexpected discoveries.

Sub-theme

Since the ice age, Chinook salmon return to their ancestral spawning grounds within Oxbow Park inspiring celebration and bringing fertility to the soil with their decaying bodies.

In an age old cycle, the fall Chinook return from the ocean giving visitors an exciting opportunity to observe salmon in their natural habitat and learn about their life cycle.

The story of salmon includes messages currently given in guided talks and in "School of Fish" presentations on migration, spawning behavior and related adaptations. It includes ecology of fish strains, wild vs. hatchery stock and importance of water quality and healthy riparian and river systems. An attempt should be made to discuss salmon from a seasonal approach to make the story interesting for those who visit during the winter, spring and summer months. The relationship of salmon within the river web of life is also a focus of this theme to connect salmon to aquatic insects, osprey and other birds, and other fish and wildlife who inhabit the river.

Implementation Levels

Level I

Provides critical orientation and a basic level of visitor introduction to Oxbows' key stories related to river, salmon, old growth and wildlife. It also greatly enhances recreational experiences for off-season visitors unable to participate in guided programs.

- Entry Interpretive/Orientation Area: Four interpretive/orientation signs
- Sandy River Interpretive Overlook: Two interpretive signs
- Old Growth Barrier Free Interpretive Trail: Trailhead Sign and six interpretive signs
- Salmon Interpretive Overlook: Four interpretive signs
- Environmental Education Curriculum developed for self-guided use by teachers and elementary school student visitors

Level II

Provides greater opportunities for visitors who stay on-site longer.

- ◊ Evening Campfire Programs
- ◊ Guided Interpretive Walks/Hikes
- ◊ Cultural Interpretive Demonstrations
- ◊ Wildlife Tracking Family Activity Game
- ◊ Wildlife Holiday Events
- ◊ Close Encounters Wildlife Activity
- ◊ Riverfront Short Talks/Demonstrations for Boaters/Anglers/Swimmers
- ◊ Interpretive AV Programs Offered in EE Classroom

Level III

Provides in-depth opportunities for study and immersion into key stories.

- ◊ Salmon Festival Exhibits and Activities
- ◊ Old growth Canopy Walk
- ◊ EE Classroom for current and off-season increased use
- ◊ Oxbow Nature Center Discovery Room
- ◊ Sales Area offering books, items for further study
- ◊ Research Library for in-depth study
- ◊ Wildlife Taxonomic Study Collection
- ◊ Herbarium

Self-guided Media Recommendations

Oxbow Regional Park Entry/Orientation Area

Theme: Oxbow Park is the heart of the Sandy River watershed, where the river meanders to connect ancient forests, fish, wildlife and people.

Media: Four interpretive/orientation signs and sculptural elements.

Discussion:

One general park welcome interpretive sign to introduce brief slice of forest, salmon and wildlife themes to "whet the visitor appetite" for exploring Oxbow Regional Park.

One sign containing map.

One recreation opportunity sign: This will target individual audiences and suggest what there is to see and do i.e. novice angler, swimmer, family picnic etc.

One regulatory sign for modular international symbols with positively written key regulatory messages.

Sculptural element(s) to communicate the oxbow or river web of life linking river, salmon, forest and wildlife.

Other Possible Interpretive Elements:

Brochure box for park brochure, salmon brochure or others with donation box.

Road Junction/Oxbow Parkway

Media: One Information/Orientation Board

Discussion:

Modified bulletin board designed with text size to be read from a car. Park welcome with key regulatory messages: RV's under 35 ft. welcome/ winding road graphic symbol. No guns, no dogs. River graphic icon and graphics of recreation opportunities to be found at Oxbow.

River Overlook/Access Point

Theme: Oxbow Park is the heart of the Sandy River watershed, where the river meanders to connect ancient forests, fish, wildlife and people.

Media: Two interpretive signs

Discussion:

Preferred site offers views across the river to sandy beaches and "S" curve of river. It is located in conjunction with angler parking, down river from existing road slide.

Signs mounted horizontally to allow visitors to read and look out at the river. Signs use natural history of beavers and otters to focus on the geographic picture of the Sandy River and the hydrologic forces which shape and form Oxbow Park. Use of an aerial map may lend itself here to provide perspective of river oxbow personality.

Old Growth Forest Barrier-Free Interpretive Trail-1/8 mi. loop

Theme: Oxbow' old growth forest offers a precious pocket of habitat for a unique community of life that is fast diminishing elsewhere.

Media: Trailhead Information Board and six interpretive signs.

Discussion:

Information board offers map, introduces interpretive trail and orients visitors to hiking trails. Interpretive trail offers six interpretive signs located along short accessible loop to immerse visitors in the old growth story with several benches for points of solitude. Parking marked for handicapped use only may still need to be allowed along road due to hiking distance from proposed main parking area. A hiking trail designated as an "old growth hiking trail" also would be desirable to be accessed from this vicinity. A new hiking trail lay-out may need consideration to bypass swamp which is becoming impacted by social trails. EE use of swamp and relationship to trails needs more study.

Why interpretive signs instead of a brochure?

Brochures have limitations. They allow for use of text but poor space for graphics to reach visual learners. Brochures are often difficult to read for older visitors. They can be a trash problem. Due to mass media we are faced with stiff competition in attracting people if we use a brochure. The best self-guided brochures are expensive, professionally designed, colorful and generally are sold for \$1.00 or more. Purchase of brochures also limits audience.

If we want to reach a majority of recreationists who don't want to work very hard at learning, a sign seems the best choice. Signs could be grouped in three stations with two signs each. Interpretive trail placement will try to access key features and ultimately determine sign placement. Creative interpretive signs give you an opportunity to tell the story well to hook a diversity of audiences. Brochures may be more appropriate for educational group use with teacher supervision as this audience is most committed to in-depth learning.

Why an interpretive trail?

If we want to educate and communicate about why these forests are special, we have to get people immersed in the forest in controlled places. This trail would concentrate use in a small area, giving people a special old-growth experience and allowing those who want a wilderness hike to continue into the forest. As a regional park, offering accessible old growth only 45 min. away, it seems to warrant offering barrier-free access for a majority of park visitors. We have to get them into the forest in exciting ways, provide a certain comfort level (a map and signage) and promote understanding using the best methods we have to serve a majority of park visitors.

Salmon Interpretation/Boat Launch

Since the ice age, Chinook salmon return to their ancestral spawning grounds within Oxbow Park inspiring celebration and bringing fertility to the soil with their decaying bodies.

Media: One Information/Orientation Board, Four Interpretive Signs, Tactile Elements
Safety/Regulatory signs

Discussion: This site is proposed for the west end of the current parking. An interpretive area would nestle into the hill at the trail junction which leads down river.

Information/Orientation Board offers creative regulatory and safety messages sited in visible location where people gather. Standardized safety message with international symbol related to water hazards for use as needed on swimming beaches.

Four interpretive signs tell salmon and fisheries story through the seasons, through the ages. Use of historic fishing and river flood photos may be a nice hook to talk about the fishing regulations and changing nature of river currents and obstacles. History is popular with visitors who will often bring visiting family to look at historic photos or "record fish caught" etc.

Sign placement needs a place to tell the salmon/river web of life. This could be a rock wall that creates its own encircled space above the boat launch. Sculptural pieces could offer a more ceremonial aspect to the story. Tactile pieces of life size resin cast or cement salmon and rest of life phases embedded or mounted along Cascadian style stone wall are some possible design opportunities. Placement needs to insure cars can't drive up to it and that it is in a visible location. All signs will have vandal proof screws. There are inexpensive tactile pieces that can be inset and replaced fairly easily. Emphasis is on creating high quality molds which allows numerous replicas to be inexpensively produced and replaced as needed. Flooding and vandalism are concerns as is the wild and scenic river view shed. This story is very important to the Oxbow personality and warrants creative use of media to reach the varied audience in this location.

Campground and Hiking Trail or River Access Points

Media: Orientation/Information Boards

EE Classroom


Media:

Outdoor space has possibilities to serve as an interpretive area aimed primarily at children and their families. This could be an orientation to wildlife and river themes and offer an introduction to a wildlife tracking game that would be designed as a treasure hunt to take people all over the park looking for clues. Large bronze track casts could offer children an opportunity to stand in the track of a mountain lion or other wildlife and then through use of a journal, make a track cast as proof of finding their treasure. This needs more discussion.



APPENDIX H

■ WATER & SANITARY SYSTEMS



Oxbow Regional Park

Water and Sewer Utility Evaluation

May, 1997

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I. EXISTING FACILITIES

A. Existing Water Facilities

Oxbow Park water service is presently provided by an independent water system operated by park staff. The water system is classified as a transient non-community system (TNC) by the Oregon Health Division (Water System ID 4191943). This section provides an assessment of the existing source, storage, pumping, and distribution facilities.

1. Source - The existing source of supply consists of a single well with the following aspects: 12" casing, 107' completion depth, and a pump intake setting of approximately 97 feet below the surface. A copy of the well driller's log is enclosed at the end of this report. The wellhead is located in a vault with a vented and screened sanitary seal and a finish elevation 6" above a concrete collar. The static water level was reported as 51' below the surface with a drawdown of 9.5 feet at a production rate of 210 gpm at the time of initial construction; recent observations have provided similar values. The existing 5 HP submersible well pump provides for delivery of 125 gpm at 70' TDH to the adjacent reservoir. The safe yield of this well should be significantly higher than the existing production rate.
 - a. Water Quality - The most recent comprehensive analysis of the water quality was completed in 1981. Additional sampling was performed in 1992 for only the Phase II/V contaminants. The results of all testing are summarized in a table following the discussion of significant values.
 - i. *Iron & Manganese* - The presence of elevated iron and manganese levels in potable water creates the potential for several undesirable effects. Precipitation of these metals alters the appearance of the water, turning it a turbid yellow-brown to black. In addition, deposition of these precipitates will cause staining of plumbing fixtures and laundry. These elements are also associated with microbial growths within the distribution system. Resuspension of precipitated sediments or sloughing of microbial growth may result in intermittent high turbidities. In concentrations greater than several milligrams per liter these metals will impart a taste described as metallic, astringent, or medicinal.
 - ii. *Hardness & Aggressiveness* - This water has a moderate hardness and is non-aggressive to asbestos cement pipe based on the pH, hardness, and alkalinity.
 - iii. *Bacterial* - Bacterial testing for the water system has been generally satisfactory with only two episodes of positive coliforms. The first and more serious episode in 1981 may have resulted from a cross-connection and was aggravated by a lack of effective distribution system disinfection. There are no known sources of potential contamination within the immediate well vicinity.

Table 1 - Inorganic Chemical Testing Results

Parameter	Detection Limit	EPA Limit	Oxbow Park Well 01/31/92 [02/25/93]	YMCA Camp Collins Well 10/01/96
Color	5.	15	<1	
Conductivity	0.5	700	190	
Total Dissolved Solids	1.	500	146	
Turbidity	0.05	1	<1	
Chloride	0.1	250	4.2	
Nitrate	0.01	10.	0.11	O.K.
Nitrite	0.01	1.	ND	
Sulfate	0.1	250	2.7	
Total Cyanide	0.01	0.2	[ND]	ND
Fluoride (Free)	0.2	2 / 4	0.1	3.4
Barium	0.002	2.0	<0.1	0.002
Beryllium	0.0005	0.004	[ND]	ND
Calcium	0.05	----	17.8	
Copper	0.02	1.0	0.006	
Iron	0.05	0.3	3.00	
Magnesium	0.05	----	8.7	
Manganese	0.005	0.05	0.39	
Nickel	0.01	0.1	[ND]	ND
Sodium	0.1	----	8.9	97.3
Zinc	0.02	5	0.03	
Antimony	0.005	0.006	[ND]	ND
Arsenic	0.005	0.05	ND	ND
Cadmium	0.001	0.005	ND	ND
Chromium	0.001	0.1	ND	ND
Lead	0.001	0.015	<0.01	ND
Mercury	0.0005	0.002	ND	ND
Selenium	0.005	0.05	ND	ND
Silver	0.001	0.1	ND	
Thallium	0.002	0.002	[ND]	ND
Hardness	----	250	86	
pH		6.0-8.0	8.1	
Alkalinity		----	100	
Silica		----	35.6	

Note: "ND" means none detected at or above the detection limit listed.

- b. Water Rights - The current well is covered by water right number 34919 with a priority date of 8/3/64 and a production rate of 0.3 cfs (135 gpm).
2. Treatment - The only treatment currently is disinfection by sodium hypochlorite using a small chemical metering pump in the pumphouse. Due to the elevated levels of iron and manganese, it is difficult to maintain detectable chlorine residuals throughout the water system, particularly during periods of low water demand. The iron in the water oxidizes rapidly in the presence of chlorine while the manganese oxidizes over a period of several days. The operator tries to maintain a chlorine residual at the reservoir or 0.7 ppm and 1.0 ppm in the summer and winter, respectively, in order to provide approximately 0.2 ppm at each end of the system.
3. Storage - The system has a single, below-grade, concrete reservoir located beneath the pump house. The total storage capacity is 31,000 with an operating volume of 28,000 gallons. The high iron and manganese concentrations oxidize and precipitate within the reservoir. The accumulated materials on the floor and walls must be removed every other year to limit adverse water quality. The storage reservoir is otherwise in good condition.
4. Booster Pumping - A pair of 6" vertical turbine pumps deliver water from the reservoir to the distribution system. Each pump is 10 HP with a rated capacity of 125 gpm at 211' TDH, and operates at 1760 rpm. One pump operates continuously regardless of actual water demand. The second pump will automatically start if the first pump cannot keep up with demand. A pressure relief bypass (set at 70 psi) allows flow back to the reservoir during periods of low demand. While this system provides an easy pump operating duty, it consumes an excessive amount of power. A secondary effect is that the water in storage reservoir becomes warm after continuous pumping. Water temperatures measured ranged from 53 degrees during peak water demand periods to as high as 81 degrees during low water demand periods; typically the water temperatures measured ranged from 65 to 75 degrees. For reference, typical groundwater temperatures range from 50 to 55 degrees.

The original water system included a separate high pressure booster pumping system to supply water to the Alder Ridge and Horse Camp Area. This system has reportedly never functioned well and has not been in service for over twenty years. The system consists of a single pump (16 gpm at 450' TDH with inlet pressure of 210') and a hydropneumatic tank located within the pump house. Water service would be of marginal value to horses and people, and most useful for irrigation and fire prevention.

5. Distribution - The existing water system provides for supply of water throughout all developed areas of the park. The actual location and configuration of the distribution system is unknown due to inadequate maps. The main supply pipes consist of 4,600' of 6" asbestos cement (AC) pipe, 9,600' of 4" AC, and 1,050' of 3" AC which extend to each end of the system. Smaller distribution lines, generally unlooped and poorly mapped, then supply water throughout the headquarters and campground areas. The smaller lines are typically 3/4" to 2" PVC or galvanized pipe. Water line tees and crosses have an adequate number of valves, however, many of these valves are non-functional. The presence of several unknown water lines further complicates efforts to isolate areas of the distribution system. The condition of the water mains is generally good with the system experiencing minimal water loss. The pipeline is exposed where it crosses under a small stream west of the pump house and vulnerable to breakage. The water chemistry is non-aggressive with respect to AC pipe so it should have a useful life of 50-80 years or more with the remaining life ranging from 20 to 50 years. AC pipe is susceptible to fracture during ground movement with breaks occurring every one to two years and may also be weakened by burial in wet soils. The condition of the existing AC pipe

should be evaluated every five years based on a review of pipe sections which have been exposed for maintenance or new construction, the frequency and severity of water main breaks, and the level of unaccounted for water. As sections of AC pipe reach the end of their useful life, the system should observe increasing problems. At that time, it would be advisable to plan for large-scale replacement of affected sections. There are limited backflow prevention devices installed at potential cross-connection threats. The system is also lacking some blowoffs at dead-end lines which complicates flushing of distribution lines to maintain water quality.

6. Current Services - The water system presently serves the park office, picnic areas, boat ramp, three group camps, and 44 camp sites. Service throughout the park is provided by 4 frost-proof and 75 seasonal water spigots and 7 "fire hydrants." The hydrants have 1.5" outlets and primarily serve for water system flushing rather than fire protection.
7. Neighboring Utilities - The YMCA Camp Collins operates a separate water system (ID 4193660) immediately north of the Park headquarters. Due to its proximity, this water system was investigated for potential coordination of water systems facilities. The Camp water system consists of a single, geothermal (74 degrees) artesian well with a long-term potential yield estimated to be at least 60-100 gpm. Historically this well has had a static pressure of 10 psi and a free-flowing production of over 200 gpm in late Spring. However, the artesian flows had declined to approximately 40 gpm in early summer of 1996 and then to no flow in early September. The Camp recently replaced its centrifugal pump with a submersible pump to increase the source reliability. The capacity of the new pump is approximately 60 to 80 gpm at normal service pressures. The pumping system includes two 520 gallon hydropneumatic tanks but has no storage facilities. The distribution system consists of a single three inch pipe supplying all of the Camp facilities. The water quality of this source appears inferior to that available in Oxbow Park. The source is warm and old lab results indicated elevated levels of fluoride (4.12 versus primary MCL of 4.00 ppm). October, 1996 water analysis indicated a level of 3.4 ppm (see Table 1 above for a complete list of the water quality results). While the presence of iron and manganese in the Oxbow well result in operation and maintenance impacts, the consequences are primarily aesthetic in nature. Elevated levels of fluoride are associated with detrimental health effects (further discussion in later section). A separate fire protection pump draws water from the Camp's swimming pool for distribution through a looped 4" water line system throughout the Camp HQ area. A water right for Camp Collins could not be located in the Oregon Department of Water Resources database.
8. Existing Water and Operation Records - The water system is managed by a certified water operator with an uncertified assistant. Operating records include the following items: water production (daily), chlorine residual (daily at pumphouse, once/month at 5 locations), and water temperature (weekly). Other operating conditions are also noted in the pumphouse log including irrigation activity, water line breaks, distribution system flushing, pump changeovers, and power outages. A certified testing laboratory is under contract to collect bacterial samples quarterly and nitrate/nitrite samples annually. The following tables summarize water production for the last seven years and by month for 1995. Water demand has been essentially unchanged during this period with most water being used for irrigation purposes. During the summer months, irrigation use was heaviest on weekdays while non-irrigation use was highest on the weekends.

Table 2 - Total Annual Water Production (1989-1995)

Year	Total Annual Production (million gallons)	Average Daily Demand (gallons)
1989	6.22	17,041
1990	5.64	15,452
1991	7.01	19,205
1992	8.47	23,140
1993	4.86	13,315
1994	5.91	16,192
1995	5.46	14,959

Table 3 - Monthly Water Production (1995)

Month	Total Production (gal)	Peak Day Production (gal)
January	134,000	72,100
February	51,800	10,500
March	63,000	21,800
April	30,900	12,600
May	139,400	44,900
June	1,333,900	123,500
July	1,997,000	130,000
August	1,347,600	156,900
September	37,500	4,900
October	18,600	1,700
November	127,500	15,400
December	59,000	23,800

Notes: Higher water production in January was the result of reservoir cleaning and line flushing. Higher water production in November was the result of water main breaks.

Table 4 - Estimated 1995 Monthly Water Consumption by Type

Type of Use	Annual Total	Peak Month	Average Summer Month	Average Non-Summer Month
Irrigation	4,431 (83.0%)	1,907 (95.5%)	1,477 (92.8%)	0
Potable	432 (8.1%)	90 (4.5%)	72 (4.5%)	24 (38.2%)
Flushing	253 (4.7%)	0	0	28 (44.8%)
Line Breaks	225 (4.2%)	0	43 (2.7%)	11 (17.0%)
Total	5,341	1,997	1,592	63

Notes: All values are in thousands of gallons and have been rounded for clarity so totals may not balance.

Potable water consumption includes all non-operation water use (flushing or leaks) with estimated amounts for the summer irrigation months based on relative number of campers. Potable water consumption was essentially independent of the visitor count. The dominant water use is irrigation at 83% of the annual total with the remainder split evenly by consumptive and operational uses. The irrigation use is intended for both aesthetics and fire risk reduction.

9. Operator Requirements - The current water system requires significant staff attention due to its extent, poor mapping, and poor water quality. Estimates by the water operator indicated current labor requirements averaging 660 hours/year based on the following components: reservoir cleaning 5 days every other year, general operations 0.5 hrs/day, chlorination 2 hrs/week, maintenance 3-4 weeks/year, reports and correspondence 6 hrs/month, repairs 3-4 weeks/yr. The labor requirements could be reduced by 20% if the system were better mapped and water quality was improved. However, the labor cost of operating a treatment system could also increase the necessary time by even more.

B. Existing Sanitary Facilities

1. Existing Sanitary Facilities - Existing sanitary facilities consist of pit toilet installations throughout the park and a conventional on-site sewage system for the ranger residence. The breakdown by type of structure is as follows: 7 double stool and 30 single stool. Limited greywater facilities are also provided within the campground at each hose bib.
2. Existing Operations - The existing systems function with minimal personnel requirements. The pits must be periodically pumped to remove accumulated materials and caustic soda is also regularly added to suppress odors.

II. PROJECTED UTILITY DEMANDS

A. Future Potable Water Demands

Projections of future water demand have been prepared based on past water consumption patterns and proposed facility modifications. Existing water consumption is dominated by irrigation use during the summer months. It is proposed that the irrigation water supply be provided by a separate, dedicated water supply. The installation of flush toilets and limited shower facilities will significantly increase the need for water supply. Projections of annual, peak month, and peak day demand have been based on previous visitor and camper records and the number of parking spaces and camping sites to be provided. The projected loading factors are conservative (high) to ensure adequate facilities are available to meet peak load demands. Extra wastewater system capacity also serves to provide for higher levels of treatment and increased useful life.

Table 5 - Existing and Future Daily Load Factors

Daily Loading Factors				Daily Loading Values			
Visitors		Individual Campers	Group Campers	Visitors	Individual Campers	Group Campers	Total Campers
Units	people per parking space	people per site	load factor				
<u>Existing Load Factors (1995-6)</u>				890 spaces	45 sites	210 max	
Annual	0.51	0.68	0.05	452	31	10	41
Peak Month	0.97	2.17	0.24	862	98	50	148
Maximum	5.0 (est)	4.0	1.0	3,705	180	185	365
<u>Future Load Factors (estimated)</u>				989 spaces	65 sites	155 max	
Annual	1.0	1.3	0.1	989	85	16	100
Peak Month	2.5	3.2	0.6	2,473	208	93	301
Maximum	5.0	4.0	1.0	4,945	260	155	415

Peak Water Demand

Water system facilities must also be sized to meet peak hourly demand values at acceptable service pressures. This aspect typically results in a need for storage facilities to allow for water produced during low demand periods (night) to be available during peak demand periods (day). Estimates of peak water demand can be made either by applying a peaking factor to the normal water demands or from the expected potential demand relative to the number and type of water fixtures to be supplied. For small water systems, the ratio of peak hour demand to peak day demand can range from 2 to 4. Based on the projected peak day demand the estimated peak demand ranges from 56 to 122 gpm. A second approach can be made by estimating the total number of water using fixtures and standard design guides from plumbing codes and meter sizing guidelines to estimate the likely maximum demand. The projected fixture units for the proposed Oxbow Park facilities is 700 to 800 units which corresponds to an estimated peak demand of 50 to 100 gpm. Both processes yield similar results so a conservative value of 100 gpm will be used for planning purposes. This value compares favorably with the current well production rate (125 gpm) and the capacity of the booster pumps (125 gpm each, 250 gpm combined). This peak water demand does not include irrigation needs which should not coincide with peak potable needs due to the present scheduling of sprinkler operation for weekdays and future recommendation of timed, automatic systems. Table 7 below summarizes the projected potable water design values.

B. Future Irrigation Needs

Projections of future irrigation use have assumed the installation of automatic, timed sprinkler systems. Previous peak month irrigation demands equaled approximately 100,000 gallons per day applied during the weekdays only. The new irrigation systems should reduce water consumption due to more efficient application; however, total irrigation water demands might increase due to an increase in the irrigated area. Timers may be set to provide for night-time application which will reduce the losses due to evaporation as well as displace the demand to the period when potable demands are essentially zero.

The irrigation of the day use areas covers approximately 10 acres with an estimated peak weekly requirement of 2" of water for a total weekly demand of 544,000 gallons. The required water supply depends on the frequency and duration of irrigation application. The comparative limited capacity of the existing storage reservoir does not provide for significant support of irrigation rates greater than the well production rate. Assuming application only on the nights before weekdays to limit interference with day-time activities will require sprinkling 14.5 hours/day over five nights based on the existing well pump capacity of 125 gpm. The length of time required may be reduced through installation of a larger well pump provided the well can reliably operate at the higher rates. From the construction documents for the original water system, the well had a static water level of 51 feet, a potential drawdown of 70 feet (pump setting of 92' with 22' of allowance for submergence and other changes in water surface), and experienced a drawdown of only 9.5 feet at 210 gpm. The length of this pumping test is not known, but the results indicate the well should be more than capable of a significantly higher pumping rate. To limit the daily pumping time to 8 hours (for example 10 PM to 6 AM) would require the installation of a pumping system capable of supplying 225 gpm. The existing well should be capable of operation at this level and the existing booster pumps can also supply up to 250 gpm.

C. Future Wastewater Flows

The standard design values for sanitary sewer flows for park visitors include two levels depending on the level of park development. The proposed showers in Oxbow Park are intended for limited use, primarily by overnight campers. Limited use will be encouraged through their location in the vicinity of the

campground, proposed installation of pay-per-use controls, and the use of low-flow showerheads. Based on these considerations, the lower sanitary sewage production rate is most appropriate for visitors.

Table 6 - Reference Basis for Sewer Demands

Component	Units	Daily Flow/Unit (gallons)
Park Headquarters Facilities	equal to two residences	1,000 plus outdoor use
Picnic Parks - toilet wastes only	visitor	5
Picnic Parks - with bathhouses, showers, and flush toilets	visitor	10
Campgrounds with Central Comfort Stations	camper (assume 4/site)	35

General Reference: Oregon On-Site Sewage Disposal Rules, OAR 340-71, Table 2.

Projected Wastewater Flows

Estimates of wastewater flows have been based on the guidelines in the Oregon statutes for on-site systems. These flow values are not simply measures of hydraulic flows, but also include an adjustment factor for the anticipated strength of the wastewater.

Design of on-site facilities is based on the peak daily flow values. Wastewater loadings at Oxbow Park will vary widely both on weekly and seasonal cycles. This will result in much lower average rates over the long-term. It is proposed that the wastewater treatment facilities be generally designed based on the peak month loading values plus extra total capacity for all systems to account for uncertainty in the actual allocation of the wastewater flows among the various systems. Providing 50% excess capacity over the monthly peak actually results in total flows equal to the peak day estimates. To further provide for moderation of peak flow and allow for routine resting and recovery of the subsurface infiltration surface, the following design criteria are proposed: construction of multiple drain fields to allow intermittent application among them, monitoring ports to allow observation of ponding due to reduced infiltration, effluent filters in the septic tanks to reduce solids carryover, pressurized distribution to ensure even dosing, and hour meters on the dosing pumps to allow for monitoring of total loading to each bed so they may be cycled regularly. Water meters should also be installed on all facilities which discharge to the on-site systems to allow for measurement of the actual flows to the drainfield. These measures should ensure that the systems are capable of providing for peak day loadings in excess of the design values and allow for recovery of the systems for long lifetime. Table 7 below summarizes the projected wastewater design load.

Table 7 - Summary of Water and Wastewater Design Loadings

Demand Component	Water Demand/Unit	Annual Average	Peak Monthly Average	Peak Day
Park Use	varies	3,000	5,000	6,000
Visitors	5	4,945	12,365	24,725
Campers	35	3,500	10,535	14,525
Total Daily Potable Water Demand - gallons (average production rate)		11,445 (8 gpm)	27,900 (19 gpm)	45,250 (31 gpm)
Estimated Irrigation Requirements - gallons (average production rate, 8 hours)		N/A	108,000 (225 gpm)	108,000 (225 gpm)
Total Daily Wastewater Production - gallons		9,445	23,900	40,250

Notes: (1) Wastewater production has been estimated based on 1,000 gallons/day from park use plus the water demand for the visitors and campers. The remaining park water use consists of outdoor needs, including limited areas of irrigation in areas near the park headquarters.

III. PROPOSED WATER SYSTEM FACILITIES

General Considerations

The appropriate level of water service was discussed during the preparation of the master plan both within the design group and with appropriate outside agencies. The general consensus was a system capable of reliably supplying the potable water needs of the park's users. While provision of fire protection capabilities was desirable, the level of service was rural in nature rather than urban. This less stringent level of fire protection allows most of the existing park facilities to remain in service with only limited areas of improvement needed. A second general consideration was the area to be served. The existing water facilities which were intended to provide water to the Horse Camp area have never functioned well and the desire for service to this area was extremely limited. It is recommended that this system not be scheduled for restoration until such time as it is warranted. The final general consideration concerns how to provide for the substantial irrigation needs. Since the existing manual set irrigation system requires an excessive amount of labor, options for development of a modern, automated system were strongly encouraged. The potential for development of a separate well dedicated for irrigation use has also been considered.

A. Water Supply Options

While the existing water source has reliably produced more than adequate supply of water, its poor water quality has prompted considerations of potential alternatives including regional supply, development of a new well, deepening of the existing Oxbow well, use of the Camp Collins well, and addition of treatment for the Oxbow Park well. All but the last two of these alternatives were dropped from consideration after

limited investigation revealed there were not feasible. Regional water might be obtained from the adjacent Pleasant Home Water District; however, the nearest point of supply is approximately 3 miles from the park entrance and the cost of extending a line would be on the order of \$500,000. The Lusted Water District is approximately 5 miles away. The development of a new well in the vicinity of Oxbow Park would likely result in comparable water quality given the likely prevalence of iron and manganese throughout this shallow aquifer. A new well might be suitable for use as a dedicated irrigation supply as it could be located closer to the main areas of use than the existing Oxbow well. Deepening of the Oxbow well could enable production from the same aquifer that supplies Camp Collins; however, in general deeper waters are richer in mineral content and the artesian aquifer was found to be discontinuous during previous, limited geothermal resource investigations. The remaining two alternatives for potable water supply are the Camp Collins and Oxbow well (with or without treatment). The potential development of a dedicated irrigation system is presented below as it provides a significant component of the evaluation of potential potable water alternatives. The discussion of water supply (source and treatment) options is independent of other system improvements. Cost values do not include the distribution and other facility improvements identified in following sections.

Irrigation Supply Options

There are three options for providing water supply for irrigation use: use existing well and distribution system (possibly with treatment added), identify an alternative source of potable water and construct a dedicated irrigation line from the Oxbow well, or construction of a new dedicated well near the day use areas. The existing well should have the yield to support up to twice its current production rate but an expansion of the water right would be required. A pump test should be performed prior to any upgrade of the existing well pump to increase capacity. Development of a separate irrigation system using the Oxbow well would require a main line of 3,600 feet with an estimated project cost of \$100,000 (well testing, pump upgrade, and main line). Construction of a dedicated irrigation well to yield 225 gpm is estimated at \$60,000 but would also require extension of electrical power. The choice of which irrigation supply option is dependent on the potable water source option. The components and cost of irrigation distribution systems is not included within any costs provided in this report. This report only includes consideration of the water supply to provide for irrigation demands.

Alternative 1 - Joint Supply from Camp Collins Well

The Camp Collins water supply was evaluated using the limited records available. This potential source has four significant limitations: water quality (fluoride), water rights, aquifer yield, and need for coordination between the two systems.

This artesian well has produced water generally considered to be of high quality by its current users. However, since past water quality monitoring revealed elevated levels of fluoride, additional testing was requested of Camp Collins. The October, 1996 sample revealed lower levels of fluoride (3.4 ppm), the result was still above the secondary maximum contaminant level (MCL).

The secondary MCL for fluoride of 2.0 ppm was selected to limit the potential for non-health related impacts. Fluoride levels above 2.0 ppm can result in fluorosis or mottling of the tooth enamel over extended periods of exposure. This effect is most significant for children whose permanent teeth are developing. The primary MCL for fluoride of 4.0 ppm was based on preventing the occurrence of skeletal fluorosis which can result after long-term exposure. The current level of fluoride merits monitoring on at least an annual basis to observe whether concentrations may be changing. If concentrations exceed the primary MCL, then water treatment may be required. Potential treatment or mitigation measures for excessive fluoride levels include anion exchange at the system or point of use

and provision of bottled water for direct consumption. The presence of elevated fluoride is far less significant for systems such as Camp Collins and Oxbow Park whose primary service population is transient. It would be desirable to provide the option of alternative water supply for drinking to long-term users, particularly children, such as facility staff and permanent residents. Drinking water regulations require public notification when levels exceed the secondary or primary MCLs for fluoride (see OAR 333-061-0030 (2) (a) for specific public notice requirements).

The second significant limitation of the Camp Collins source is the lack of an existing water right. While a water right may exist for this well, it may be limited in its withdrawal amounts and not capable of supporting uses beyond Camp Collins. Camp Collins is investigating the water rights issue.

The capacity of the Camp Collins well also raises some concerns with respect to supplying both systems. The current submersible pump has a capacity of 60-80 gpm. The Camp has not previously monitored water production or long-term changes in water surface elevation or artesian pressure. The Camp is presently collecting this information. The Camp Collins well should have more than adequate capacity to meet the potable water needs of both systems provided that an alternative irrigation supply can be developed for Oxbow Park. The existing Oxbow Park well could be converted to provide a direct supply (dedicated pipeline) to an irrigation system for the main irrigation areas as well as a backup supply for potable use (with backflow prevention) at a cost of \$100,000. Given the distance from the Oxbow well to the main irrigation areas, it would be more cost-effective to develop a new well than to construct a pipeline. This alternative assumes that a separate irrigation supply would be provided by development of a dedicated irrigation well at a cost of \$60,000.

Camp Collins is open to the idea of sharing their well supply with Oxbow Park. The two facilities have a long, close history of cooperation. Two issues to resolve, however, are chlorination and responsibilities for how the maintenance and operating costs would be shared. Camp Collins does not presently provide chlorination of their water supply. This difference in operations could be accommodated in three ways: (1) don't chlorinate any of the water, (2) chlorinate the water as it is delivered to the Oxbow distribution system, or (3) chlorination of all of the water supply. While the bacterial history of both water systems is excellent, chlorination is still recommended due to the extensive distribution systems and periods of low demand which may result in stagnant conditions. Sharing of the maintenance and operation costs could be based on the relative water consumed by each system. Resolution of these facility issues should be pursued by representatives of both agencies if a joint water supply option is pursued.

The use of the Camp Collins well would require connecting the two systems with a water line approximately 350 feet long with a master meter and an estimated construction cost of \$10,000. Ongoing costs of using this source are estimated at \$2,000 per year and consist primarily of sharing the pumping costs plus lesser amounts for testing, maintenance, and operation. However, the Oxbow system will benefit from cost savings as the improved water quality would reduce the amount of system operations, especially labor to flush water lines and clean the reservoir. The use of the Camp Collins well to provide direct supply to both water systems will also require the installation of a reservoir refill control system. This will only allow the reservoir to refill during periods that the well capacity exceeds system demands. One option would consist of a float valve, pressure sustaining valve combination and dedicated fill piping which isolates the Oxbow distribution system into two sections (before and after the reservoir). The cost of this modification is estimated at \$10,000.

The total construction cost estimate for this water source alternative (including the irrigation well) is \$80,000 with annual operating costs of \$5,000.

Alternative 2 - Water Treatment for Existing Oxbow Well

A second alternative consists of treatment of the Oxbow well production for removal of iron and manganese. Treatment could be provided for all of the water produced or only that portion intended for potable use. If split production is used, then a separate booster pumping and piping system for the untreated irrigation water would be necessary. Given the distance to the irrigated areas, it would not be cost-effective to try to treat only for the potable needs. The cost of iron/manganese treatment systems have large economies of scale for both the capital and operating costs. A system sized to treat all water production, though perhaps twice the size of a potable-only system, would typically cost only 30 to 40% more. This cost is much smaller than the previous estimate for the 3,600 foot dedicated irrigation system main line.

There are several types of treatment systems for the removal of iron and manganese ranging from simple pressurized filtration with or without coagulation/flocculation to conventional filtration. The most appropriate of these cannot be selected at this time as it depends on pilot evaluation of the raw water to evaluate the effectiveness of the various options. However, for planning purposes a cost estimate has been prepared assuming the use of pressurized filtration with coagulation/flocculation to provide for effective removal of the manganese, completion of small addition to the existing building, and provision of backwash handling facilities. Actual costs for this component could vary significantly depending on the level of treatment, type of treatment, and building requirements. For planning purposes, the capital cost is estimated at \$120,000 with an annual operating cost of \$10,000 (chemicals \$2,000, labor \$6,000, maintenance and backwash disposal \$2,000). Disposal of backwash water will likely require the use of settling basins and either an infiltration, irrigation, or recycling system to re-use the clarified water. Settled solids will require regular monitoring and removal for disposal as a solid waste.

The advantages of this alternative include solid records of water production and a source which is capable of meeting both potable and irrigation needs for Oxbow Park. The water right limits expansion of the well pump to less than 10% but it may be possible to expand this right. This alternative also provides for an independent source for the park's water needs and is a simpler alternative than the use of the Camp Collins source.

Alternative 3 - No Change in Water Source

A third option for water supply would be continued use of the Oxbow Park well without any treatment modifications. The system is capable of supplying the irrigation needs of the Park and a separate supply system for irrigation would not be needed. The installation of a modern irrigation system would provide benefits to the water system with respect to balancing of water demands and reduced labor. Annual operating costs for comparison with the other alternatives are estimated at \$5,000 to \$10,000 with much of this cost representing labor to monitor and maintain reservoir and distribution water quality, higher chlorine requirements, and water for line flushing.

Recommended Water Source Option

The capital and annual costs, advantages, and disadvantages associated with each of the source alternatives are summarized in Table 8 below. A schematic of the proposed source alternatives is presented at the end of this evaluation. The existing water quality results in aesthetic problems to both the Oxbow staff and visitors so Alternative 3 is not recommended. Based on the desire to provide reliable, high quality water, the recommended option is Alternative 2, Iron/Manganese Treatment for the Oxbow Well. This well should be capable of expansion to a higher capacity with a simple pump upgrade provided the water right can be adjusted. The existing capacity is sufficient to meet the projected potable

and irrigation needs for Oxbow Park. The potential for shared use of the Camp Collins well was extensively considered during the development of this plan due to potential capital savings. However, given the known and potential water quantity and quality limitations, and the need for coordination between the two systems, this alternative is considerably less attractive despite its lower capital and operating costs.

Table 8 - Summary of Source Alternatives

Aspect	Alt. 1 - Camp Collins Well	Alt. 2 - Iron/Manganese Treatment for Oxbow Well	Alt. 3 No Change to Water Source
Capital Cost	\$80,000	\$120,000	\$0
Annual Operation and Maintenance Cost	\$5,000	\$10,000	Difficult to estimate: \$5,000 to \$10,000
Advantages	<ul style="list-style-type: none"> ● Lowest capital and annual costs 	<ul style="list-style-type: none"> ● Independent Supply ● Good source capacity ● Best water quality ● Good historical operating records 	<ul style="list-style-type: none"> ● Independent Supply ● Good source capacity ● No capital cost ● Good historical operating records
Disadvantages	<ul style="list-style-type: none"> ● No water right ● Limited source capacity so irrigation well required ● High fluoride and potential for excessive fluoride (costly treatment) ● Coordination among two systems ● Limited historical operating records 	<ul style="list-style-type: none"> ● Operation of Iron/Manganese Treatment ● Highest capital and annual costs 	<ul style="list-style-type: none"> ● High annual cost due to continued water quality problems ● Public dissatisfaction with color of water ● Staining of water fixtures

Note: The costs above do not include recommended improvements to non-source facilities. See Table 9 for total costs.

B. Water Storage

The existing reservoir provides ample storage of potable water for meeting peak demands and as a temporary supply during well maintenance/repair. The addition of a gravity storage reservoir offers two potential benefits: provision of water during power outages; and option for high flow rates for fire protection. The first benefit may also be realized through emergency power generation equipment. The second benefit requires adequate line sizing from the reservoir to the areas where fire flows are desirable.

The preferred elevation of a water storage reservoir would be approximately 280' in order to provide pressures of 60 to 80 psi throughout the planning area. This elevation occurs in only one readily accessible location within the planning area, on the hillside overlooking Group Picnic Area B. Access to this point would be provided by an existing access road; however, during the preparation of the Master Plan, landslides have damaged this access roadway so repairs would be required. Construction and site layout would both require careful consideration to minimize environmental impacts. Based on the general desire for a modest level of water service with respect to fire protection, construction of a gravity reservoir should not be considered at this time. The existing reservoir storage capacity of 28,000 gallons is capable of supplying 100 gpm (the estimated peak hour demand) for more than 4.5 hours to supplement the supply. This capacity is more than adequate for equalizing peak hour potable water demands. The volume is also adequate to provide for limited periods of irrigation in excess of the well production rate.

C. Water Booster Pumping

The existing booster pumping system has functioned reliably and provides acceptable service except for excessive power consumption. Vertical turbine pump lifetimes typically exceed 20 years with forty years not being uncommon. The existing pumps should have many years of useful life before requiring replacement. However, simple modifications to the pumping system would allow for the pumps to operate much more efficiently during periods of limited water demand. Options to allow for intermittent pump operation as demand required include the use of variable frequency drives, control valves, and hydropneumatic systems. The installation of pump moderation equipment would allow the pumps to charge the system at a rate equal to the demand and to shut off completely during periods of low or negligible demand. The hydropneumatic system would provide moderation of startup/shut-down surges and provide a small amount of storage to supply the system between pump cycles. The existing pump controls should be evaluated during any modifications as it is likely it will require replacement with modern equipment. Completion of this improvement at an estimated cost of \$15,000. Current electrical costs for the pumping station are \$4,500 per year with 80% to 90% of this cost the result of the constant pump operation. The simple payback time for this improvement is estimated at four to five years due to due to savings in electrical costs alone. Secondary benefits of this improvement include elimination of elevated water temperatures during low water demand periods. It may be possible to obtain energy efficiency grants and/or low interest loans to assist with the cost of this improvement from the electrical utility. Given the benefits of this project, it is recommended that it be considered for implementation as soon as possible.

D. Water Distribution

The existing distribution system provides acceptable levels of water supply throughout the park. The most significant deficiencies are the lack of accurate maps, inoperable valves, and need for additional valves and flush hydrants. The following components should be improved in general order of priority:

(1) System Mapping - A detailed map of the existing water facilities should be prepared in coordination with other computerized mapping systems maintained by Metro. Components should include water lines, control valves, flush hydrants, and locations of building service lines. Development of this map will require careful review of the original construction drawings, records kept by Park employees, and selected pot-holing where line size and location are uncertain. This mapping will provide the basis for a more thorough assessment of deficient water lines, valves, and flush hydrant locations. The estimated cost of this improvement is \$10,000 but could be higher depending on the degree of accuracy, completeness, and difficulty. It is anticipated this project will result in the identification of additional minor water system replacement and improvement needs. The priority of these should be based on the

level of need and they should be completed as part of on-going facility replacement. The recommended level of investment for annual replacement and upgrades is \$4,000.

(2) Valve Replacement - The existing distribution system valves should be systematically evaluated during the preparation of the system map. This investigation will assist in determination of where additional water lines may be located (loops) and identify valves which are non-functional. It is anticipated that 80% of the existing valves will require replacement to provide for reliable system operations. Replacement valves should be resilient seated gate valves with epoxy coatings and cast-iron valve boxes. The estimated cost of this improvement is \$20,000. Future operations should include regular inspection of all valves to ensure they remain accessible and annual exercising to maintain effective operation

(3) Distribution Line to Serve New Campsites - As part of the development of the third loop of camp sites, a new 4" water line should be installed along with standard services. The estimated cost of this 400 foot line construction is \$6,000.

(4) Fire Truck Fill Outlets - Two 2-1/2" fire outlets should be installed to provide better fire protection capabilities. The proposed locations are at the pump house and at the end of the 6" line in the vicinity of the first Group Picnic area. These locations should be reviewed with the local fire protection agency as well as the details of the connection to be provided. Completion of this item will facilitate refilling of fire truck tanks at locations that can receive relatively high flows from the system and closer to areas where the water may be needed. The estimated cost of this improvement is \$4,000.

(5) Fire Protection Improvements at the Headquarters Area - Options for improving fire protection at the headquarters area include installation of addition 2-1/2" filling points or modifications to the existing Camp Collins fire protection system. The local fire authority should be asked to review the Camp Collins system with respect to their anticipated plan of operation for providing fire protection in this area. The Camp Collins system depends on booster pumps to deliver water from the swimming pool to a dedicated fire loop and uses small filling outlets. The fire department may also desire consideration of improved accessibility to the swimming pool for direct pumping. The Oxbow Park distribution system can supply only small flows (less than 150 gpm) to this area due to the extreme length of 4" line from the reservoir and booster pumping system. No cost estimate has been made for this improvement.

(6) Creek Crossing - Where the distribution system crosses a small waterway just north of Dismal Swamp, the exposed AC pipeline is vulnerable to damage. This water line should be replaced with a buried section of ductile iron pipe under the waterway. The estimated cost for this improvement is less than \$2,000.

E. Other Water System Improvements

The last area of recommended improvements for the water system consists of items which should be strongly considered to provide enhanced levels of service. The desirability of an emergency source of electrical power should be discussed with Camp Collins to provide for a continuous water supply. The system should prepare a cross-connection control program and install vacuum breakers and other protective devices where potential cross-connections exist. These locations include hose bibs throughout the park and water supplies to the utility yard buildings. Water meters should also be installed at specific points of use such as the park headquarters buildings and proposed restroom facilities. Monitoring of specific service demands will provide for better understanding of the demands placed on the water system as well as on the on-site sewage disposal systems. The water operators for the system currently receive on-going training through local education programs. It is strongly recommended that membership

in one or more professional organizations such as the American Water Works Association be considered. Such memberships can provide valuable contacts, training opportunities, and additional resources to improve water system facility operations and maintenance. Specific costs for these improvements have not been identified as they represent routine operation and maintenance aspects rather than capital improvements.

F. Summary of Recommended Water System Improvements

The recommended source option for Oxbow park is continued use of the existing well with the addition of iron and manganese treatment. This well has a reliable water quantity in excess of projected needs and with treatment can provide the highest quality water available. The continued use of the existing reservoir is also recommended. The existing booster pumping system should be improved to provide for intermittent operation only as demands in the system require. Distribution system improvements include mapping and evaluation of existing facilities along with anticipate replacement of 80% of the existing valves. Additional distribution lines will be necessary to provide service through the proposed campground loop. Water meters should be installed at all points of use to allow monitoring of water demands and loading to wastewater systems. Operational improvements include preparation of a cross-connection control program, consideration of a back-up power supply, and continuing training opportunities for the water system operator. The following table summarizes the cost estimates for the proposed water system improvements.

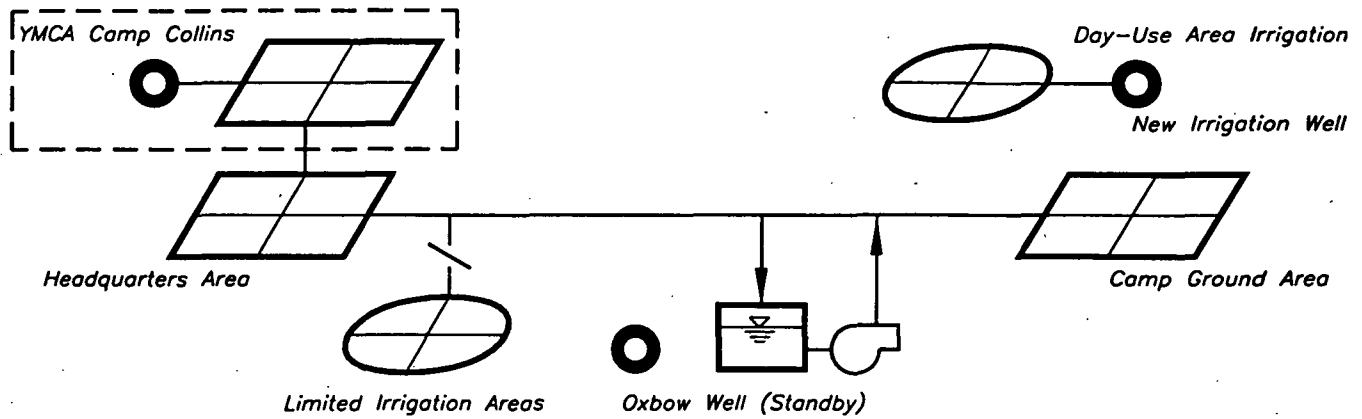
Table 9 - Summary of Water System Improvements

Project	1997	Annual
<u>Source</u>		
Iron/Manganese Treatment for Oxbow Park Well	\$120,000	
<u>Booster Pumping Improvements</u>		
	\$15,000	
<u>Distribution System</u>		
System Mapping	\$10,000	
Annual Improvements	\$4,000	\$4,000 per year
Valve Replacement	\$20,000	
New Campground Line	\$6,000	
Fire Truck Fill Outlets	\$4,000	
Creek Crossing	\$2,000	
Total	\$181,000	\$4,000 per year

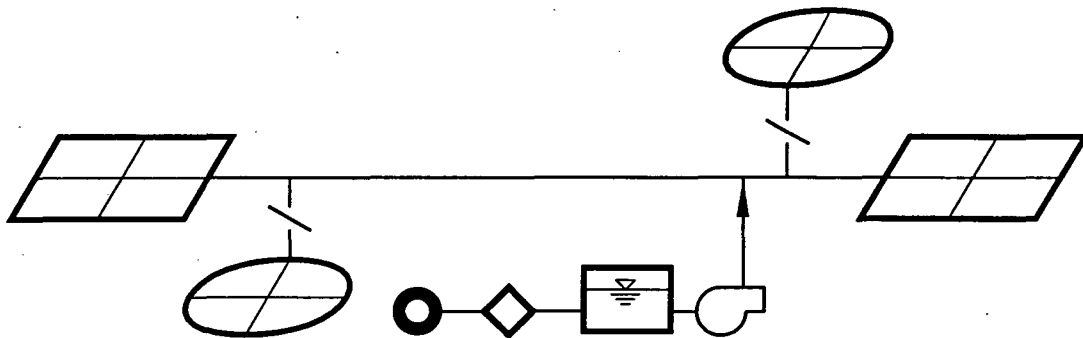
Note: These costs do not include the irrigation distribution system components.

The allocation of budget to provide for annual, ongoing improvements is important to allow the park to schedule and routinely improve the system. Accumulation of reserve funds should also be considered during years in which the money is not immediately needed in order to automatically supply funds for years in which bigger projects may be necessary.

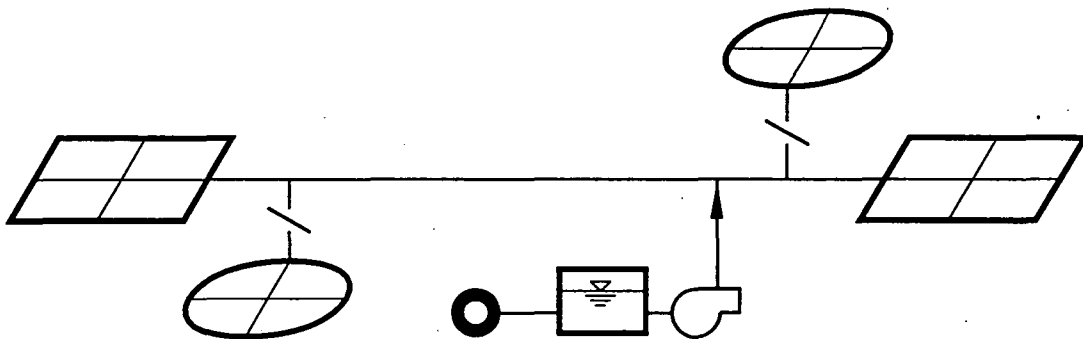
Alternative 1 - YMCA Camp Collins Well



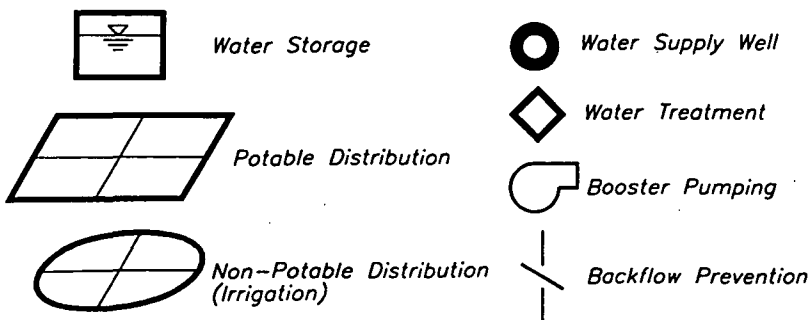
Alternative 2 - Iron & Manganese Treatment for Oxbow Well



Alternative 3 - No Change to Water Source



Legend



Oxbow Regional Park Water Source Alternatives Schematic

IV. PROPOSED WASTEWATER FACILITIES

A. General Considerations

The construction of modern flush toilet facilities was a high priority from earlier surveys of park users and assumed during the master planning process as a high priority objective. Provision of limited showering facilities was also desirable to enhance the level of service for camp ground users. Potential on-site sanitary sewer systems should provide for treatment and disposal of the wastewater generated while being protective of the environment, reliable, and cost effective with respect to capital investment, operating cost, and expected useful life.

The predominant soil in the Oxbow Park area is identified in the Multnomah County SCS guide as Dabney loamy sand. This soil is well suited for installation of conventional on-site wastewater systems. It does have the potential to result in groundwater impacts due to relatively high permeability. The use of a pressurized drain field for wastewater distribution will reduce the potential impacts by providing even hydraulic loading throughout the application area. More intensive processes for wastewater treatment and disposal such as conventional mechanical treatment plants are not appropriate for a recreational facility and have not been considered. Analysis has been limited to on-site sewage systems.

The details of the on-site system components should recognize the need to restrict access for both liability and facility protection purposes. Keeping access risers to septic tanks 6" below grade and securely sealed, with the locations carefully referenced to above-grade landmarks, will prevent inadvertent access and vandalism. Smaller (8") monitoring ports could be raised to grade and secured with locking access for protection.

It is desirable to provide convenient access to toilet facilities for the park's users so a combination of conventional septic systems and vault toilets is proposed. The limited use of vault toilets will provide for a balance between the high construction cost of conventional systems and the higher operational cost of vault toilets.

B. Alternatives Development

The basic on-site sewage treatment system consists of a septic tank for primary treatment and separation of wastewater solids followed by a drainfield for subsurface treatment and infiltration. Conventional on-site systems are well suited for Oxbow Park given the suitability of soils at Oxbow Park for conventional systems and the successful use of these systems for Camp Collins. The only proposed addition used for this evaluation is the use of a dosing chamber and pumps to provide for a pressurized drainfield system. This modification provides for more consistent application as discussed above and may be required by the regulatory agencies reviewing the project.

Important considerations for the development of conventional on-site systems include the design wastewater flows and availability of sites for drainfields and replacement areas. The existing park provides significant areas of open space ideally suited for construction of drainfields. The drainfield and replacement reserve areas should be in locations free of trees and must be protected from activities such as vehicle traffic which could impair the soil's ability to provide effective treatment. It is possible that for one or more of the proposed restroom sites that the location of a drainfield area will not be immediately available. It is possible to pump the wastewater to locations in the near vicinity where such sites may be located. The use of multiple on-site systems, one per source of wastewater, provides for flexibility of operations when one system may be out of service for routine maintenance, repairs, or to allow the

drainfield to rest. The normal weekly and seasonal variation in wastewater flows will automatically provide for routine recovery of infiltration and treatment capabilities and should extend the useful life of the drainfields.

The on-site systems will require only limited resources for operation and should provide reliable and effective treatment. The septic tanks will require periodic monitoring to measure the accumulated scum and solids to allow for pumping as needed. The volume of materials to be pumped should be less than that found in the existing pit toilets as the tanks will provide for more effective reduction in the volume of materials through natural decomposition and through normal discharges to the drainfield.

Alternatives consideration for sanitary sewer facilities consisted of possible combination of wastewater flows to a common treatment location, use of sand filtration or recirculating gravel filters to reduce the strength of the wastewater prior to discharge to the drain field, and the use of non-water carried toilets.

Combination of some of the proposed conventional systems would result in an increase in the cost due to the need to transport wastewater. Septic tanks would still be required at each of the locations to enable the transportation system to carrier wastewater with a low solids content. There would be no change in the size of the tanks or drainfields and additional pumps would be required to convey the wastewater from the septic tank to the dosing tank at a remote location. The combination of one or more systems may still be necessary if drainfield sites are not immediately available to some of the proposed restroom facilities as discussed above. The systems in the vicinity of the picnic, campground, and boat ramp areas are most amenable to potential consolidation.

Additional treatment (sand filter, recirculating gravel filter) of the septic tank effluent to reduce effluent loading strength has also been considered. These systems provide for enhanced treatment of the wastewater to reduce the solids and biological oxygen demand of the wastewater. The higher quality effluent can then more effectively be treated and infiltrated in drainfields. Typically a reduction in the required drainfield areas can be achieved as a result of additional treatment. This does not generally result in a net decrease in the total area of the wastewater treatment facilities. The costs of additional treatment include construction of the sand or recirculating gravel facilities plus increased operating and maintenance costs. These systems represent mature technologies that have found widespread use for residential, commercial, and industrial applications where site conditions or wastewater quality present challenges. Oxbow Park and the soil conditions do not present difficult site conditions and the wastewater quality is expected to be essentially residential in quality.

Alternative onsite-treatment possibilities include waste segregation (grey water and black water) or non-water using systems such as composting toilets. The separation of wastewater still requires that each waste stream be treated and discharged to drainfields. For Oxbow Park, it is desirable to keep the greywater and blackwater flows combined to provide for moderation of the wastewater strength. Non-water using toilets such as composting systems are ideally suited for areas where conventional systems are not practical. Composting toilets provide for decomposition, reduction, and partial stabilization of wastewater solids. The accumulated solids must still be periodically removed, as in the existing pit toilets, and the material conveyed to other wastewater treatment facilities for final treatment and disposition. The only alternative systems given major consideration was the proposed use of vault toilets in selected locations and the use of greywater systems for the shelters and camp ground sites.

The existing pit toilet facilities function relative to providing sanitary service for the park. However, they do result in odors and are less acceptable to park patrons. The systems do release untreated wastes into the ground so do not meet current standards for a facility of this nature. The proposed facilities will still include the installation of 9 unisex vault toilet systems (total of 14 seats) in areas where they will provide

convenient access and the anticipated demands do not warrant investment in installation of conventional septic systems. The proposed vault toilet locations will not include placement within flood plains or inside setbacks from the river or the existing well. The locations should also readily provide the required 4' separation from groundwater. The existing pit toilet located within the flood plain (Group Camp 3) will be removed. The proposed locations all will require truck access to allow for removal of accumulated wastes as necessary.

Greywater disposal systems will be necessary for the sink installations proposed for the group picnic shelters and at each camp site. The shelter systems should provide a receiving chamber, settling chamber, and either a seepage chamber or disposal trench. The greywater systems should be designed to minimize the potential for clogging and backup problems. The most important component of the design will be providing clear directions to the public to discourage inappropriate use.

C. Proposed Wastewater System Installations

The locations of the proposed wastewater facilities will depend on the actual locations of the restroom facilities and the location of local areas well-suited for drainfields. The allocation of the design loadings was based on estimated loadings to each facility based on the following factors: seasonal variation in demand, potential for high peak demand loadings, available parking in the area and level of use, and the number of toilets and showers to be served. The potential use of the vault toilets relative to the flush toilets is difficult to assess so it has been assumed that vault toilet use will be minimal (conservative design values for conventional systems) for planning purposes. Further, if only some flush toilets are constructed, the use of the limited facilities may also be higher due to a preference for the higher level of service. Overall, the design flow values were based on peak monthly design flows plus 50% for a total park wastewater capacity equal to the estimated peak day demand. Estimates of drainfield area have been based on a soil classification A, 2' wide trenches 8' on center with the intervening space representing the reserve drainfield area. The following two tables summarize the preliminary design of the conventional on-site systems and list the locations of other wastewater systems.

Table 10 - Summary of Conventional On-Site Wastewater System Installations

Location	Flush Toilets / Showers	Design Flow (gal/day)	Drainfield Area (ac)	Construction Cost
Park Office	1 unisex / --	1,000	0.06	\$45,000
Arrival Area Restroom	2 unisex / --	4,000	0.18	\$15,000
Group Picnic Area (two sites)	6 unisex / --	3,000	0.18	\$45,000
	6 unisex / --	3,000	0.18	\$45,000
Environmental Education Area	2 women, 2 men / --	4,000	0.24	\$60,000
Boat Ramp	6 unisex / --	7,000	0.43	\$115,000
Group Campground	3 unisex / 5 unisex	7,000	0.43	\$105,000
Campground	3 unisex / 5 unisex	7,000	0.43	\$120,000
Total	27 unisex toilets 2 Women's restrooms 2 Women's restrooms 10 Unisex showers	36,000	2.13	\$550,000

Table 11 - Summary of other Wastewater Systems

Location	Restroom Seats for Vault Toilets (all unisex)
Flood Plain Trail Head	1
'Hosner Hole' River Access	2
Dismal Swamp Day Use (two sites)	2 1
Individual/Family Day Use	1
Campground (two sites)	2 2
Group Camp 2	2
Total	13 unisex

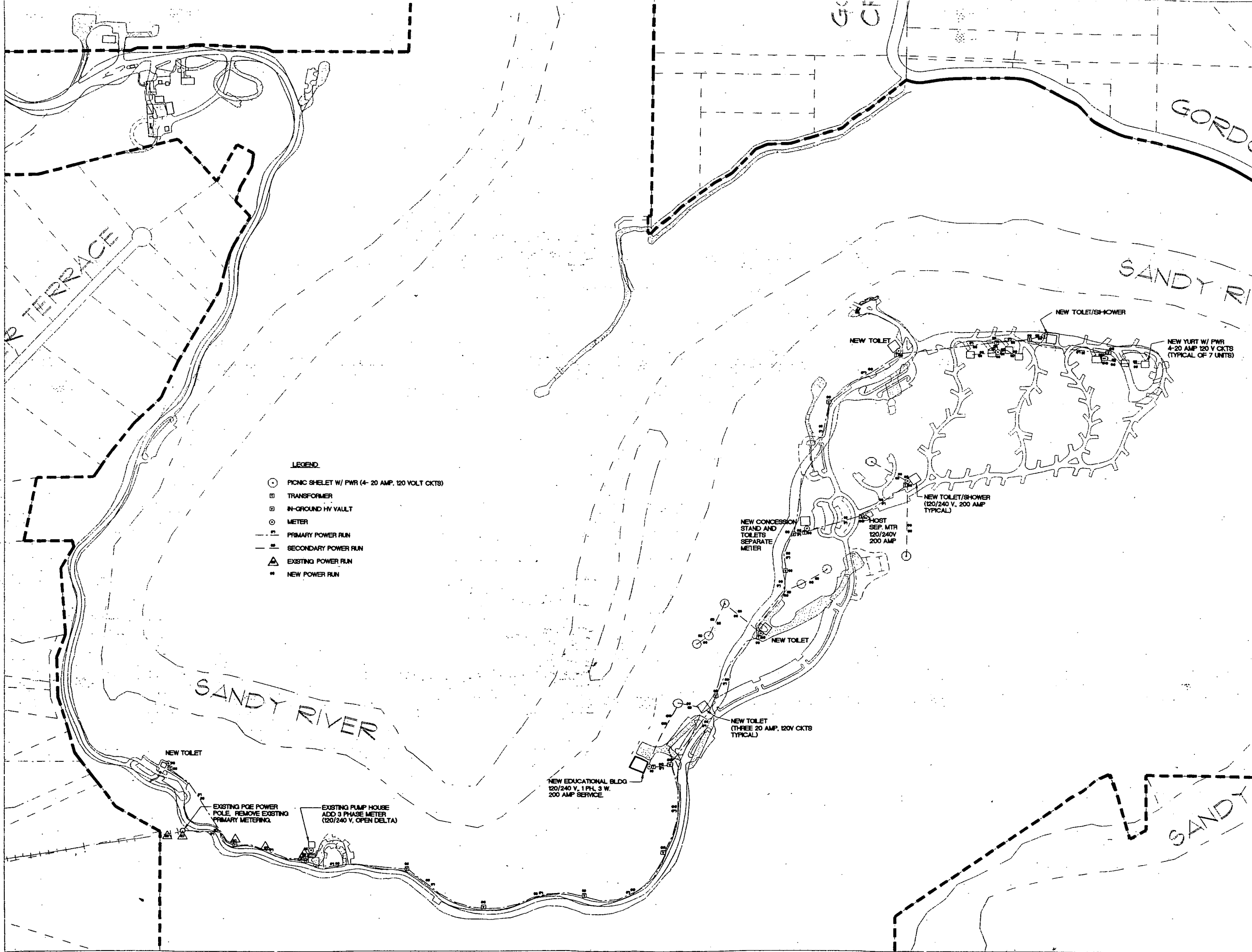
D. Estimated Operation and Maintenance Cost for Wastewater Systems

The actual costs of the wastewater systems will consist of regular monitoring of wastewater flows, subsurface mounding of applied wastewater in the drainfields, and condition of the effluent filter for possible plugging, and the level of accumulated scum and sludge in the septic tanks. Pumping of septic tanks will likely be required every 4 to 10 years depending on actual loading rates. The overall annual costs of the proposed wastewater systems should be less than the current program so no net cost impact is anticipated for operations. Repairs and maintenance of the proposed systems should be budgeted at 3% of the construction cost, or approximately \$10,000 per year. During the initial years, costs should be minimal but long-term replacement of system components will become increasingly necessary. The most likely expenses would be pump replacement or repair and the biggest potential expenses would be expansion or replacement of drainfield areas. Careful observation of the wastewater loadings, and drainfield water mounding will provide for determination of when significant improvements will be warranted.

V. ANTICIPATED PERMITS AND REGULATORY INVOLVEMENT

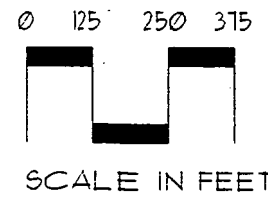
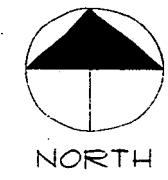
Water System Modifications - Oregon Health Division, Oregon Department of Environmental Quality for Well Modifications, Oregon Water Resources for water rights modifications (if necessary).

On-Site Sewer Facilities - Oregon DEQ (for systems requiring Water Pollution Control Facilities Permits, generally design flows greater than 2,500 gallons/day) and Multnomah County



- LEGEND**
- PICNIC SHELTER W/ PWR (4- 20 AMP, 120 VOLT CKTS)
 - TRANSFORMER
 - ▣ IN-GROUND HV VAULT
 - ⊙ METER
 - PRIMARY POWER RUN
 - - - SECONDARY POWER RUN
 - △ EXISTING POWER RUN
 - NEW POWER RUN

- LEGEND**
- PARK BOUNDARY
 - - - TAX LOT
 - ▭ SANDY RIVER
 - == ROAD
 - ▨ GRAVEL



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 (360) 696-4501 FAX

ELECTRICAL CONCEPT PLAN
 OXBOW REGIONAL PARK MASTER PLAN
 METRO REGIONAL PARKS & GREENSPACES DEPARTMENT

DATE:
 12-4-96
 SCALE:
 1"=250' AT
 22" X 34"

E1

(USE ADDITIONAL SHEETS IF NECESSARY)

STATE OF OREGON
COUNTY OF MULTNOMAH
CERTIFICATE OF WATER RIGHT

This Is to Certify, That COUNTY OF MULTNOMAH, DIVISION OF PARKS AND MEMORIALS

of 2115 S. E. Morrison Street, Portland, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Oxbow Well No. 3

a tributary of Sandy River (Columbia River) for the purpose of park use in Oxbow Park

under Permit No. G-2733 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from August 3, 1964

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.30 cubic foot per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 15, T. 1 S., R. 4 E., W. M. Well located South 62° 37' East, 945.4 feet from W 1/16 Corner common to Sections 10 and 15.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to - - - - - of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 10	NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 11 NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 15 T. 1 S., R. 4 E., W. M.
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The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this date. May 27, 1968

CHRIS L. MUEHLER

State Engineer



APPENDIX I

■ SURVEY ANALYSIS & OPERATIONAL ANALYSIS

■ COST/REVENUE ANALYSIS

OXBOW PARK

- SURVEY ANALYSIS
- OPERATIONAL ANALYSIS

Prepared By

*JC Draggoo & Associates
9900 SW Wilshire Street
Portland, Washington 97225*

September 23, 1996

PART I

Analysis of Oxbow Customer Survey

INTRODUCTION

During the summer and fall of 1995 an on-site customer survey was completed. Summer interns distributed questionnaires to park visitors during the months of July and August and again in October during the Salmon Festival. A total of 68 Salmon Festival participants and 166 July/August participants completed the survey. Questions ranged from multiple choice options to open ended responses.

While the number of completed questionnaires is less than needed for an accurate sampling and the responses were only for a short duration of the year, it does nevertheless, provide a good insight into the summer visitor's values, interests and needs.

Some of the specific findings in the survey were:

- **A third of the visitors were visiting the park for the first time and over 20% have been visiting it for 10 years or more.**
- **Approximately 62% of the visitors visit the park more than once a year with 16% visiting the park more than 10 times a year.**
- **Nearly 90% of the visitors use the park during the summer season compared to 13% during the winter. About a third of the visitors use Oxbow Park in the spring and fall seasons.**
- **The primary reasons people visit Oxbow Park are to relax and enjoy the outdoors.**
- **The features that most attract the visitor to the park are the river, the scenery and the natural setting.**
- **When asked what additional facilities or amenities should be developed at Oxbow Park, the most frequently cited responses were flush toilets and indoor shower facilities.**
- **When asked what type of camping should be provided at Oxbow Park, a majority of the respondents (55%) preferred to see semi-primitive camping.**
- **In general, a majority of the visitors rated the amenities and services at Oxbow Park as good to excellent.**
- **Nearly 60% of the visitors originate from Multnomah County**

SURVEY RESULTS

1. Time of Week (Weekend or Weekday)

The intent of this question was identify what portion of the use was occurring during the week and the weekend.

Response	Salmon Festival	Other Time Periods
Weekday	3%	34%
Weekend	97%	65%

As one might suspect, the predominant use during the Salmon Festival is one the weekend. It is surprising to see that the rest of the year (mostly during the summer) 34% use the park on weekdays. Overall, about 54% of the use occurs on the weekends.

2. How long have you been coming to Oxbow Park?

Response	Number of Response	Percent of Responses
0-1 Year	54	32.7%
2-5 Years	53	32.2%
6-10 Years	24	14.5%
Over 10 Years	34	20.6%
TOTAL	165	100.0%

The responses between the Salmon Festival and non Festival periods were similar. Based on the results above, approximately 20% of the visitors have been coming to Oxbow Park annually for over 10 years. For roughly a third of the visitors, this was their first year of visiting the site.

3. How many visits do you make to Oxbow Park?

Similar to the previous question, this question was intended to measure the frequency of use.

Response	Salmon Festival	Other Time Periods
0-1 Visits	44%	37%
2-5 Visits	45%	35%
6-10 Visits	3%	11%
Over 10 Visits	8%	16%

From the table above, it appears that more of the 1-5 visits are Salmon Festival attendees and more of the 6+ visits are non Salmon Festival park users. Overall, about 77% of the users visit the site 1-5 times a year and about a third were their first visit.

4. Which seasons do you visit Oxbow Park?

This question is intended to identify which seasonal variations in visitor use at Oxbow Park and includes all visitors.

Response	Percent of Responses
Summer	82%
Fall	49%
Spring	34%
Winter	15%

Keep in mind that this survey only occurred during the late summer months. Therefore, this table may not reflect the true use by season.

5. Which activities do you attend or do here (at Oxbow Park)?

The purpose of this question was to identify how the park is currently being utilized and includes all users.

Response	Percent of Responses
Picnics	58%
Hiking/Walking	58%
Nature Walks	52%
Family Outings	48%
Camping	42%
Swimming	40%
Wildlife Viewing	39%
Water Play	32%
Salmon Festival	32%
Fishing	26%
Kids Playground	26%
Salmon Walks	22%
River Rafting	21%
Biking	21%
Boating	14%
Interpretive Programs	13%
Group Camps	11%
Ball Sports	11%
Kids Programs	11%
Old Growth Tours	11%
Running	10%
Nature Classes	7%
School Field Trips	7%
Other	2%

Based on the table above, the most frequently cited responses were picnicking, hiking/walking, nature walks and family outings. When grouped into categories, the following results are noted.

Response	Percent of Responses
River Related Activities (1)	25.1%
Nature/Interpretative Programs (2)	23.0%
Picnicking/Family Activities (3)	17.2%
Trail Related Activities (4)	14.6%
Miscellaneous (5)	11.5%
Camping (6)	8.6%

- (1) Includes swimming, water play, fishing, salmon walks, river rafting, and boating
- (2) Includes Interpretive programs, old growth tours, nature classes, school field trips, kids programs, wildlife viewing and nature walks
- (3) Includes picnics and family outings
- (4) Includes Hiking/walking, biking and running,
- (5) Includes ball sports, kids playground, Salmon Festival and other
- (6) Includes camping and group camping

6. What type of experiences do you seek at Oxbow Park?

This question was intended to identify a particular quality or experience that was unique to Oxbow Park. By knowing what types of experiences are meaningful to the visitors, future planning and design efforts can seek to preserve or enhance these equalities. The table below excludes visitors at the Salmon Festival

Response	Percent of Responses
Relaxation	88.0%
Outdoor Enjoyment	77.7%
Fun	63.9%
Family Play	60.2%
Quiet	47.6%
Serenity	43.4%
Water Play	43.4%
Nature Connection	41.6%
Fitness	28.9%
Solitude	28.3%
Rejuvenation	27.1%
Social Interaction	26.5%
Spiritual	24.1%
Adventure	21.1%
Romantic	19.3%
Education	15.1%
Artistic	11.4%

Relaxation and outdoor enjoyment were cited as the most common experiences visitors travel to Oxbow Park. Also receiving a significant amount of response was fun and family play. While the serenity and peacefulness of the outdoors appears an important experience to most visitors, the connectivity and educational aspects with natural surroundings is not.

7. What natural resource qualities draw you to choose Oxbow Park?

This question was intended to identify what natural resource qualities invoked the visitor to travel to Oxbow Park.

Response	Percent of Responses
River	72.9%
Scenic	71.7%
Natural Setting	71.1%
Forest	66.9%
Peaceful	60.8%
Wildlife	56.6%
Quiet	54.8%
Fishing	25.9%
Fauna	24.1%
Other	3.0%

While the top seven responses were all cited as important reasons, the river, the scenery and the natural setting were identified the most frequently. Quite surprisingly, fishing and fauna were not cited as major reason for visiting Oxbow Park.

8. What additional facilities or amenities would you like to see at Oxbow Park?

This analysis excludes the Salmon Festival purpose of this question was to identify what types of additional facilities or amenities are needed at Oxbow Park.

Response	Salmon Festival	Other Time Periods
Flush Toilets	16%	52%
Indoor Shower Facilities	12%	42%
Additional Restrooms	13%	30%
Modern Restrooms	12%	31%
Bicycle Trails	32%	23%
Overnight Camping	18%	23%
Reservable Camping	7%	23%
Outdoor Shower Facilities	7%	22%
Fishing, Trails Accessible to the Disabled	18%	21%
Electric Hook-Ups	9	21%
Sinks in Shelters	10%	20%
Larger Children's Playground	10%	19%
Electricity and Lighting In Shelters	7%	18%
Expanded Trails System	32%	16%
Large Covered Shelters	10%	16%
Yurt	13%	16%
Scenic Viewing Platforms	18%	15%
Cabins	9%	15%
Longer Operating Hours	10%	15%
Picnic Areas	12%	15%
Bench Seating	10%	14%
Winterized Shelters	13%	14%
Smoke Free Areas	18%	12%
Bike Camping Areas	16%	11%
Small Picnic Shelters	7%	12%
BBQ's	9%	11%
Store	3%	11%
Additional Parking	3%	10%
Wedding Gazebo	6%	10%
Nature Center	12%	10%
RV Hook-Ups	3%	10%
Dump Station	6%	9%
Food Concessions	4%	9%
School Education Center	18%	8%
Challenge Course	3%	7%
East Bank Amenities	3%	6%
Natural History Museum	19%	6%
Lodge	4%	5%
Outdoor Lighting	4%	5%
Additional Sports Fields	3%	5%
Amphitheater	6%	5%
Interpretive Signage	13%	4%

Exhibit and Events Building	6%	4%
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The most desired facilities or amenities for the non Salmon Festival attendee are shown in the third column. By far, the most frequently cited responses were associated with provision of restrooms/showers. In fact, five out of the top eight (including the top four) focused improvements to these type facilities. As might be expected, the Salmon Festival visitor has a different rating. The shaded cells in column 2 reflect the top choices for them.

9. Preference for campground availability

The intent of this question was to identify which type of campground reservation system is preferred (non Salmon Festival responses only).

Response	Number of Response	Percent of Responses
Combination of the Two Systems	73	52.1%
First Come Only	34	24.3%
Reservable	33	23.6%
TOTAL	140	100.0%

Based on the responses above, a majority of the visitors preferred a combination of sites available on a "first come, first serve" basis as well as some that are "reservable".

10. What type of camping do you prefer?

The intent of this question was to determine at what level the camping facilities at Oxbow Park should be developed

Response	Number of Response	Percent of Responses
Primitive	59	37.1%
Semi-Primitive	88	55.3%
Full RV Hook-Up	12	7.6%
TOTAL	159	100.0%

As you can see, the majority of the visitors preferred to see camping facilities developed at a semi-primitive level. In general, there was very little support for developing full service hook ups.

1.1. What classes, programs or events would you attend if they were offered?

In this question visitors were asked to identify, from a pre-determined list, what programs or events they would attend if they were offered at Oxbow Park. Only non Salmon Festival surveys were counted.

Response	Percent of Responses
Music Concerts	25.3%
Wilderness Camping Classes	21.7%
Plant Identification	19.3%
Fishing Clinic	18.7%
Outdoor Adventure Training	18.1%
Nature Photography	17.5%
Wildlife Tracking	17.5%
Nature Classes	16.9%
Easter Egg Hunt	15.7%
Mushroom Identification	15.7%
Arts and Crafts Fair	15.1%
Forest Research Programs	14.5%
Primitive Skills Classes	14.5%
Geology Classes	12.0%
Harvest Festival	11.4%
Basket Making	9.6%
Farmers Market	9.6%
Outdoor Theater	9.6%
Community festivals	9.0%
Folk Fair Festival	9.0%
Living History Demonstrations	8.4%
Dances	6.6%
Cultural Events	4.8%
Traveling Cultural Exhibits	2.4%
Other	0.6%

Based on the table above, the most common response was music concerts. This was followed closely by wilderness camping classes and plant identification classes. The next ten responses were within five percentage points. The top four ranked activities for the Salmon Festival visitors (ranked in order) were : Nature classes, Harvest festival, Mushroom identification, Wildlife tracking ,

12. Please rate your satisfaction with the quality of the following amenities and services

In this question, the visitors were asked to rate the quality on a scale of 1 (being poor) to 4 (being excellent) of the site amenities and services at Oxbow Park. For the most part, the responses were the same for both surveys, Shown below are the non Salmon Festival responses only.

Response	Excellent	Good	Fair	Poor
Group Shelters	34.0%	50.5%	12.4%	3.1%
Picnic Tables	37.7%	45.9%	13.9%	2.5%
Trails	44.4%	48.5%	6.3%	0.8%
Parking Lots	39.1%	45.3%	10.4%	5.2%
Grounds Maintenance	61.0%	33.9%	5.1%	0.0%
BBQ's	34.0%	51.5%	12.4%	3.1%
Volleyball Courts	37.7%	45.9%	13.9%	2.5%
Restrooms	44.4%	48.4%	6.3%	0.8%
Security	39.1%	45.2%	10.4%	5.2%
Picnic Areas	61.0%	33.9%	5.1%	0.0%
Roadways	34.0%	50.5%	12.4%	3.1%
Children's Play Equipment	37.7%	45.9%	13.9%	2.5%

As you can see from the table above, all of the categories received a rating of at least good. Grounds maintenance and picnic areas received a rating of excellent. The least satisfaction (5.2%) appeared to be with the parking lot facilities and security.

It is interesting to note the relatively high rating that was given to restrooms. In one of the previous questions, restrooms were identified as a facility that needed improvement. If this is the case, it is difficult to explain why restrooms did not receive a lower overall rating.

13. Please rate your satisfaction with the customer service experience

Similar to the previous question, the visitor was asked to rate on a scale of 1 (being poor) to 4 (being excellent) the quality of the customer service.

Response	Excellent	Good	Fair	Poor
Friendly	75.9%	16.5%	4.5%	3.0%
Courteous	74.8%	21.3%	2.4%	1.6%
Responsive	72.5%	23.3%	1.7%	2.5%
Knowledgeable	72.2%	24.3%	2.6%	0.9%
Helpful	71.3%	23.0%	1.6%	4.1%

Based on the results above, all of the customer service categories received a rating of excellent. In fact, a majority of the responses exceeded a 70% excellent rating. The least satisfaction (.4.1%) appeared to be with the helpfulness of staff.

14. Your age is:

This question identifies the age of the visitor within a pre-determined range of demographic categories. The value of this information is that it helps determine a character profile of a typical user at Oxbow Park. The following table is for all visitors.

Response	Number of Response	Percent of Responses
18-24	27	14%
25-34	41	22%
35-44	75	40%
45-54	20	11%
55-64	8	4%
65 and Over	16	9%

Approximately 87% of the visitors to Oxbow Park are under the age of 55. The majority of the users are between the ages of 25 and 44, which accounts for 58.8% of visitors. The median age is 37 years.

15. Your origin is:

In this question the visitor was asked to fill in the zip code in the area in which they reside. The value of this information is that it helps identify the service area of Oxbow Park.

Response	Number of Response	Percent of Responses
Clackamas Co.		
Boring	5	4.0%
Clackamas	0	0.0%
Milwaukie	14	11.2%
Oregon City	1	0.8%
Sandy	1	0.8%
West Linn	2	1.6%
Clark County		
Vancouver	3	2.4%
Multnomah County		
Gresham	19	15.2%
Portland	46	36.8%
Troutdale	6	4.8%
Washington County		
Beaverton	5	4.0%
Other	23	18.4%
TOTAL	131	100.0%

Over half the visitors originated from Multnomah County, with roughly 37% coming from the Portland area and 15% coming from the Gresham area. Only 4% of the users were from Washington County and 2% were from Clark County.

16. Which category best describes your annual household income?

In this question, the visitor was asked to specify their annual household income within a pre-determined range of income categories. Again, this helps determine a character profile of a typical user at Oxbow Park

Response	Number of Response	Percent of Responses
Under \$15,000	19	15.3%
\$15,000-\$24,999	15	12.1%
\$25,000-\$34,999	28	22.6%
\$35,000-\$49,999	27	21.8%
\$50,000-\$75,000	21	16.9%
Over \$75,000	14	11.3%
TOTAL	124	100.0%

Based on the table above, 50% of the visitors have a household income under \$35,000. The greatest percentage of the visitors have a household income between \$25,000 and \$34,999. There was also a fairly percentage of visitors within the \$35,000-\$49,999 range. As a point of reference, the median family household income in Multnomah County in 1990 was \$26,928.

17. If you drove to the park, how many passengers (including yourself and kids) were in your vehicle today?

The purpose of this question was to determine an average passenger count per vehicle. This information will be used to identify parking requirements for the day use and camping areas.

Response	Number of Response	Percent of Responses
One	16	11.5%
Two	29	20.9%
Three	16	11.5%
Four	31	22.3%
Five	25	18.0%
Six or More	22	15.8%
TOTAL	139	100.0%

Based on the responses above, the greatest percentage of the responses was for 4 passengers. However, the average passenger count per vehicle was 3.6.

PART II

Operational Analysis

EXISTING OPERATIONS

Operating Budget

The table below shows the annual operating budget for Oxbow Park for the last six years starting with the 1991-92 fiscal year.

Table 1
Comparison of Operating Budgets- Fiscal Years
1991-92 to 1996-1997
Oxbow Park

Fiscal Year	Operating Budget	Percent Change
1991-1992	\$322,215	—
1992-1993	\$362,257	+12.4%
1993-1994	\$427,636	+18.0%
1994-1995	\$399,372	-6.6%
1995-1996 ⁽¹⁾	\$426,809	+6.8%
1996-1997 ⁽²⁾	\$436,283	+2.2%

⁽¹⁾ Budgeted

⁽²⁾ Estimate

Based on the table above, the operating budget from the fiscal year 1991-92 to 1995-96 has increased by 32.5%. This is equivalent to an average annual increase 6.5%. While the straight line projection method of analysis implies a steady but moderate growth, the actual growth rate has occurred more sporadically. The most significant increases occurred between the fiscal years 1991-92 and 1993-94. This was followed by a 6.6% decrease in the fiscal year 1994-95 and an average increase in the fiscal year 1995-96. While the 1996-97 operating budget is an estimated amount, it reflects a 2.2% increase, which is lower than the five year average of 6.5%.

Expenditures

Table 2 on the following page shows a breakdown of the Oxbow park expenditures over the past six years. The expenditures are split into five major categories consisting of personal services (staffing), materials and services (supplies, utilities, etc.), capital outlay (major expenditures/improvements), transfers and contingencies.

Table 2
Summary of Expenditures
Oxbow Park

Expenditures	FY 1996- 1997	FY 1995- 1996	FY 1994- 1995	FY 1993- 1994	FY 1992- 1993	FY 1991- 1992
Personal Services	\$266,082	\$244,833	\$243,029	\$287,037	\$252,611	\$240,542
Materials and Services	\$84,565	\$78,847	\$76,037	\$84,005	\$68,928	\$81,673
Capital Outlay	\$1,500	\$44,750	\$27,700	\$0	\$1,600	\$0
Transfers	\$66,521	\$51,260	\$49,636	\$56,594	\$39,118	\$0
Contingency	\$17,615	\$7,119	\$2,970	\$0	\$0	\$0
TOTAL	\$436,283	\$426,809	\$399,372	\$427,636	\$362,257	\$322,215

Personal services, by far, accounts for the greatest percentage Oxbow Park expenditures which has averaged approximately 65% of the total expenditures over the last six years. However, this percentage has dropped to less than 60% over the last three years. This means that a smaller percentage of the expenditures are going toward personal services.

Revenues

A breakdown of revenue for Oxbow Park is shown below in Table 3. The primary sources include program fees (entrance fees), Glendoveer receipts (a portion of the revenues generated by the Glendoveer golf course), County marine fuel tax, RV registration fee, grants and ending fund balances from the previous years operating budget. In addition, there is one additional source of revenue in the 1995-96 and 1996-97 fiscal years consisting of an excise tax. This tax is applied to gate fees with the provision that the revenue generated goes specifically to Oxbow Park.

Table 3
Summary of Revenues
Oxbow Park

REVENUES	1996- 1997 Estimated	1995- 1996 Budgeted	1994- 1995 Actual	1993- 1994 Actual	1992- 1993 Actual	1991- 1992 Actual
Glendoveer Receipts	\$210,857	\$234,282	\$217,089	**	**	**
Programs Fees	\$122,349	\$126,326	\$131,155	\$141,088	\$121,895	\$135,863
RV Registration Fee	\$45,000	**	**	**	**	**
County Marine Fuel Tax	\$26,762	\$31,173	\$35,883	**	**	**
Fund Balance	\$21,395	\$15,554	\$15,000	**	**	**
Excise Tax	\$9,920	\$9,474	-	-	-	-
Federal Grants	0	\$10,000	-	**	**	**
TOTAL	\$436,283	\$426,809	\$399,372	\$427,636	\$362,257	\$322,215

** Indicates that information is not specifically available for Oxbow Park due record keeping procedures.

Based on previous table, it appears that the primary source of revenues is the Glendoveer receipts, which historically has accounted for approximately half of the Parks operating revenues. However, there is no policy on how the Glendoveer receipts are to be distributed and one should not rely on this revenue source in the future. Programs fees account for roughly a third of the operating revenue.

Table 4
Revenues Sources as a percentage of Total Revenues
Fiscal Year 1995-1996
Oxbow Park

Program	Budgeted Amount	Percent
Glendoveer Receipts	\$234,282	54.9%
Programs Fees	\$126,326	29.6%
County Marine Fuel Tax	\$31,173	7.3%
Fund Balance	\$15,554	3.7%
Federal Grants	\$10,000	2.3%
Excise Tax	\$9,474	2.2%
TOTAL	\$426,809	100.0%

As you can see, during the 1995-96 fiscal year, approximately 55% of the revenue came from the Glendoveer receipts. Roughly 30% of the revenues came from programs fees and the remaining sources accounted for only 15% of the revenues.

Table 5 below, shows a breakdown of program revenues at Oxbow Park.

Table 5
Summary of Program Revenues
Oxbow Park

PROGRAM REVENUES	1996-1997 Estimated	1995-1996 Budgeted	1994-1995 Actual	1993-1994 Actual	1992-1993 Actual	1991-1992 Actual
Entry Fees	\$70,055	\$71,349	\$72,767	\$75,069	\$72,024	\$83,080
Camping Fees	\$25,612	\$25,116	\$29,493	\$25,549	\$26,996	\$28,717
Reservation Fees	\$12,925	\$15,814	\$12,642	\$19,322	\$11,268	\$12,661
Group Camping Fees	\$7,282	\$6,047	\$9,145	\$6,598	\$0	\$0
Firewood Fees	\$5,365	\$6,140	\$5,854	\$6,949	\$4,618	\$4,058
Misc. Fees	\$1,110	\$1,860	\$1,254	\$7,601	\$6,989	\$7,347
TOTAL	\$122,349	\$126,326	\$131,155	\$141,088	\$121,895	\$135,863

In general, it appears that the revenues for program fees has remained fairly constant (+/- 5%). Over the past six years, between 54% - 60% of the total programs revenues have been generated through entrance fees. Camping fees have generated between 20% - 22% of the total program revenues.

Fees and Charges

There is a two tiered fee structure for entrance fees at Oxbow Park consisting of 1) summer fees (May 15 through October 31) and 2) winter fees (November 1 through May 14). Listed below is the current fee and charges policy for Oxbow Park.

Table 8
Fees and Charges-
Oxbow Park

	Summer Fees Weekend/ Weekday	Winter Fees Weekend/ Weekday
Entry Fees		
Cars/Motorcycle	\$3.00	\$2.00/\$3.00
Busses	\$6.00	\$6.00
Overnight Camping	\$9.00	\$9.00
Extra Vehicle	\$2.00	\$2.00
Group Camping		
Group Camp #2 and #3 (maximum 35 people)	\$20.00 minimum for first 10 people plus \$2.00/ person (\$70.00 max)	\$20.00 minimum for first 10 people plus \$2.00/ person (\$70.00 max)
Group Camp #1 (maximum 150 people)	\$40.00 minimum for first 10 people plus \$2.00/ person (\$300.00 max)	\$40.00 minimum for first 10 people plus \$2.00/ person (\$300.00 max)
Picnic Areas		
Area A	\$210.00/\$168.00	\$105.00
Area B	\$130.00/\$104.00	\$65.00
Area C	\$160.00/\$128.00	\$80.00
Area D	\$110.00/\$88.00	\$55.00
Annual Passes		
Regular	\$35.00	\$35.00
Seniors	\$25.00	\$25.00
Low Income/Handicapped	\$10.00	\$10.00
Firewood	\$3.00/bundle	\$3.00/bundle

375(2) SF

312(1) SF

1364 SF
484 SF
836 SF
321 SF

6.6

Table 6 below shows each revenue source as a percentage of the total.

Table 6
Revenues Sources as a percentage of Total Revenues
Fiscal Year 1995-1996
Oxbow Park

Program	Budgeted Amount	Percent
Entry Fees	\$71,349	56.5%
Camping Fees	\$25,116	19.9%
Reservation Fees	\$15,814	12.4%
Firewood Fees	\$6,140	4.9%
Group Camping Fees	\$6,047	4.8%
Misc. Fees	\$1,860	1.5%
TOTAL	\$126,326	100.0%

Based on the table above, entrance fees (57%) and camping fees (20%) account for approximately 77% of the total program fees. Group camping only accounts for less than 5% of the total program revenues.

Listed below is a breakdown of revenues by month for the 1995-96 fiscal year.

Table 7
Summary of Actual Program Revenues By Month
Fiscal Year 1995-1996
Oxbow Park

Month	Vehicle Entry Fees	Public Camping Fees	Group Camping Fees	Firewood Fees	Misc Fees	TOTALS
July	16,220.38	7,414.00	1,405.00	1,617.00	3,004.00	\$29,660.38
August	13,588.46	6,583.00	515.00	1,506.00	4,023.50	\$26,215.96
September	\$7,902.32	\$3,383.00	306.00	657.00		\$12,248.32
October	\$14,740.79	\$653.00	\$22.00	\$72.00		\$15,487.79
November	\$867.79	\$157.00	\$24.00	\$27.00		\$1,075.79
December	\$1,886.45	\$9.00	\$0.00	\$0.00	\$203.00	\$2,098.45
January	\$1,780.89	\$54.00	\$0.00	\$9.00	\$13.00	\$1,856.89
February	\$1,158.00	\$126.00	0.00	0.00		\$1,284.00
March	\$3,194.86	\$883.00	\$0.00	\$162.00		\$4,239.86
April	\$4,863.13	\$1,044.00	\$97.00	\$246.00		\$6,250.13
May	\$6,552.77	\$2,196.00	\$740.25	\$582.00		\$10,071.02
June	\$11,105.79	4,881.00	\$230.00	\$1,372.00		\$17,588.79
TOTALS	\$83,861.63	\$27,383.00	\$3,339.25	\$6,250.00	\$216.00	\$128,077.38

Note: It should be noted that the above figures are actual costs and may differ from budgeted amounts listed in previous tables.

The prime summer months (June-September) generate 67% of the total annual revenue and averages about \$21,400 per month. During the winter months (November - February) only 5% of the revenue is generated.

Fees and Charges

There is a two tiered fee structure for entrance fees at Oxbow Park consisting of 1) summer fees (May 15 through October 31) and 2) winter fees (November 1 through May 14). Listed below is the current fee and charges policy for Oxbow Park.

**Table 8
Fees and Charges-
Oxbow Park**

	Summer Fees Weekend/ Weekday	Winter Fees Weekend/ Weekday
Entry Fees		
Cars/Motorcycle	\$3.00	\$2.00/\$3.00
Busses	\$6.00	\$6.00
Overnight Camping	\$9.00	\$9.00
Extra Vehicle	\$2.00	\$2.00
Group Camping		
Group Camp #2 and #3 (maximum 35 people)	\$20.00 minimum for first 10 people plus \$2.00/ person (\$70.00 max)	\$20.00 minimum for first 10 people plus \$2.00/ person (\$70.00 max)
Group Camp #1 (maximum 150 people)	\$40.00 minimum for first 10 people plus \$2.00/ person (\$300.00 max)	\$40.00 minimum for first 10 people plus \$2.00/ person (\$300.00 max)
Picnic Areas		
Area A	\$210.00/\$168.00	\$105.00
Area B	\$130.00/\$104.00	\$65.00
Area C	\$160.00/\$128.00	\$80.00
Area D	\$110.00/\$88.00	\$55.00
Annual Passes		
Regular	\$35.00	\$35.00
Seniors	\$25.00	\$25.00
Low Income/Handicapped	\$10.00	\$10.00
Firewood	\$3.00/bundle	\$3.00/bundle

ATTENDANCE

Table 9, below shows a breakdown of visitation.

Table 9
Summary of Visitation by Month
Fiscal Year 1995-1996
Oxbow Park

	Vehicle Count	Visitors
July	8,722	30,527
August	6,848	23,968
September	4,535	15,873
October	5,385	18,848
November	1,181	4,134
December	1,913	6,696
January	2,267	7,935
February *	579	2,027
March	4,363	15,271
April	3,782	13,237
May	5,058	17,703
June	6,721	23,524
TOTALS	51,354	179,743

* Park closed from February 7th to February 23rd
(attendance February 1995 = 1,872 vehicles and 6,552 visitors)

As you can see, the greatest amount of visitation occurs in the summer months of June, July and August. All totaled, there was 179, 743 visitors at Oxbow Park during the fiscal year of 1995-96. This represents an average of 3.5 persons per vehicle entering the park.

Camping

Table 10, below, shows a summary of camping activity by month for fiscal year 1995-96.

Table 10
Summary of Camping Activity by Month
Fiscal Year 1995-1996
Oxbow Park

Month	Individual Camping Nights	Permits	Group Camping Nights	Permits
July	2,792	677	1,520	10
August	2,970	730	405	10
September	1,360	344	352	11
October	225	67	41	2
November	59	15	19	2
December	2	1	0	0
January	13	6	0	0
February	0	0	0	0
March	384	90	0	0
April	424	111	136	4
May	860	219	759	4
June	2,053	497	328	7
TOTALS	11,142	2,757	3,560	50

Similarly to the visitation statistics, the greatest amount of use comes during the summer months of June, July and August. In fact, 70% of the individual camping nights and 63% of the group camping occurred during these months.

Environmental Education Programs

Table 10
Environmental Education Programs
Oxbow Park

Class	Length	Group Size	Age Range
Wildlife Watching	45 min to 1 1/2 hours	6 to 30	Preschool to Adult
Ancient Forests	45 min to 1 1/2 hours	6 to 15	1st grade and up
Animal Tracking Introduction	45 min to 1 1/2 hours	6	4th grade and up
River Exploration	45 min	6 to 15	Preschool to Adult
Sensory Awareness	45 min	6 to 15	Preschool to Adult
Salmon	1 1/2 to 2 hours	6-30	Preschool to Adult

OXBOW PARK						
FEE COMPARISONS						
10/21/96						
Facility	Existng Fee Schedule	Oregon State Parks				
	Oxbow Park	Champoeg Park	Devils Lake	Douglas County	Jackson County	Linn County
	(Peak/Off-Season)	(Peak/Off-Season)	(Peak/Off-Season)			
Day Use/Entry Fees	\$3	\$3	NA	NA	\$3	\$2
Overnight Camping Fees						
Tent	\$9	\$15/\$14	\$16/\$14	\$11	\$14	\$12
Elec. Hookup	NA	\$19/\$15	\$19/\$15	\$14	NA	\$14
Full Hookup	NA	NA	\$26/\$20	NA	NA	NA
Group Camping Fees						
Small (50 or less)	\$20 min. +/\$70 max	\$85+ RV/\$60+ Tent	NA	\$40-\$70	\$65	NA
Large (100 or more)	\$40 min. +/\$300 max	\$85+ RV/\$60+ Tent	NA	\$100	\$100	NA
Yurt Camping	NA	\$25	\$25	NA	NA	None
Hike/Bicycle Camping	NA	\$4/person	\$4.50/person	NA	NA	NA
Picnic Reservation Fees						
Small (50 or less)	\$110/\$88	\$35 min + *	NA	\$30-\$40	\$75	\$30
Large (100 or more)	\$210/\$168		NA	\$70-\$80	\$150	\$30
Firewood Fees	\$3	\$4.50	\$3.00	NA	NA	\$1
Boat Ramp	NA	NA	NA	NA	NA	NA
Shower Fees	NA	NA	2.00/ non camper	NA	NA	NA
* Picnic area (may or may not include shelter building)						

OXBOW PARK MASTER PLAN

COST/REVENUE ANALYSIS

Prepared By

*JC Draggoo & Associates
9900 SW Wilshire Street
Portland, Washington 97225*

June 25, 1997

INTRODUCTION

The following is an analysis of potential costs and revenues for Oxbow Park when all of the recommended improvements are made. A summary of the costs and revenue projections are shown below in Table 1. The assumptions and background information used to calculate each line item is found in the Appendix.

The costs and revenue items are based on 1997 dollars.

Table 1
Summary of Potential Operating Costs and Revenue
Oxbow Park Master Plan

<u>Budget Item</u>	<u>1996-97 Year</u>	<u>Forecasted Year</u>
Revenue	\$140,925	\$220,776
Operating Cost	\$347,864	\$373,046
Net Operating Deficit	\$206,939	152,270
Deficit rate	59.5%	40.8%

POTENTIAL OPERATING REVENUE

A breakdown of the potential operating revenue from program fees is summarized in Table 2 below. Appendix A-1 lists the assumptions and calculations for each program. Table 2 does not list Other Resources such as Glendoveer Golf Course receipts, Oregon RV Registration Fee revenue, and the County Marine Fuel Tax. These items come to the County as lump sums and are distributed to individual parks depending upon need. However, a breakdown of these fees is shown in Appendix A-1.

Table 2
Summary of Potential Operating Revenue
Oxbow Park

1996-97	Forecasted	Revenue⁽¹⁾
Revenue Source	Budget	
Program Fees		
Entry Fees	\$70,055	\$81,326
Camping Fees	25,612	46,200
Group Camping Fees	7,282	8,500
Environmental Education Programs	18,576	27,800
Group Reservation Fees (Shelters)	12,925	25,800 ⁽²⁾
Group Reservation Fees (Open areas)	-	2,400 ⁽²⁾
Firewood Sales	5,365	--
Yurts	---	18,250
Shower Revenue	---	9,100
Miscellaneous Revenue	1,110	1,400
Total	\$140,925	\$220,776

- (1) Based on 2nd year of operation with all improvements completed
(2) Includes \$3 entry fee

POTENTIAL OPERATING COST

A summary of the potential operating cost for Oxbow Park is shown below in Table 3. Appendix A-2 lists the assumptions and calculations for each cost item. For personnel costs, the current budget was used as the base. From this, time savings and increases were calculated based on the new facilities added to the park. This analysis is found in appendix A-3.

Table 3
Summary of Potential Operating Cost
Oxbow Park

Cost Item	1996-97 Budget	Forecasted Cost
Personnel Costs ⁽¹⁾	\$266,082	\$273,096
Office Supplies	1,395	2,000
Park and Equipment Supplies	12,096	17,000
Merchandise for sale (food)	4,700	5,200
Training Costs	1,105	1,400
Utilities	14,082	19,100
Maintenance Services	1,124	1,350
Printing/Communications	2,050	4,100
Payment to other Gov't agencies	45,230	49,800
Total	\$347,864	\$373,046

Note: Costs based on 1997 dollars. Inflation and potential labor rate increases are not included

APPENDIX A-1

Calculations for Forecasting Potential Operating Revenue Oxbow Park

1. Entry Fees

- o Averaged \$72,253 annually for last five years
- o Assume a 10% increase due to expansion of program, better facilities etc.
- o Assume entry gate fee increases to \$3/day every day
- o Projected entry fees: \$81,326

2. Camping Fees

- o No. existing camp sites: 45
- o Averaged \$26,914 annually for last six years (\$598 per camp site)
- o No. camper permits (Sept. 1995-Sept. 1996): 2,977 (66 permits per site)
- o No. new camp sites: 55 single, 5 double = 65 deduct 4 yurt sites = 61 sites
- o 66 permits/site x 61 sites = 4,026 permits
- o Add 10% to off-season period because of better facilities = 86 permits
- o Total permits: 4,182
- o Raise camping fee from \$9 - \$11
- o 4,182 permits x \$11 = \$46,000
- o Add overflow camping @ 20 per year x \$8 = \$160

- o Total Camping: \$46,160

3. Group Camping Fees

- o \$6,047 revenue in 1995-96
- o No. permits: 49 No. persons served: 3,560
- o Current fee schedule: \$2 per person + \$3 per vehicle
- o Recommend increasing fee to \$2.25 per person
- o Average revenue per person: \$1.70
- o Assume 15% increase in participation due to better facilities and marketing = 4,150 persons
- o Assume 20% increase in camping fee = \$2.04 revenue per person
- o Total Group Camping Fee: \$8,500 (excludes vehicle fee)

4. Environmental Education

- o Last years revenue: \$18,576
 - School Field Trips \$3,036
 - Interpretive Programs 2,845
 - Raft Trips 12,695
- o Increase months field trips are offered +\$600
- o Double field trip fee per student +\$3600
- o Increase # of interpretive programs by 10% +\$280
- o Increase cost of int. program by 10% +\$280
- o Increase fee of raft trip by 20% +\$2,500
- o Revenue from EE Building rental: 20 times @ \$100 each = \$2,000
- o Forecasted revenue from Environmental Education: \$27,836

5. Group Reservations (Picnic Shelters)

- o Estimated revenue last year: \$25,756 (entry fee + reservation fee)
- o No. persons served: 11,598
- o Revenue per current parking space: \$94
- o Revenue per person served: \$2.20
- o Assume emphasis will be on day use rather than Group Reservations:
- o 274 spaces x \$94 = \$25,800

6. Group Reservations (Open Areas)

- o No. open reservation areas: 4
- o Assume 30 rental weekend days
- o Assume a 50% rental rate
- o Assume rental rate average of \$40 per day
- o 4 x 15 x \$40 = \$2,400

7. Firewood Sales

- o Assume activity will be given to a non-profit group to conduct: no revenue to Oxbow Park

8. Yurts

- o Assume 4 units
- o Assume average occupancy of 50% (State is 69%)
- o No. total rentals: 730 x \$25 each = \$18,250

9. Shower Rental Income

- o Will probably be a break-even service
- o Assume \$.75 for 3 minutes; assume \$1.50 revenue per shower
- o Assumed number of campers:
 - 14,637 Individual site campers
 - 4,150 Group campers
 - 2,555 Yurt campers
 - 21,342 Campers
- o Assume 1 person/ family will shower = 6,097 showers
- o $6,097 \times \$1.50 = \$9,100$

10. Miscellaneous Fees

- o Average for last three years: \$1,408
- o Assume rate @ \$1,400

Total Program Fees: \$209,550

NON PROGRAM FEES

Note: The following are revenues generated from the State or other Multnomah County facilities. The amount allocated to any one facility may vary from year to year. These items are listed here but not shown in the summary table.

1. Glendoveer Golf Course Receipts

- o Average for last three years: \$220,742

2. State of Oregon RV Registration Fee

- o Amount last year: \$45,000
- o Add to this amount revenue from 26 new sites @ \$418 each
- o $26 \times \$418 = \$10,868$
- o Total RV Registration Revenue: \$55,900

3. County Marine Fuel Tax (From the State Marine Board)

- o Average last 3 years: \$31,273

Total Non Program Fees: \$306,900

APPENDIX A-2

Calculations for Forecasting Potential Operating Costs Oxbow Park

1. Personnel Cost

- o Current labor costs (1996/97 FY): \$266,082
- o Maintenance facilities added: 16 camp sites, 4 yurts, improved group camping area, new EE building, 2 shower/restroom buildings, 3 new restroom buildings, 2 additional picnic shelter buildings, upgraded trails, new restroom building and Kiosk in the arrival area. Add peak-hour fee collection person for handling camping (8 hours per weekend)
- o Maintenance reduced: Automatic irrigation, eliminate camp collection task, wood sales, major garbage service
- o See Appendix A-3 for a breakdown of labor savings and increases
- o Net increase in labor hours: 839 hours
- o Assume additional hours will be with seasonal help @ \$8.36/ hr. (includes benefits)
- o 839 hours x \$8.36 = \$7,014

2. Office Supplies

- o Current budget: \$1,395
- o Assume 10% increase due to growth of operation \$2,000

3. Park and Equipment Supplies

- o Current budget: \$12,096
- o Assume 25% increase due to more equipment
- o Add \$2000 for more cleaning supplies for restrooms, yurts etc.
- o Increase budget to: \$17,000

4. Merchandise for Sale (food)

- o Current budget: \$4,700
- o Increase 10% for inflation \$5,200

5. Training Costs

- o Current budget: \$1,105
- o Increase only for inflation
- o Add maintenance training program for personnel (\$700 per year)
- o Increase budget to: \$1,400

6. Utilities

- o Current electricity: \$8,332
- o Current Sanitation Service: \$5,750
- o Assume additional electrical costs for showers @ \$3,000
- o Assume no additional electrical costs for water service -
- o Assume 10% increase in general electrical use = \$9,200
- o Total electrical service: \$12,200
- o Increase sanitation fee by 20% to cover additional service \$6,900
- o Increase utility budget to: \$19,100

7. Maintenance Services

- o Current budget: \$1,124
- o Assume 20% increase due to park expansion = \$1,350
- o Add cost of pumping 7 vault toilets (14 tanks) @ \$100/pump = \$2,500
- o Increase budget to: \$3,850

8. Printing/Communication

- o Current budget: \$2,050
- o Assume 100% increase due to expansion of park \$4,100

9. Payment to other Governmental Agencies

- o Cost for fleet service, special Multnomah County personnel etc.
- o Current budget: \$45,230
- o Increase budget by 10% for fleet service \$49,800

Calculations for Forecasting New Labor Requirements

ADDITIONAL LABOR REQUIREMENTS

1. 16 additional camp sites

• total existing camp sites:	45
• total new camp sites:	16
• total camp permits [1996]	2,977
• average permits per camp site:	66
• assumed labor requirements per camp visit:	0.5 hours
• $0.5 \times 66 \times 16 =$	528 hours
• General off-season maintenance @ 2 hrs x 16	32 hours
Total labor requirement	560 hours

2. Yurts (4)

• assumed # rentals (see revenue estimate)	730
• required labor per visit:	1.5 hours
• $730 \times 1.5 \text{ hours} =$	1,095 hours
• General off-season maintenance @ 8 hrs x 4 =	32 hours
Total labor requirements	1,127 hours

3. Improved group camping area

• assume 24 weekends @ 1.5 additional hours each	36 hours
--	----------

4. New Environmental Education Building

• room set-up and cleaning: assume 20 times @ 2 hours each =	40 hours
• general building maintenance: allowance	120 hours
Total labor requirement	160 hours

5. Two Additional Picnic Shelter Buildings

• building set-up and cleaning: assume 30 times @ 2 hours each =	60 hours
• general building maintenance: allowance	60 hours
Total labor requirement	120 hours

6. Two Shower/Restroom Buildings

• assume 1 cleaning per day @ 2 hours each	
• 90 times in summer; 60 times in winter	
• (summer) 2 facilities x 90 times x 2 hours =	360 hours
• (winter) 1 facility x 60 times x 2 hours =	120 hours
• general building maintenance: allowance 40 hours each =	80 hours
Total labor requirement	560 hours

7. Three New Restroom Buildings

• assume 1 cleaning per day @ 1 hour each	
• 90 times in summer; 60 times in winter	
• (summer) 3 facilities x 90 times x 1 hour =	270 hours
• (winter) 1 facility x 60 times x 1 hour =	60 hours
• general building maintenance: allowance 40 hours each =	120 hours
Total labor requirement	450 hours

8. Upgraded Trails	
• allowance:	80 hours
9. New Restroom and Kiosk at Entrance	
• assume 1 cleaning per day @ 1 hour each	
• 90 times in summer; 80 times in winter	
• 170 times x 1 hour =	170 hours
• general building maintenance: allowance	40 hours
Total labor requirement	210 hours

DEDUCTIONS FOR LABOR SAVINGS

1. Automatic Irrigation System	
• current estimate of pulling hoses: 60 days @ 3 hours/day	180 hours
• maintenance required for new irrigation system	-20 hours
• New labor savings:	160 hours
2. Eliminate Camp Fee Collection	
• 4 hours x 120 times	480 hours
3. Eliminate Wood Sales	
• 2 hours x 90 days	180 hours
4. Eliminate Major Garbage Collection	
• (summer) 4 hours x 90 times	360 hours
• (winter) 2 hours x 80 times	160 hours
Total	520 hours
5. Eliminate Pit Toilet cleaning	
• (summer) 6 hours x 90 times	540 hours
• (winter) 6 hours x 90 times	540 hours
• General maintenance (allowance)	44 hours
Total	1,124 hours

APPENDIX A-4 **Group Reservations vs. Open Day Use** **Oxbow Park**

1. Current Conditions (1995-96)

- Entry Fees \$71,349
- Reservation Fees \$15,814 (excludes entry fee)
- Vehicle Count: 51,354
- Total Visitors: 137,516 day use
30,629 campers
11,598 group
179,743 TOTAL
- Visitors per car: 3.5
- Group Picnic 274 spaces (37%)
- Open Day Use 467 spaces (63%)

2. Group Reservation produces 22% of the revenue with 6.5% of the visitors

3. Group Reservation Characteristics

- Persons served 11,598 (6.5% of total visitation)
- Revenue \$25,756 (entry fee + reservation fee)
- Revenue/parking space: \$94
- Revenue/ person served: \$2.20

4. Individual Picnic/Day Use Sites

- Persons served 137,516
- Revenue \$71,349
- Revenue/parking space: \$153
- Revenue/ person served: \$0.52

5. Revenue Comparisons for Two Design Options

Option	Group Area		Individual Sites		Total	Total
	# Pk	Revenue	# Pk	Revenue	Parking	Revenue
Option "A" (maximize day use sites)	274	\$25,756	529	\$80,937	803	\$106,693
Option "B" (maximize group picnic sites)	439	\$41,266	364	\$55,692	803	96,958

6. Observations

- When analyzed on revenue production per parking space, individual picnic sites do much better. This is because individual picnic parking sites are used much more over the year.
- Group picnic sites produce 22% of the fees (entry fee + reservation fee) with only 6.5% of the visitors.
- While revenue per person is much higher for group picnic areas, the total number of persons served is much lower than for individual picnic sites.

APPENDIX A-5
Reservation Characteristics by Shelter
Oxbow Park

	Shelter A	Shelter B	Shelter C	Shelter D
Size	22 x 62	22 x 22	22 x 38	17 x 24
Capacity (under cover)	150	56	96	24
No. weekend rentals	14	19	13	16
No. weekday rentals	9	6	3	4
Total rentals	23	25	16	20
Total persons served	5,580	2,513	2,300	1,205
Average rental size (persons)	243	100	144	60
Total revenue	\$5,227	\$4,342	\$3,458	\$2,931
Revenue per sq. ft. of building	\$3.83	\$8.97	\$4.14	\$7.18
Revenue per person served	\$0.94	\$1.73	\$1.50	\$2.43
Users per sq. ft. of shelter	4.1	5.2	2.8	2.5

Observations:

1. The smaller shelters produce more revenue on a per square foot size basis
2. The larger shelters produce the most revenue
3. Shelter B receives the most use and revenue on a per unit basis. However, its size is very similar to Shelter D which does not do as well.

APPENDIX A-6
Camping Permits September 1995 - September 1996
Oxbow Park

September 1995	344	
October	67	
November	15	
December	1	
January 1996	6	
February	7	
March	90	
April	111	
May	219	
June	497	
July	789	(17.5 days/camp site)
August	<u>831</u>	(18.5 days/camp site)
Total	2,977	



APPENDIX J

■ ELECTRICAL IMPLEMENTATION



ATHAY & ASSOCIATES, INC.

CONSULTING ELECTRICAL ENGINEERS

9013 N.E. HWY. 99 - SUITE R • VANCOUVER, WA 98665
(360) 574-0199 • (503) 285-2456 • FAX: (360) 574-0209

January 15, 1997

Mr. Jim Walsh
WALSH & ASSOCIATES
1924 Broadway Suite A
Vancouver, WA 98663

RE: Oxbow Park

Dear Jim:

The following is a verbal description of existing electrical conditions and development plans. Refer to sheet E-1 for proposed electrical layout.

EXISTING ELECTRICAL CONDITIONS:

Ranger's Building Areas: The existing service into the Ranger's Building Area is a single-phase overhead 7,200 volt line. A single 120/240 volt pole mounted transformer serves each of the several buildings. A two-phase (12,470 volt) line serves the adjacent YWCA Camp (secondary voltage 120/240V, 3-phase, "open delta"). The transformer at the Ranger's Building could be increased in size to serve an added building.

Park Area: The body of the Park is served overhead with a two-phase feeder. Power extends underground from the last pole (and meter) to the Park electrical well pump. The pump runs as 240 volt, 3-phase, open delta. The primary feeder from the pole to the pump transformers (two 240 volt pad mounted transformers) run through two underground vaults, each with a load break tap system.

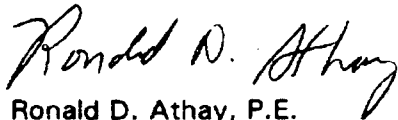
Mr. Jim Walsh
January 15, 1997
Page 2

PARK AREA DEVELOPMENT PLANS:

The existing primary metering will not be allowed if service is extended beyond the well pump. Secondary metering will be required at each new pad mounted transformer. The existing high-voltage line can be tapped at the first vault and run back to the new Toilet at the west end of the developed area. The high-voltage line can also be tapped at the vault at the well pump to run to the east. A vault with tap capabilities is required each 400-500 feet. New transformers with meters will be placed at new Toilets, Education Building, Concession Stand, Host Site, and YURTS. Refer to Sheet E1 for layout details. Sheet E1 shows both new and old roads. It is the intent to run the high-voltage line along the old road bed as this makes a more direct route.

If you should have any questions concerning this information, please call me.

Sincerely,

A handwritten signature in cursive script that reads "Ronald D. Athay".

Ronald D. Athay, P.E.
President

RDA/wlw

OXBOW PARK ELECTRICAL COST PROJECTIONS

P.G.E. CHARGES (ROUGH ESTIMATE, NOT FINAL) \$ 46,000

CONTRACTOR WORK (EXTERIOR WORK)

METER BASES:	11 @ \$200	\$ 2,200
SERVICE DISCONNECTS:		
SHELTERS	6@ \$500	\$ 3,000
TOILETS	3@ \$500	\$ 1,500
TOILET/SHOWERS	2@ \$1,500	\$ 3,000
HOST	1@ \$750	\$ 750
EDUCATION BLDG	1@ \$2,000	\$ 2,000
YURTS	4@ \$500	\$ 2,000
PRIMARY CONDUIT (4" SCH 40 PVC) 6,200 FEET@ \$ 20/FT.		\$124,000
VAULTS	9 @ \$4,500	\$ 40,500
TRANSFORMER PADS	10@ \$500	\$ 5,000
SECONDARY FEEDERS		
30 AMP	3,200 FT@ \$5/FT	\$ 16,000
200 AMP	150 FT@ \$25/FT	\$ 3,750

SUB TOTAL \$203,700

CONTRACTOR WORK (BUILDINGS AND SHELTERS, INTERIOR)

EDUCATIONAL BLDG	3,000 SQ FT @ \$8/SQ FT	\$ 24,000
YURTS	4 @ \$2,500 EA.	\$ 10,000
TOILETS	3 @ \$2,500 EA.	\$ 7,500
TOILET/SHOWERS	2 @ \$5,000 EA	\$ 10,000

SUB TOTAL \$ 51,500

TOTAL \$301,200.00

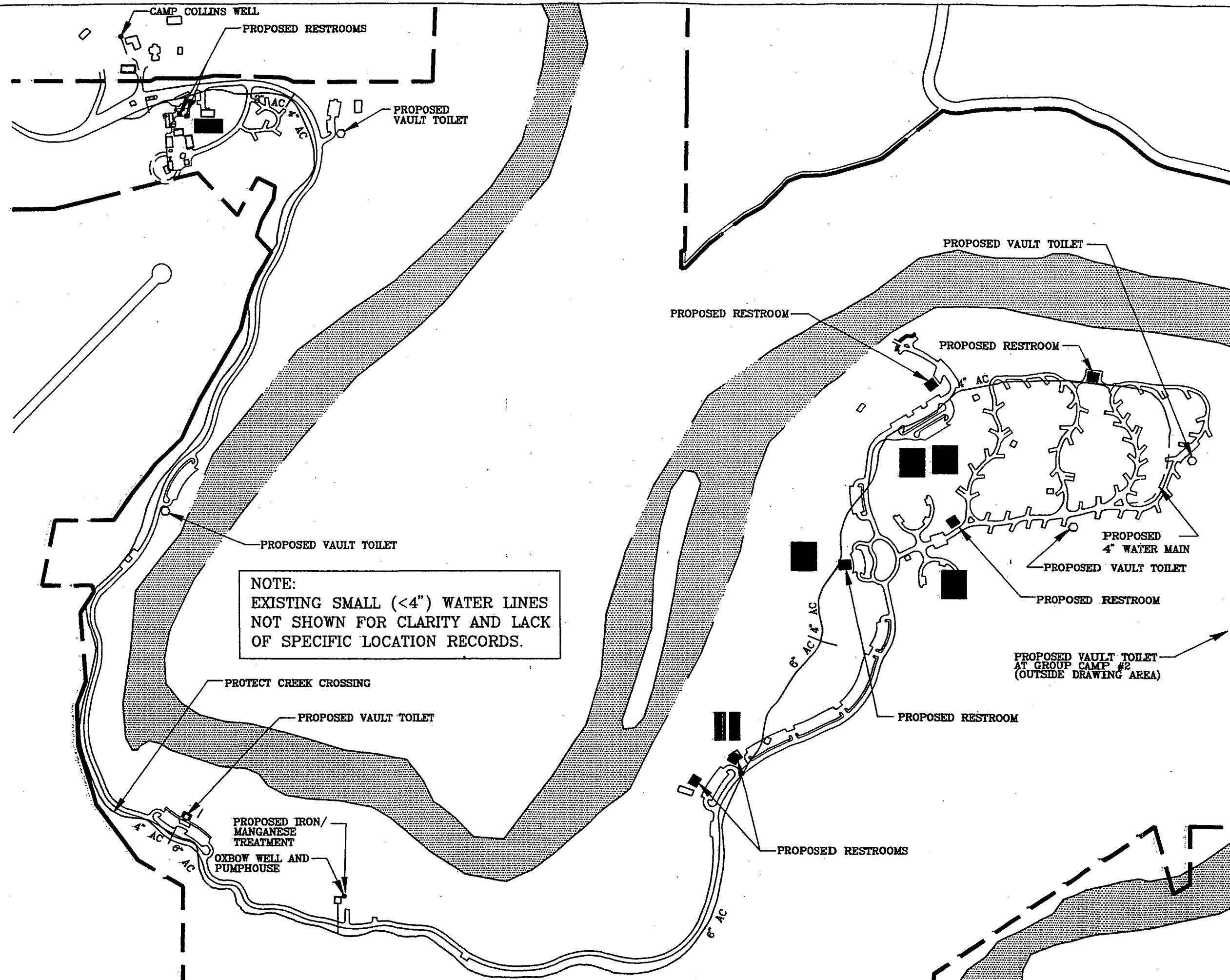
WATER AND SEWER UTILITY CONCEPT PLAN

WATER UTILITIES

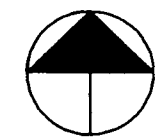
- EXISTING WATER MAIN (SIZE NOTED)
- - - PROPOSED WATER MAIN

SANITARY UTILITIES

- PROPOSED VAULT TOILETS
- PROPOSED FLUSH TOILETS
- GENERAL DRAINFIELD LOCATION



NOTE:
EXISTING SMALL (<4") WATER LINES
NOT SHOWN FOR CLARITY AND LACK
OF SPECIFIC LOCATION RECORDS.



1" = 600'





APPENDIX K

■ EXISTING FACILITIES ASSESSMENT INDEX

Facilities Assessment Index:

Sheet No.	Structure
1-A,B,C	Fee Booth
2-A,B,C	Park Office
3-A,B,C	Maintenance Shop / Interpretive Office and Storage
4-A,B,C	Truck Barn / Maintenance Shop
5-A,B,C	Storage Cabins
6-A,B,C	Salmon Fest Storage Shed
7-A,B,C	Fire Wood Storage Shelter
8-A,B,C	Service Yard
9-A,C	Ranger's Residence
10-A,B,C	Pump House / Well
11-A,B,C	Picnic Area Shelter "A"
12-A,B,C	Picnic Area Shelter "B"
13-A,B,C	Picnic Area Shelter "C"
14-A,B,C	Picnic Area Shelter "D"
15-A,B,C	Group Camp Shelter "1"
16-A,B,C	Group Camp Shelter "2"
17-A,B,C	Group Camp Shelter "3"
18-A,C	Outhouses
19-A,C	Trail Bridges
20-A,C	Information Kiosks
21-A,C	Amphitheater

Sheet Type:

A	Facility Notes
B	Facility Sketches
C	Photograph(s)

METRO

OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment

Sheet:
Index

DATE: 8-12-96

BY: JTR

Building Name: Fee Booth

Location: Park Entry Complex, Main Entry Road

Size: 80 SF, 8' x 10'

Construction Type: Wood frame structure, concrete foundation with slab on grade. Wood frame gable roof.

Exterior Materials: Siding: Plywood (no grooves), green, plywood shutters, brown.
Roofing: Cedar shingles.
Windows: Aluminum sliding.
Doors: Wood door and frame w/ 1/2 lite.

Interior Materials: Floor: Exposed concrete.
Walls: Painted plywood.
Ceiling: Painted plywood.

Function: Collect park entry fees, distribute park information, rent/checkout horse shoes and volleyballs, sell fire wood for camp sites, and answer incoming park calls.

Age / History: 1970's

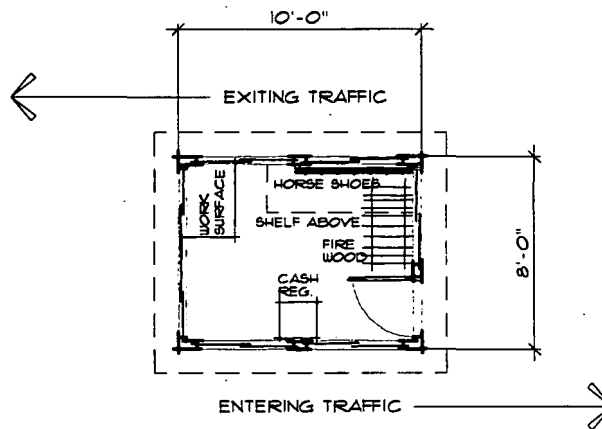
Condition: Structure is well worn / used. Work surfaces, shelves and storage are site built unfinished plywood. Roof needs replacing.

Accessibility: Building is basically at grade. 3" step at doorway. Door width and hardware do not meet ADA standards.

Utilities: Electrical Service: Yes, sub grade.
Water: No.
Toilet: No.
Security system: Yes.
Phone: Main park phone (rings at office and Ranger's residence too).
HVAC: Electric space heater, natural cross ventilation.

Other: Facility basically provides needed functions. Interior space layout could be improved. Site has drainage problems on north side of building resulting in standing water.

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 1-A
	Metro Regional Parks and Greenspaces	Building: Fee Booth	DATE: 8-12-96
			BY: JTR



FLOOR PLAN



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Sketches:**

**Building:
Fee Booth**

Sheet:

1-B

DATE: 8-12-96

BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Fee Booth**

Sheet:

1-C

DATE: 8-12-96

BY: JTR

Building Name: Park Office

Location: Entry Complex

Size: Size: 516 SF, (210 SF original + 306 SF addition)

Construction Type: Construction: Wood frame structure, concrete foundation with post & beam structure. Wood roof framing.

Exterior Materials: Siding: Original structure has board & batt siding, Addition has T1-11, 4" pattern, green.
Roofing: Raised seam metal, 1" ribs @ 12" OC, brown.
Porch: 8' x 10', slab on grade with 4x4 posts and 2x railing, plywood ceiling.
Windows: Original; wood frame, Addition; aluminum sliding.
Doors: Wood doors and frames, brown.

Interior Materials: Floor: VCT tile, 12x12.
Walls: Painted plywood.
Wainscoting: Stained plywood.
Ceiling: Painted plywood.

Function: Ranger's office, staff offices, staff locker room, staff lunch room, public information.
This facility is under sized for the many functions that it serves.

Age / History: 1960's / Addition 1970's

Condition: Structure is in fairly good condition. Staff area is well worn from heavy / over use.

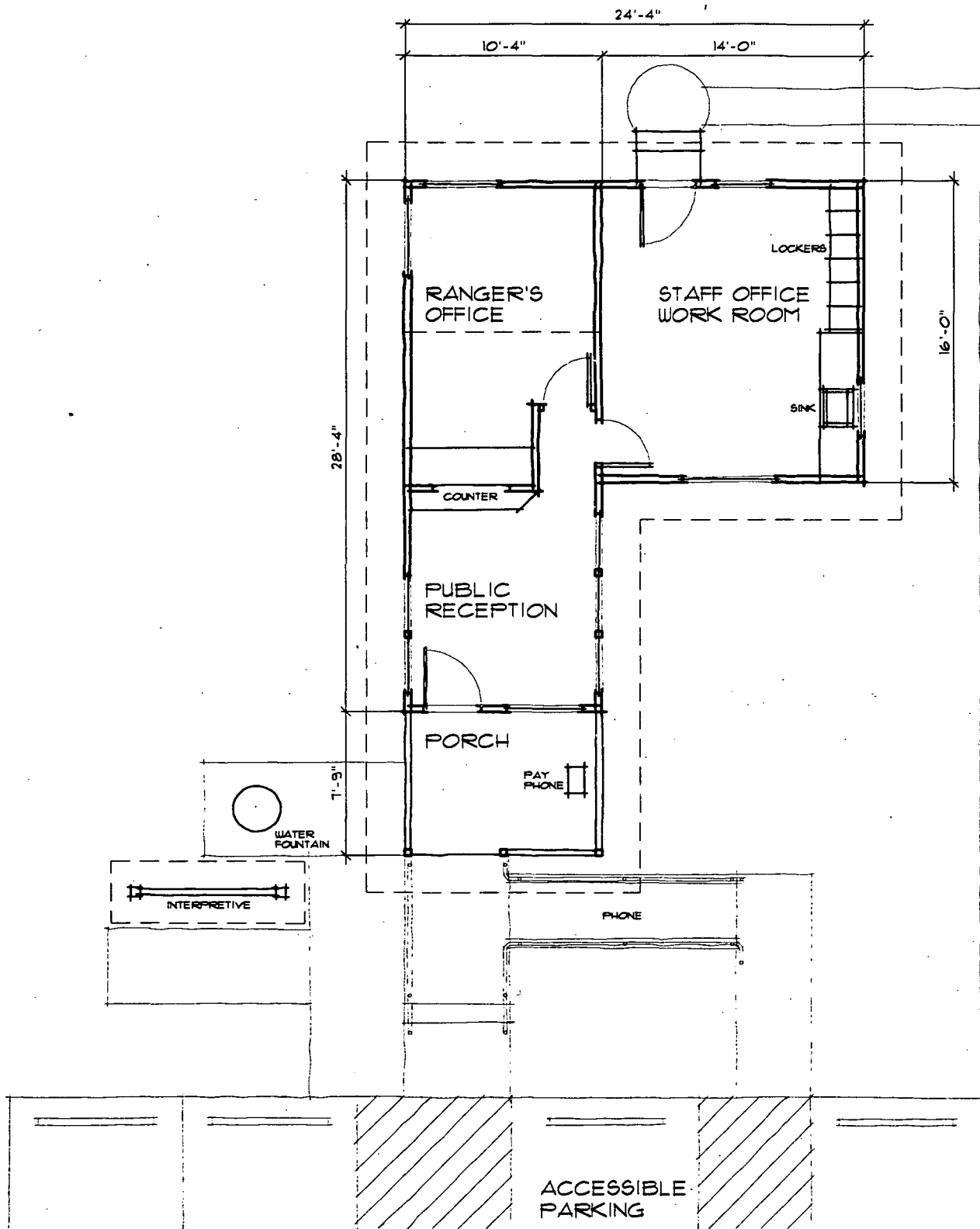
Accessibility: Front entry has new concrete stair and ramp to front porch with steel pipe railing. Public entry to building is accessible, threshold and hardware meet ADA standards. Service counter (not currently used) is 44" high and does not meet ADA standards. Ranger's office and staff areas are not accessible; halls, access ways and doors do not meet ADA standards. Back door to staff office does not meet ADA standards and is 12" above finished grade. Accessible parking stall provided with ADA signage in front of building.

Utilities: Electrical Service: Yes, sub grade.
Water: Yes, cold, only sink with running water on site, (except Ranger's residence).
Toilet: None, (1 pit toilet, 1 portable outhouse adjacent to service/staff areas).
Security System: Yes.
HVAC: Electric space heaters, natural ventilation.
Phone: Main park phone in office (rings at gatehouse and residence too), public pay phone on front porch (only public phone available in park).

Other: Gate and camping fees are kept at this location until Ranger or staff is able to transport to bank. Floor safe in staff area.

Interpretive signage kiosk located adjacent to main entry. 8" diameter wood posts, wood frame gable roof with cedar shingles. Post bases are deteriorating.

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 2-A
	Metro Regional Parks and Greenspaces	Building: Park Office	DATE: 8-12-96
			BY: JTR



FLOOR PLAN

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Sketches:**

**Building:
Park Office**

Sheet:

2-B

DATE: 8-12-96

BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Park Office**

Sheet:

2-C

DATE: 8-12-96

BY: JTR

Building Name: Maintenance Shop / Interpretive Office and Storage

Location: Service Yard / Park Entry Complex

Size: 1056 SF, 480 SF Shop, 288 SF Interpretive Office, 288 SF Storage.

Construction Type: Wood frame structure, concrete foundation with concrete slab on grade. Gang-nail truss roof framing, 10'-0" plate ht.

Exterior Materials: Siding: Board & batt siding, green.
Roofing: Raised seam metal, 1" ribs @ 12" OC, brown.
Windows: Fixed @ Shop, aluminum sliding @ Office, Fiberglass @ Storage.
Doors: Wood door and frame @ Shop; green, Steel door and frame @ Interpretive Office; gray, 10' x 8' overhead metal garage doors; green.

Interior Materials: Floor: Exposed Concrete.
Walls: Painted plywood / sheetrock @ Shop & Office, unfinished @ Storage.
Ceiling: Painted plywood / sheetrock @ Shop & Office, open to trusses @ Storage.

Function: Shop: Maintenance shop, tool and equipment storage, vehicle and equipment repair. Open bay with workbenches, tool storage lockers and material storage.
Interpretive Office: Interpretive staff offices and work area.
Interpretive Storage: Open storage area with plywood shelves.

Age / History: 1960's

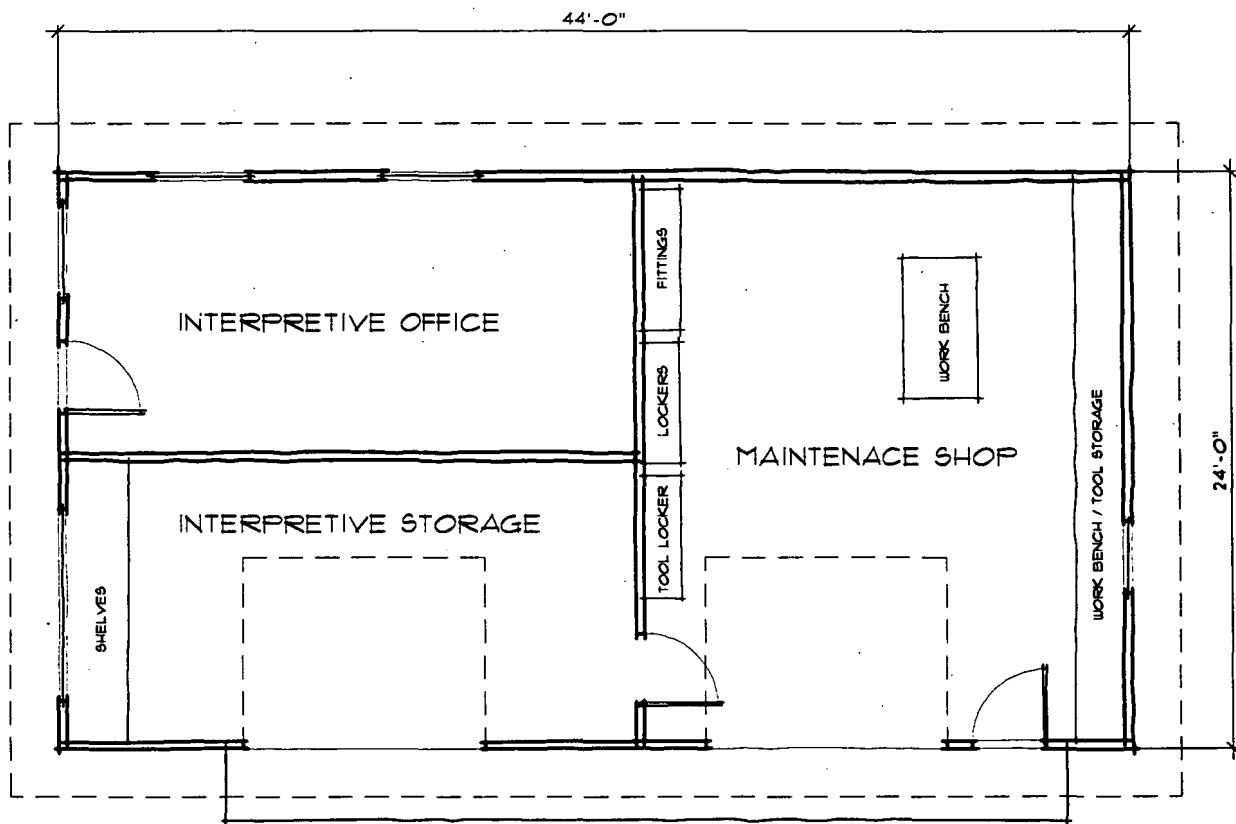
Condition: Structure is in good condition.

Accessibility: Structure is at grade. Door hardware does not meet ADA standards.

Utilities: Electrical Service: Yes, sub grade.
Water: No.
Toilet: None, (1 pit toilet, 1 portable outhouse adjacent to service/staff areas).
Security System: Yes.
HVAC: Electric space heaters @ Shop & Office. Unheated Storage area. Natural ventilation.
Phone: Yes @ Interpretive Office.

Other:

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 3-A
	Metro Regional Parks and Greenspaces	Building: Maintenance Shop / Interpretive Office & Storage	DATE: 8-12-96
			BY: JTR



FLOOR PLAN



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Sketches:**

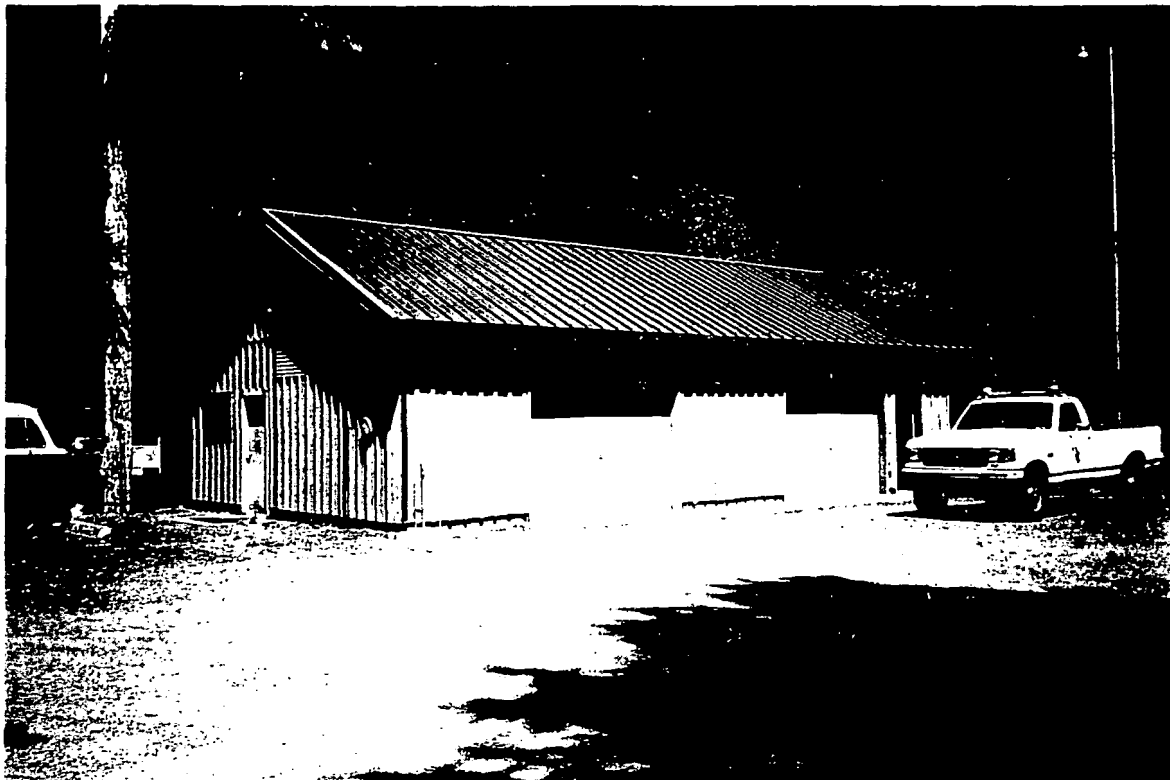
**Building: Maintenance Shop /
Interpretive Office & Storage**

Sheet:

3-B

DATE: 8-12-96

BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building: Maintenance Shop /
Interpretive Office & Storage**

Sheet:

3-C

DATE: 8-12-96

BY: JTR

Building Name: Truck Barn / Maintenance Shop

Location: Service Yard / Park Entry Complex

Size: 1860 SF Main Floor, 496 SF Mezzanine.

Construction Type: 2 x 6 wood frame structure, concrete foundation with concrete slab on grade. Gang-nail truss roof framing, 14'-0" plate ht. Glue laminated beam with 6 x 6 & 6 x 12 steel columns at overhead doors.

Exterior Materials: Siding: Plywood & batt siding, green.
Roofing: Fiberglass composition 3-tab, brown.
Windows: Wood, double hung.
Doors: Steel door and frame; green, 10' x 12' overhead metal garage doors; white.

Interior Materials: Floor: Exposed Concrete.
Walls: Unfinished.
Ceiling: Open to trusses.

Function: Secured truck storage, seasonal workshop and repair area, equipment storage and miscellaneous supply storage.

Age / History: 1990's

Condition: Structure is in excellent condition.

Accessibility: Structure is at grade. Door hardware does not meet ADA standards.

Utilities: Electrical Service: Yes, sub grade.
Water: Exterior hose bibb adjacent to building.
Toilet: None, (1 pit toilet, 1 port-a-potti adjacent to service/staff areas).
Security System: Yes.
HVAC: Unconditioned
Phone: No.

Other:

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
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**Existing Facilities Assessment
Notes:**

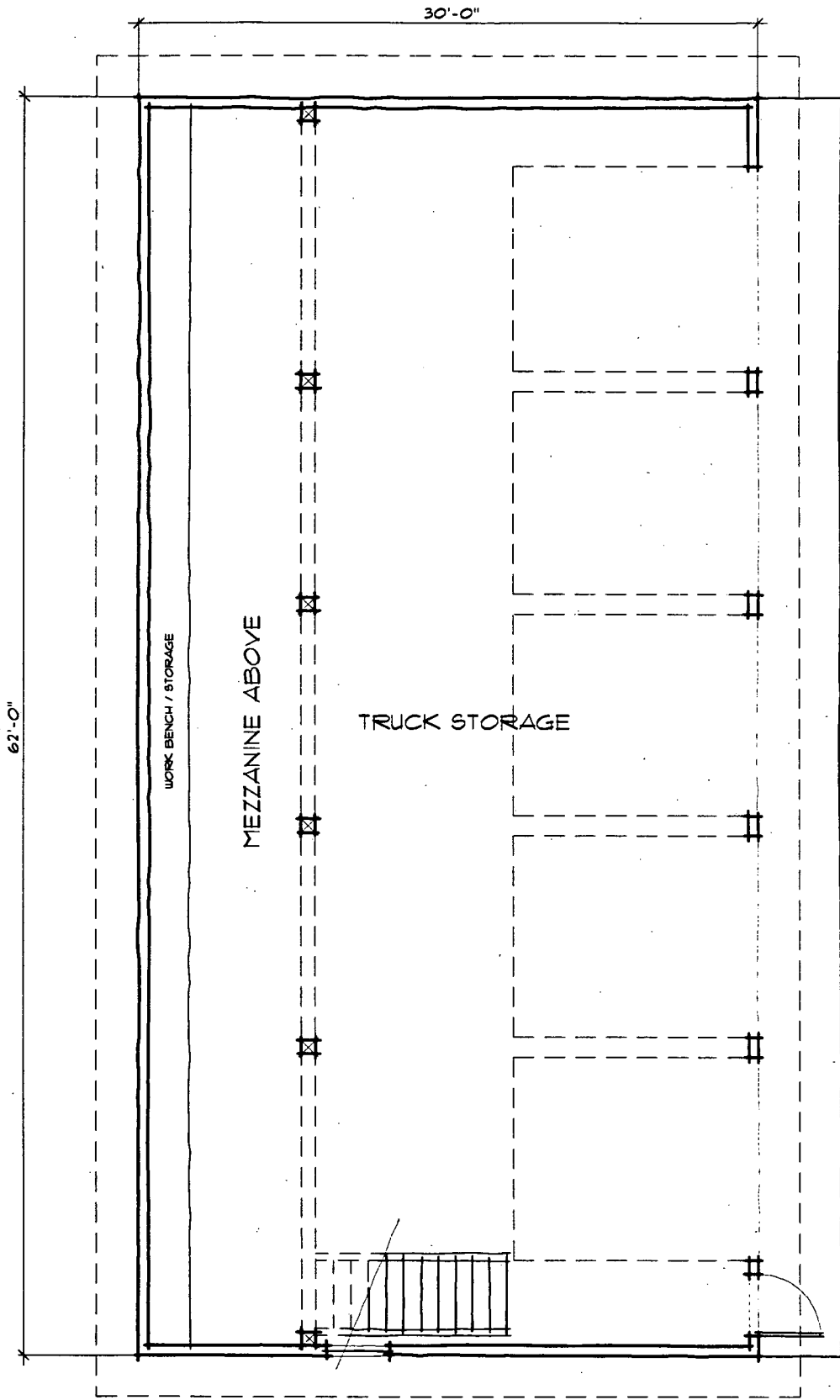
**Building:
Truck Barn / Maintenance Shop**

Sheet:

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DATE: 8-12-96

BY: JTR



FLOOR PLAN



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
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**Building:
Truck Barn / Maintenance Shop**

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OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment
Photograph:

Building:
Truck Barn / Maintenance Shop

Sheet:

4-C

DATE: 8-12-96

BY: JTR

Building Name: 4 General Storage "Cabins" (Saw Shop, Tool Room, Flammable Storage, General Storage)

Location: Service Yard / Park Entry Complex

Size: 140 SF, 10' x 14' each.

Construction Type: Wood frame structure (single wall), wood runner foundation wood floor framing. Stick framed roof structure, 7'-0" plate ht.

Exterior Materials: Siding: Shingles, natural.
Roofing: Shake, natural.
Windows: Wood sash.
Doors: Wood

Interior Materials: Floor: Exposed wood decking.
Walls: Unfinished.
Ceiling: Open to framing.

Function: Storage of materials and tools. Flammable fluid storage does not meet code. A flammable storage cabinet has been purchased but is currently not being used.

Age / History: Old cabin structures, possibly from the original park work crews. Moved to current locations.

Condition: Structures are very degraded. Roofs are in very bad condition. Floor runners have areas of rot.

Accessibility: Structures are 12" to 18" above grade. Doors do not meet ADA standards.

Utilities: Electrical Service: No.
Water: No.
Toilet: No.
Security System: No.
HVAC: Unconditioned
Phone: No.

Other:

METRO

**OXBOW REGIONAL PARK
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**Existing Facilities Assessment
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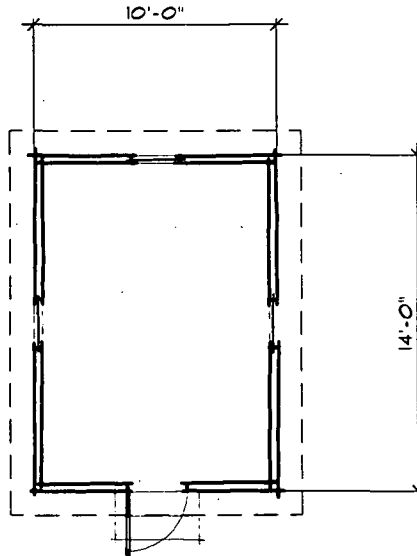
**Building:
Storage Cabins**

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FLOOR PLAN



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**OXBOW REGIONAL PARK
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**Building:
Storage Cabins**

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BY: JTR



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**OXBOW REGIONAL PARK
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**Metro Regional Parks and
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**Existing Facilities Assessment
Photograph:**

**Building:
Storage Cabins**

Sheet:

5-C

DATE: 8-12-96

BY: JTR

Building Name: Old Warehouse (Ghost House)

Location: Service Yard / Park Entry Complex

Size: 14' x 20', 280 SF first floor, 288 SF second floor.

Construction Type: Wood frame structure, concrete stem wall with slab on grade. Stick framed roof structure, 12'-0" plate ht.

Exterior Materials: Siding: Staggered shingles with 18" exposure, natural.
Roofing: Shake, natural.
Windows: Wood sash.
Doors: Wood

Interior Materials: Floor: Exposed concrete.
Walls: Unfinished.
Ceiling: Decking @ first floor.

Function: Storage of Salmon Fest materials.

Age / History: Old cabin structure. Moved to current location from off site.

Condition: Structure is in fairly good shape considering age. Foundation and floor seem to be fairly new. Roof needs replacement. Side wall shingles need repair.

Accessibility: Structure is at grade. Doors do not meet ADA standards.

Utilities: Electrical Service: No.
Water: No.
Toilet: No.
Security System: No.
HVAC: Unconditioned
Phone: No.

Other: Building has a great rural character. Unique proportions.

METRO

**OXBOW REGIONAL PARK
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**Metro Regional Parks and
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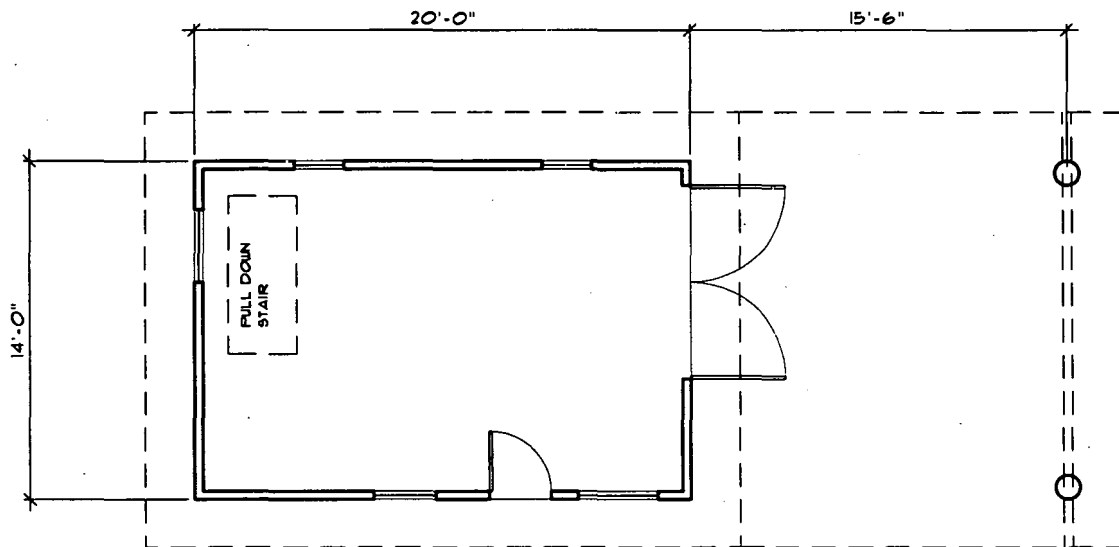
**Building:
Old Warehouse**

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FLOOR PLAN



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**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

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**Existing Facilities Assessment
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**Building:
Old Warehouse**

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OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment
Photograph:

Building:
Old Warehouse

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6-C

DATE: 8-12-96

BY: JTR

Building Name: Fire Wood Storage Shelter

Location: Service Yard Rear Extension / Park Entry Complex

Size: 20' x 36', 720 SF.

Construction Type: Wood post structure without foundation or paving. Stick framed roof structure, 8'-0" / 14' plate hts.

Exterior Materials: Siding: None, open framing.
Roofing: Plastic tarp, blue.
Windows: None.
Doors: None.

Interior Materials: Floor: Earth.
Walls: Open framing.
Ceiling: Open framing.

Function: Storage of fire wood for campground.

Age / History: NA

Condition: Structure is in very bad condition. Post framing has been repaired, replaced and shored. Roof has been temporarily patched. Structure is unsafe and needs to be demolished.

Accessibility: Structure is at grade.

Utilities: Electrical Service: No.
Water: No.
Toilet: No.
Security System: No.
HVAC: Unconditioned
Phone: No.

Other: Structure shelters split wood. Un-split wood rounds and logs are stored adjacent to wood storage shelter. The wood storage, splitting and processing operations require lots of space. This area is somewhat unsightly and cluttered.

METRO

**OXBOW REGIONAL PARK
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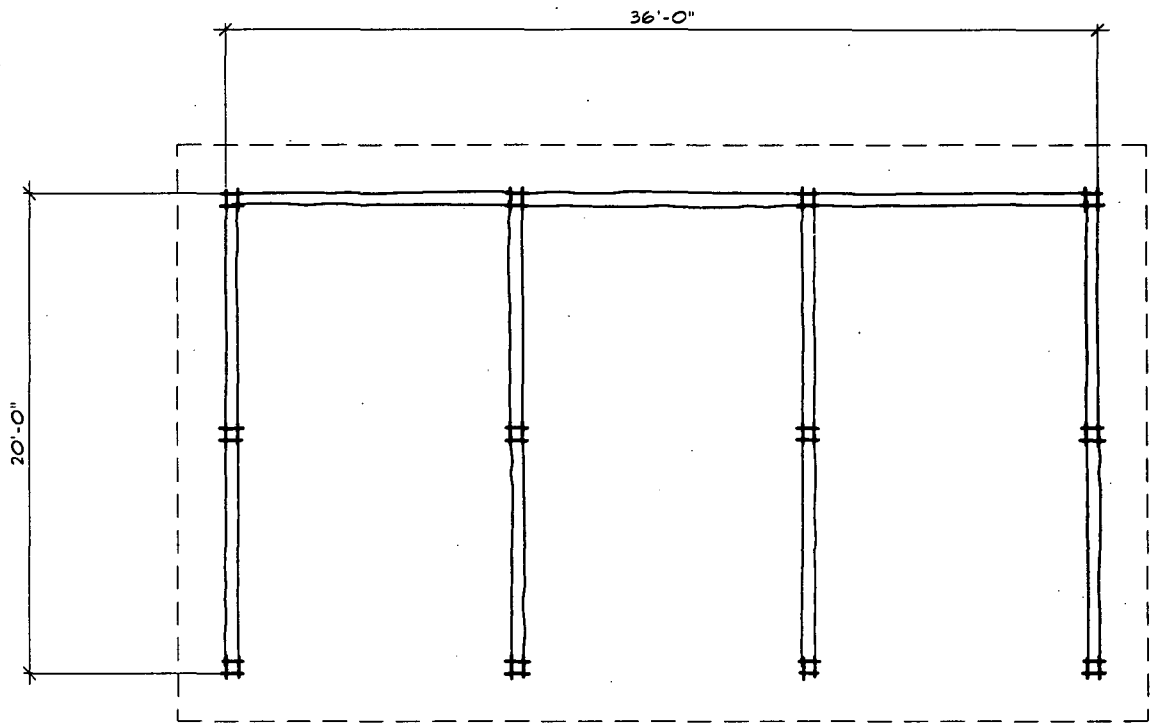
**Building:
Fire Wood Storage Shelter**

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FLOOR PLAN



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**OXBOW REGIONAL PARK
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**Metro Regional Parks and
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Fire Wood Storage Shelter**

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**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
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**Existing Facilities Assessment
Photograph:**

**Building:
Fire Wood Storage Shelter**

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DATE: 8-12-96

BY: JTR

Building Name: Service Yard

Location: Service Yard and Rear Extension / Park Entry Complex

Size: Approximate sizes: 80' x 80' main area, 60' x 40' rear extension, 60' x 40' wood storage and service road extension with miscellaneous storage.

Construction Type: Compacted gravel yards, asphalt, gravel and dirt access roads.

Exterior Materials: Siding: NA
Roofing: NA
Windows: NA
Doors: NA

Interior Materials: Floor: NA
Walls: NA
Ceiling: NA

Function: General park maintenance activities, serves related service buildings and areas. Equipment, gravel, rock, soil, building materials, new and used site furnishings, etc. Garbage collection area, (7) 4' x 6' bins and lots of plastic trash cans. The garbage area takes up a lot of room while being processed. New above ground fuel storage tank has recently been installed. Old sub-grade tank has been removed.

Age / History: NA

Condition: Main service yard is well kept. Rear extension is less kept. The extension road is lined with miscellaneous materials and debris.

Accessibility: Service yard area is basically flat.

Utilities: Electrical Service: Yes.
Water: Hose bibb.
Toilet: Portable outhouse.
Security System: No.
HVAC: NA
Phone: NA

Other: The service yard and related functions require lots of area. Some functions seem to have spread out into the adjacent areas. Some of these functions may require screening.

Park Equipment:
3 pickup trucks
Small tractor with front loader & hoe
Pickup with dump truck bed
Small trailer
Small flatbed trailer
Garbage Catty
Sweeper attachment for tractor, woodsplitter, grader blade
Canoe

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METRO

**OXBOW REGIONAL PARK
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METRO

**OXBOW REGIONAL PARK.
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**Metro Regional Parks and
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**Existing Facilities Assessment
Photograph:**

**Building:
Service Yard**

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8-C

DATE: 8-12-96

BY: JTR

Building Name: Ranger's Residence

Location: Park Entry Complex

Size: 1376 SF, 308 SF Car Port

Construction Type: Concrete foundation, post and beam floor framing, wood frame structure, stick framed roof.

Exterior Materials: Siding: Board and batt, green.
Roofing: Raised seam metal with 1" ribs @ 12" OC, brown.
Windows: Aluminum.
Doors: Wood doors and frames.

Interior Materials: Floor: Carpet / Vinyl
Walls: Sheetrock
Ceiling: Sheetrock

Function: Ranger's Residence: Living room, dining room, kitchen, utility, 3 bedrooms, 1 bath, entry area and carport. Fireplace in living room.

Age / History: Designed by Multnomah County Road Department, 1970's.

Condition: Exterior is well maintained.

Accessibility: Floor line is 15" above adjacent grade. Doors do not meet ADA standards. Bathroom and kitchen do meet ADA standards.

Utilities: Electrical Service: Sub grade.
Water: Yes (cold & hot).
Toilet: Yes (only flush toilet on site)
Security System: No.
HVAC: Electric heat, natural ventilation.
Phone: Main park phone (also rings at Fee Booth and Park Office)
Park Supervisor's private phone.

Other: Windows at bedrooms do not meet egress code requirements.

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
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**Existing Facilities Assessment
Notes:**

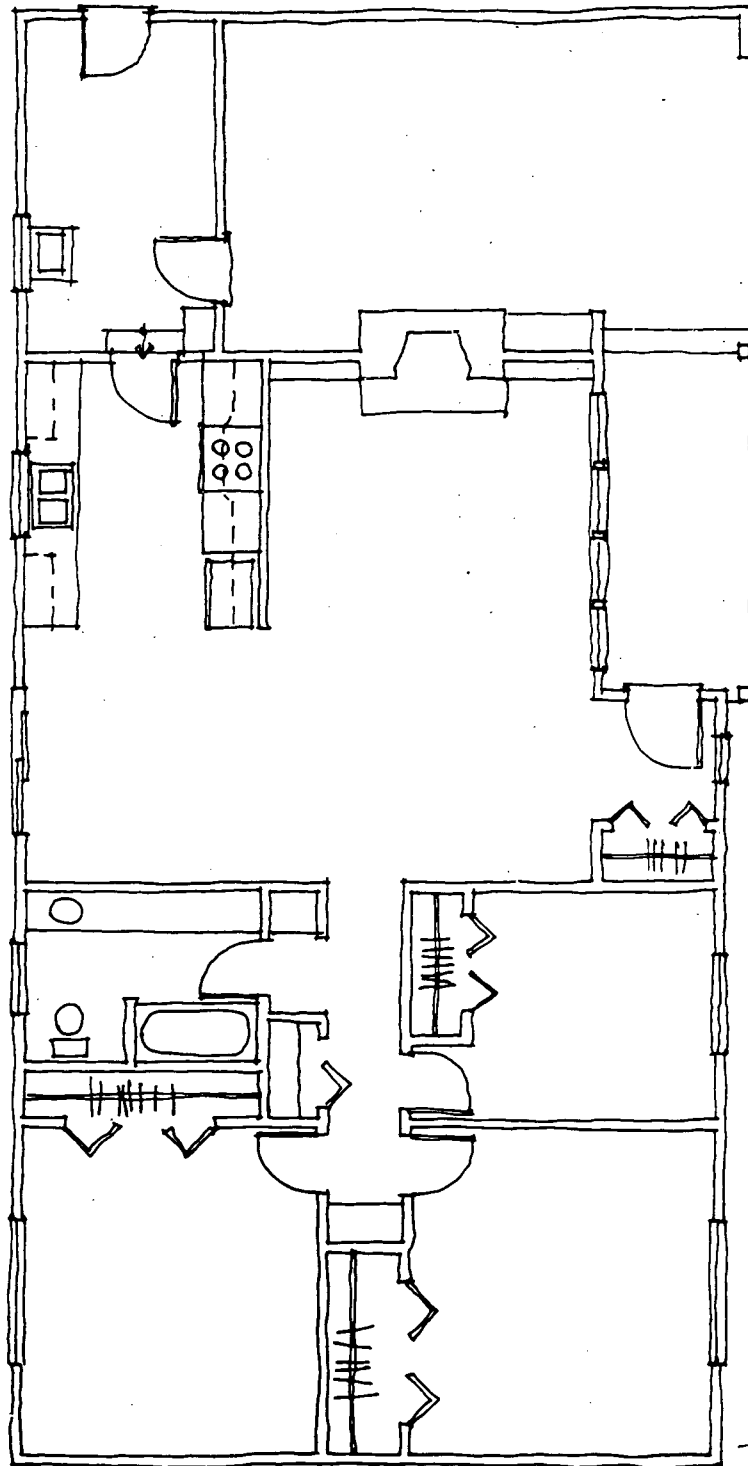
**Building:
Ranger's Residence**

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METRO

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**Metro Regional Parks and
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Sketches:**

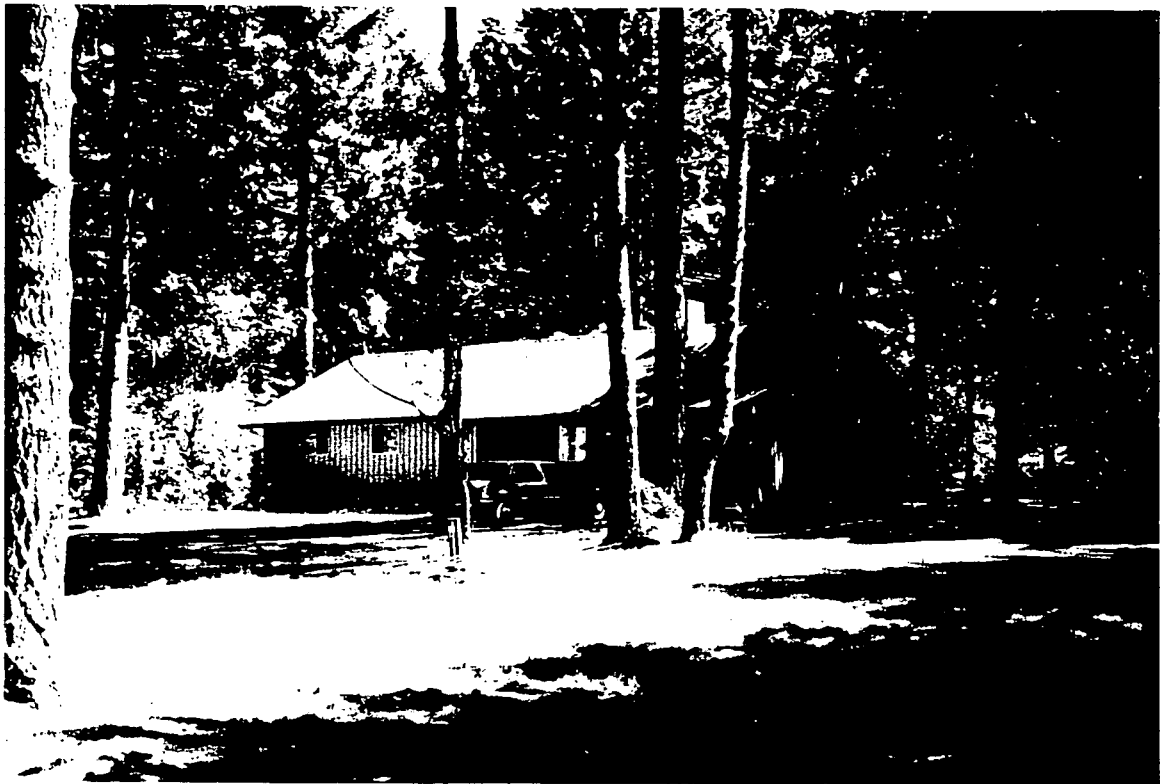
**Building:
Ranger's Residence**

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**OXBOW REGIONAL PARK
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**Metro Regional Parks and
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**Existing Facilities Assessment
Photograph:**

**Building:
Ranger's Residence**

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DATE: 8-12-96

BY: JTR

Building Name: Pump House

Location: Adjacent to Park Well.

Size: 18' x 22'3", 400 SF (320 SF @ pump room, 80 SF chlorine room, 400 SF water storage tank below.

Construction Type: Concrete foundation, subgrade concrete holding tank, CMU walls with steel post and glue laminated beam roof framing. 9'-0" plate line. T&G decking. Flat roof structure.

Exterior Materials: Siding: Painted CMU with 8x8 pattern, green. Painted wood posts and fascias, green.
Roofing: Built-up asphalt with brown metal flashing.
Windows: None.
Doors: Steel doors and frames.

Interior Materials: Floor: Concrete.
Walls: Painted CMU
Ceiling: Decking.

Function: Park water pumping, treatment, storage and surge pump pressure system. Supplies water to entire park site.

Age / History: 1970's

Condition: Fairly new structure, well maintained.

Accessibility: Building is at grade. Doors do not meet ADA standards.

Utilities: Electrical Service: Sub grade.
Water: Yes, hose bibb.
Toilet: No.
Security System: No.
HVAC: ?
Phone: No.

Other: 140 SF addition was planned for housing of pressure tank. Foundation is in place.

METRO

**OXBOW REGIONAL PARK
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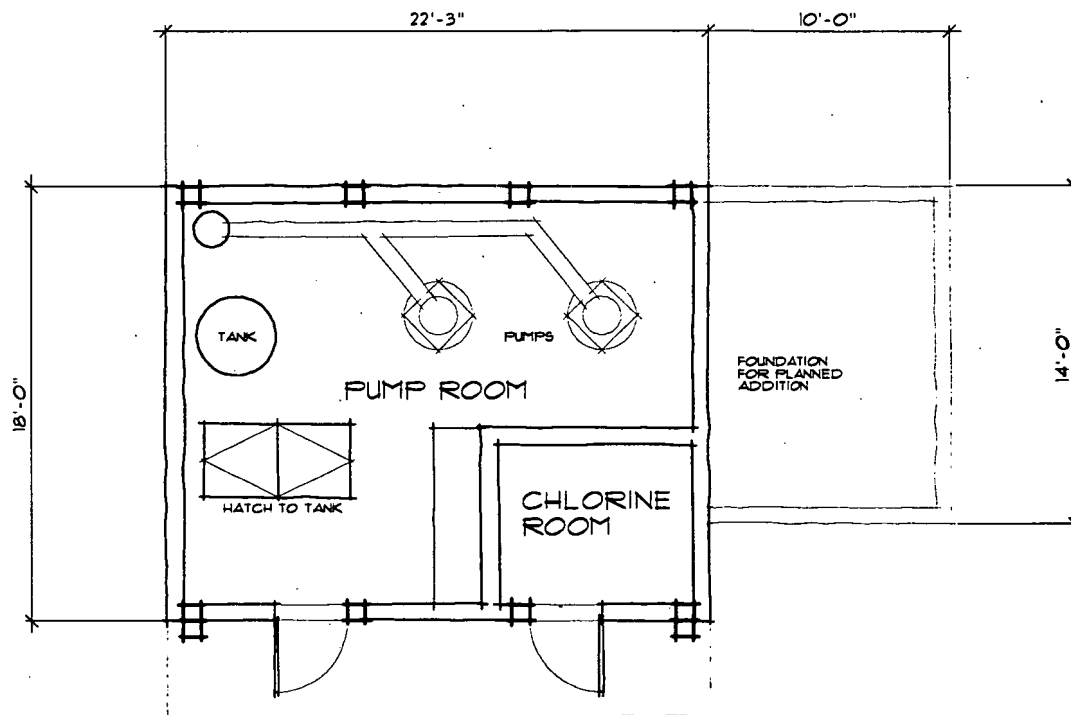
**Building:
Pump House**

Sheet:

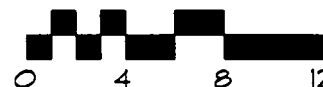
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FLOOR PLAN



METRO

**OXBOW REGIONAL PARK
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**Metro Regional Parks and
Greenspaces**

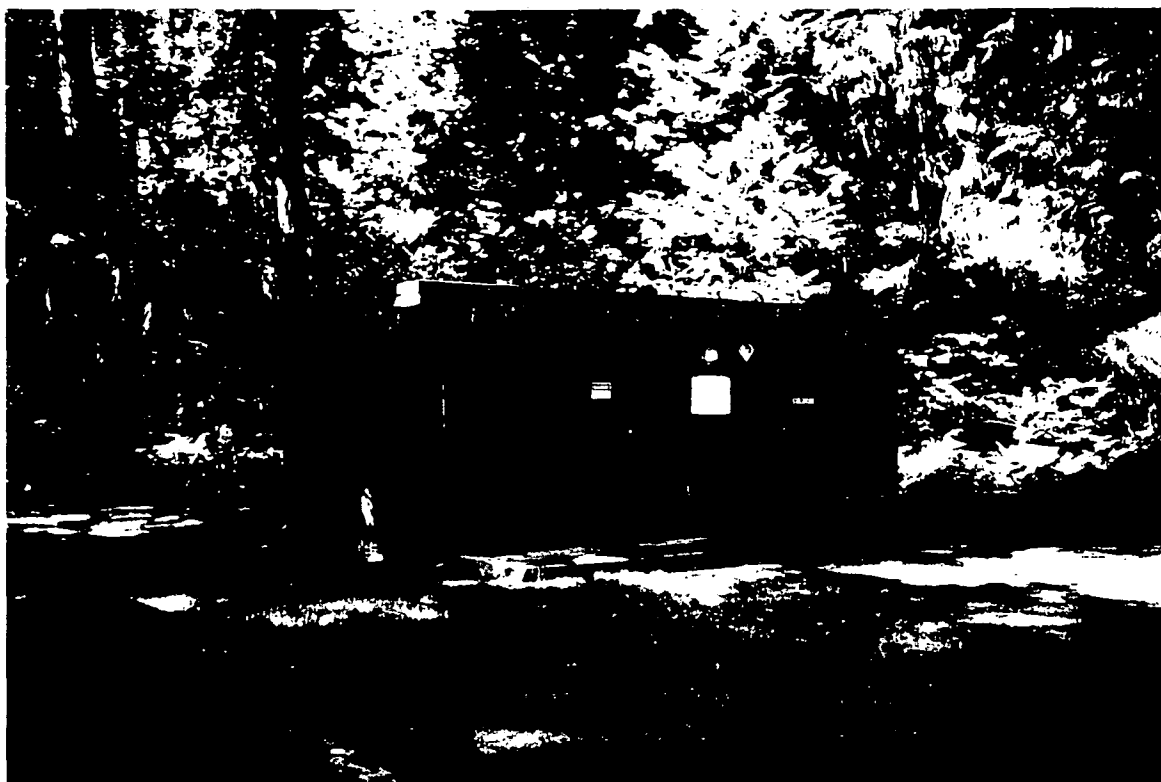
**Existing Facilities Assessment
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**Building:
Pump House**

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OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
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Existing Facilities Assessment
Photograph:

Building:
Pump House

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DATE: 8-12-96

BY: JTR

Building Name: Picnic Shelter "A"

Location: Group Picnic Area "A".

Size: 22' x 62', 1364 SF

Construction Type: Concrete slab on grade, 8 x 8 timber posts with steel plate connectors and 45° brackets, gang-nail truss roof framing with gable roof. 8'-9" floor to ceiling.

Exterior Materials: Siding @ gable ends: Plywood without grooves, green. Posts painted green.
Roofing: Cedar shakes with brown metal flashing and fascias.
Windows: NA
Doors: NA

Interior Materials: Floor: Concrete.
Walls: NA
Ceiling: Painted plywood.

Function: Group picnics and events.

Age / History: 1970's

Condition: Several posts have rotten bases. Post bases are not raised above adjacent slab allowing for contact with water. Structure does not meet current structural code.

Accessibility: Building is at grade. No paved access or parking.

Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (18) 5' x 12' picnic tables were set up under shelter during site visit.

METRO

**OXBOW REGIONAL PARK
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**Existing Facilities Assessment
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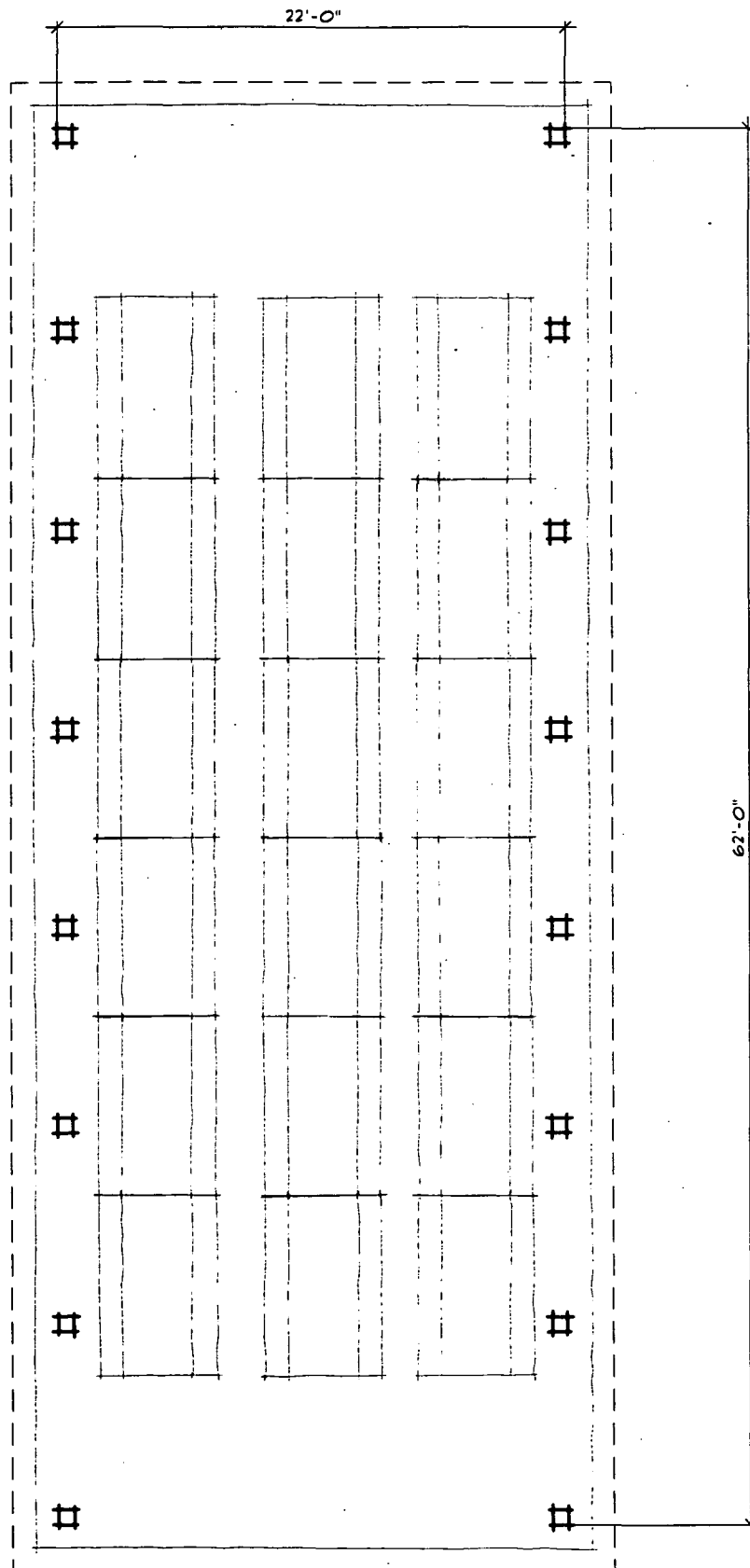
**Building:
Picnic Shelter "A"**

Sheet:

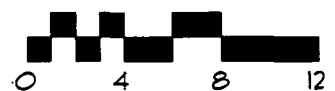
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FLOOR PLAN



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**OXBOW REGIONAL PARK
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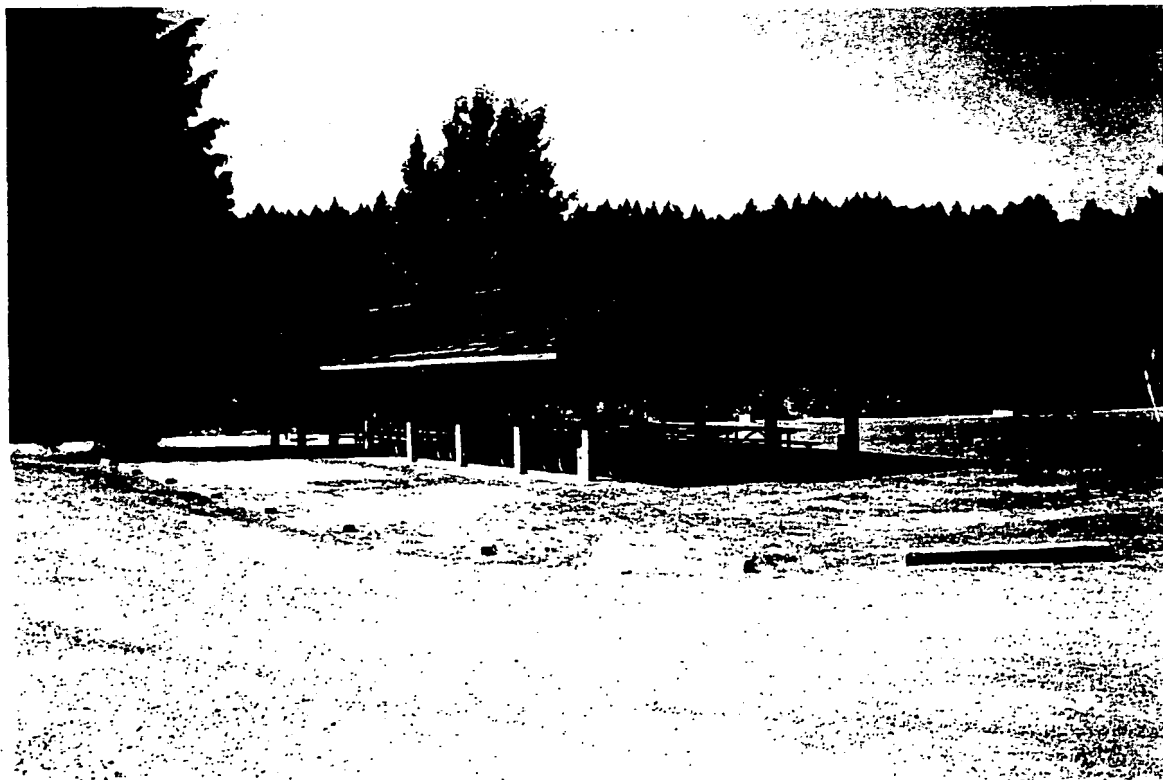
**Existing Facilities Assessment
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**Building:
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Photograph:**

**Building:
Picnic Shelter "A"**

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Building Name: Picnic Shelter "B"

Location: Group Picnic Area "B".

Size: 22' x 22', 484 SF

Construction Type: Concrete slab on grade, 6 x 6 timber posts with steel plate connectors, truss roof framing with gable roof. 8'-9" floor to ceiling.

Exterior Materials: Siding @ gable ends: Plywood without grooves, green. Posts are painted green.
Roofing: Cedar shakes with brown metal flashing and fascias.
Windows: NA
Doors: NA

Interior Materials: Floor: Concrete.
Walls: NA
Ceiling: Painted plywood, green.

Function: Group picnics and events.

Age / History: 1970's

Condition: Several posts have rotten bases. Post bases are not raised above adjacent slab allowing for contact with water. Structure does not meet current structural code.

Accessibility: Building is at grade. No paved access or parking.

Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (5) 5' x 12' standard & (2) 5' x 14' accessible picnic tables were set up under shelter during site visit.

METRO

**OXBOW REGIONAL PARK
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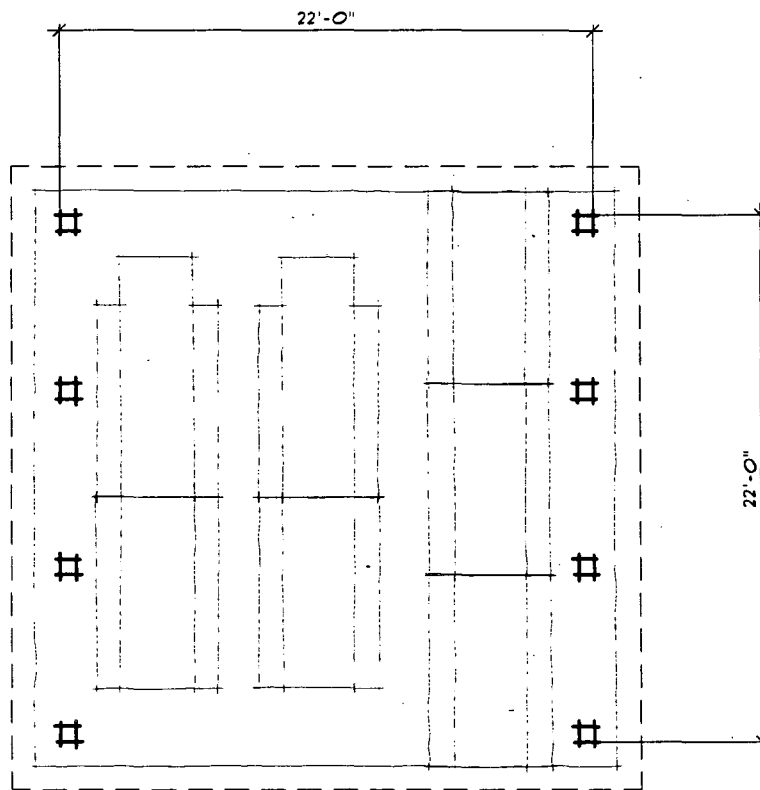
**Building:
Picnic Shelter "B"**

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FLOOR PLAN



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**Building:
Picnic Shelter "B"**

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12-C

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BY: JTR

Building Name: Picnic Shelter "C"

Location: Group Picnic Area "C".

Size: 22' x 38', 836 SF

Construction Type: Concrete slab on grade, 6 x 6 timber posts with steel plate connectors, truss roof framing with gable roof. 8'-9" floor to ceiling.

Exterior Materials: Siding @ gable ends: Plywood without grooves, green. Posts painted green.
Roofing: Cedar shakes with brown metal flashing and fascias.
Windows: NA
Doors: NA

Interior Materials: Floor: Concrete.
Walls: NA
Ceiling: Painted plywood.

Function: Group picnics and events.

Age / History: 1970's

Condition: Several posts have rotten bases. Post bases are not raised above adjacent slab allowing for contact with water. Structure does not meet current structural code.

Accessibility: Building is at grade. No paved access or parking.

Utilities: Electrical Service: No.
Water: No.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (11) 5' x 12' standard & (1) 5' x 14' accessible picnic tables were set up under shelter during site visit.

METRO

**OXBOW REGIONAL PARK
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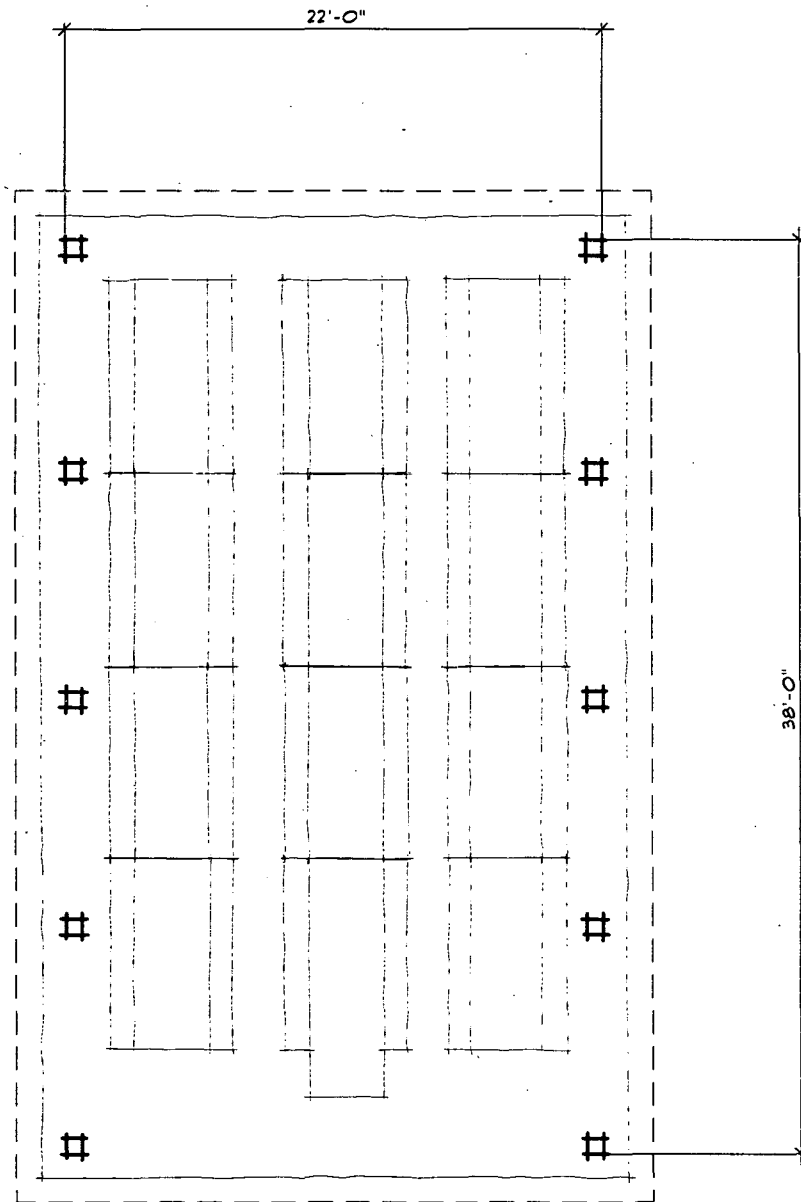
**Building:
Picnic Shelter "C"**

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FLOOR PLAN



METRO

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Metro Regional Parks and
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Photograph:

Building:
Picnic Shelter "C"

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BY: JTR

Building Name: Picnic Shelter "D"

Location: Group Picnic Area "D".

Size: 17' x 24', 408 SF

Construction Type: A-Frame structure with 4" diameter spliced rafters @ 24" oc and 12" continuous concrete footing.

Exterior Materials: Siding: NA
Roofing: Cedar shakes..
Windows: NA
Doors: NA

Interior Materials: Floor: Earth.
Walls: NA
Ceiling: Exposed framing and roofing.

Function: Group picnics and events.

Age / History: 1960's

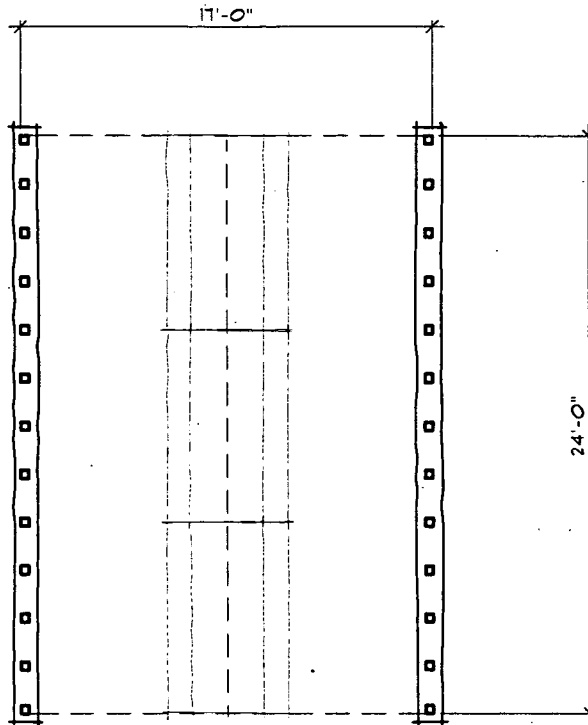
Condition: Structure has been rebuilt several times. Lower rafters are exposed to weather. Structure does not meet current structural code.

Accessibility: Building is at grade. No paved access or parking.

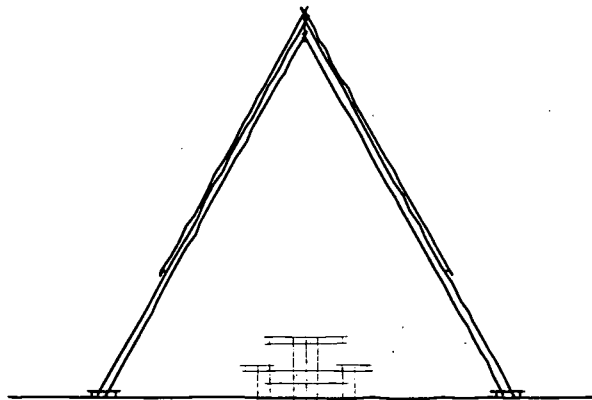
Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (3) 5' x 12' standard picnic tables were set up under shelter during site visit.

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 14-A
	Metro Regional Parks and Greenspaces	Building: Picnic Shelter "D"	DATE: 8-12-96
			BY: JTR



FLOOR PLAN



ELEVATION



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Sketches:**

**Building:
Picnic Shelter "D"**

Sheet:

14-B

DATE: 8-12-96

BY: JTR



METRO

OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment
Photograph:

Building:
Picnic Shelter "D"

Sheet:

14-C

DATE: 8-12-96

BY: JTR

Building Name: Group Camp Shelter "1"

Location: Group Camp Area "1".

Size: 17' x 24', 408 SF.

Construction Type: A-Frame structure with 4 x 4 rafters spliced to 4" diameter rafters @ 24" oc and 12" continuous concrete footing.

Exterior Materials: Siding: NA
Roofing: Cedar shakes.
Windows: NA
Doors: NA

Interior Materials: Floor: Earth.
Walls: NA
Ceiling: Exposed framing and roofing.

Function: Group camping and events.

Age / History: 1960's

Condition: Structure has been rebuilt several times. Lower rafters are exposed to weather. Structure does not meet current structural code.

Accessibility: Building is at grade. No paved access or parking.

Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (3) 5' x 12' standard picnic tables were set up under shelter during site visit.

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Notes:**

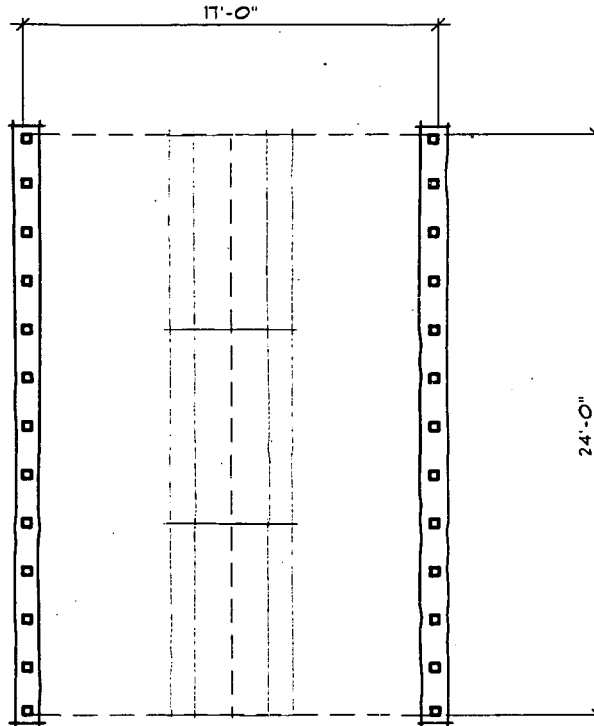
**Building:
Group Camp Shelter "1"**

Sheet:

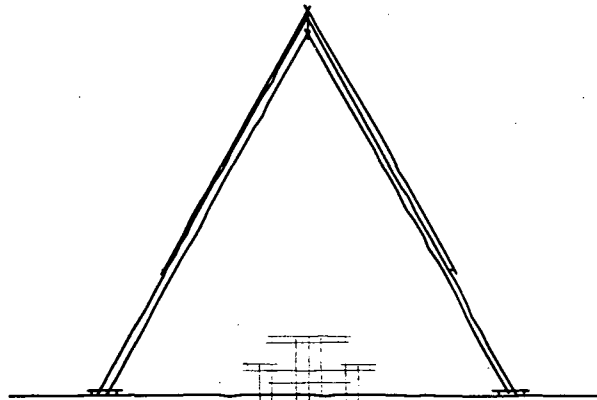
15-A

DATE: 8-12-96

BY: JTR



FLOOR PLAN



ELEVATION



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Sketches:**

**Building:
Group Camp Shelter "1"**

Sheet:
15-B

DATE: 8-12-96

BY: JTR



METRO

OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment
Photograph:

Building:
Group Camp Shelter "1"

Sheet:

15-C

DATE: 8-12-96

BY: JTR

Building Name: Group Camp Shelter "2"

Location: Group Camp Area "2".

Size: 14' x 28', 392 SF

Construction Type: Exposed log trusses, 8" diameter log posts with 45° braces and concrete footing. 7'-0" plate line. 3 bays.

Exterior Materials: Posts: 8" diameter, natural.
Roofing: Roll roofing with cedar cap.
Windows: NA
Doors: NA

Interior Materials: Floor: Earth / sand.
Walls: NA
Ceiling: Exposed framing and plywood.

Function: Camping shelter for small youth groups, by special permit only.

Age / History: 1960's

Condition: Structure is quite weathered. It would not meet current structural code. Post bases have areas of rot. Aesthetically very rustic and appropriate to setting.

Accessibility: Shelter is located 1/4 mile from vehicular access. Access road to site for park maintenance. Building is at grade.

Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (3) 5' x 12' standard picnic tables were set up under shelter during site visit.

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Notes:**

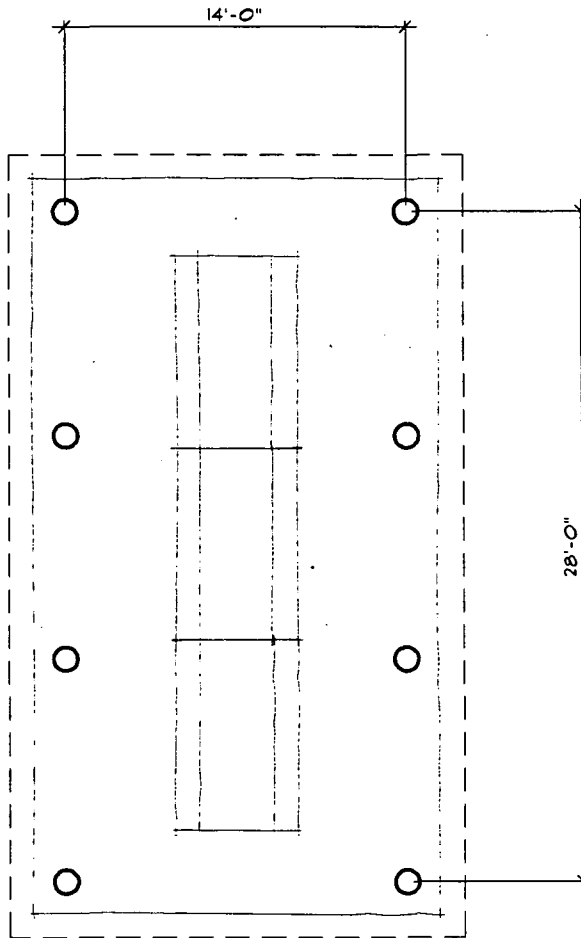
**Building:
Group Camp Shelter "2"**

Sheet:

16-A

DATE: 8-12-96

BY: JTR



FLOOR PLAN



METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Sketches:	Sheet: 16-B
	Metro Regional Parks and Greenspaces	Building: Group Camp Shelter "2"	DATE: 8-12-96
			BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Group Camp Shelter "2"**

Sheet:

16-C

DATE: 8-12-96

BY: JTR

Building Name: Group Camp Shelter "3"

Location: Group Camp Area "3".

Size: 14' x 28', 392 SF

Construction Type: Exposed log trusses, 8" diameter log posts with 45° braces and concrete footing. 7'-0" plate line. 3 bays.

Exterior Materials: Posts: 8" diameter, natural.
Roofing: Roll roofing with cedar cap.
Windows: NA
Doors: NA

Interior Materials: Floor: Earth / sand.
Walls: NA
Ceiling: Exposed framing and plywood.

Function: Camping shelter for small youth groups, by special permit only.

Age / History: 1960's

Condition: Structure is quite weathered. It would not meet current structural code. Post bases have areas of rot. Aesthetically very rustic and appropriate to setting. Roofing is in **very** bad condition.

Accessibility: Shelter is located 1/4 mile from vehicular access. Access road to site for park maintenance. Building is at grade.

Utilities: Electrical Service: No.
Water: Yes, hose bibb adjacent to shelter.
Toilet: Two outhouses.
Security System: No.
Phone: No.

Other: (3) 5' x 12' standard picnic tables were set up under shelter during site visit.

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 17-A
	Metro Regional Parks and Greenspaces	Building: Group Camp Shelter "3"	DATE: 8-12-96
			BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Group Camp Shelter "3"**

Sheet:

17-C

DATE: 8-12-96

BY: JTR

Building Name: Outhouse facilities:

Location: 37 locations throughout park.

Size: 1446 SF total.
 Type 1: (4) Two stall prefab units @ 144 SF each.
 Type 2: (30) Single stall @ 24 SF each.
 Type 3: (3) Two stall @ 50 SF each.

Construction Type: Type 1: Prefab wood frame structure with fiberglass interior surfacing, earth pit.
 Type 2 & 3: Site built single wall wood frame structures, earth pit.

Exterior Materials: Siding: Type 1: T1-11 plywood siding with 4" pattern, green. Type 2 & 3: plywood and exposed 2x2 framing, green.
 Roofing: Type 1: cedar shingles. Type 2 & 3: corrugated fiberglass.
 Windows: Screened / louvered.
 Doors: Wood

Interior Materials: Floor: Type 1: Fiberglass, Type 2 & 3: Concrete.
 Walls: Type 1: Fiberglass, Type 2 & 3: Painted plywood and framing.
 Ceiling: Type 1: Fiberglass, Type 2 & 3: corrugated fiberglass.

Function: Type 1: Overnight campground.
 Type 2: General park toilet.
 Type 3: Group camps.

Age / History: Type 1: 1975, Type 2 & 3: 1960's

Condition: Type 1: Fairly new structures. Heavily used but clean and functional. Structures could be reused with new subgrade holding tank
 Type 2 & 3: Old facilities. Need replacement.

Accessibility: Type 1: Accessible units. Meet general ADA standards.

Utilities: Electrical Service: Type 1: No. Type 2 & 3: No.
 Water: No. Hose bibb adjacent @ campground.

Other:

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Notes:**

**Building:
Outhouses**

Sheet:

18-A

DATE: 8-12-96

BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Outhouses**

Sheet:

18-C

DATE: 8-12-96

BY: JTR

Building Name: Trail Bridges:

Location: Pedestrian trails

Size: Six structures, 110 lineal feet.

Construction Type: Type 1: Log span with flattened walking surface. Handrail one side.
Type 2: Beams with timber planks. Handrails used when required by grade.

Function: Span wetland areas and creeks.

Age / History: Varies

Accessibility: Type 1: Does not meet ADA standards. Trails leading to bridge site are not generally accessible.
Type 2: Meets general ADA standards. Trails or paths leading to bridge site may not be accessible.

Other:

METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Notes:**

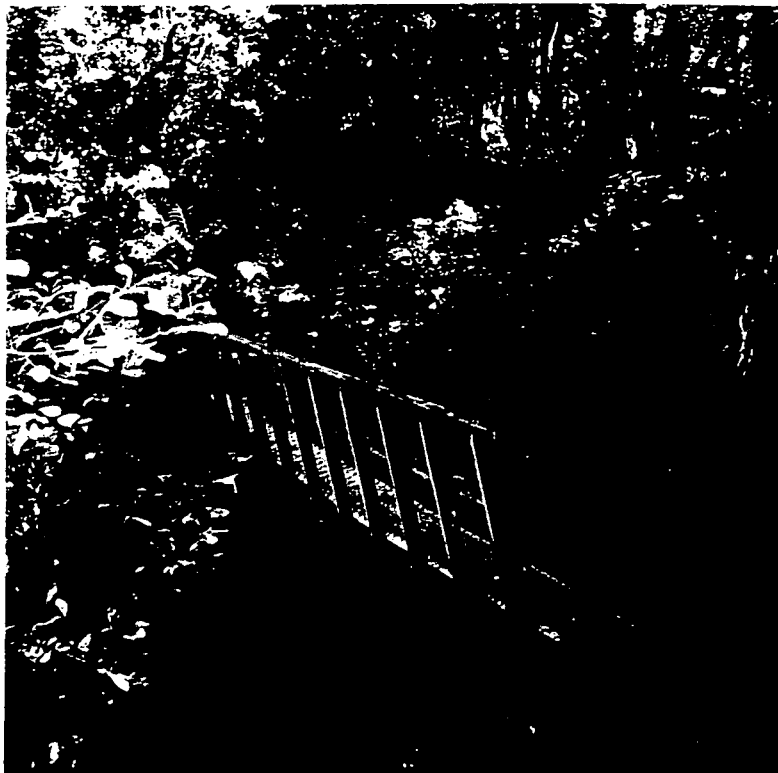
**Building:
Trail Bridges**

Sheet:

19-A

DATE: 8-12-96

BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Bridges**

Sheet:

19-C

DATE: 8-12-96

BY: JTR

Building Name: Information Kiosks:

Location: Type 1: Park Office
Type 2: Boat launch area.

Size: Varies

Construction Type: Type 1: 8" diameter log posts, wood frame gable roof with cedar shingles. One glazed signage panel, approximately 4' x 10'.
Type 2: 4 x 6 timber post, wood frame hip roof structure, three panel radiate from center.

Function: General park information, safety warnings and interpretive information.

Age / History: Varies

Accessibility: Structures are at grade with paved access routes.

Other:

METRO	OXBOW REGIONAL PARK MASTER PLAN STUDY	Existing Facilities Assessment Notes:	Sheet: 20-A
	Metro Regional Parks and Greenspaces	Building: Information Kiosks	DATE: 8-12-96
			BY: JTR



METRO

**OXBOW REGIONAL PARK
MASTER PLAN STUDY**

**Metro Regional Parks and
Greenspaces**

**Existing Facilities Assessment
Photograph:**

**Building:
Information Kiosks**

Sheet:
20-C

DATE: 8-12-96

BY: JTR

Building Name: Amphitheater:

Location: River side of park access road adjacent to overnight camping area and boat launch.

Size: 50 People + -

Construction Type: Wood frame backdrop / screen structure. Log benches.

Function: Interpretive and educational programs.

Age / History: 1970's

Accessibility: Site is fairly level. Some minor improvements may be required

Other:



METRO

OXBOW REGIONAL PARK
MASTER PLAN STUDY

Metro Regional Parks and
Greenspaces

Existing Facilities Assessment
Notes:

Building:
Amphitheater

Sheet:

21-A

DATE: 8-12-96

BY: JTR



APPENDIX L

■ EXISTING RECREATION AMENITIES

Existing Recreation Amenities

Recreation Use	Number of Facilities	Support Structures
River Activities -swimming -waterplay -fishing -river rafting/ tubing -boating	4 miles of river frontage	beach areas -Gordon/ Buck Creek -boat ramp -sandhole -Hosner area -Mecca area boat ramp (1) -handicap fishing facility (1) -bench (1) -fire pit (1) -barbecue (1) -table (1) -pit toilet (1) -water spigot (1) interpretive/ info kiosk hardened river access (stairs/- cement/ railings) -Hosner area (3) -GPA "A" (1) -GPA "D" (1) river related parking -Hosner area (15) -Dismal area (14) -Ancient Forest (3) -boat ramp (62) -A to BR (10) -BR to End (5)
Group Day Use (reservable) Group Picnic Areas	4 areas A, B, C, D	shelters -A (1) -B (1) -C (1) -D (1) total (4) tables -A (18) -B (7) -C (12) -D (6) total (43) B B Q -A (2) -B (1) -C (1) -D (1) total (5) horseshoe pits -A (1) -B (1) -C (1) -D (1) total (4)

Key for abbreviations: **BR** = boat ramp, **GPA** = group picnic area, **A to BR** = Group Picnic Area A to (and including boat ramp), **BR to End** = Area from (but not including) boat ramp to end of park, **A to End** = Group Picnic A to end of park (not including boat ramp)

Recreation Use	Number of Facilities	Support Structures
<p>Group Day Use (cont.) (reservable)</p> <p>Group Picnic Areas</p>	<p>4 areas A, B, C, D</p>	<p>fire pits</p> <p>-B (1) -C (1) -D (1) total (3)</p> <p>vehicle parking</p> <p>-A (60) -B (34) -C (64) -D (25) total (183)</p> <p>water spigot</p> <p>-A (4) -B (1) -C (1) -D (3) total (9)</p> <p>turfed play area</p> <p>-A (2 large) -B (1 large) -C (1 small) -D (2 small) total (6)</p> <p>cigarette butt receptacle</p> <p>-A (2) -B (2) -C (2) total (6)</p> <p>pit toilets</p> <p>-A (2) -B (2) -C (2) -D (2) total (8)</p> <p>3 can garbage corrals -</p> <p>-A (1) -B (1) -C (1) -D (1) total (4)</p> <p>cable gate</p> <p>-C (1) -D (1) total (2)</p>
<p>Individual Day Use (not river oriented)</p>	<p>Use areas spread throughout (non-reservable areas)</p>	<p>volleyball courts (est) (2)</p> <p>horseshoe pit (3)</p> <p>ball diamond (1)</p> <p>open turfed areas (~10)</p> <p>parking spaces</p> <p>-office (7) -overflow camping (10) -flood plain (22)</p>

Key for abbreviations: **BR** = boat ramp, **GPA** = group picnic area, **A to BR** = Group Picnic Area A to (and including boat ramp), **BR to End** = Area from (but not including) boat ramp to end of park, **A to End** = Group Picnic A to end of park (not including boat ramp)

Recreation Use	Number of Facilities	Support Structures
Individual Day Use (cont.)	Use areas spread throughout (non-reservable areas)	<p>parking spaces (cont.)</p> <p>-Hosner area (36)</p> <p>-Dismal area (50)</p> <p>-Ancient Forest (70)</p> <p>-A to End (263)</p> <p>total (458)</p> <p>picnic tables (8' = 1 table, 14' = 2 tables)</p> <p>-office (1)</p> <p>-overflow camping (5)</p> <p>-flood plain (6)</p> <p>-Hosner area (15)</p> <p>-Dismal area (21)</p> <p>-Ancient Forest (12)</p> <p>-A to End (46)</p> <p>total (106)</p> <p>playground (2)</p> <p>barbecue/ fire pit</p> <p>-overflow camping (0/ 5)</p> <p>-floodplain (0/ 2)</p> <p>-Hosner area (0/ 8)</p> <p>-Dismal area (6/ 9)</p> <p>-Ancient Forest (3/ 6)</p> <p>-A to End (5/ 19)</p> <p>total (14/ 49)</p> <p>pit toilets</p> <p>-office (1)</p> <p>-overflow camping (2)</p> <p>-floodplain (2)</p> <p>-Hosner area (4)</p> <p>-Dismal area (2)</p> <p>-Ancient Forest (4)</p> <p>-A to End (2)</p> <p>total (17)</p> <p>garbage can corrals (1 can/ 2 cans/ 3 cans)</p> <p>-overflow camping (1/ 0/ 0)</p> <p>-flood plain (0/ 0/ 1)</p> <p>-Hosner area (3/ 0/ 0)</p> <p>-Dismal area (2/ 0/ 2)</p> <p>-Ancient Forest (7/ 0/ 0)</p> <p>-A to End (8/ 2/ 2)</p> <p>total (21/ 2/ 5)</p> <p>water spigots/ fountains/ hydrants</p> <p>-office (1/ 1/ 1)</p> <p>-overflow camping (1/ 0/ 0)</p> <p>-flood plain (3/ 0/ 0)</p> <p>-Hosner area (4/ 0/ 0)</p> <p>-Dismal area (5/ 0/ 1)</p> <p>-Ancient Forest (11/ 0/ 1)</p> <p>-A to End (16/ 0/ 2)</p> <p>totals (41/ 1/ 5)</p> <p>cable gates</p> <p>-Dismal area (1)</p> <p>-A to End (2)</p>

Key for abbreviations: **BR** = boat ramp, **GPA** = group picnic area, **A to BR** = Group Picnic Area A to (and including boat ramp), **BR to End** = Area from (but not including) boat ramp to end of park, **A to End** = Group Picnic A to end of park (not including boat ramp)

Recreation Use	Number of Facilities	Support Structures
Individual Day Use (cont.)		information kiosk - office
Overnight camp -group sites -public sites	3 group areas 45 individual areas	information kiosk amphitheater -screen (1) -benches (13) -woodbox (1) shelters (3) parking spaces -individual camping (~90) -Group Camp #1 (45) -Group Camps #2 & #3 (15) total (150) picnic tables -public camping (45) -Group Camp #1 (25) -Group Camps #2 & #3 (4) total (74) barbecue/ firepits -public camping (45/ 45) -Group Camp #1 (3/ 8) -Group Camps #2 & #3 (0/ 4) total (48/ 57) horseshoe pit (1) water spigot/ hydrants -public camping (20/ 3) -Group Camp #1 (2/ 0) -Group Camps #2 & #3 (2/ 0) total (24/ 3) wastewater receptacles (14) cable gates (3) garbage can corrals (1 can/ 2 cans/ 3 cans) -public camping (3/ 2/ 10) -Group Camp #1 (1/ 0/ 1) -Group Camp #2 (2/ 0/ 0) total (6/ 2/ 11) pit toilets -public camping (8) -Group Camp #1 (4) -Group Camps #2 & 3) (4) total (16)
Hiking/ Walking/ Equestrian/ Biking	12 miles of trail 4 miles of road	cedar rail fencing sign posts/ signs trail marker posts 10 parking spaces for equestrian use
Nature/ Interpretive Programs	Access to natural area	Ancient Forest tours Salmon Walks Nature Tours school field trips wildlife viewing

Key for abbreviations: **BR** = boat ramp, **GPA** = group picnic area, **A to BR** = Group Picnic Area A to (and including boat ramp), **BR to End** = Area from (but not including) boat ramp to end of park, **A to End** = Group Picnic A to end of park (not including boat ramp)



APPENDIX M

■ PRELIMINARY COST ESTIMATE

■ Preliminary Construction Cost Estimate

A preliminary construction cost estimate has been prepared for the recommended Master Plan improvements. The preliminary estimate does not include the construction costs for the Environmental Education (E.E.) Center. The cost for the E.E. Center will further be determined during final design and engineering and construction costs will come from grants and donations. Assuming the rest of the improvements were constructed by the private sector through a normal public bid, the total project cost is in the range of \$6,601,721.00. This preliminary construction cost has been based on the concept drawings, utilizing 1997 industry standard cost factors. The preliminary estimates should be used as a guideline. Actual construction costs may vary based on detailed design, bidding requirements, project size, the use of park staff and equipment, volunteer labor and other factors. The following is a summary of preliminary cost estimates for individual Master Plan improvements:

Construction Cost Summary

A	<u>Entry Intersection</u>	\$	1,200.00
B	<u>Entrance Gate / Arrival Area</u>	\$	359,379.00
C	<u>Park Supervisor's Residence / Maintenance Area</u>	\$	314,451.00
D	<u>Flood Plain Trail Head</u>	\$	36,693.00
E	<u>Road Corridor Revegetation</u>	\$	66,867.00
F	<u>'Hosner Hole' River Access / Interpretive View Point</u>	\$	94,554.00
G	<u>Dismal Swamp Day Use Area</u>	\$	200,226.00
H	<u>Ancient Forest Preserve</u>	\$	12,710.00
I	<u>Environmental Education Center *</u>	\$	0.00
J	<u>Group Day Use Area</u>	\$	1,846,607.00
K	<u>Individual / Family Day Use Area &</u>		
L	<u>Access Road Turnaround</u>	\$	194,767.00

M	<u>Boat Ramp</u>	\$	392,004.00
N	<u>Group Camp Areas &</u>		
O	<u>Campground</u>	\$	1,063,413.00
1	Trail Construction & Rehabilitation	\$	100,000.00
2	Upgraded Water System	\$	181,000.00
3	New Electrical System	\$	<u>237,450.00</u>
	Sub-Total	\$	5,101,321.00
	<u>Extras</u>		
	Project Costs	\$	750,200.00
	(Design, Surveys, Permits, etc.)		
	Contingency	\$	<u>750,200.00</u>
	Total	\$	6,601,721.00

* Construction cost estimate will be determined during final design and funding will come from grants and donations.

Detailed Breakdown of Preliminary Cost Estimate for Individual Master Plan Improvements

The following preliminary construction cost estimates are based on conceptual drawings, utilizing 1997 industry standard cost factors. The actual design and engineering for master plan improvements could change the final dimensions and architectural style of the proposed structures and change the cost associated with their construction.

Preliminary Construction Cost Estimate

Oxbow Regional Park

Entry Intersection - Area A

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			N/A
2.) Hardscape			N/A
3.) Structures			N/A
4.) Planting			N/A
5.) Irrigation			N/A
6.) Interpretive Materials Park Information Sign	LS	-	\$1,200.00
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			<u>N/A</u>
Sub-Total			\$ 1,200.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Entrance Gate / Arrival Area - Area B
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$10,500.00
2.) Hardscape			
Asphalt Removal	1.00/sf	3,000 sf	\$3,000.00
Asphalt Repave w/ no base rock	1.25/sf	17,700 sf	\$22,125.00
New Base Rock	1.00/sf	3,200 sf	\$3,200.00
New Asphalt	2.25/sf	7,850 sf	\$17,663.00
Curbing	5.50/lf	110 lf	\$605.00
Striping & Handicap Symbol	LS	-	\$100.00
Accessible Ramps	LS	-	\$250.00
Concrete Walk w/ sub-base	2.50/sf	2,950 sf	\$7,375.00
3.) Structures			
Entry Fee Booth	90.00/sf	160 sf	\$14,400.00
Park Office	100.00/sf	1,040 sf	\$104,000.00
Orientation Shelter	80.00/sf	384 sf	\$30,720.00
Restroom Facility	200.00/sf	256 sf	\$51,200.00
4.) Planting			
Trees, Shrubs, & Groundcovers	2.00/sf	2,075 sf	\$4,150.00
5.) Irrigation			
Spray Heads	.55/sf	2,075 sf	\$1,141.00
Point of Connection, Controller	LS	-	\$1,250.00
6.) Interpretive Materials			
Signage, Displays, Tactile Elements, etc	LS	-	\$27,700.00
7.) Sanitary System			\$60,000.00
8.) Electrical Improvements (included in structure costs)			N/A
9.) Miscellaneous			<u>N/A</u>
Sub-Total			\$ 359,379.00

Preliminary Construction Cost Estimate

Oxbow Regional Park

Park Supervisor's Residence / Maintenance Area - Area C

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$1,500.00
Special Considerations -			
Trash Removal	LS	-	\$8,000.00
Clearing for Turn-Around Loop	LS	-	\$2,500.00
2.) Hardscape			
New Asphalt	2.25/sf	13,225 sf	\$29,756.00
Gravel Parking w/ sub-base	1.50/sf	22,910 sf	\$34,365.00
Gravel Parking w/o sub-base	.75/sf	17,375 sf	\$13,031.00
3.) Structures			
Ranger's Residence - Egress Window Inst.	Allowance	-	\$5,000.00
Maintenance Shop	70.00/sf	1,860 sf	\$130,200.00
Flammable Liquids Storage Building	Pre-Fab	120 sf	\$12,000.00
Fire Wood Storage Shelter	50.00/sf	800 sf	\$40,000.00
Volunteer Room/Storage	Allowance		\$5,000.00
	for Repairs/Paint		
4.) Planting			
Trees, Shrubs, & Groundcovers	LS	-	\$5,000.00
Lawn Prep			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$8,800.00
Lawn Seeding	.20/sf	13,875 sf	\$2,775.00
5.) Irrigation			
Rotary Heads	.35/sf	36,925 sf	\$12,924.00
6.) Interpretive Materials			N/A
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			
Overflow Camp Ground Improvements			
- Fire Ring & Barbeque (6)	LS	-	\$1,800.00
- Picnic Table (6)	LS	-	<u>\$1,800.00</u>
Sub-Total			\$ 314,451.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Flood Plain Trail Head - Area D
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$1,500.00
2.) Hardscape			
Gravel Parking w/ sub-base	1.50/sf	5,067 sf	\$7,600.00
Gravel Parking w/o sub-base	.75/sf	5,110 sf	\$3,833.00
3.) Structures			
Vault Toilet (single)	Pre-Fab	80 sf	\$15,000.00
4.) Planting			
Trees, Shrubs, & Groundcovers	LS	-	\$1,500.00
Planting Prep (Remove old parking area)			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$6,305.00
5.) Irrigation			N/A
6.) Interpretive Materials			N/A
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			
Parking Barricades	3.00/lf	325 lf	<u>\$955.00</u>
Sub-Total			\$ 36,693.00

Preliminary Construction Cost Estimate

Oxbow Regional Park

Road Corridor - Area E (Entrance Gate to Dismal Swamp)

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			N/A
2.) Hardscape			N/A
3.) Structures			N/A
4.) Planting			
Trees, Shrubs, & Groundcovers	.50/sf	57,000 sf	\$28,500.00
Planting Prep (Remove old parking area)			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$34,867.00
Mulch	10.00/cy	350 cy	\$3,500.00
5.) Irrigation			N/A
6.) Interpretive Materials			N/A
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			<u>N/A</u>
Sub-Total			\$ 66,867.00

Preliminary Construction Cost Estimate

Oxbow Regional Park

'Hosner Hole' River Access / Interpretive Viewpoint - Area F

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$1,500.00
2.) Hardscape			
Gravel Parking w/ sub-base	1.50/sf	6,000 sf	\$9,000.00
3.) Structures			
Vault Toilet (double)	Pre-Fab	160 sf	\$28,000.00
4.) Planting			
Trees, Shrubs, & Groundcovers	LS	-	\$750.00
Lawn Prep (Remove old parking area)			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$9,875.00
Lawn Seeding	.20/sf	16,145 sf	\$3,229.00
5.) Irrigation			N/A
6.) Interpretive Materials			
Signage, Displays, Tactile Elements, etc	LS	-	\$7,300.00
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			
Ex. Parking Improvements	LS	-	\$1,000.00
River Access Improvements	LS	-	\$25,000.00
Viewpoint Installation	LS	-	\$8,000.00
Parking Barricades	3.00/lf	300 lf	<u>\$900.00</u>
Sub-Total			\$ 94,554.00

Preliminary Construction Cost Estimate

Oxbow Regional Park

Dismal Swamp Day Use Area - Area G

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$1,500.00
2.) Hardscape			
Asphalt Removal	1.00/sf	6,910 sf	\$6,910.00
New Asphalt Road	2.25/sf	13,100 sf	\$29,475.00
Gravel Parking w/ sub-base	1.50/sf	23,825 sf	\$35,738.00
Grading & Fill @ New Parking Lot	LS	-	\$20,000.00
3.) Structures			
Vault Toilet (single)	Pre-Fab	80 sf	\$15,000.00
(double)	Pre-Fab	160 sf	\$28,000.00
4.) Planting			
Trees, Shrubs, & Groundcovers	LS	-	\$750.00
Lawn Seeding	.20/sf	5,350 sf	\$1,070.00
5.) Irrigation			
Spray Heads	.55/sf	54,150 sf	\$29,783.00
Point of Connection	LS	-	\$500.00
6.) Interpretive Materials			
Signage	LS	-	\$7,600.00
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			
Wetland Restoration	LS	-	\$15,000.00
Ancient Forest Entry Monumentation	4,000.00/ea	2	\$8,000.00
Parking Barricades	3.00/lf	300 lf	<u>\$900.00</u>
Sub-Total			\$ 200,226.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Ancient Forest Preserve - Area H
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation	LS	-	\$1,500.00
2.) Hardscape			N/A
3.) Structures			N/A
4.) Planting			
Trees, Shrubs, & Groundcovers	1.00/sf	6,500 sf	\$6,550.00
Planting Prep			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$4,050.00
Mulch	10.00/cy	61 cy	\$610.00
5.) Irrigation			N/A
6.) Interpretive Materials			N/A
7.) Sanitary System			N/A
8.) Electrical Improvements			N/A
9.) Miscellaneous			<u>N/A</u>
Sub-Total			\$ 12,710.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Environmental Education Area - Area I
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			-
2.) Hardscape			-
3.) Structures			-
4.) Planting			-
5.) Irrigation			-
6.) Interpretive Materials			-
7.) Sanitary System			-
8.) Electrical Improvements			-
9.) Miscellaneous			-

Note:

Construction cost estimate will be determined during final design and funding will come from grants and donations.

Preliminary Construction Cost Estimate
Oxbow Regional Park
Group Day Use Area - Area J
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$7,500.00
2.) Hardscape			
Asphalt Removal	1.00/sf	16,675 sf	\$16,675.00
Asphalt Removal @ New Trail	22.50/lf	1,210 lf	\$27,225.00
New Asphalt Road & Parking	2.25/sf	142,050 sf	\$319,613.00
Curbing	5.50/lf	1,335 lf	\$7,343.00
Asphalt Cutting	1.00/lf	2,420 lf	\$2,420.00
Asphalt Re-Surface	1.25/sf	24,760 sf	\$30,950.00
Asphalt Walk	1.75/sf	35,675 sf	\$262,431.00
Gravel Walks	10.00/lf	420 lf	\$4,200.00
Rock Seating Walls	50.00/lf	95 lf	\$4,750.00
3.) Structures			
Restroom Facility (2)	200.00/sf	624 sf	\$249,600.00
Shelters			
- Enclosed Winter Shelter	125.00/sf	1600 sf	\$200,000.00
- Large Shelter (1)	80.00/sf	1152 sf	\$92,160.00
- Small Shelter (4)	90.00/sf	576 sf/sh	\$207,360.00
4.) Planting			
Trees, Shrubs, & Groundcovers	1.50/sf	54,030 sf	\$81,045.00
Planting Prep			
- 8" Gravel Removal & 8" Topsoil & Scarify	LS	-	\$31,500.00
Lawn Seeding - Renovation	.30/sf	131,000 sf	\$39,300.00
Mulch	10.00/cy	150 cy	\$1,500.00
5.) Irrigation			
Rotary Heads	.35/sf	436,500 sf	\$152,775.00
6.) Interpretive Materials			
Relocate existing signboard to this area	LS	-	\$200.00
7.) Sanitary System			
	LS	-	\$90,000.00
8.) Electrical Improvements			
	LS	-	\$4,500.00
9.) Miscellaneous			
Picnic Tables	600.00/ea	21	\$12,600.00
Play Area Mulch	12.00/cy	80 cy	<u>\$960.00</u>
Sub-Total			\$ 1,846,607.00

Preliminary Construction Cost Estimate

Oxbow Regional Park

Individual / Family Day Use Area & Access Road Turnaround - Area K & L

October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$5,000.00
2.) Hardscape			
New Asphalt Road & Parking	2.25/sf	9,732 sf	\$21,897.00
Curbing	5.50/lf	300 lf	\$1,650.00
Gravel Parking Areas w/ sub-base	1.50/sf	17,760 sf	\$26,640.00
Asphalt Re-Surface	1.25/sf	31,861 sf	\$39,826.00
Asphalt Walk	1.75/sf	10,397 sf	\$18,195.00
Gravel Walks	1.00/sf	24,218 sf	\$24,218.00
Rock Seating Walls	50.00/lf	95 lf	\$4,750.00
3.) Structures			
Vault Toilet (single)	Pre-Fab	80 sf	\$15,000.00
4.) Planting			
Trees, Shrubs, & Groundcovers	1.50/sf	14,335 sf	\$21,503.00
Lawn Seeding - Renovation	.30/sf	4,922 sf	\$1,475.00
Mulch	10.00/cy	50 cy	\$500.00
5.) Irrigation			
Rotary Heads	.35/sf	24,610 sf	\$8,613.00
6.) Interpretive Materials			\$200.00
Relocate existing signboard to this area			
7.) Sanitary System			N/A
8.) Electrical Improvements			\$500.00
9.) Miscellaneous			
Picnic Tables	600.00/ea	8	<u>\$4,800.00</u>
Sub-Total			\$ 194,767.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
River Access Area (Boat Ramp) - Area M
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$1,500.00
2.) Hardscape			
New Asphalt Road & Parking	2.25/sf	525 sf	\$1,181.00
Asphalt Re-Surface	1.25/sf	3,000 sf	\$3,750.00
Curbing	5.50/lf	125 lf	\$688.00
Exposed Aggregate Walk	3.00/sf	1,895 sf	\$5,685.00
Boat Ramp Repairs	LS	-	\$3,500.00
Terrace Walls	50.00/lf	415 lf	\$20,750.00
Binder & Gravel @ Terrace Walls	2.00/sf	1,525 sf	\$3,050.00
Steps	15.00/lf	60 lf	\$900.00
Rip Rap Rock	35.00/cy	60 cy	\$2,100.00
Rock Jetty Work	LS	-	\$10,000.00
Interpretive Walls	130.00/lf	40 lf	\$5,200.00
3.) Structures			
Restroom Facility	200.00/sf	624 sf	\$124,800.00
4.) Planting			N/A
5.) Irrigation			N/A
6.) Interpretive Materials			
Displays, Tactile Elements, etc	LS	-	\$28,400.00
7.) Sanitary System			
	LS	-	\$115,000.00
8.) Electrical Improvements			
	LS	-	\$500.00
9.) Miscellaneous			
Permits	LS	-	\$30,000.00
Accessible Fishing Piers	LS	-	<u>\$35,000.00</u>
Sub-Total			\$ 392,004.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Group Camping Areas & Campground - Area N & O
October 1997

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
1.) Site Preparation			
Clearing, Spraying, Demolition, Grading, etc.	LS	-	\$10,000.00
2.) Hardscape			
New Asphalt Road	2.25/sf	47,000 sf	\$105,750.00
Gravel Walks	1.50/sf	42,500 sf	\$63,750.00
New Gravel Paths	10.00/lf	1,875 lf	\$18,750.00
Gravel for New Sites (20)	1.50/sf	800 sf	\$24,000.00
Gravel for Ex. Sites (23) w/ Relocated Drives	1.50/sf	800 sf	\$27,600.00
3.) Structures			
Restroom & Shower Facilities (2)	\$200.00/sf	960 sf	\$384,000.00
Vault Toilet (3-doubles)	Pre-Fab	160 sf	\$84,000.00
Yurts	Pre-Fab	-	\$80,000.00
4.) Planting			
Revegetation	LS	-	\$9,000.00
5.) Irrigation			
Rotary Heads	.35/sf	24,610 sf	\$8,613.00
6.) Interpretive Materials			
Relocate existing three-sided kiosk to this area	LS	-	\$200.00
7.) Sanitary System			
	LS	-	\$225,000.00
8.) Electrical Improvements			
	LS	-	\$5,750.00
9.) Miscellaneous			
Recycling & Garbage Enclosures	LS	-	\$5,000.00
Fire Rings & Barbeques	300.00/ea.	20	\$6,000.00
Picnic Tables	300.00/ea	20	<u>\$6,000.00</u>
Sub-Total			\$ 1,063,413.00

Preliminary Construction Cost Estimate
Oxbow Regional Park
Other Improvements
October 1997

1.) Trail Construction & Rehabilitation (Material Cost Only)

	<u>Unit/\$</u>	<u>Qty.</u>	<u>Cost</u>
North Side			
New Trails	5.00/lf	2,400 lf	\$12,000.00
Trail Rehabilitation	1.00/lf	14,000 lf	\$14,000.00
South Side			
New Trails	5.00/lf	6,375 lf	\$31,875.00
Trail Rehabilitation	1.00/lf	42,125 lf	<u>\$42,125.00</u>
Sub-Total			\$ 100,000.00

2.) Upgraded Water System

Sub-Total **\$ 181,000.00**

3.) New Electrical System

Sub-Total **\$ 237,450.00**

4.) Extras

Project Costs (Design, Surveys, Permits, etc.)	LS	\$750,200.00
Contingency	LS	<u>\$750,200.00</u>
Sub-Total		<u>\$1,500,400.00</u>

TOTAL PROJECT COST **\$6,601,721.00**