

ENVIRONMENTAL CONSEQUENCES

WATER RESOURCES/FLOODPLAINS/WETLANDS

Impacts of the Proposal

The 11-acre tract designated for construction of the USDA-Forest Service and curation complex is drained by Johnson Creek. Within this development tract is a historic cabin site (Tom Stuart), which precludes construction in the immediate area of Johnson Creek. Its location on a small, flat natural bench would minimize materials entering Johnson Creek, even during construction. No measurable increase in stream turbidity is anticipated.

The closest drainage to the Red Barn visitor center and Warren Ranch Complex is about 1,200 feet to the south. The absorption rate of soils and distance to surface water precludes any measurable increases in turbidity.

Parking lots and buildings in the 11-acre tract and parking lots for the Red Barn visitor center would increase the amount of runoff. The soil's high absorption rate in both locations will minimize runoff into adjacent streams during normal rains and snowmelt. Runoff from parking lots could contain petroleum and other products leaked from vehicles that could result in minor surface water contamination.

Water for human consumption will be provided by the Deer Lodge water system. If the Warren residence well is retained and used, the water would be used solely for livestock and irrigation.

No groundwater impairment from construction, management, and use of the site is anticipated. Before Conrad Warren constructed the Red Barn and feedlot complex, dye tests were performed. It was determined that water absorbed into the ground did not enter the aquifer supplying his well. Sewage waste will be treated by the city's system, to eliminate any potential contamination from human waste.

There is no danger of flash flooding within the national historic site. All new construction, utilities, and adaptive reuse of historic buildings are proposed on lands above the 100- and 500-year floodplain elevations.

Approximately twenty historic buildings and structures in the west feedlots and corrals are within the Clark Fork River 100- and 500-year floodplains. These buildings and structures were used for stock shelters, barns, chicken houses, and granaries. None are proposed

for adaptive non-historic reuse or human occupancy. Proposed uses are limited to display for interpretive purposes, or short-term shelter for livestock operations. This area will be closed to visitor use when conditions for flooding are favorable. During a flood event, up to 2 feet of water could inundate historic buildings and structures. Most buildings and structures are log, frame, or post and pole construction. Their conditions range from fair to good. In the event of flooding, artifact damage, water damage from warping, delamination, and loss of chinking could occur. Restoration maintenance would be required to correct damage. Dirt administrative access roads serving the west feedlots and the Clark Fork River bridge, which provides access to upland pastures, could suffer minor damage from flooding.

The park's wetlands are well out of any area proposed for construction, historic building rehabilitation, and visitor use. Wetlands will not be affected by these activities or any proposed management actions.

The actions proposed do not support or encourage any additional floodplain or wetland development. The actions do not reinforce any existing unplanned floodplain or wetland land use. There are no secondary effects to floodplains or wetlands and there is no increase in flood loss potential to existing developments from the proposal or any alternatives. There will be no effect on natural and beneficial floodplain values, including water resource values (natural moderation of floods, water quality maintenance, and groundwater recharge), living resource values (fish, wildlife, and plant resources), cultural resource values (open space, natural beauty, scientific study, outdoor education, and recreation), and cultivated resource values (agriculture, aquaculture, and forestry). The proposal does not involve the placing of structures or fill in navigable waters; nor does it call for discharge of dredged or fill material.

There are no state or local floodplain standards applicable to the proposal.

Impacts of Alternative A

Under this alternative non-historic uses would be removed from the ranch complex. All new development would be placed on the 11-acre tract. The intensity of development could increase runoff and increase turbidity of Johnson Creek. Contaminants from vehicles and maintenance operations could also enter Johnson Creek. Remaining water resource, floodplain, and wetland impacts for this alternative are similar to those described for the proposal.

Impacts of Alternative B - No Action

There would be no change to impacts presently being experienced. The temporary visitor center and parking lot on the 11-acre tract does not affect water quality in Johnson Creek.

Impacts to floodplains from the historic west feedlots and corrals are the same as those described for the proposal. No park wetlands are affected by development, visitor use, or other management actions.

SOILS AND VEGETATION

Impacts of the Proposal

Construction of the curatorial/USDA-Forest Service complex will disturb about 2 acres of Beaverell series soils and upland pasture vegetation. About 1 acre of this area is presently occupied by a temporary visitor contact station and parking lot. Construction of the Red Barn visitor center parking lot will disturb an additional 2 acres of the same soil and vegetation type. Soils in this area were previously compacted when used by Warren for parking during sale auctions.

Proposed access roads, parking, and buildings will eliminate direct flow of water to soil and will destroy about 4 acres of vegetation. One acre, now occupied by the visitor contact station parking lot, will be restored, resulting in a net change of 3 acres. Soil compaction will occur from construction activities, pavement, and settling of buildings on 4 acres. Construction of foundations and basements for the USDA-Forest Service/curatorial complex will destroy soil structure in about 3,000 cubic yards of soil. Topsoil will be removed from areas to be converted to pavement and buildings and stored for use in site rehabilitation and revegetation. This will reduce the overall loss of topsoil and enhance revegetation efforts. Accelerated erosion will occur on all disturbed sites until revegetation is complete, approximately one growing season, and until road, parking, and building drainage structures are complete. These drainage structures will divert runoff to natural drainages. Although revegetation will be complete in one growing season, natural vegetation composition will not be complete for several years. The levels of erosion are expected to be minimal, since all proposed construction will occur on lands with a slope of less than 5 percent. Areas experiencing increased runoff will be limited to parking and roadside shoulders. In these areas, increased runoff and moisture will alter vegetation composition and create slight changes in soil chemistry. Vegetation composition will be slightly altered and some vegetation along roadsides and near parking areas will be subject to crushing by vehicles. This could encourage the growth of thistle and other exotic species.

Trails to and through the site will be provided where heavy foot traffic is anticipated, and visitors will be encouraged to stay on maintained trails. All trails will be located on gentle slopes to minimize potential for erosion. Soil next to trails would continue to be compacted and vegetation trampled. Establishment of trails will help reduce traffic in non-designated areas. Soils and vegetation near interpretive waysides and displays will be subject to compaction and trampling by foot traffic. Invasion of those areas by weedy species could become a problem requiring control actions. Because of NPS presence and enforcement programs, this impact is expected to be limited to slight changes in vegetation composition.

Other areas of ground disturbance, such as water and utility lines, will have topsoil removed before construction. The topsoil will be used to revegetate trenches with native species.

These soil and vegetation types are common in the region, and the amount of disturbance will not be significant.

Impacts of Alternative A

Under this alternative, construction-related impacts would be confined to the 11-acre development tract. In addition to 1 acre already occupied by a parking lot, about 4 additional acres of soil would be disturbed and 4 additional acres of vegetation would be removed. The concentration of uses in this area would result in increased levels of soil compaction and vegetation trampling. Impacts associated with these activities are similar to those described for the proposal.

Impacts of Alternative B - No Action

No additional disturbance to soil or vegetation is anticipated, except for those associated with the upgrade of utilities (power, sewer connections, natural gas extensions, water). This would impact an area about 3 yards wide and 530 yards long, or about one-third of an acre. The 11-acre development tract would continue to be used for visitor parking and as a visitor contact area. In the Warren Ranch Complex, minimal disturbance of soil or vegetation would occur.

WILDLIFE

Impacts of the Proposal

Wildlife associated with the Clark Fork River bottomlands and the park's western foothills will not be affected by the proposal. Fish in the Clark Fork River and birds common in the park will also not be affected.

Impacts will generally be limited to the 11-acre development tract and the Warren Ranch complex. Construction of the maintenance and curatorial facilities and the Red Barn visitor center parking lot will alter vegetation and result in the displacement and loss of some rodents (mice, common shrew) and insects (grasshoppers, beetles, ants, flies). About 4 acres of habitat will be affected initially. One acre, now used for parking, will be restored for a net loss of 3 acres of habitat. It is anticipated that a majority of displaced rodents and insects will relocate in other similar habitats of the park. None of these impacts is significant.

Impacts of Alternative A

Under this alternative, about 4 additional acres of habitat loss would occur in the 11-acre development tract. One acre was previously lost from construction of the visitor parking lot. Rodents and insects occupying this area would be displaced to other similar habitats in the park, or lost. As with the proposal, birds and wildlife and fish associated with the Clark Fork River bottomlands and western foothills would not be affected.

Impacts of Alternative B - No Action

No additional wildlife habitat would be lost, and current displacement of rodents and insects from the temporary parking lot and visitor contact facilities on the 11-acre development tract will continue. There would be no effect on birds, wildlife, and fish in other habitats of the park.

THREATENED AND ENDANGERED SPECIES

There are no listed, proposed, or candidate threatened or endangered plant or animal species within the park.

AIR QUALITY

Impacts of the Proposal

Minor increases in visitation are anticipated; this will result in increased auto emissions. Construction of parking lots and maintenance and curatorial facilities will increase the amount of dust in the air. If necessary, construction dust will be controlled with application of water or other approved dust palliatives. There will also be a temporary increase in noise level during construction.

Administrative use of dirt roads within the ranch and its pastures will generate some additional dust. Because of sporadic and low use, accumulations of dust will be minimal with no measurable effect to roadside vegetation. Wind erosion of these dirt roads will contribute to fugitive dust levels.

Class II airshed standards will not be violated by visitor use or construction activities. Because the Deer Lodge Valley is wide and not subject to significant inversions, increased emissions and dust should not be visually noticeable.

Based on radon sampling done in the home ranch complex, no problem is foreseen with elevated radon levels in historic and proposed buildings.

Impacts of Alternative A

Air quality impacts under alternative A are similar to those described for the proposal.

Impacts of Alternative B - No Action

There would be no construction-related air quality impacts under this alternative. Impacts are limited to emissions from visitor use and dust from administrative use of dirt roads within the park. Current emissions and road dust are not visually noticeable and are within standards prescribed for Class II airsheds.

HISTORIC AND ETHNOGRAPHIC RESOURCES

Impacts of the Proposal

The proposal provides for the maintenance, rehabilitation, and restoration of historic buildings, structures, and landscapes, with a "management time period" that reflects historic periods of use. Use of buildings and structures to support park operations, interpretation, and visitor use will contribute to their long-term preservation. Removal of

maintenance operations from the dairy and other historic buildings will provide for uses that are more historically compatible. Removal of collection storage from the ranch house and other areas used for storage will reduce weight loads on those buildings and eliminate, or reduce, the stresses and damages from collection storage, which should increase longevity. Use of the Warren residence for park housing should enhance abilities to fund restoration and maintenance requirements and contribute to their long-term preservation. The Red Barn, adaptively used as a visitor center and for administrative offices, will be the visual focus for the ranch. The integrity of the barn's exterior will be retained and construction techniques used in the interior will minimize damage. Historic American Building Survey (HABS) documentation will be required for the Red Barn and Warren residence before they can be used adaptively. Proposed uses of all historic buildings and structures within the park are described under the proposal in chapter II.

Use of the ranch's historic entrance for access to the Red Barn visitor center parking lot will provide better site orientation and a historic approach to the ranch. Location of the visitor center parking lot in an area historically used by Warren for parking during sales days should retain the ranch's historic scene. Location of the new USDA-Forest Service and curatorial storage facility outside of historic zones will also lead to the retention of historic scenes. Identification and management of the landscape types described in the proposal should further retention of the ranch's historic scene. Also, the proposed expansion of boundaries to the western foothills will greatly enhance abilities to retain vast isolated landscapes and a sense of open-range cattle grazing associated with the ranch.

The proposal will improve museum collection management. The proposed curatorial storage facility will provide environmentally controlled space, with fire detection and suppression systems and intrusion alarms. Access to the collections will be more easily controlled and further improve security. Efficiency of curatorial operations will also be improved. Museum objects will be consolidated in a clean environment in stable conditions, with less cleaning required and a slowed rate of deterioration. Pest access to the collections will be greatly reduced or eliminated, further contributing to object preservation. Provisions for curatorial work areas will expand on-site treatment abilities for objects with minor problems, reducing the need for more expensive off-site treatment. Curatorial office space will provide room for filing and use of curatorial records. More research into the collection will be possible, both by staff and visiting researchers.

Moving museum objects from their present locations in historic buildings to a new facility could have adverse effects on the collections from handling, transportation, fluctuations in temperature and humidity. These effects could be mitigated by use of trained staff and adequate materials and equipment to properly move the collection. An estimated 350 objects will remain in the ranch house for display, while an estimated 17,000 objects will

be moved. Removal of curatorial work space from the ranch house will require more exhibited objects to be temporarily moved for minor on-site treatment and will require staff time for packing and moving and will temporarily increase the chance for harm to objects.

Some additions to the collection could occur when the proposal is implemented. The proposed curatorial facility should be adequate to accommodate anticipated increases. Use of exhibits in the Red Barn visitor center will increase the number of objects on exhibit. An increase in staff time will be required to prepare short-term exhibits.

No impacts to ethnographic resources are anticipated under the proposal.

Impacts of Alternative A

Under this alternative, use of historic structures and buildings is limited to historic activities. This alternative provides for the maintenance, rehabilitation, and restoration of historic buildings and structures with a "management time period" that reflects historic periods of use. Funding and resources necessary for preservation could be more difficult to obtain when adaptive uses are not considered. Removal of maintenance operations from the dairy and other historic buildings will provide for uses that are more historically compatible. Removal of collection storage from the ranch house and other areas used for storage would reduce weight loads on those buildings and eliminate or reduce the stresses and damages from collection storage.

Visitors would continue to access the ranch on the trail leading from the present visitor center. Opportunities to view the ranch from a historic perspective would not be provided. Because development would be concentrated within the 11-acre development tract, park operational and visitor-use facilities would not affect the historic scene. Identification and management of the landscape types should further park management's ability to retain the ranch's historic scene. Also the expansion of boundaries to the western foothills would greatly enhance ability to retain vast isolated landscapes associated with the ranch.

A new facility for curatorial operations would be provided. Impacts are similar to those described for the proposal.

No impacts to ethnographic resources are anticipated under this alternative.

Impacts of Alternatives B - No Action

The lack of building maintenance would result in continued natural deterioration of buildings and structures listed on the National Register of Historic Places. Inappropriate use of buildings would continue, such as maintenance operations in the dairy and curatorial storage in the ranch house. The basement and second floor of the ranch house would not be adequately interpreted and stress damage from heavy curatorial items to the ranch house would continue. Deterioration of the Warren buildings would continue and fire and security problems cannot be effectively dealt with. Degradation of the historic scene would continue, with retention of the on-site trailer used as a ranger residence. Retrofitting buildings with climatic controls for curatorial storage could be damaging to historic buildings and fabrics.

Only minimal maintenance would be provided for site fences and corrals. The historic scene could be impacted by unchecked external forces, such as the construction of ranch-related structures, roads, and irrigation systems, compromising the historic integrity of the ranch and adversely affecting visitor experience and appreciation of historic periods.

Curatorial storage would remain scattered and substandard. Potential for substantial loss of the collections would continue. Many objects would deteriorate quickly because of a lack of environmental controls and treatment. Risk of loss by theft, vandalism and fire would be high because of a lack of security and fire suppression systems. Low operational efficiency would continue for curatorial activities. Most of the curatorial and museum management issues would remain unresolved.

There are currently no impacts to ethnographic resources.

ARCHEOLOGICAL RESOURCES

Impacts of the Proposal

Construction of the USDA-Forest Service/curatorial storage facility, trails, and Red Barn visitor center parking will not affect three of the four known aboriginal archeological sites. These three sites are well away from the proposed construction zones. The fourth site is in the vicinity of the ranch house; its specific location has been noted and the site will be avoided when trails and exhibits are established in this area.

There are buried historic remains around several ranch facilities, however, their locations are not well documented. All ground-disturbing activities in these areas will be monitored to mitigate any impacts that could occur should these sites be encountered. Sites located

in close proximity to visitor-use areas are vulnerable to surface damage and could be inadvertently damaged. In addition, grazing activity by park livestock could affect surface remains of sites yet to be discovered.

Prior to any land-modifying activity an archeologist will inspect the proposed development site and its immediate vicinity for the presence of cultural remains, both prehistoric and historic. Should newly discovered or previously unrecorded cultural remains be located, additional investigations will be performed.

No known prehistoric or historic site will be disturbed under any alternative. All locations have been avoided by the proposed developments. When funding becomes available for landscaping and other rehabilitation, the historic debris and dump sites, and prehistoric site 24PW1077 will be considered during planning, and avoided if possible. If avoidance is not possible, each location will be tested to determine its eligibility for the National Register, and mitigating measures will be implemented if necessary.

Impacts of Alternative A

Impacts and mitigation procedures described for the proposal also apply to this alternative.

Impacts of Alternative B - No Action

No impacts from construction-related activity would occur. Sites in close proximity to visitor-use areas are vulnerable to surface damage and could be inadvertently damaged. In addition, grazing activity by park livestock could affect surface remains of sites yet to be discovered.

VISITOR USE

Impacts of the Proposal

The proposal will enhance existing visitor use by upgrading visitor center orientation capabilities, by providing additional interpretive staff and visitor services, and by redesigning support and interpretive facilities that have been informally established over the years, to better tell the ranch's story. Use of the ranch site will continue. Interpretive and visitor circulation problems will be solved, thereby providing the visitor a better experience and opportunity to appreciate the ranch's historic values.

The placement of a new entrance and visitor center at the historic ranch entrance, will reduce visitor confusion and improve site orientation. An expanded range of choices for visitors will be provided through interpretive media and services.

Establishing a new visitor access route to the ranch will allow tours of the site to be conducted in a logical, topic-oriented manner. Tours will begin with secondary interpretation of mechanized feedlot operations and proceed to the ranch's primary interpretation of the frontier cattle era. An on-grade railroad crossing to the home ranch complex will be provided. Adequate warning and control devices will be necessary to prevent visitor/train conflicts, although passage of trains through Deer Lodge is limited to a couple of trains per day.

Relocation of the visitor center and parking lot will increase site visibility from Highway 10 and should contribute to some increases in visitation, although this increase cannot be calculated. Traffic congestion at the entrance will need to be monitored and, if necessary, measures such as a reduction in speed limits pursued to minimize hazards.

The new visitor center will provide improved conveniences like rest rooms, water fountains, and access for visitors with disabilities. Its new location should eliminate the need for tour group buses, visitors with disabilities, and others with special needs to use a separate entrance.

Proposals to protect landscapes to the west and north of the ranch and to identify and manage historic landscapes will result in enhanced visitor understanding and appreciation of the cattle frontier, and will prevent incompatible uses from occurring. Returning many buildings and structures to their historic use will enhance the visitor's stay and provide better opportunities to experience the historic period(s).

Increased visitation should result in slight increases of fee collection revenues. With improved orientation, interpretive programs, and facilities, the visitors' length-of-stay at the ranch is expected to increase. This increase could be as much as 4 hours, with an estimated average length-of-stay of 2 hours. The quality of stay is also expected to improve, because of more and better programs.

Impacts of Alternative A

Impacts of this alternative are largely the same as with the proposal. The quality and length of the visitor experience and revenue generated are expected to be similar to those anticipated from the proposal. Accessibility to the ranch would not change, and visitors would be required to approach the ranch via the railroad underpass. Visitors and groups with special needs would continue to be directed to a separate site entrance. Signs and

wayside exhibits could be usable in their current form since the access trail would provide for chronological interpretation of the ranch's history. Traffic patterns along Highway 10 would remain as they are, since no change in highway access is proposed. Protection of landscapes to the west and north would prevent incompatible uses from occurring.

Impacts of Alternative B - No Action

Current plans include a new information/orientation wayside exhibit in the vicinity of the existing parking lot. This wayside exhibit should help encourage drive-through visitors, who mistake the visitor center and rest rooms as the ranch, to stop. Other visitor-use issues would remain unresolved. The 400 square-foot visitor center would not be able to provide space for interpretive and orientation programs, visitor confusion on the history of cattle ranching and Grant-Kohrs Ranch would probably persist, access for the disabled would not be improved, and future direction to improve interpretation and visitor use will be lacking. Landscapes to the west and north could be changed due to development of ranch-related roads, structures and irrigation systems. Close coordination with the USDA-Forest Service regarding timbering would continue, to allow protection from that activity.

SOCIOECONOMIC RESOURCES

Impacts of the Proposal

The proposal will continue to substantially contribute to the Deer Lodge economy. Increased visitor services could result in increasing the visitor's length-of-stay from 1.2 hours to an average of about 2 hours. Sales revenues from park tourism could result in direct sales of about \$120,000 annually, and when considering indirect and induced multipliers, could contribute more than \$216,000 annually to the Deer Lodge economy.

An estimated annual park budget of \$600,000 could result in total sales, considering indirect and induced multipliers, of about \$1,080,000 annually. The proposed rehabilitation and development program anticipates a one-time expenditure of about \$10 million. Total sales in the area from this expenditure should exceed \$19 million, netting nearly \$300,000 in increased tax revenue.

Annual park operations and tourism benefits will result in approximately 37 jobs. Implementation of the rehabilitation and development program will result in a short-term gain of an additional 500 jobs.

The results of the above economic benefits could increase levels of normal services available in Deer Lodge and enhance local businesses. No measurable change in population levels or changes in lifestyle are anticipated.

Impacts of Alternative A

Impacts similar to those described for the proposal are anticipated for alternative A. Staffing and operational budget requirements are higher than those required for the proposal. An estimated annual budget of \$975,000 would be required. This would result in total sales of about \$1,775,000 annually. The one-time rehabilitation and development program of about \$7 million should result in short-term sales of around \$15 million with approximately \$230,000 in increased tax revenues. Jobs created by operations and tourism should total about 50, while the rehabilitation and development program should result in a short-term gain of about 430 jobs.

Sales revenues from park tourism and impacts to services and businesses would be the same as described under the proposal.

Impacts of Alternative B - No Action

Economic benefits of current park operations are described in the "Affected Environment" chapter of this document. Total sales from park operating expenditures is about \$1,024,000 annually. Sales benefits from park tourism is about \$130,000 annually. Total tax revenue being gained is about \$24,000 annually. Operations and use of the park results in about 30 jobs.

OTHER FEDERAL AGENCIES

Impacts of the Proposal

The 12,000 square foot USDA-Forest Service administrative/NPS curatorial facility to be constructed within the park near the southern boundary will benefit the USDA-Forest Service by providing them with needed office space. No other federal agencies will be affected by the proposal.

Impacts of Alternative A

Impacts associated with this alternative would be the same as those described for the proposal.

Impacts of Alternative B - No Action

Current park operations have no impacts on other federal agencies.

MANAGEMENT AND OPERATIONS

Impacts of the Proposal

Consolidating all administrative, maintenance, and operational staff within the park should increase productivity and efficiency. The Red Barn visitor center can be operated year-round with monitoring of activities by staff located in offices on the second floor.

Potential of injury to staff from handling museum objects in spaces not designed for such use would be reduced. Specialized object-handling equipment that will reduce back injuries, as well as provide safer treatment of objects, could be used in a new storage facility.

Removal of the maintenance work and storage areas from historic structures and consolidation of those activities into one area will improve operation efficiency. However, increased responsibilities associated with supporting a new maintenance facility, curatorial storage area, administrative offices, and visitor center will cause an increase in the existing maintenance duties, resulting in higher operational costs and increased purchased utility costs. During actual construction activities, there should be little effect on existing maintenance operations.

The proposal requires about \$600,000 annually for operational and maintenance costs. About 20.0 FTEs will be required to fully implement operational and management aspects of the proposal.

Impacts of Alternative A

Impacts described for the proposal would be similar for this alternative. Because historic structures would not be adaptively used and more new construction is proposed, annual operational and maintenance costs associated with this alternative are about \$975,000. FTE requirements are 26.75. This increase is mainly attributed to the location of visitor contact and administrative facilities away from the historic ranch complex and increased maintenance responsibilities.

Impacts of Alternative B - No Action

With park headquarters remaining in the city of Deer Lodge and other management and operational functions scattered in various buildings in the ranch, reduced operational efficiency would continue. The majority of the staff make frequent, daily trips between the office and the ranch. Because of a lack of government vehicles, many staff use private

vehicles, therefore, concerns of accident liability would continue. Additionally, these trips result in a loss of time and efficiency.

CUMULATIVE IMPACTS OF THE PROPOSAL

There are no cumulative impacts resulting from the proposal.