OZARK NATIONAL SCENIC RIVERWAYS

ENVIRONMENTAL ASSESSMENT FOR CHILTON CREEK AREA BOAT RAMP AND PARKING

Prepared by

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1.0 PURPOSE AND NEED

BACKGROUND

The project area addressed is located on the Current River approximately six miles upstream from Van Buren, Missouri, in the vicinity of Chilton Creek. Chilton Creek enters the Lower Current River 2.2 miles above the park boundary. Traveling downstream from the boundary the Current River enters the Van Buren 'gap' (a four mile stretch of the river which lies outside the park). The park maintains two semi-developed sites which provide access to the Current River in the Chilton Creek area – Raftyard and Waymeyer Landing. Both of these sites are designated "put-ins" for commercial outfitters, contractors to the National Park Service (NPS) who provide rentals and shuttle service to the visiting public. In addition to providing a launch area for canoes, rafts, kayaks, and tubes, one of these sites, Waymeyer Landing, also provided a gravel boat launch ramp which accommodated motorboat access. This ramp, and the traditional access it provided to motorboat visitors, was washed out during the large floods of March 2008. Vehicles reach the Chilton Creek area via State Hwy. M traveling north off State Hwy. 60 just west of Van Buren. Crossing the park boundary Hwy. M continues as a gravel road (Carter County Rd. 151). The project area is approximately eight miles from the city of Van Buren traveling by vehicle. (Figure 1 – Vicinity Location map. Enlarged Vicinity/ Location map in Appendix 1)

Citizens Petition - In February of 2006, the Superintendent of ONSR received a petition signed by eighty-nine local residents requesting that the park install and maintain a permanent boat ramp and parking area upstream and separate from Waymeyer Landing. The petition voiced concern that overcrowding on the river downstream between Waymeyer Landing and Van Buren presented potentially hazardous conditions for everyone – boaters and floaters alike.

PURPOSE

The purpose of creating Ozark National Scenic Riverways (ONSR)as stated in the park's enabling legislation is for "…conserving and interpreting unique scenic and other natural values and objects of historic interest, including preservation of portions of the Current River and Jacks Fork River in Missouri as free-flowing streams, preservation of springs and caves, management of wildlife, and provisions for use and enjoyment of the outdoor recreation resources thereof by the people of the United States." (P.L. 88-492) Using this legislation as guidance, the purpose that has been defined for this are:

- Provide a safe and maintainable boat ramp that preserves an existing and traditional use for this area of the river (relocating the ramp site at Waymeyer Landing or constructing an alternative ramp at another location within the vicinity of Chilton Creek area) for motorboat access.
- Provide clearly delineated and designated/hardened parking spaces for a number of day-use visitors who arrive in their private vehicles. Spaces shall accommodate standard vehicles with a boat trailer.
- Provide adequate signing to clarify and define 'use patterns'. Possible examples of signing might include: identifying temporary loading/drop-off zone; delineating canoe storage areas for concessions; posting non-commercial 'day-use' parking spaces for both single vehicles and boat trailers.
- Reduce or eliminate resource impacts that currently exist at the site.
- Reduce visitor use conflicts and congestions, and enhance visitor experiences.
- Improve visitor safety at the site.

NEEDS

The following needs have been identified in association with river access within the Chilton Creek project area and will be addressed to achieve the stated purpose of this project:

- Reestablish a safe and maintainable motorboat access to the project area damaged by the flood.

- Address site conditions concerning visitor safety, reduce the potential for visitor use conflicts and congestion at the site, and to enhance the potential for a variety of visitor experiences.

This Environmental Assessment/Assessment of Effect has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9), and the National Park Service Director's Order (DO)-12 (Conservation Planning, Environmental Impact Analysis, and Decision-making).

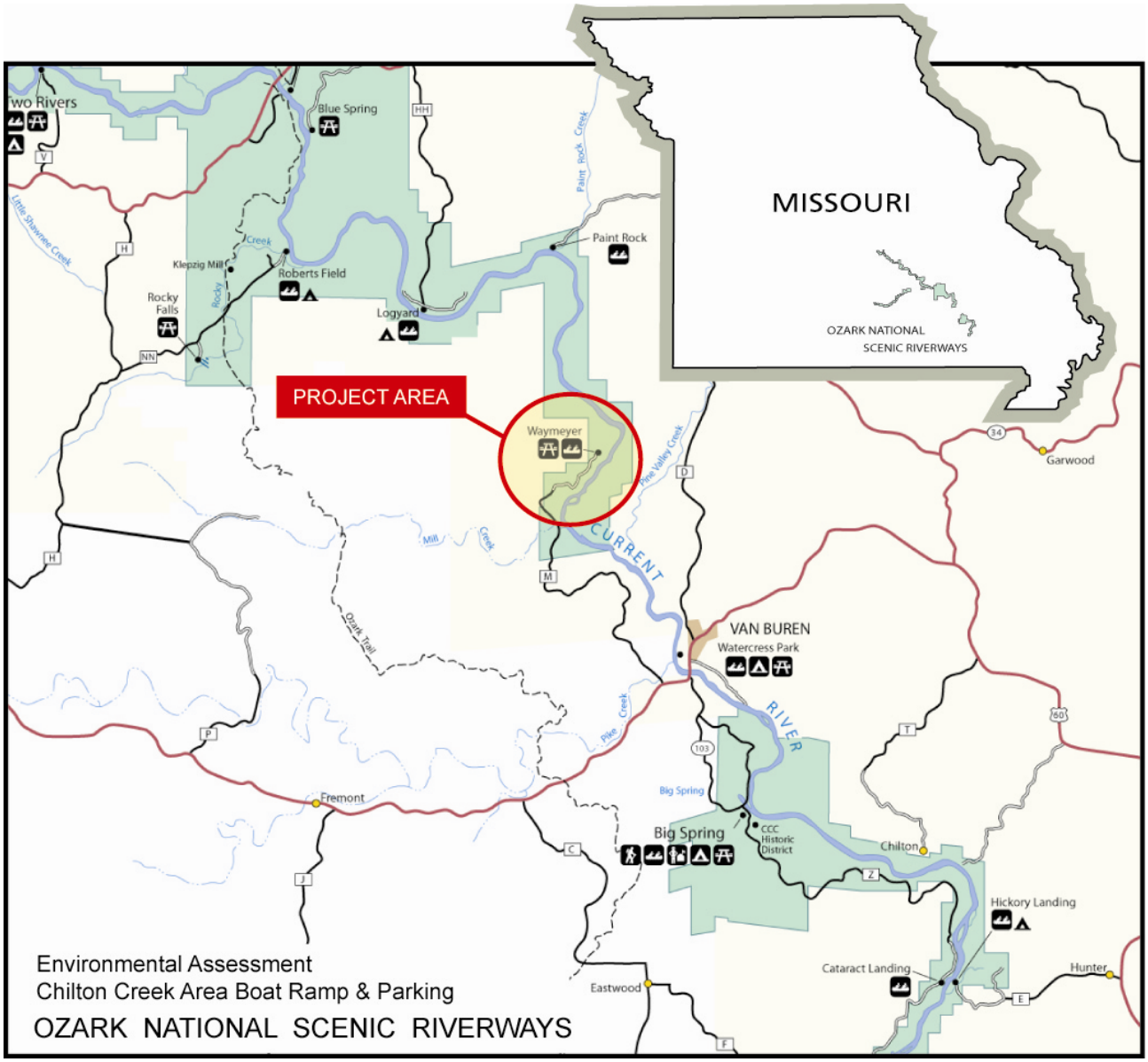


Figure 1 - Vicinity Location Map.

2.0 APPLICABLE REGULATORY REQUIREMENTS & COORDINATION

This Environmental Assessment (EA) has been prepared to evaluate the impacts of the alternatives described in Section 3.0. The EA is prepared in accordance with the National Park Service's Director's Order No. 12: Conservation Planning, Environmental Impact Analysis, and Decision Making, and its accompanying Handbook, and the provisions of the National Environmental Policy Act of 1969 (NEPA) (PL#91-190, 42 USC 4321-4247). Detailed procedures for developing this document comply with the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508).

Regulatory requirements, which may be applicable to the activities addressed in this EA, include:

- Section 106 of the National Historic Preservation Act (NHPA) addressing any activities directly or indirectly impacting prehistoric or historic archeological sites, historic structures, or cultural landscapes eligible for or listed in the National Register of Historic Places.
- Section 106 consultations also includes coordination with any Native American Tribes as appropriate.
- Section 404 of the Clean Water Act permitting and State water quality certification through Section 401 of the Act.
- Section 7 consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act.
- Executive Order 11990, Protection of Wetlands.
- Director's Order No. 77-1, Wetland Protection.
- Wild and Scenic Rivers Act of 1968.
- The Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.)
- Executive Order 11988, Floodplain Protection.
- Director's Order No. 77-2, Floodplain Management.
- 44 CFR Part 60, National Flood Insurance Program.
- Director's Order 47, Soundscape Preservation and Noise Management
- 36 CFR 2.12, Audio disturbances, and 3.7, Noise Abatement

Additional considerations applicable to evaluating potential impacts of proposed actions addressed in this EA:

- Heartland Inventory and Monitoring – Invertebrates and Fish
- NPS- Nationwide Rivers Inventory Listing

Relationship of Environmental Assessments to Other Planning & Policy Documents

A variety of NPS, Federal, and State plans, policies and actions influence the management of the ONSR and the writing of Environmental Assessments in general. The most pertinent plans and policies as they pertain to this specific Environmental Assessment are summarized as follows:

Management Policies 2006 (NPS 2006)
This volume is the basic policy document of the NPS for managing the National Park System which administers a broad range of programs that serve the conservation and recreation needs of the nation. Adherence by NPS employees to policy is mandatory unless specifically waived or modified by the Secretary of the Interior, the Assistant Secretary for Fish and Wildlife and Parks, or the Director. Alternative actions proposed in this Environmental Assessment specifically reference Management Policies 2006 guidelines covered in Chapter 4 "Natural Resource Management", Chapter 8 "Use of the Parks", Chapter 9 "Park Facilities", and Chapter 10 "Commercial Visitor Services".

Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making (DO-12)
A supplement to NPS Management Policies 2006, DO-12 contains uniform Servicewide implementing procedures for, and such supplemental material as may be necessary to carry out, NPS responsibilities under NEPA and

related statues. Where other directives and guidelines appear to differ from this Director's Order and Handbook in the areas of impact analysis and other responsibilities under the National Environmental Policy Act, this Director's Order and Handbook take precedence.

1984 ONSR General Management Plan (GMP) and Development Concept Plan (DCP) (NPS 1984)
A GMP provides park managers with the direction, goals and objectives for making decisions on park operations. The current GMP provided the foundation for actions undertaken in previous developments in the park and will continue to be used to guide and/or develop management actions. A new GMP is in the beginning phases and is expected to be put into operation within the next 3-5 years. Until that time, any proposals in this EA must be consistent with the 1984 GMP. The DCPs included within the GMP are site specific development recommendations for the redesign, replacement, relocation, or upgrading of facilities. The 1984 ONSR GMP does not contain a DCP specific to development in the Chilton Creek area, though it is identified within the management zones map as an area where development may occur.

1989 ONSR River Use Management Plan (RUMP) (NPS 1989)
Due to a dramatic increase in the number of canoes within the ONSR in the 1970's and 1980's, park managers noticed problems that included resource damage, crowding, increased conflicts between river users, a need to protect water quality, a lack of sanitation facilities, proliferation of litter, and congestion at river accesses and campgrounds. In order to address these issues, the River Use Management Plan (RUMP) separated ONSR into zones and designated the amount of canoe use allowed within each zone. In addition the RUMP designated accesses to the river to provide appropriate opportunities for a variety of recreational activities.

The Chilton Creek/Waymeyer Landing is one of the designated accesses that provide recreational opportunities that include, but are not limited to, the ability to launch canoes, tubes and boats. Visitors who arrive at the park using one of the park approved concessions operators also use the access to launch watercraft. This EA addresses issues that are specific to the site proposals as described in the alternatives and the "purpose and need" in Section 1. Concessions operations are working within the density levels defined in the RUMP and the commercial use agreements as they are currently written for canoes and tubes. The RUMP also has restrictions on the horsepower for boat motors within designated zones in ONSR, and those restrictions are enforced. The restoration of a safe and maintainable boat ramp in the Chilton Creek area is not going to add to river use or density levels in Zone 7 that have been historically observed for this stretch of the river.

3.0 ALTERNATIVES

As a result of the public and internal scoping process, the no-action alternative and two action alternatives for addressing the purpose and need were selected for analysis in this EA. Each of the alternatives has been analyzed independently. The alternatives that have been evaluated are:

Alternative A – No action

Alternative B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Alternative C (Preferred**)**– Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Figure 2 - Project Area (Aerial Photo 2007).

3.1 Description of Alternatives

ALTERNATIVE A – No action

Under the No-Action alternative, no modifications or improvements to existing facilities at Waymeyer Landing will occur beyond general maintenance and periodic grading of the access road and gravel launching area. At present the area at Waymeyer Landing provides a minimum of basic facilities (access road, vault toilet, and an open 'maintained' stretch of riverside gravel where canoes, rafts, tubes, and kayaks can be launched). Since major

flooding washed away the previously existing gravel boat ramp and removed approximately 20 feet of the shoreline at Waymeyer Landing in March of 2008, the park had set a temporary moratorium on further maintenance intervention to restore a safe and maintainable boat ramp along this stretch of the gravel bar. In September 2008 work was performed at Waymeyer Landing to provide a temporary access for boat trailers, by installing an 8 by 60 foot articulated concrete mat (ACM) on the existing bank contour, until this EA is approved. Under this alternative there will be a loss of a safe and maintainable boat access that was traditionally provided along this section of the Current River. Parking near the launch area is undefined and vehicles pull-in along edge of the wooded area along the gravel access road. Minimal signing is in place indicating the one-way traffic on the access road, restroom, and site name.

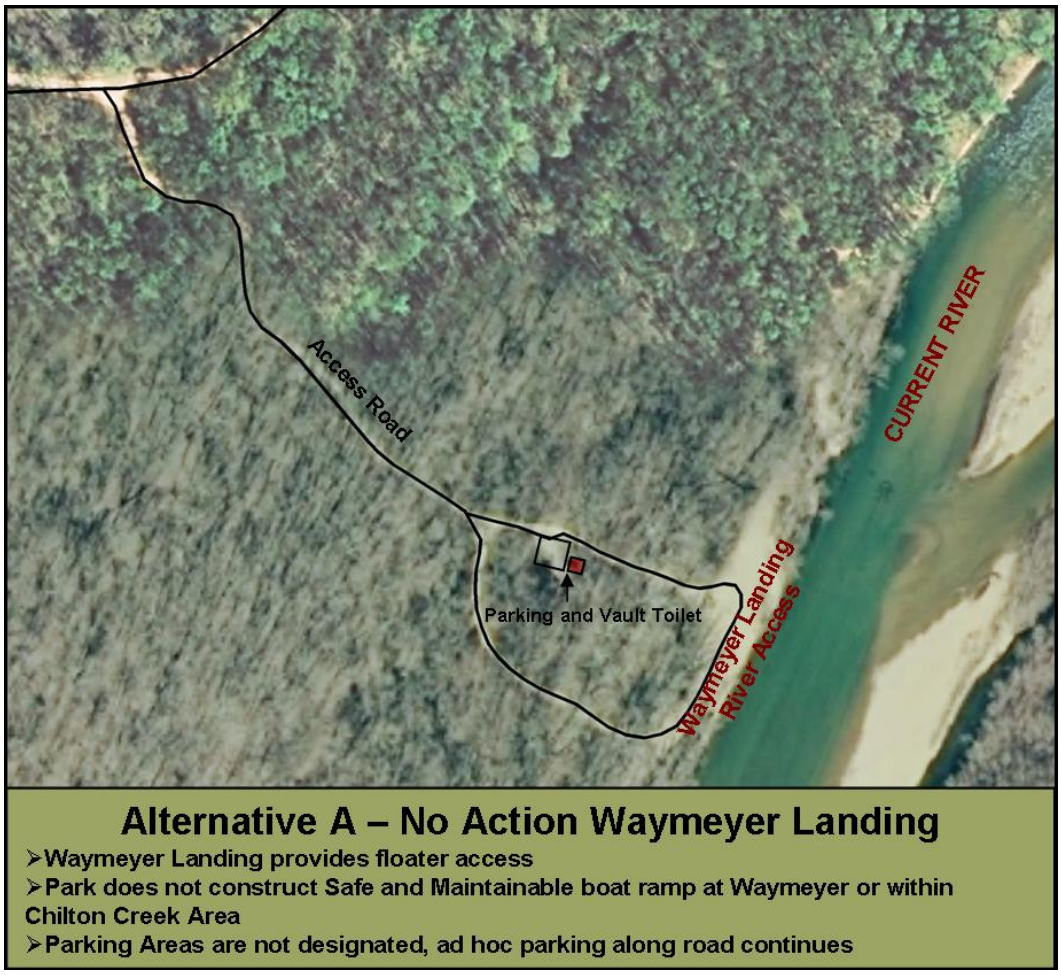


Figure 3 - Alternative A (No-Action) Existing Conditions Site Map (Aerial Photo 2007).

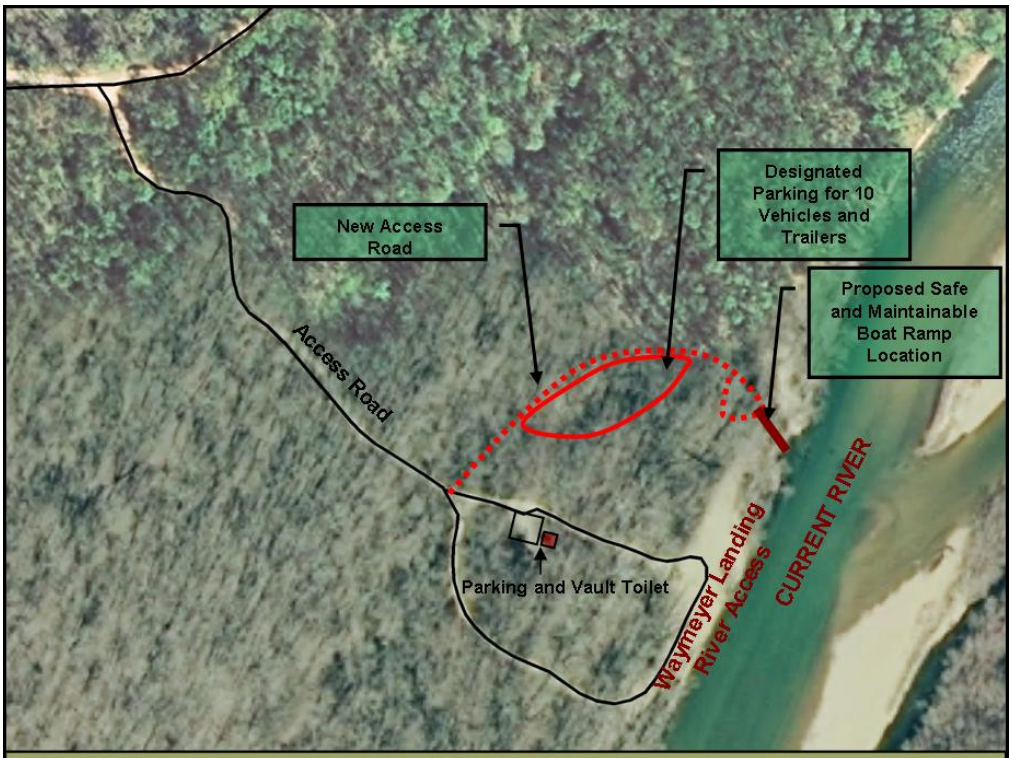
ALTERNATIVE B – Restore previously existing safe and maintainable boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Site Improvements/Upgrades

This alternative proposes upgrades to the existing facilities at Waymeyer Landing, including clearly defined and designated visitor use areas. In addition, modifications to the site layout will accommodate the separation of the floater launch area and the motorboat ramp in order to reduce user conflicts and enhance safety during periods of peak visitation.

Restore Safe and Maintainable Boat Launch Access Ramp
A boat ramp would be constructed approximately 100 feet upstream from the site of the previous gravel ramp to restore existing safe and maintainable boat launch access that washed out in the March 2008 flood event. A gravel road with a three point turnaround would connect the new ramp to the access road which currently brings vehicles out to Waymeyer Landing. Access to the ramp would entail constructing approximately 400 feet of gravel access road, which would require the removal of forest vegetation. The ramp site would provide a more gradual descent to the river. Due to the braided channel of this stretch of the river the park would consider the option of using a semi-flexible system of interlocked concrete blocks (articulated concrete mattress or ACM) that is laid over a substrate of rip rap and secured in place. The ACM would provide traction, thus keeping vehicles from "spinning out" and becoming imbedded in unstable loose gravel. Unlike a solid concrete ramp, the ACM can be reset or reconfigured as changes along this stretch of river are expected to alter the bank over time.

Delineate Parking, and Install Regulatory and Guide Signs
The installation of designated hardened gravel parking pads for vehicles pulling boat trailers (10) and for standard vehicles (8) would define and limit parking. The number of boat trailer parking spots is the maximum number typically observed by park rangers on a busy weekend. Wheelstops, or other solid barriers, could be set in place, coupled with appropriate regulatory signage to clarify parking restrictions. Signing would provide additional safety and regulatory information to visitors. Site guide signs would help to clarify areas of use minimizing the potential for user conflicts (demarcating the motorboat and the "floater" launch areas) and assist in maintaining a steady flow of traffic during the peak periods of use on summer weekends.



Alternative B – Restore Safe and Maintainable Boat Ramp Access at Waymeyer Landing

- Restore Safe and Maintainable Boat Ramp Access at Waymeyer Landing just upstream from floater launch area
- Construct gravel road to new access and parking
- Create designated parking for 10 vehicles and trailers separate from single vehicle spaces, define use patterns and designated signage

Figure 4 - Alternative B – Proposed Actions (Aerial Photo 2007).

ALTERNATIVE C – Restore the previously existing safe and maintainable boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Site Improvements/Upgrades

This alternative proposes modest upgrades at Waymeyer Landing with clearly defined and designated visitor use. Basic layout would remain the same. The full length of the gravel river bank at Waymeyer Landing would be allocated for 'floater' access. A boat ramp with parking for 10 boat trailers would be constructed upstream at a separate site location.

Construct Separate Safe and Maintainable Boat Ramp

A separate boat ramp would be constructed 1.1 mile upstream from Waymeyer Landing, restoring existing safe and maintainable boat launch access in the Chilton Creek area. Access to the separate ramp would entail constructing approximately 420 feet of gravel access road, 250 feet of which would require the removal of forest vegetation. Cutting a ramp into the 8' high river bank in order to create a gradient to accommodate a boat ramp would require the removal of an estimated 10,680 cu. ft. of material, gravel and soil. Side slopes of the cut bank would be revegetated and secured with geomat to hold soil in place as the vegetation takes hold. In this location an articulated concrete mattress (ACM) would be used. An articulated concrete mattress or ACM is a semi-flexible system of interlocked concrete blocks that is laid over a substrate of rip rap and set in place and secured to provide a safe and maintainable ramp surface. The ACM would provide good traction, thus keeping vehicles from "spinning out" and becoming imbedded in unstable loose gravel. Unlike a solid concrete ramp, the ACM can be reset or reconfigured as needed over time.

Delineate Parking, and Install Regulatory and Guide Signs

At Waymeyer Landing designated hardened gravel parking pads for 10-14 standard vehicles would define and limit parking. Wheelstops, or other solid barriers, could be set in place, coupled with appropriate regulatory signage to clarify parking restrictions. Signing would provide additional vehicular guidance, safety and regulatory information to visitors, and assist in maintaining a steady flow of concession shuttle traffic during the peak periods of use on summer weekends. Signs would be posted to notify motorboat traffic that the site no longer accommodates boats and would direct boaters to the north on Co. Rd. 151 to where the new motorboat ramp site is located.

At the location of the proposed separate boat ramp upstream, a gravel parking area would be constructed within an existing agricultural field to accommodate 10 boat trailers. The number of boat trailer parking spots is the number typically observed by park rangers on a busy weekend. Wheelstops, or other solid barriers, could be set in place to indicate each parking space, coupled with appropriate regulatory signage to clarify parking restrictions. Parking would be contained with the installation of 'typical' post/wire fencing and allowed to revegetate at the perimeter– thus allowing hedgerows to grow which would eventually screen the site from Co. Rd. 151 and would serve to delineate the parking area from the agricultural field. Signing would provide additional safety and regulatory information to visitors.

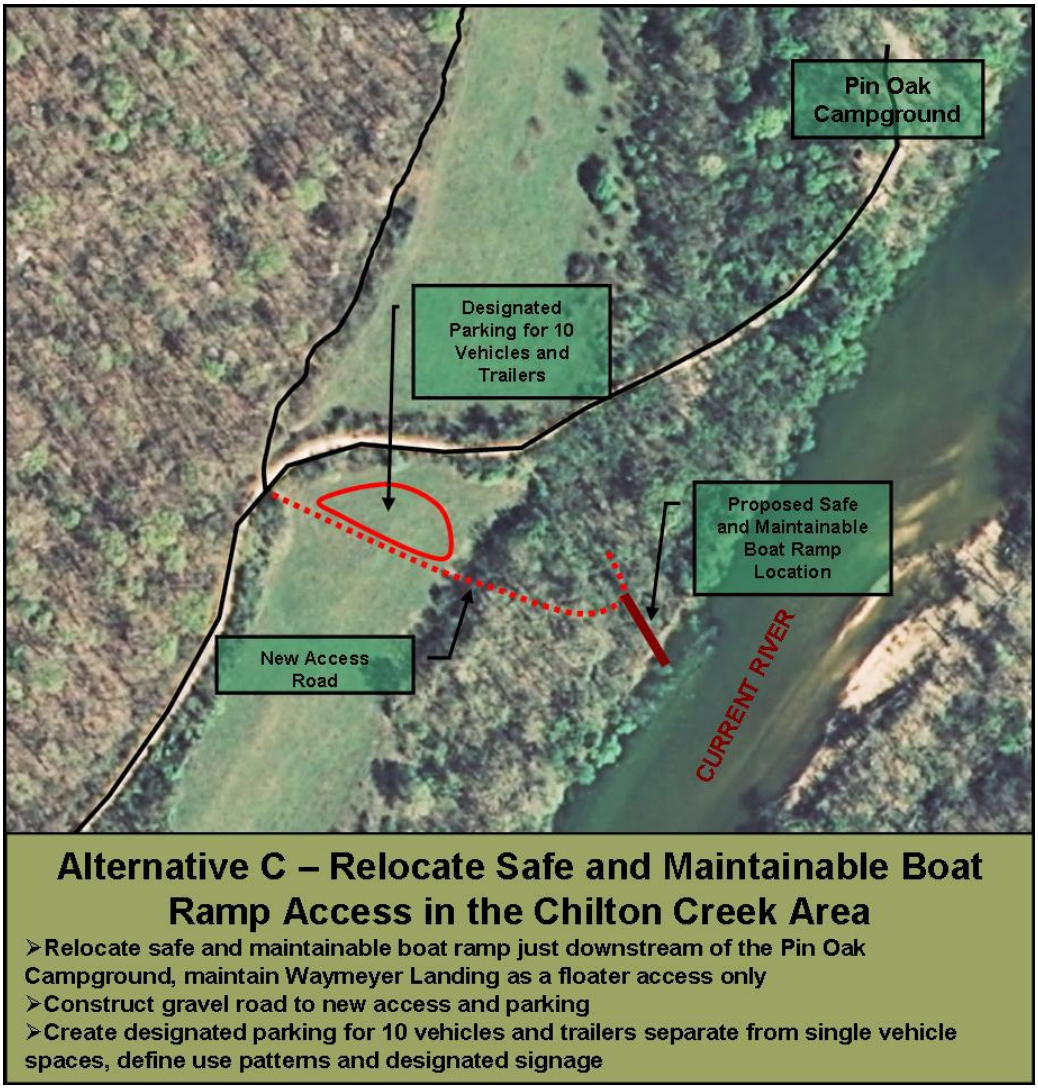


Figure 5 - Alternative C – Proposed Actions (Aerial Photo 2007).

3.2 Comparison of Alternative Effects

Table 1: Summary of the Impact Analysis.

		Alternative A (No-Action)	**Alternative B** Stable boat ramp and parking constructed at Waymeyer Landing	**Alternative C** Stable boat ramp and parking constructed one mile upstream from Waymeyer Landing
RESOURCE AREAS	**Riparian Vegetation**	Minor to moderate long-term adverse	Minor to moderate short-term adverse Minor to moderate long-term adverse.	Moderate short-term adverse Minor long-term adverse
	Floodplains	Negligible	Minor long-term adverse	Minor long-term adverse
	Wetland	Negligible	Minor short-term adverse Moderate long-term adverse	Minor short-term adverse Minor long-term adverse
	Water Quality	Negligible	Moderate short-term adverse	Moderate short-term adverse
	Threatened, Endangered, and Species of Special Concern	may affect/not likely to adversely effect	may affect/not likely to adversely effect	may affect/not likely to adversely effect
	Natural Fluvial Processes	Negligible	Negligible	Negligible
	Cultural Resources and **Traditional Uses**	Negligible Negligible	Negligible Negligible	Negligible Negligible
	Visual Quality	Minor long-term adverse	Minor to moderate long-term adverse(Boat Ramp) Minor long-term beneficial (Parking & Defined Use)	Moderate long-term adverse (Boat Ramp) Minor to moderate long-term beneficial (Parking & Defined Use)
	Soundscape	Minor long-term adverse	Minor short-term adverse Negligible long-term	Minor short-term adverse Minor long-term adverse (Pin Oak) Minor long-term beneficial (Weymeyer)
	Visitor Use and Experience	Moderate short-term adverse Moderate long-term adverse	Moderate short-term adverse Moderate long-term beneficial	Moderate short-term adverse Moderate long-term beneficial
	Park Operations (Maintainence **and** **Law Enforcement)**	Negligible Minor long-term adverse	Moderate short-term adverse, Minor long-term adverse Minor long-term beneficial	Moderate short-term adverse, Minor long-term adverse Minor long-term beneficial

3.3 Environmentally Preferable Alternative

The environmentally preferable alternative is determined by applying the criteria suggested by the Council on Environmental Quality (CEQ), which provides direction in its guidance Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (1981). CEQ defines the environmentally preferable alternative as: "…this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources." Using these criteria, it was determined that Alternative A- No Action, provides the greatest level of protection of resources of the alternatives evaluated in this EA.

3.4 Agency Preferred Alternative

The agency preferred alternative is Alternative C - Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

The agency has chosen this alternative because it fulfills the goals outlined in the purpose and need while causing the least amount of resource damage of the build alternatives. Issues having a strong impact on the decision making process were the safety of visitors, maintaining an existing facility and traditional use for that area, reduce the resource impacts that are currently occurring, and enhancing visitor experience. Input from IDT members noted that the selection of Alternative C had the following additional advantages:

- Alternative C moves the access to a more historically stable stretch of the river.
- It separates user groups into two manageable accesses, alleviating safety, traffic, and user conflict issues.
- Alternative C calls for less removal of riparian vegetation, 7,520 s.f., versus the Alternative B proposal at up to 23,000 s.f.
- Alternative C impacts a smaller wetland footprint, 480 s.f. or .011 acres, versus the Alternative B proposal, at 4950 s.f. or .114 acres.
- Alternative C is viewed as a better long-term solution, considering all of the factors analyzed.

4.0 AFFECTED ENVIRONMENT

This chapter of the environmental assessment describes existing resources and environmental conditions in the site specific project areas potentially affected by the alternative proposals being considered. These sites are, 1) the immediate area of Waymeyer Landing (Alternatives A and B), and, 2) a site just upstream from Waymeyer Landing, approximately 1.1 mile, close to Pin Oak Campground (Alternative C).

4.0.1 Impact Topics Selected for Analysis

Topics addressed in this section and subsequently analyzed in Section 5 (Environmental Consequences) were selected based on their relevance as indicated by site visits, project scoping, reference documents, regulatory agency input, and ONSR personnel. The topics chosen for analysis are extensive and include: riparian vegetation, floodplain, wetlands, water quality, threatened, endangered, and species of special concern, natural fluvial processes, cultural resources, visual quality, soundscape, visitor use and experience, park operations. Concession operations was considered for analysis, but was dismissed because it was addressed through the concession contracts program, and its impact to having a safe and maintainable boat ramp was negligible. There were no other impact topics that were considered present in the project area, for example historical structures.

4.1 Riparian Vegetation

The project area lies within the riparian corridor and adjacent floodplain terraces along the lower Current River. Riverfront and Bottomland Forest predominates within the floodplain, with tracts of recently abandoned agricultural fields along the eastern side of Co Rd. 151 south of Pin Oak Campground. Based on vegetation maps of the park compiled in the *Mapping Vegetation Communities in Ozark National Scenic Riverways: Final Technical Report to the National Park Service (2006)* in reference to Waymeyer Landing (Alternatives A & B) forest vegetation associations within the project area include Sycamore-Silver Maple Floodplain Forest, Box Elder Forest, and Ash-Oak-Sycamore Mesic Bottomland Forest as well as Wooded Old Field. Riverine Sand Flats (Herbaceous gravel bar) vegetation association is found along the riverbank north to the mouth of an old drainage a short distance upstream from the existing launch area where tubers and canoes 'put-in'. Vegetation associations within the project area for Alternative C (downstream from Pin Oak) consist of four forest vegetation association types: Sycamore-Silver Maple Floodplain Forest, Ash-Oak-Sycamore Mesic Bottomland Forest, Sugar Maple-Oak-Bitternut Hickory Mesic Bottomland Forest, and Box Elder Forest. The Open Field Pasture association (where a proposed parking area for Alternative C boat ramp would be located) was managed under agricultural permit. In 2005 native grass restoration began in the field. It was treated with herbicide to remove and curtail the spread of exotic species, then drilled to seed with native warm season grasses.

All of the Riverfront and Bottomland Forest vegetation associations which exist within the greater project area (Alternatives A, B, & C) show evidence of previous disturbance due to clearing and grazing and subsistence farming. Field investigations by staff with background in botany and experience with vegetation plot monitoring within the park identified plant species within the general project area and prepared a Flora listing. (*refer to Appendix 2*)

4.2 Floodplain

Floodplains are a very important component of a river's natural processes. They slow and disperse the energy of floodwaters, providing diverse habitat for wildlife and plants that thrive on flood disturbance. Large woody debris and fine river sediment collects in floodplains increasing biodiversity in these areas.

Through time, the river has occupied most of the valley floor. According to the Flood Insurance Rate Map (FIRM), published by the Federal Emergency Management Agency (FEMA), the proposed project area, including Sites A, B, and C, except about 2/3 of the proposed parking area in Alternative C, is located within the 100-year floodplain (FEMA, 1994). The 100-year floodplain designates the area inundated during a storm having a 1.0 percent chance of occurring in any given year. Executive Order (EO) 11988 (Floodplain Management) requires Federal agencies to minimize occupancy of and modification to floodplains. Specifically, the EO prohibits Federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives.

Based on vegetation maps of the park compiled in the *Mapping Vegetation Communities in Ozark National Scenic Riverways: Final Technical Report to the National Park Service (2006)* , the forest vegetation associations within the Alternatives A & B project areas include Sycamore-Silver Maple Floodplain Forest, Box Elder Forest, and Ash-Oak-Sycamore Mesic Bottomland Forest as well as Wooded Old Field. Riverine Sand Flats (Herbaceous gravel bar) vegetation association is found along the riverbank north to the mouth of an old drainage a short distance upstream from the existing launch area where tubers and canoes 'put-in'.

Vegetation associations within the project area for Alternative C (downstream from Pin Oak) consist of four forest vegetation association types: Sycamore-Silver Maple Floodplain Forest, Ash-Oak-Sycamore Mesic Bottomland Forest, Sugar Maple-Oak-Bitternut Hickory Mesic Bottomland Forest, and Box Elder Forest. Vegetation in the proposed parking area consists of Agricultural Field/Pasture.

4.3 Wetlands

Wetlands within the river corridor of Ozark Riverways are somewhat abundant but undocumented except for National Wetlands Inventory maps and generally undisturbed since the establishment of the park. Abundant vegetation and shallow water in wetlands provide diverse habitats for fish and wildlife including, in some cases, threatened and endangered species. Aquatic plant life flourishes in the nutrient-rich environment, and energy converted by the plants is passed up the food chain to fish, waterfowl, and other wildlife. The wetland hydrologic regime contributes to the development of diverse plant communities adapted to the range of conditions available.

Water, slowed by traveling through a wetland, moves around plants, allowing the suspended sediment to drop out and settle to the wetland floor. Nutrients and pollutants that are dissolved in the water are absorbed by plant roots and microorganisms in the soil or stick to soil particles. In many cases, this filtration process removes much of the water's nutrient and pollutant load by the time it leaves a wetland. Hydrologically wetlands function like natural tubs or sponges, storing water and slowly releasing it. This process slows the water's momentum and erosive potential, reduces flood heights, and allows for ground water recharge, which contributes to base flow to surface water systems during dry periods.

Based on vegetation maps of the park compiled in the *Mapping Vegetation Communities in Ozark National Scenic Riverways: Final Technical Report to the National Park Service (2006)* , the forest vegetation associations within the Alternatives A & B project areas include Sycamore-Silver Maple Floodplain Forest, Box Elder Forest, and Ash-Oak-Sycamore Mesic Bottomland Forest as well as Wooded Old Field. Riverine Sand Flats (Herbaceous gravel bar) vegetation association is found along the riverbank north to the mouth of an old drainage a short distance upstream from the existing launch area where tubers and canoes 'put-in'.

Vegetation associations within the project area for Alternative C (downstream from Pin Oak) consist of four forest vegetation association types: Sycamore-Silver Maple Floodplain Forest, Ash-Oak-Sycamore Mesic Bottomland Forest, Sugar Maple-Oak-Bitternut Hickory Mesic Bottomland Forest and Box Elder Forest. Vegetation in the proposed parking area which is outside the wetland area consist of Agricultural Field/Pasture.

The Alternative B site is located at the edge of an old river channel with the ramp situated at the intersection of the old and present channel. A access road would pass through a low area and then rise onto higher ground. The majority of the construction area is located in a Palustrine Forested Broadleaved Deciduous Seasonally Flooded (PFO1C) wetland according to NWI and field ground truthing by a FWS biologist. The ramp would extend about 30 feet into the river channel which is classified under NWI as Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded (R2UBH).

The Alternative C site is located between the river channel and an old agricultural field. The majority of the construction area is located in a Palustrine Forested Broadleaved Deciduous Temporarily flooded (PFO1A) wetland according to NWI and field ground truthing by a U.S. Fish and Wildlife Service biologist. Only the parking lot would be located outside the NWI wetland area. The ramp would extend about 30 feet into the river channel which is classified under NWI as Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded (R2UBH) and the new road would pass through the PFO1A wetland before exiting the forested area into the non-wetland open field.

4.4 Water Quality

The Current River is designated as an Outstanding National Resource Waters (ONRW) because of its high overall water quality (10 CSR 20-7.031). ONRWs have national recreational and ecological significance and receive special protection against any degradation. In Missouri's water quality standards, ONRWs are classified as Tier Three Waters. For these waters, no degradation of water quality is allowed. This more stringent standard combined with the concept of anti-degradation is meant to protect the high overall water quality of the river. The State has adopted water quality standards intended to protect beneficial uses of water. These standards include designated use classifications for specific sections of the park (Table 2). Associated with each designated use are water quality criteria required to protect that use. For example, the criterion for bacteria in waters designated for

canoeing and boating is intended to protect human health, which is an important part of NPS policies regarding visitor protection.

Table 2: Designated Uses for the Current River.

Waterbody	Designated Uses
Current River (state line to 24,31N,6W)	Irrigation, livestock and wildlife watering, protection of warm water aquatic life and human health-fish consumption, cool water fishery, whole body contact recreation, boating and canoeing

Water quality monitoring in the park has occurred for over 30 years; however, that monitoring has been generally limited to the recreational season and occurs from May to September. Water quality data collected in the park from 1973-1995 were compiled and summarized by the NPS (1995). Raymond and Vache (2002) completed a detailed statistical analysis of data collected from 1973-1998. They limited their analyses to: 1) 'Level I' water quality parameters as identified by the NPS' Inventory and Monitoring Program; 2) priority concerns identified by the Heartland Inventory and Monitoring Network; and 3) potential concerns as determined via a comparison of data with water quality standards. The following trend observations for Current River sites come from this study:

- Median concentrations for total phosphorus in the park are generally below the benchmark of 0.068 mg/L being considered for Region 7 of the U.S. Environmental Protection Agency. Additionally, an analysis of nitrogen phosphorus ratios suggests that phosphorus is probably the limiting nutrient for algal growth.
- Specific conductance, alkalinity, and pH increased in the downstream direction.
- Fecal coliform densities were generally below the state criterion for swimmable waters.

Monitoring of water quality at Waymeyer Landing access began in 2006 and that data is summarized in Table 3.

Table 3: Water Quality Data Summary Statistics from Current River at Waymeyer Landing Access.

Parameter	Units	Period of Record	Count	Min.	Max.	Mean	Median	Std Dev
Alkalinity, Total	mg/l CaCO3	5/25/2006 - 6/19/2008	12	128	182	159.6	163.5	17.51
Dissolved Oxygen	mg/l	5/25/2006 - 6/19/2008	12	6.95	9.77	8.225	8.295	0.8013
E. coli	MPN/100ml	5/25/2006 - 6/19/2008	12	1	29.2	10.48	8.6	7.849
	Geometric mean							7.802
pH	None	5/25/2006 - 6/19/2008	12	7.33	8.89	7.919	7.93	0.4403
Specific conductance	µmho/cm	5/25/2006 - 6/19/2008	12	251.8	330.9	306.6	317.5	26.8
Temperature, water	°C	5/25/2006 - 6/19/2008	12	17.1	25.8	22.01	21.25	2.76
Turbidity	NTU	5/25/2006 - 6/19/2008	12	0.8	2.15	1.28	1.175	0.4124

4.5 Threatened, Endangered, and Species of Special Concern

State and federally listed species were identified through discussions with park staff, informal consultation with the U.S. Fish and Wildlife, and the (State) Missouri Department of Conservation Natural Heritage Database. Formal consultation was initiated with the U.S. Fish and Wildlife Service during the scoping period for this project (*Refer to Chapter 6.0 Section 6.2*). A list of federal threatened, endangered, and special concern species that are known to occur or may occur within or adjacent to the Chilton Creek project area within the boundaries of Ozark National Scenic Riverways was requested. Communications with the Missouri Department of Conservation Herpetologist confirmed Ozark Hellbender within approximately four miles both up and down stream from the proposed project areas on the Current River. Based on distribution and/or historical information, habitat for the following Sensitive Species may be present or affected, within the project areas and the possible impacts are addressed in the environmental consequences analysis.

Cerulean Warblers *(Dendroica cerulea)*
This species prefers large tracts of forested areas with large deciduous trees and is most numerous in mature bottomland forest along streams and rivers, but is also found in mature upland forests (Hamel 2000). Breeding pairs of Cerulean warblers have been observed in several sites west of Current River between Rogers and Chilton Creeks, near the project sites. Cerulean warblers have a global ranking of G4 (apparently secure: uncommon but not rare) and a State ranking of S2/S3. The state numeric rank (S1 through S5) of relative endangerment is based primarily on the number of occurrences of the element within the state. A S3 rank is defined as vulnerable in the nation or state either because rare and uncommon, or found only in a restricted range or because of other factors making it vulnerable to extirpation. Typically there are 21 to 100 occurrences or between 3,000 and 10,000 individuals. The S2 rank is defined as imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000).

Swainson's Warbler *(Limnothlypis swainsonii)*
This species is listed as Endangered in Missouri. Swainson's warblers are secretive, neotropical migrants that nest in southeastern United States and winter in Belize and on Caribbean islands. They are closely associated with stands or "canebrakes" of giant cane (*Arundinaria gigantean)*; within extensively-forested landscapes along stream and river flood plains. To be used by these birds, these areas need to have a high canopy cover with dense vegetation. Swainson's warbler territory can range from 3 – 18 hectares (7-44 acres) in size (Gerwin 2006). The Missouri Heritage database has Swainson's warblers documented within the vicinity of Alternative C. These species have a global ranking of G4 (apparently secure: uncommon but not rare) and a State ranking of S2. The state numeric rank (S1 through S5) of relative endangerment is based primarily on the number of occurrences of the Element within the state. An S2 rank is defined as imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000). Typically there are 6 to 20 occurrences of few remaining individuals (1,000 to 3,000).

Black Sandshell *(Ligumia recta)*
This species is the largest mussel found in Missouri. Freshwater mussels live in the bottoms of rivers and streams and mussel diversity is greatest in Missouri's clear, swift-flowing rocky streams of the south-central Ozark region (Bruenderman et al. 2002). Freshwater mussels cannot tolerate a shifting, unstable stream bottom, excessive silt, or gravel. Heavy silt loads interfere with the filtering and feeding of adults and smother young mussels. According to the Missouri Heritage database, Black Sandshell has a global ranking of G5 (Secure) and a State ranking of S2.

Elktoe *(Alasmidonta marginata)*
Although this species is not listed as Endangered, the Elktoe is one of many Missouri species with a declining population (Bruenderman et al. 2002). Freshwater mussels live in the bottoms of rivers and streams and mussel diversity is greatest in Missouri's clear, swift-flowing rocky streams of the south-central Ozark region (Bruenderman et al. 2002). Freshwater mussels cannot tolerate a shifting, unstable stream bottom, excessive silt, or gravel. Heavy silt loads interfere with the filtering and feeding of adults and smother young mussels. According to the Missouri Heritage database, Elktoe has a global ranking of G4 (apparently secure: uncommon but not rare) and a State ranking of S2.

Ozark Shiner *(Notropis ozarcanus)*
Inhabits riffles of clear permanent streams with high gradient and slow to moderate current. Found in Current River and requires low turbidity and siltation. According to the Missouri Heritage database, Ozark Shiner has a global ranking of G3 (vulnerable) and a State ranking of S2.

Paddlefish *(Polyodon spathula)*
Paddlefish have a long, paddle-shaped rostrum that is about 1/3 of their body length. They spend most of their life in the open water filter feeding on microscopic animals called zooplankton. Paddlefish are native to the Mississippi, Missouri and Osage River basins in Missouri. Paddlefish stocking and management is directed by a statewide paddlefish management plan developed by the Missouri Department of Conservation. These species are found throughout the Current River and have historically and continue to aggregate in large numbers near Pin Oak

post flooding events. According to the Missouri Heritage database, Paddlefish has a global ranking of G4 (apparently secure: uncommon but not rare) and a State ranking of S3.

Ozark Hellbender *(Cryptobranchus alleganiensis bishopi)*
The (State) Missouri Department of Conservation's Natural Heritage Database and U.S. Fish and Wildlife Service have identified Ozark hellbenders within approximately four miles both up and down stream from the proposed project areas on the Current River. This species is a unique and environmentally sensitive species found only in the clean, clear rivers of the Ozarks. This strictly aquatic salamander typically found under large flat slabs of rock, in swift flowing rivers and streams and is extremely vulnerable to habitat disturbance and changes in water quality. Studies conducted on Ozark and eastern hellbenders in the 1970's, 1980s, and 1990s show that hellbender populations have declined by an average of 77% with a strong shift in age structure to larger and older adults. Due to obvious population declines, the Ozark hellbender is listed as a state endangered species by the Missouri Department of Conservation and is a federal candidate for listing under the Endangered Species Act. Research is being conducted as to the reasons for such a dramatic decline in population numbers, including reproductive problems, degrading water quality/habitat destruction, and the occurrence of disease or parasites causing limb abnormalities. Since hellbenders' primary means of respiration is cutaneous (through the skin), introduced toxins are readily absorbed and can cause either direct mortality or interference with physiological processes, effectively reducing individual fitness and recruitment (Mayasich and Phillips 2003). Depending on the results of the current hellbender research, more actions may need to be taken in the future to reduce impacts to this species by humans. This species is currently state ranked as S1 which is defined as critically imperiled in the nation or state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000) occur. The global ranking is G3G4T2Q, with T2 defined as a rank to a subspecies or variety and Q referring to questionable taxonomy.

4.6 Natural Fluvial Processes (Free-flowing streams)

The alternatives were studied to determine the interaction and interface of the water flow of the river with the river bank and those sites. The fluvial erosion issues were reported in a document produced by Chris Cash, P.E., for the park on June 20, 2008. A copy of this report can be provided upon request. This report was used as the basis for the impacts in the environmental consequences portion of this document.

4.7 Cultural Resources (Archeology, Traditional Uses)

Archeology:
Inventories done in October of 1985 and 1986 determined that no prehistoric or historic archeological sites lie within the bounds of the Chilton Creek Project Area. Also, the area of the present boat launch area was examined by ONSR archeologist, James E. Price on June 30, 2000, when Section 106 Compliance was done for the installation of a new vault toilet. Although inventoried prehistoric archeological sites lie nearby, none is within the direct impacts zones of the three alternatives.

Traditional Uses:
The base population of the Ozark Highland was of Scots-Irish ancestry with a strong sense of location and kin group affiliation. These tight knit families owned the farms adjacent to the Current River and each family had a favorite river access area on each farm where they went to hold picnics, fish, gig, and even hold family reunions. During the heat of summer, families would leave their farmhouses for a period of time, perhaps a period extending to several weeks, to escape the heat, for the temperature was much cooler near the river and at that time there was no electrical service in homes and no means to employ fans to bring relief from the heat. The Current River was the major thoroughfare during the summer and families would travel up and down the river in jonboats during evenings and on weekends to visit neighbors who were often part of their kin group. These places along the river had special meaning to the population for they associated them with good times and recreation. Such was the

Chilton Creek/Pin Oak area. Therefore, it behooves us to consider this strong familial tie to the land among traditional Ozark kinship groups.

The Waymeyer Landing and Pin Oak locations were used by a family as a central place for relaxation, recreation, camping, hunting, fishing, and other pursuits enjoyable to Ozark people. This practice began at the time of initial settlement by Scotch-Irish pioneers and continued through the 1950s. Since that time modernity has radically changed land use in the area. With the inception of Ozark National Scenic Riverways in 1964 the land changed from private ownership and use to public ownership and use. At that time people other than local families began to use these areas for camping and recreation. For a period of time families returned to their former land and river accesses kept alive that feeling of kinship affiliation with the river but due to socio-political, demographic, and technological changes through time, the practice waned and essentially faded away. Today these areas are not used extensively by descendents of Ozark people but remain special in the memories of kin groups, especially during hog sucker gigging season and for a period of the year during the non-tourist season, these places are visited for gigging and big cookouts called, "sucker fries" in which friends and neighbors participate.

Traditional folk use of the locations involved in the proposed project area are taken into consideration because it is considered significant aspect of the traditional Scots-Irish Ozark lifeway which was in place in this region until modernity essentially swept it away in the last four decades.
At Waymeyer Landing aspects of traditional use are still an important aspect of life for many Ozarkeans who, as their parents and grandparents did, head to the river to fish in the warm months of the year. The traditional sport of gigging on cold winter nights remains a favorite pastime.

4.8 Visual Quality

The Chilton Creek area lies upstream from the park boundary within the upper Current River District, above the Van Buren 'gap'. On summer weekends, when thousands of visitors come to the river to float or motorboat, the visual character of this rustic natural setting is altered. During periods of intense activity at Weymeyer Landing and Raftyard, these "put-ins" become heavily congested as tubes, canoes, rafts, kayaks, motorboats, vehicles, and people converge to access the river. Someone canoeing past Weymeyer Landing on a Saturday in mid-August would encounter a marked transformation in the visual character of the natural scene as crowds of floaters head towards Van Buren. The shear volume of human presence at this site on summer weekends detracts from the visual quality of the natural setting. During these periods of intense visitation, visual quality of the natural landscape is affected. This is in marked contrast to visiting this area of the park on a Wednesday in mid-August, or any day during the off-season months.

4.9 Soundscape

The Chilton Creek area lies within the Current River bottomland riparian corridor, an environment which supports a rich 'natural soundscape'. The natural soundscape that occurs within the bottomland corridor includes all naturally occurring sounds---in the absence of human-generated noise. The natural soundscape also encompasses "natural quiet" that occurs in the absence of either natural or human-generated sound. The natural soundscape along the forested river bottomlands varies with the seasons, and with the hour of day or night. The natural soundscape differs within in the depth of the forest, or along the forest edge, or within the expanse of an open field, or at the river.

Human-caused sounds are distinguished from the natural soundscape. The sources of human-caused sound within the park, and in particular along the rivers, and most notably during summer weekends, are by and large related to water recreation and those activities associated with river use (including transportation to and from the points of river access). On a busy summer weekend, concession buses and vans pulling trailers loaded with canoes travel along the gravel road out to Weymeyer Landing. Private vehicles also pull in and out along the access road which brings visitors to the river.

At an existing developed site like Weymeyer Landing where visitors are launching for their float trip, human-generated sound is expected. During periods of peak use on summer weekends at Weymeyer Landing, human-caused sound from appropriate activities can be elevated. Weekdays in summer can be calm with very little noise intrusion except for an occasional group of visitors.

The area downstream from Pin Oak which is not developed at present, and where the park is considering (as one alternative) the construction of a boat ramp with limited designated parking, the natural soundscape generally prevails. There is no vehicular access to the river at this point, and only intermittent and generally low levels of human-generated sound can be heard coming from the small primitive campground at Pin Oak above this site, most notably on summer weekends.

4.10 Visitor Use and Experience

Waymeyer Landing is utilized by a variety of park visitors seeking a broad assortment of experiences and use. Many visitors during the peak use season, which occurs during the April to September time frame, make use of the park approved concessioners to rent canoes, rafts or tubes. These concessioners use Waymeyer Landing as a river access in the course of their commercial visitor service operations. Concessioner rental agreement totals for 2006 indicate that for the period between Memorial Day and Labor Day approximately 21,400 visitors launched at the Waymeyer Landing access. Visitors who use the park approved concessioners typically arrive at this access via a concession shuttle bus or van. Weekend visitation is typically heaviest. Individual visitors who bring their own watercraft share the Waymeyer Landing access. There are no comparable annual counts of visitors accessing the park by boat or personal watercraft.

Conflicts between user groups have arisen on weekends primarily due to an overall increase in use by different user groups, limited space to maneuver or gain access to the river, and limited parking and/or inadequate directional signage. The increased volume and congestion of people from the combined user groups accessing the river has been a safety concern. Currently, there is no regulatory or instructional signage that could enhance a visitors experience by providing information to visitors on the Waymeyer Landing particulars, e.g., area map indicating directional traffic flow, parking, location of restroom, trash cans, and/or other park information.

In addition to summer use by floaters and boaters, giggers, hunters, and fishermen have previously launched boats at Waymeyer throughout the year. Since major flooding washed away the previously existing gravel boat ramp at Waymeyer Landing in March of 2008, the park has set a temporary moratorium on further maintenance intervention to restore the boat ramp along this stretch of the gravel bar. In September 2008 work was performed at Waymeyer Landing to provide a semi-stable, temporary access for boat trailers until this EA is approved. No picnic tables are provided but giggers often fry fish and picnic during “the off season”. Eight to ten boats would typically be launched at Waymeyer on Friday and Saturday nights during the early portion of gigging season (gigging season starts September 15 each year). Evidence of late night gatherings and/or off road travel is occasionally observed on and near the gravel bar. Camping is not allowed at Waymeyer due to the lack of sufficient space for tents and/or RVs. The area is signed “No Camping”.

4.11 Park Operations (Maintenance and Law Enforcement)

Maintenance:
Maintenance staff in the Lower Current Maintenance District currently working out of the Big Spring Maintenance Facility provide routine custodial and grounds services for three existing park primitive sites located within the Chilton Creek area (Raftyard Access, Waymeyer Landing, and Pin Oak Campground). The maintenance facility is approximately 14.5 miles from the project area and round trip travel time takes forty minutes. During the busy summer months when high visitation to the park brings thousands of visitors to Waymeyer Landing the crews customarily make a minimum of three trips to the area each week to clean the vault toilet, empty trash cans, and pick up litter on the surrounding grounds and along the access road. Periodic brushing and mowing during the growing season occurs once a month. The pump truck makes two trips per year

to remove waste from the vault toilet units in place at Waymeyer Landing and Pin Oak. The maintenance regime is scaled back during the shoulder seasons of spring and fall when crews make one trip a week. During the winter months between December and early March crews service the area once a month.

The park Roads crew stationed at Shawnee Shop, located approximately 48.5 miles from Waymeyer Landing, schedule 2 trips/year to the Chilton Creek area to grade the access road and periodically perform maintenance along the Waymeyer Landing gravel bar next to the launch area as required. Emergency maintenance to road and gravel bar access following flood events requires additional staff time and equipment expenditures to clear debris, remove eroded gullies, and reestablish drainage.

Law Enforcement:
Law Enforcement (LE) Protection Rangers are responsible for protecting the park's natural and cultural resources. Park Rangers regularly patrol the Chilton Creek area year round. Summer protection personnel normally consist of up to four permanent LE Rangers and one or two seasonal Rangers. Wintertime protection personnel consist of four permanent Rangers. Parking at and near Waymeyer Landing routinely creates problems on busy summer days.

5.0 ENVIRONMENTAL CONSEQUENCES

This section of the EA forms the scientific and analytic basis for the comparisons of alternatives as required by 40 CFR 1502.14. This discussion of impacts (effects) is organized in parallel with Section 4.0 (Affected Environment) and is organized by resource area. For each resource area, a brief description of the methodologies used to evaluate the impacts is presented, followed by discussions of the No-Action Alternative and each action alternative. To the extent possible, the direct, indirect, short-term, long-term, beneficial, and adverse impacts of each alternative are described for each resource area. The study area for each resource impact is assessed in direct relationship to those resources affected in the immediate site-specific local area where alternative actions are proposed (Alternatives A, B, C). Cumulative impacts are discussed in the context of the definition given in 40 CFR 1508.7.

The impact analysis involved the following steps:
- Identifying the area that could be affected.
- Comparing the area of potential effect with the resources selected for evaluation.
- Identifying the intensity (negligible, minor, moderate or major), context (Are the effects site-specific, local, or even regional?), duration (Are the effects short-term or long-term?), and type (direct or indirect) of effect, both as a result of this action and from a cumulative effects perspective.
- Identifying whether effects would be beneficial or adverse. The criteria used to define the intensity of impacts associated with the analyses are presented in the methodologies of the individual impact topics.
- Identifying mitigation measures that may be employed to offset or minimize potential adverse impacts.
- The impact analyses were based on professional judgment using information provided by park staff, relevant references and technical literature citations, and subject matter experts.

Impairment Analysis—The following excerpt is taken from the National Park Service Management Policies 2006 section 1.4.5, "What Constitutes Impairment of Park Resources and Values."

"The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

"An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- Key to the natural or cultural integrity of the ONSR or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance."

Using these guidelines, resource specialists analyze potential effects to determine whether or not actions would impair park resources or values.

Cumulative Impacts: The CEQ regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7). If applicable, cumulative impacts are addressed in each separate analysis of a resource area.

Intensity, Duration, and Type of Impact - Intensity thresholds are evaluated on a continuum scale from barely detectable (negligible) to substantial alteration of current conditions (major) with certain measurable milestones in between (minor and moderate). Duration of impacts are evaluated based on the short-term (0-12 months) or long-term nature(next 10 years) of alternative-associated changes on existing conditions. Type of impact refers to the beneficial or adverse consequences of implementing a given alternative. More exact interpretations of intensity, duration, and type of impact are given for each resource area examined as required. Professional judgment is used to reach reasonable conclusions as to the intensity and duration of potential impacts.

5.1 Riparian Vegetation

METHODOLOGY

Maps illustrating vegetation cover within the park were referenced (*Mapping Vegetation Communities in Ozark National Scenic Riverways: Final Technical Report to the National Park Service* - USGS 2006), and used to identify baseline conditions within the study area. Park fire effects monitoring staff conducted onsite reconnaissance and field investigations relative to site specific proposals for each alternative.

Particular attention was given to the critical role of established vegetation within the floodplain and its direct effect in curtailing erosion along the riverbank.

IMPACT THRESHOLDS

Four separate sets of impact thresholds, ranging from negligible to major intensity, were defined to address potential impacts on riparian vegetation. Vegetation impacts were determined by examining the potential effects of the proposed actions and visitor use on vegetation. The following impact thresholds were established to describe the relative changes in vegetation under the various alternatives being considered:

- **Negligible:** The impact would be at the lowest levels of detection or barely measurable with no perceptible consequences, either adverse or beneficial, to vegetation. Impacts would have no measurable or perceptible changes in plant community size, integrity, or continuity.
- **Minor:** Impacts would be measurable or perceptible but would be localized within a relatively small area. The overall viability of the plant community would not be affected and, if left alone would recover. Affected area where disturbance is expected to occur would not contain any rare plant species.

- **Moderate:** Impacts would cause a change in the plant community (e.g. abundance, distribution, quantity, or quality); however, the impact would remain localized. Affected area where disturbance is expected to occur would not contain any rare plant species.
- **Major:** Impacts to the plant community would be substantial, highly noticeable, and permanent. Affected area where disturbance is expected to occur, could contain specimens of rare plant species in finite quantities provided associated identified populations outside the immediate area of impact would not be compromised as a result of the disturbance.
- **Impairment:** Proposed action (construction and development and consequent patterns of use) would contribute substantially to the deterioration of park vegetation to the extent that the park's vegetation would no longer function as a natural system. In addition, these adverse major impacts to park resources and values would contribute to the deterioration of these resources to the extent that the park's purpose could not be fulfilled as established in its enabling legislation. The proposed actions would affect resources key to the park's natural integrity and compromise opportunities for visitor enjoyment, or would affect the resource whose conservation is identified as a goal in the park's general management plan or other planning documents.

ALTERNATIVE A – No action

Analysis: In the absence of site delineation, clearly designated parking, or guide/regulatory signage that would curtail and inhibit *ad hoc* visitor use, vehicles would persist in parking wherever they can negotiate between trees along the edge of the access road. It is expected that continued encroachment into the riparian forest along the periphery of the access loop road at Waymeyer Landing would cause compaction and loss of vegetation over time. In the absence of well defined and restricted patterns of visitor use, incremental loss of vegetation cover at Waymeyer Landing would, over time, increase the potential for soil erosion and bank loss during flood events along this reach of the river.

Cumulative Impacts: It is reasonable to surmise that in the absence of any over actions taken by park management to curtail encroachment into the riparian bottomland forest surrounding Waymeyer Landing that cumulative impacts to vegetation at this site will occur.

Conclusion: Alternative A (No-Action) would result in minor to moderate adverse impacts to vegetation within the riparian corridor at Waymeyer Landing.

Impairment: As a result of Alternative A (No-Action) minor localized impacts to vegetation within the riparian corridor would not cause impairment to park vegetation resources.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: By designating clearly signed areas for limited parking the pattern of *ad hoc* encroachment to forest existing forest vegetation along the periphery of the access road into Waymeyer Landing would be protected. By designating predefined limits of assigned allocation space for equipment storage (stock piling of concession canoes) the surrounding vegetation along the river bank in the immediate area of intense activity at the launch area would be protected from continued encroachment. The construction of a new safe and maintainable boat ramp 100 ft. upstream from the canoe/tube gravel launch area at Waymeyer Landing will impact approximately 3,300 s.f. of existing vegetation within the Sycamore-Silver Maple Floodplain Forest and Riverine Sand Flats vegetation associations. Associated construction of a new access road and parking for 10 boat trailers and 8 standard size vehicles will remove between 12,000 and 23,000 s.f. of vegetation within the Bottomland Forest. Vegetation would be replaced with a hardened surface of compacted gravel tread in the parking areas and along the access corridor to the new ramp, and an articulated concrete mattress (ACM) ramp set in place. Currently approximately 3,600 s.f. of vegetation is heavily impacted by *ad hoc* parking. It is expected that associated vegetated disturbance

will occur during the construction phase, but salvaged topsoil containing root and seed stock will be stockpiled on site and replaced during finish grading.

Cumulative Impacts: The construction of a separate boat ramp upstream of the existing gravel launch area at Waymeyer Landing will decrease the total area of vegetated cover along the river bank in the Waymeyer Landing area. The addition of non-vegetated hardened surface area would increase flow-velocity during flood events. The use of an articulated concrete mattress for the ramp tread and the side-slopes would mitigate erosion to some extent where previous vegetation held soils in place. Flow-velocity would be mitigated to some extent by the introduction of willow within the existing sparsely vegetated area upstream from the ramp.

Conclusion: Alternative B would cause minor to moderate adverse temporary impacts to vegetation in the immediate project area during construction. Long-term impacts to vegetation communities within the project area would be minor to moderate.

Impairment: As a result of Alternative B minor localized impacts to vegetation within the riparian corridor would not cause impairment to park vegetation resources.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: Actions taken to implement this alternative will affect a total of 7,520 s.f. of vegetation cover within the forested riparian area bordering the river for the access road and boat ramp, and 14,000 s.f. within the open field area east of Carter County Road 151 south of Pin Oak for the access road and parking. This project area is currently undeveloped. There are a number of large trees in the forested area. They are spaced widely such that a new access road to a ramp at the river bank could be aligned to avoid impacting all, or most of these mature individuals. The creation of a new boat ramp accessing the river will require cutting an opening into the existing undisturbed vegetated bank. In this proposal the side slopes of the ramp cut bank will be secured with geomat and dressed with topsoil rich in native root stock (obtained and stockpiled during on site excavation) in order to reinstate vegetation cover. Limited parking for boat trailers would lie outside the riparian forested area and would be located in the existing open field. Ongoing efforts to remove exotic species from the open field area (Johnson grass, *Sericea lespedeza*, and fescue) coupled with the introduction of native warm season grasses could continue. Long range goals for open field management in this area could change to allow the natural succession of native Bottom Land Forest vegetation associations to reclaim these old agricultural fields south of Pin Oak. Any long range goals for vegetation management of the field are pending the completion of the Open Fields Management Plan.

In addition to the proposed actions associated with the construction of a new boat ramp located separate from Waymeyer Landing to a site south of Pin Oak, Alternative C proposes to create defined and clearly signed areas for limited parking at Waymeyer Landing which would accommodate a limited number of standard vehicles (not boat trailers, since no motorboat launching would occur at Waymeyer Landing in this alternative). Parking delineation would curtail the pattern of *ad hoc* encroachment into existing forest vegetation along the periphery of the access road into Waymeyer Landing. As in Alternative B, this alternative proposes designating predefined limits of assigned allocation space for equipment storage (stockpiling of concession canoes) at Waymeyer Landing, thus protecting the surrounding vegetation along the river bank in the immediate area of intense activity at the launch area from additional encroachment.

Cumulative Impacts: Following the implementation of Alternative C, without further expansion of existing uses, there would be little or no cumulative impacts to vegetation resources.

Conclusion: Alternative C would result in temporary moderate adverse impacts to forest vegetation associations at the new site south of Pin Oak during the period of construction, followed by minor long-term adverse impacts associated with visitor use in the area of the boat ramp. The construction of the new access road and parking area within the open field would result in minor adverse impacts to the existing populations of grasses and forbs at that site. There would be minor beneficial impacts to forest vegetation associations at Waymeyer Landing with the establishment of limited defined parking spaces.

Impairment: As a result of Alternative C minor to moderate localized impacts to vegetation within the riparian corridor and extant open field would not cause impairment to park vegetation resources.

5.2 Floodplain

METHODOLOGY

River channels have a limited capacity for water. When this capacity is exceeded, flooding of the adjoining land, commonly called the floodplain, occurs. Floodplains then convey and store this water, serving as a vital part of our environment, and naturally flood, often without risk to people. However, the effectiveness of a river and floodplain to convey and store flood-water can be adversely affected by human activity. As well as their importance in providing natural storage for floodwater, floodplains can also provide fertile agricultural land, valuable habitat for wildlife and plants, and a recreational resource. Impact analysis was based on the on-site inspection of the study area, review of existing literature and studies, and professional judgment.

IMPACT THRESHOLDS

Given the above floodplain issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in floodplains (both overall, localized, short and long term, cumulative, adverse and beneficial) under the management alternatives.

- **Negligible:** There would be very little change in the ability of a floodplain to convey floodwaters, or its values and functions. Project would not contribute to flooding.
- **Minor:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local, although the changes would be only just measurable. Project would not contribute to flooding. No mitigation would be needed.
- **Moderate:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project could contribute to flooding. The impact could be mitigated by modification of proposed facilities in floodplains.
- **Major:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and widespread. Project would contribute to flooding. The impact could not be mitigated by modification of proposed facilities in floodplains.
- **Definition of Duration:**
  - Short-term: Effects lasting less than 30 months
  - Long-term: Effects lasting longer than 30 months
- **Cumulative Impact Scenario:** The spatial boundary for the cumulative impacts assessment has been defined as the floodplain delineated by the Flood Insurance Rate Map (FIRM), published by the Federal Emergency Management Agency (FEMA) for the project area. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the boat ramp and associated road and parking areas through 10 years in the future. The other past, present, and future actions that contribute to the cumulative impact include the construction of a loop road and restroom building at the existing Waymeyer access. Both of these constructions conformed to the existing topography and therefore had negligible long term impacts on the floodplain.

ALTERNATIVE A – No action

Analysis: No construction and little use of the existing bank for boat launching would occur under this alternative therefore no impacts would occur.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring on the floodplain.

Conclusion: No impacts to the floodplain would occur under this alternative.

Impairment: Alternative A (No-Action) would not cause impairment to the floodplain.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: Construction of the boat ramp under Alternative B would change the topography for the first 100 feet from the river. Under Alternative B the ramp would rise slightly above the existing grade before meeting with the road to the parking lot which would approximately follow the existing topography. The parking area would be built with little or no change to topography but would require removal of between 12,000 and 23,000 s.f. of vegetation within the bottomland forest. This change in vegetation will result in a change in the interaction of flood waters with the riparian forest. Vegetation in the floodplain increases the "hydraulic roughness" which increases resistance to the flow of water, reduces the velocity of floodwaters flowing through the bottomlands, increases deposition of nutrient rich sediments and reduces the erosive force of flowing floodwaters. Replacing woody vegetation with a hardened flat surface devoid of "hydraulic roughness" decreases resistance to the flow of water, increases the velocity of floodwaters flowing through the bottomlands, decreases deposition of nutrient rich sediments and increases the erosive force of flowing floodwaters. These effects will be seen at this site during high flow conditions.

Cumulative Impacts: Under Alternative B, activities in the project area that replace floodplain vegetation with flat hardened surface will have cumulative effects. Past activities include construction of the loop road, the restroom, and the floater parking area. Cumulative impacts from past and proposed road and parking area construction will be minor and long term in duration.

Conclusion: Alternative B would result in long-term minor adverse impacts to the floodplain limited to periods of high flow.

Impairment: Impairment to the floodplain would not occur as a result of proposed actions in Alternative B.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: Construction of the boat ramp under Alternative C would change the topography for the first 100 feet from the river. Under Alternative C the ramp would be cut down into the existing grade before meeting with the road to the parking lot which would approximately follow the existing topography and would require removal of few mature trees and about 1,800 s.f. of vegetation within the bottomland forest. The parking area would be built in an existing open old field and would not require any bottomland forest vegetation removal. About one third of the parking area is outside the 100 year floodplain. These small changes in bottomland forest would have minimal effects on the interaction of flood waters with the riparian forest.

Cumulative Impacts: Under Alternative C, activities in the project area that replace floodplain vegetation with flat hardened surface will have no cumulative effects. There have been no past activities in the project area to interact with the current proposed project.

Conclusion: Alternative C would result in long-term minor adverse impacts to the floodplain limited to periods of high flow.

Impairment: Impairment to the floodplain would not occur as a result of proposed actions in Alternative C.

5.3 Wetlands

METHODOLOGY

Pursuant to Executive Order 11990: Protection of Wetlands, the impact of a project on wetland areas must be assessed. For the purposes of implementing E.O. 11990, any area that is classified as wetland habitat according to the U.S. Fish and Wildlife Service's (FWS) "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979) is subject to Director's Order #77-1 and its implementing procedures. The Cowardin classification system forms the basis for the FWS's National Wetlands Inventory (NWI) mapping program. Under the Cowardin classification system, a wetland must have one or more of the following attributes:
• At least periodically, the land supports predominantly hydrophytes (wetland vegetation)
• The substrate is predominantly undrained hydric soil; or
• The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of the year.

The Cowardin definition includes more habitat types than the wetland definition (33 CFR 328.3) and delineation manual used by the US Army Corps of Engineers (USACE) for identifying wetlands subject to Section 404 of the Clean Water Act. The 1987 "Corps of Engineers Wetlands Delineation Manual" requires that all three of the parameters listed above (hydrophytic vegetation, hydric soil, wetland hydrology) be present in order for a habitat to be considered a wetland. According to NPS Guidance, for vegetated wetlands, the 1987 USACE Manual should be used for delineation/mapping. For un-vegetated wetlands, such as stream channels, tidal mudflats, shorelines, etc., the "limits" of these systems as described in Cowardin should be used.

National Wetlands Inventory Maps (NWI) were used initially to identify potential wetlands in the study area and field ground truthing by a FWS biologist confirmed that the NWI maps were accurate at each of the sites. Information on wetlands potentially impacted by the proposed alternatives was compiled from NWI maps, ground truthing by a USFWS biologist and by consulting NPS WRD Wetlands Specialists, USACE staff and Park natural resource staff. Predictions about short-term and long-term impacts to wetlands were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts on wetlands were derived from the available information on the Park and best professional judgment. The construction of the either alternative would most likely take six months or less and vegetation damaged in the process would take approximately two years to recover; therefore the length of the short term duration is 30 months. Effects lasting more than 30 months would be considered long term.

Plant inventory efforts included plant identification throughout both sites by the ONSR Fire Effects Monitoring Crew to determine the presence of hydrophytic vegetation types represented in the actual study area. Various taxonomic keys of regional flora were consulted for species identification. Current Missouri Department of Natural Resources soil maps were consulted to determine the presence of hydric soils.

Study area wetlands were first classified according to Cowardin et al. (1979). Phone conversations with USACE staff about the project followed by project maps and photos of ordinary high water mark (OHWM) indicators were used to develop an understanding of USACE jurisdictional areas. USACE staff examined park supplied photos and support information and agreed that OHWM indicators identified by park resource management staff were

correct and could be used to define USACE jurisdictional areas. Based on this information and according to guidance from NPS WRD staff, the affected wetland areas to be considered at both sites would be those below the OHWM (under USACE rules) and out to a depth of 6 feet in the river channel (under the Cowardin system). None of the affected riparian areas meet all three conditions of the USACE rules but the river channel out to 6 feet deep fits the Cowardin system.

IMPACT THRESHOLDS

Given the above wetlands issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in wetlands (both overall, localized, short and long term, cumulatively, adverse and beneficial) under the management alternatives.

- **Negligible:** The effects to wetlands would be below or at the lower levels of detection.
- **Minor:** The effects to wetlands would be detectable and relatively small in terms of area and the nature of the change. The action would affect a limited number of individuals of plant or wildlife species within the wetland.
- **Moderate:** The effects to wetlands would be readily apparent over a relatively small area but the impact could be mitigated by restoring previously degraded wetlands. The action would have a measurable effect on plant or wildlife species within the wetland, but all species would remain indefinitely viable.
- **Major:** The effects to wetlands would be readily apparent over a relatively large area. The action would have measurable consequences for the wetland area that could not be mitigated. Wetland species dynamics would be upset, and plant and/or animal species would be at risk of extirpation from the area.
- **Definition of Duration:**
  - Short-term: Effects lasting less than 30 months
  - Long-term: Effects lasting longer than 30 months
- **Cumulative Impact Scenario:** The spatial boundary for the cumulative impacts assessment has been defined as the palustrine forested broad-leaved deciduous wetlands located within the contiguous bottomland hardwood forested area surrounding the proposed ramp and road construction sites. This area is similar in characteristic due to the vegetation found here. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the ramp through 10 years in the future.

ALTERNATIVE A – No action

Analysis: Under this alternative impacts from river use activities would remain unchanged. No construction activities would occur in wetlands. Natural river processes would continue at the site**.**

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: Under this alternative there would be negligible effects both short and long-term on wetlands in the study area.

Impairment: Alternative A (No-Action) would not cause impairment to wetlands.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: At site B the total area below the OHWM would encompass about 150 feet of ramp, roadbed and stabilizing fill with a width of about 33 feet or about 4950 sq.ft.. Hard surface ACM and graded roadbed would replace unconsolidated river bottom gravel and sandy riparian deposits in this area. The parking area will be constructed on a higher terrace above the OHWM. Installation of the ramp and road to the parking area would permanently displace vegetation growing in the area. About 990 sq. ft. of the disturbance would be located in the

river channel meeting the Cowardin wetland definition. Shallow open water fish habitat with no rock or woody cover would remain unaltered except for the introduction of a hard surface on the river bottom. Very little vegetation is present where the ramp / roadbed would be located so only slight changes in vegetation here would occur during construction. The ACM ramp would be installed flush with the bottom the river and have minimal hydrologic impact on the river.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: Minor short-term adverse impacts would occur during the construction process. Moderate long-term moderate impacts would result from introducing a hardened surface and rip rap aprons into the old river channel. Planting stabilizing vegetation adjacent to the boat ramp would partially mitigate the disturbance.

Impairment: Impairment to wetlands would not occur as a result of proposed actions in Alternative B.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: At site C, where the wetland boundary would start close to the river channel edge, the affected wetland area would encompass about 30 feet of ramp, and stabilizing fill with a width of about 16 feet or about 480 sq.ft.. The road and the entire parking area will be constructed on a higher terrace above the OHWM. Shallow open water fish habitat with no rock or woody cover would remain unaltered except for the introduction of a hard surface on the river bottom. No vegetation is present where the ramp would be located in the river channel so no wetland vegetation loss would occur during construction. By USACE rules, all vegetation displaced outside the river channel at this site is outside the wetland area because it is above the OHWM. The ACM ramp would be installed flush with the bottom the river and have minimal hydrologic impact on the river.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: Minor **short-term** adverse impacts would occur during the construction process. Minor long-term minor adverse impacts would result from introducing a hardened surface to the bottom of the river channel. Planting stabilizing vegetation adjacent to the boat ramp would partially mitigate the disturbance.

Impairment: Impairment to wetlands would not occur as a result of proposed actions in Alternative C.

5.4 Water Quality

METHODOLOGY

In order to assess the magnitude of water quality impacts to park waters under the various alternatives, the following methods and assumptions were used:

1. The regulation at 40 CFR 131.12(a)(2) represents an overall goal or principle in that the park will strive to fully protect existing water quality so that “fishable / swimmable” uses and other existing or designated uses are maintained. Therefore, boat ramp construction or use activities could not be authorized to the degree that it would lower this standard and affect these uses. To do so would potentially violate 40 CFR 131.10, which basically forbids the removal of an existing use because the activity was authorized knowing this level of pollution would occur.

2. State water quality standards governing the waters of the park were examined.

3. Baseline water quality data were examined.

4. Water quality effects resulting from the proposed activities can be divided into two groups, those caused by construction activities and those resulting from use of the facility.

5. Possible construction related effects include: sediment entering the river during excavation in preparation of a stable base for the ramp, fuel or oil escaping from construction equipment in close proximity to the river and sediment runoff from the construction site. Possible boat ramp use related effects include: sediment entering the river during boat loading and unloading operations, fuel, oil or exhaust escaping from boats to the river and sediment runoff from the road bed, ditches and banks associated with the boat ramp.

IMPACT THRESHOLDS

Given the above water quality issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in water quality (both overall, localized, short and long term, cumulative, adverse and beneficial) under the management alternatives.

- **Negligible:** Impacts are chemical, physical, or biological effects that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.
- **Minor:** Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.
- **Moderate:** Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.
- **Major:** Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.
- **Impairment:** Impacts are chemical, physical, or biological effects that would be detectable and that would be substantially and frequently altered from the historical baseline or desired water quality conditions and/or water quality standards, or criteria would be exceeded several times on a short-term and temporary basis. In addition, these adverse, major impacts to park resources and values would contribute to deterioration of the park's water quality and aquatic resources to the extent that the park's purpose could not be fulfilled as established in its enabling legislation; affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.

ALTERNATIVE A – No action

Analysis: Water quality effects resulting from the proposed activities can be divided into two groups, those caused by construction activities (short duration) and those resulting from use of the facility (Low intensity but occurring over a long period of time). No construction and little use of the existing bank for boat launching would occur under this alternative therefore no impacts would occur.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring on water quality.

Conclusion: No impacts to water quality would occur in this alternative.

Impairment: Alternative A (No-Action) would not cause impairment to water quality.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: Water quality effects resulting from the proposed activities can be divided into two groups, those caused by construction activities (short duration) and those resulting from use of the facility (Low intensity but occurring over a long period of time).

Possible construction related effects include: sediment entering the river during excavation in preparation of a stable base for the ramp, fuel or oil escaping from construction equipment in close proximity to the river and sediment runoff from the construction site during rain events. Sediment release might be greater under Alternative B than under Alternative C because a much deeper base would have to be constructed under the ramp to insure a stabile installation. Possible boat ramp use related effects include: sediment entering the river during boat loading and unloading operations, fuel, oil or exhaust escaping from boats to the river and sediment runoff from the road bed, ditches and banks associated with the boat ramp.

Cumulative Impacts: Assuming the number of boats using the new ramp is about the same as pre 2008 levels at the primitive Waymeyer Landing access there should be no cumulative effect on water quality.

Conclusion: Alternative B would result in short-term moderate adverse impacts limited to the period of construction. Alternative B would result in in minor impacts of short duration during boat launch activities over the life of the facility.

Impairment: Impairment to water quality would not occur as a result of proposed actions in Alternative B.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: Water quality effects resulting from the proposed activities can be divided into two groups: those caused by construction activities (short duration) and those resulting from use of the facility (Low intensity but occurring over a long period of time).

Possible construction related effects include: sediment entering the river during excavation in preparation of a stable base for the ramp, fuel or oil escaping from construction equipment in close proximity to the river and sediment runoff from the construction site during rain events. Runoff might be greater under Alternative C than under Alternative B because more soil surface would be exposed during construction and until vegetation was established on these exposed areas. Use of permanent erosion control mat and aggressive plantings on slopes adjacent to the ramp would mitigate this impact. Possible boat ramp use related effects include: sediment entering the river during boat loading and unloading operations, fuel, oil or exhaust escaping from boats to the river and sediment runoff from the road bed, ditches and banks associated with the boat ramp.

Cumulative Impacts: Assuming the number of boats using the new ramp is about the same as pre 2008 levels at the primitive Waymeyer Landing access there should be no cumulative effect on water quality.

Conclusion: Alternative C would result in short-term moderate adverse impacts limited to the period of construction. Alternative C would result in minor impacts of short duration during boat launch activities over the life of the facility.

Impairment: Impairment to water quality would not occur as a result of proposed actions in Alternative C.

5.5 Threatened, Endangered, and Species of Special Concern

METHODOLOGY

Identification of state and federally listed species was accomplished through discussions with park staff, informal consultation with U.S. Fish and Wildlife Service, and utilization of the (State) Missouri Department of Conservation Natural Heritage Database.

An analysis of the potential impacts to each species listed in the letter is included in this section. At Ozark National Scenic Riverways it has been determined that none of the alternatives would adversely affect any of the listed species. The completed environmental assessment will be submitted to the U.S. Fish and Wildlife Service for its review. If the agency concurs with the finding of the National Park Service, no further consultation will be required.

Primary steps in assessing impacts on listed species were to determine (1) which species are found in areas likely to be affected by management actions described in the Chilton Creek alternatives, (2) current and future use of Chilton Creek by alternatives, (3) habitat loss or alteration caused by the alternatives, and (4) displacement and disturbance potential of the actions and the species' potential to be affected by Chilton Creek activities. The information contained in this analysis was obtained through best professional judgment of park staff and experts in the field, and by conducting literature review.

IMPACT THRESHOLDS

The Endangered Species Act defines the terminology used to assess impacts to listed species as follows:

- **No effect:** When a proposed action would not affect a listed species or designated critical habitat.
- **May affect / not likely to adversely affect:** Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial.
- **May affect / likely to adversely affect:** When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect either is not discountable or is completely beneficial.
- **Is likely to jeopardize proposed species / adversely modify proposed critical habitat (impairment):** The appropriate conclusion when the National Park Service of the U.S. Fish and Wildlife Service identifies situations in which the proposal could jeopardize the continued existence of a proposed species of adversely modify critical habitat to a species within or outside park boundaries.

ALTERNATIVE A – No action

Analysis: No effects to federally or state listed threatened, endangered, or species of conservation concern are expected as a result of implementing the no-action alternative. The potential for increased damage or loss of vegetation as vehicles continue to park along the edge of the wooded areas on the gravel road would have little if any effect on Cerulean and/or Swainson's warblers. Potential for the occurrence of the Elktoe mollusks (*Alasmidonta marginata*) in the immediate vicinity of the project area is unlikely as only one was documented through the Natural Heritage Database near the boat launching area on 10/28/2002. Direct contact between boaters, floaters, and wildlife would continue.

Cumulative Impacts: No cumulative effects to threatened, endangered, or species of conservation concern are expected as a result of implementing the no-action alternative.

Conclusion: This alternative may affect/not likely to adversely effect threatened, endangered and species of conservation concern.

Impairment: Alternative A (No-Action) would not impair threatened, endangered or species of conservation concern.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: Breeding habitats for Cerulean warblers in Missouri consist of an average canopy cover of 85% and a minimum of 65% (Kahl et al. 1985). Cerulean warblers nest in the tree canopy while Swainson's warblers nest 0.5 – 3m above ground in young cane, vine tangles or in small saplings/shrubs (Gerwin 2006). Swainson's warblers also utilize the leaf litter to forage for food. Any elimination of or damage to the midstory and overstory trees and the forest floor during the construction phase may potentially impact nesting and foraging habitat for both species. On average increased forest fragmentation to the forest canopy could increase nest parasitism and/or nest predation.

Alternative B may affect / not likely to adversely affect threatened, endangered or species of conservation concern. Lack of suitable habitat in the immediate vicinity of the project area makes the occurrence of Ozark hellbenders unlikely. Maintaining the current level of boat trailer use will detour continued degradation of water quality by boaters traveling up and down river from proposed boat ramp. Although Cerulean and Swainson's warblers exist near the project area, the amount of forest habitat/structure removal will be relatively small.

Following best management practices during and after the construction phase will help minimize risk to threatened, endangered or species of conservation concern.

Cumulative Impacts: No cumulative effects to threatened, endangered or species of conservation concern are expected as a result of implementing Alternative B. No measurable direct or indirect effects on existing Cerulean warbler or Swainson's warbler populations from Alternative B since any change in forested habitat would be relatively small. Documented locations of Elktoe occur at and downstream of project acres. Documented locations of Ozark Shiner occur downstream from project areas. The Black sandshell is documented upstream from both project areas. Continued direct contact between wildlife and visitors may result in changes to wildlife movement, forage, and nesting patterns and those changes not change appreciably with the implementation of this alternative.

Conclusion: This alternative may affect/not likely to adversely effect threatened, endangered and species of conservation concern.

Impairment: Actions proposed in Alternative B would not impair threatened, endangered or species of conservation concern.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: The installation of new parking areas and trails leading to the Current River boat ramp could have two types of effects. The first and most obvious is the elimination of or damage to the existing vegetation at both site locations during the construction phase. Breeding habitats for Cerulean warblers in Missouri consist of an average canopy cover of 85% and a minimum of 65% (Kahl et al. 1985). Cerulean warblers nest in the tree canopy while Swainson's warblers nest 0.5 – 3m above ground in young cane, vine tangles or in small saplings/shrubs (Gerwin 2006). Swainson's warblers also utilize the leaf litter to forage for food. Therefore, removal/disturbance of midstory and overstory trees and the forest floor during the construction phase may potentially impact nesting and foraging habitat for both species. On average increased forest fragmentation to the forest canopy could increase nest parasitism and/or nest predation.

The second effect of the parking areas and trails leading to the Current River boat ramp is a more subtle, indirect effect from human disturbances. Continued direct contact between wildlife and visitors may result in changes to wildlife movement, forage, and nesting patterns. Animal responses are to usually avoid disturbed habitats altogether or at least during the construction phase. For some species this can make otherwise acceptable breeding, feeding or nesting habitat unavailable or unacceptable for use.

In a letter from the U.S. Fish and Wildlife Service (USFWS) Field Supervisor in Columbia, Missouri, dated July 2, 2008, he determined that Alternative B would have the least potential of impacting the Ozark hellbender due to less vegetation removal and cutting into the river bank. However, based on the following information it is determined that Alternative C may affect/not likely to adversely affect Ozark hellbenders within the project area:

- During the construction phase, Alternative B will require a deeper base to be constructed than Alternative C which increases the probability of sediment entering the river;
- The potential for runoff might be greater under Alternative C than Alternative B due to more exposed soil surface;
- Alternative B proposes to remove between 15,300 s.f. to 26,300 s.f. of vegetation within the bottomland forest bordering the river while Alternative C proposes to remove 7,520 s.f. of bottomland forest vegetation bordering the river and 14,000 s.f. of open field;
- Lack of suitable habitat in the immediate vicinity of the project area makes the occurrence of Ozark hellbender unlikely; and
- Maintaining the current level of boat trailer use will deter continued degradation of water quality by boaters traveling up and down river from the proposed boat ramp;.

Alternative C may affect / not likely to adversely affect Threatened, Endangered or species of conservation concern. Although Cerulean and Swainson's Warblers exist near the project area, the amount of forest habitat/structure removal will be relatively small.

Following best management practices during and after the construction phase will help minimize risk to threatened, endangered or species of conservation concern. Maintaining consistent boat use similar to the current user-level will be critical in ensuring aquatic species do not become adversely impacted due to an unstable stream bottom, excessive siltation and/or gravel.

Cumulative Impacts: No cumulative effects to threatened, endangered or species of conservation concern are expected as a result of implementing Alternative C. No measurable direct or indirect effects on existing Cerulean warbler or Swainson's warbler populations from Alternative C since any change in forested habitat would be relatively small. Furthermore, the parking area located within the current open field will have no effects on either species as open fields is not their preferred habitat. Documented locations of Elktoe occur at and downstream of project acres. Documented locations of Ozark Shiner occur downstream from project areas. The Black sandshell would not be affected as it is documented upstream from both project areas. Continued direct contact between wildlife and visitors may result in changes to wildlife movement, forage, and nesting patterns and those changes not change appreciably with the implementation of this alternative.

Conclusion: This alternative may affect/not likely to adversely effect threatened, endangered and species of conservation concern.

Impairment: Actions proposed in Alternative C would not impair threatened, endangered or species of conservation concern.

5.6 Natural Fluvial Processes (Free-flowing streams)

METHODOLOGY

Ozark National Scenic Riverways entered into a contract with Chris Cash, P.E., to conduct a general geomorphological study of that stretch of the Current River in which the proposed project area lies of the areas under consideration and a more detailed site-specific risk assessment of three specific sites within that stretch of the river. These are Waymeyer Landing, a site upstream of Waymeyer Landing, and a site downstream of Pin Oak Campground. Mr. Cash also included as appendices a former study of the T.L. Wright Memorial Access River Access at Doniphan, Missouri, an authoritative study of stability thresholds for stream restoration materials, estimated river-access development quantities, and general construction material specification. Mr. Cash's work provides a professional geomorphological study of the subject stretch of the river so that informed decisions can be made of the potential future conditions of the stream western stream bank and the areas of consideration for a boat ramp

IMPACT THRESHOLDS

- **Negligible:** Impact is at the lowest levels of detection, barely perceptible, and not measurable.
- **Minor: Adverse**: disturbance and/or alteration of natural geologic pattern(s) or feature(s) of the landscape results in little, if any, loss of integrity. The determination of effect would be *no adverse effect*. **Beneficial**: maintenance and preservation of natural conditions.
- **Moderate: Adverse**: disturbance of the soil and geology would result in retarding natural forces that deposited soil and shaped the landscape. **Beneficial**: stabilization of a site and/or geological feature or process that allows current natural processes to continue at that site or feature.
- **Major: Adverse**: disturbance of natural soils and permanently modifying the land and natural stream dynamics would result in *adverse effect*. Measures to minimize or mitigate adverse impacts can be instituted at a degree necessary to protect the integrity of geologic structures and natural stream dynamics. **Beneficial**: active intervention to preserve geologic structures and natural stream dynamics so that natural processes are allowed to continue in an unabated fashion.
- **Impairment:** Install or construct facilities that impede the natural river flow and its erosional process.

ALTERNATIVE A – No action

Analysis: The natural forces of the Current River will continue unabated and exercise its dynamics on the river bank. Geotechnical failure has occurred due to the steepness of the bank slope. The non-cohesive soil will only be stable with a bank angle of 40 degrees or less. Natural flooding and stream erosion will likely maintain an unstable bank at this location. It is anticipated that fluvial entrainment, the direct removal of soil particles or aggregates from the stream bed or banks by flowing water, parallel to the bank will continue erosion by removal non-cohesive soil during times of future flooding.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: This alternative would have no long-term or short-term adverse effects.

Impairment: The No-Action Alternative is an alternative with ongoing action through the natural process of hydraulic erosion with limited and nonconsequential intervention by mankind that will ensure that the present erosional process will continue into the foreseeable future. No impairment is anticipated.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: This alternative would involve stabilization of the area north of the current floater access at Waymeyer Landing. The geomorphological consultant has stated that the landing can be stabilized with considerable development and maintenance. The entire bank must be graded to have a 3-to-1 (3 horizontal to one vertical)

slope. Any material for a boat ramp and erosion control must be a flexible solution like the proposed ACM (articulating concrete mattress). A combination of erosion control methods with vegetation could be used to provide stability. Yet, substantial maintenance would be necessary to keep the bank stabilized while providing public use at the access. The consultant also advised that bank-toe scour(the base of the bank) and bank-key design would be vital to achieving a+n effective instability countermeasure.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: This alternative would have no major long-term or short-term adverse effect on the Waymeyer Landing cutbank.

Impairment: Operationalizing this prescription for stabilization of the cutbank would retard or stop non-cohesive soil erosion and the unabated natural stream dynamics would be altered. No impairment is anticipated.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: This alternative, according to the findings of the geomorphological consultant, has no significant risks concerning major stream bank instability. A concrete boat ramp in an excavated trench would cause no anticipated additional erosional hazards. This installation should be angled downstream and not at right angles to the axis of the river. Also, such an installation would require a rock-lined shoulder for safe walking for pedestrian ingress and egress to the water's edge.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: This alternative would have no long-term or short-term adverse effects on the river bank.

Impairment: There would be no impairment of either stream dynamics or the river bank as a result of Alternative C.

5.7 Cultural Resources (Archeology, Traditional Uses)

METHODOLOGY

Based on existing Regulations and Policies (Section 106 review), the scoping, identification, assessment, and consultation called for in 36 CFR 800.8 should be carried out in coordination with NEPA review as follows:

- Conduct Section 106 review when screening a project that may be categorically excluded from NEPA review to see whether "extraordinary circumstances" exist requiring further review (40 CFR 1508.4). Whether such extraordinary circumstances are found to exist based on historic property impacts will depend on the severity of the impacts and what the agency's NEPA procedures say, but even if no further review is required under NEPA, Section 106 review must be completed.
- During preparation of any EA, conduct Section 106 review in order both to comply with Section 106 itself and in order to determine whether historic resources will be adversely affected, and if so, whether measures can be implemented to reduce adverse effects to a less than significant level. The results of the review should be reported in the FONSI if one is issued, with an explanation of how Section 106 review has resulted in avoiding significant adverse effect.

- Section 106 review should be conducted during preparation of any EIS. Scoping, identification, and assessment of effects should be done during the analysis leading to the draft EIS, and the results should be presented in the DEIS. Consultation to resolve adverse effects should be coordinated with public comment on the DEIS, with the results reported in the FEIS. Any Memorandum of Agreement (MOA) developed under Section 106, or the final comments of the ACHP, should be addressed in the ROD. Unless there is some compelling reason to do otherwise, the Section 106 MOA should be fully executed before the ROD is issued, and the ROD should provide for implementation of the MOA's terms.

Note that Section 106 does not deal with impacts on all types of cultural resources, or all cultural aspects of the environment; it deals with impacts on properties included in or eligible for the National Register of Historic Places. Other authorities, such as the American Indian Religious Freedom Act and Executive Order 12898 may require consideration of other cultural resource types, and NEPA itself provides for considering all aspects of the cultural environment, for example, the cultural use of natural resources. So complying with Section 106 does not guarantee that all impacts on all cultural resource types have been addressed in NEPA analysis.

Over a period of years, the Ozark National Scenic Riverways archeologist, James E. Price, has conducted pedestrian surveys including shovel testing in the Chilton Creek project area for the purpose of inventorying cultural resources sites, particularly prehistoric archeological sites. The park archeologist's knowledge combined with personal observation was employed to determine that no archeological sites lie within the project areas of the three alternative locations. The Chilton Creek Area was first surveyed for archeological resources in 1985-1986 by James E. Price and Cynthia R. Price. On June 30, 2000, James E. Price again visited the area and conducted pedestrian survey in the present boat launch locale prior to construction of a new vault toilet. Subsequent visits to the Chilton Creek Area were conducted on November 29, 2007, and January 1, 2008. These were ID Team visits at which time James E. Price conducted pedestrian archeological surveys in the three alternative areas. In all investigations, no archeological sites were discovered in the direct impact zones of the alternative areas.

IMPACT THRESHOLDS

Thresholds for Intensity, Duration and Type of Impact:

- **Negligible:** Impact is at the lowest levels of detection, barely perceptible, and not measurable.
- **Minor: Adverse:** disturbance of archeological site(s) and/or alteration of a pattern(s) or feature(s) of the landscape results in little, if any, loss of integrity. The determination of effect for Section 106 would be *no adverse effect*. **Beneficial**: maintenance and preservation of an archeological site(s). For Cultural Landscapes, landscape patterns and features preserved in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. The determination of effect for Section 106 would be *no adverse effect*.
- **Moderate: Adverse**: disturbance of archeological site(s) and/or alteration of a pattern(s) or feature(s) of the landscape would result in an overall loss of integrity. The determination for Section 106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate. **Beneficial**: stabilization of a site and/or rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. The determination of effect for Section 106 would be *no adverse effect*.
- **Major: Adverse**: disturbance of archeological site(s) and/or alteration of a pattern(s) or feature(s) of the landscape would result in an overall loss of integrity. The determination of effect for Section 106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b). **Beneficial**: active intervention to preserve a site and/or restore a landscape or its patterns and features in accordance with the

Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes. The determination of effect for Section 106 would be *no adverse effect*.

- **Impairment:** A major, adverse impact to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Ozark National Scenic Riverways; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

Archeological Resources

ALTERNATIVE A – No action

Analysis: Activities that are currently taking place now would continue into the future and there would be no disturbance to archeological sites since none has been inventoried during past intensive pedestrian surveys.

Cumulative Impacts: No cumulative impacts are anticipated since no archeological sites lie within in the project area.

Conclusion: Alternative A (No-Action) alternative would have no major long-term or short-term adverse effects on cultural resources since none is located in the area.

Impairment: The No-Action Alternative is an alternative with ongoing action through the use of the access road and visitor use but no new federal action would be involved. There would be no impairment to archeological resources as a result of Alternative A (No-Action).

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: This alternative would have no adverse impacts on archeological sites since the area has been subjected to intensive archeological survey by professional archeologists and no archeological sites were discovered. No historic structure is located within the direct impact zone.

Cumulative Impacts: No cumulative impacts are anticipated since no archeological sites lie within in the project area.

Conclusion: This alternative would have no major long-term or short-term adverse effects on archeological resources since none is located in the area.

Impairment: There would be no impairment to archeological resources as a result of Alternative B.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: This alternative would have no adverse impacts on archeological sites since the area has been subjected to intensive archeological survey by professional archeologists and no archeological sites were discovered. No historic structure is located within the direct impact zone.

Cumulative Impacts: No cumulative impacts are anticipated since no archeological sites lie within in the project area.

Conclusion: This alternative would have no major long-term or short-term adverse effects on archeological resources since none is located in the area.

Impairment: There would be no impairment of archeological resources as a result of Alternative C

Cultural Resources – Traditional Uses

ALTERNATIVE A – No action

Analysis: Activities that are currently taking place now would continue into the future with the the exception of motorboat launching, There will be no additional anticipated change in the use of the area by local Ozark people.

Cumulative Impacts: Cumulative impacts are anticipated from traditional use practices due to the loss of motorboat launch access in the area.

Conclusion: This alternative would have major long-term adverse effects on traditional use.

Impairment: The No-Action Alternative is an alternative with ongoing action through the use of the access road and traditional as well as commercial uses but no new federal action would be involved. There would be no impairment to traditional Ozark use practices as a result of Alternative A.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: This alternative would have no adverse impacts on traditional use practices . A ramp at this location would facilitate the launching of boats by the public but since this has long been a launching place for the local population, this practice is anticipated to continue.

Cumulative Impacts: No cumulative impacts on traditional use practices are anticipated.

Conclusion: This alternative would have no major long-term or short-term adverse effects on the ethnographic resource of traditional use practices of the Waymeyer Landing boat launch area. Local Ozark people will simply continue to launch boats in the general area which is a traditional preferred boat launch location.

Impairment: There would be no impairment to this ethnographic resource as a result of Alternative B.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: This alternative would have no adverse impacts traditional use practices since the specific site was never intensively used as a picnic area or place of recreation by local Ozark people.

Cumulative Impacts: No cumulative impacts on traditional use practices are anticipated.

Conclusion: This alternative would have no major long-term or short-term adverse effects on the ethnographic resource of traditional use practices by local Ozark people

Impairment: There would be no impairment to this ethnographic resource as a result of Alternative B.

5.8 Visual Quality

METHODOLOGY

The park encompasses a variety of distinctive natural environments that make up the Ozark Highlands ecosystem. Each of these environments exhibits a unique set of visual characteristics. The same is true for indigenous patterns of habitation and culture unique to the Ozark region. For the purposes of this analysis, park visual resources exist as an integral component of the natural and cultural landscapes which are to be protected and conserved. When an inherently natural setting is altered, the visual quality of that landscape has the potential to be compromised. It follows that human actions in altering the composition of a landscape either temporarily or permanently through development of facilities, removal of vegetation, ground disturbance, or intensive recreational use patterns have the potential to detract from what would otherwise be a naturally occurring scene.

IMPACT THRESHOLDS

- **Negligible:** The naturally occurring visual elements of the riparian environment that comprise the unique scenery which is visible from the river, as well as from the riverbank, is essentially unaltered. Change to the composition of the scenery is caused by natural occurrences, or if intentional actions are taken, the results are barely noticeable.
- **Minor:** Intentional changes to the visual character of the observed scene are noticeable, though the physical area of noticeable change is spatially finite and confined to a very limited area /or the change is transient within a temporal context (such as a limited period of high visitation).
- **Moderate:** Changes to the visual character of the observed scene are the result of intentional physical alterations to the natural environment of a scope that a visitor will notice marked changes in the visual character within the riparian corridor that are the result of site-specific alterations that disturb or interrupt the over-all experience of the natural setting. However, such changes will be of a degree that a visitor will still have the opportunity to encounter naturally occurring visual elements.
- **Major:** Changes to the visual character of the observed scene are the result of alterations to the physical environment such that these changes will cause a long-term impact to visual quality in the Chilton Creek Area. Though these changes will cause finite points of impact to the natural scene,
- **Impairment:** Changes to the visual character of the observed scene are the result of physical alterations to the natural environment of a scope that will cause long-term fragmentation of the physical environment. These markedly noticeable changes in the visual character within the riparian corridor will disturb, interrupt, or compromise the over-all visual experience of being within a natural setting. Such physical changes will impact the unique scenery associated with natural resources and the processes that sustain them, and have the potential to cause impairment of visual quality.

ALTERNATIVE A – No action

Analysis: In this alternative the park would not set measures in place to curtail ad hoc parking or delineate specified parking, nor take measures to handle and coordinate use patterns. It could be expected that increased vegetation loss due to encroachment will occur at Weymeyer Landing. Vegetation loss will impact visual quality within the developed area as the natural forested surroundings are compromised.

Cumulative Impacts: Overtime, with progressive incremental bank loss along the shoreline at Weymeyer Landing, as vegetation loss will to some extent affect erosion potential, the viewshed to the existing vault toilet and loop-road parking could become highly visible from the river. This will alter the character of the scene and would compromise visual quality.

Conclusion: Alternative A (No-Action) would result in minor long-term adverse impacts to visual quality in the vicinity of Weymeyer Landing.

Impairment: As a result of Alternative A (No-Action) minor adverse impacts to the site-specific area would not constitute impairment of the park's visual resources.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: In alternative B, the expansion of Weymeyer Landing to include the construction of a safe and maintainable boat ramp upstream from the existing gravel access along the bank of the river will require altering the shoreline topography and removing vegetation. Insertion of the new ramp will create a partial break in the riparian corridor, interrupting the surrounding landscape as viewed from the river. However, it is noted that the proposed location of this ramp lies within a rocky/sandy area where naturally occurring deposition has created a somewhat barren reach of open river bank at the mouth of a drainage. The developed area associated with the ramp will be finite, and when encountered by someone traveling the river will slide past the viewshed somewhat quickly. Because Alternative B allows for limited parking for boat trailers, the ramp is expected to accommodate only ten launches. Periods of crowding at Weymeyer Landing will be limited to the existing gravel bar where floaters 'put-in' on busy summer weekends. The physical change to the viewshed will be long-term, finite and limited in scope. It will impact the visual quality of the natural setting directly upstream from Weymeyer Landing.

Cumulative Impacts: Given the scope of the proposed actions in Alternative B, once construction is completed, the changes in the physical appearance to the scene as experienced by someone traveling along the river will not be affected by further impacts as a result of this action

Conclusion: Construction of a safe and maintainable boat ramp in Alternative B would cause minor to moderate long-term adverse impacts to visual quality in the immediate vicinity of Weymeyer Landing. Actions taken to limit and define parking and visitor use patterns will have a minor long-term beneficial impact on visual quality at Weymeyer Landing.

Impairment: As a result of actions proposed in Alternative B there would be no impairment to the park's visual resources.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: In Alternative C the delineation of parking and the containment and definition of patterns of use will curtail vegetation encroachment at Weymeyer Landing. In this alternative, boats will not be launching from Weymeyer Landing, and vehicles pulling boat trailers will not be entering the site. A new boat ramp will be constructed upstream from Weymeyer Landing at a previously undeveloped site on the river bank below Pin Oak Campground. Insertion of the new ramp will create a noticeable break in the riparian corridor as the cut and side slopes descend to the river from the eight foot high terrace, interrupting the surrounding riparian landscape as viewed from the river. When encountered by someone traveling on the river this insertion of hardscape will slide past the viewshed somewhat quickly. It is important to note that, unlike Weymeyer Landing, where there has been decades of visitor activity, this will introduce development where previously none could be perceived from the river. In Alternative C, in addition to the construction of a safe and maintainable boat ramp, the park proposes to install a new access road and parking area for ten boat trailers in an open field adjacent to, and visible from, the gravel road bringing visitors to the Pin Oak Campground. This parking area and short access road will be in clear view from the county road, and will impact the pastoral scene (cultural landscape). The new access road and parking area will not be visible from the river during the growing season

Cumulative Impacts: Given the scope of the proposed actions in Alternative C, once construction is completed, the changes in the physical appearance to the scene as experienced by someone traveling along the river will not be affected by further impacts to visual quality as a result of this action.

Conclusion: Alternative C would cause moderate long-term adverse impacts to visual quality with the construction of the boat ramp and parking in a previously undeveloped area. Visual quality as experienced from the river and from the adjacent county road would be affected. Actions taken to limit and define parking and visitor use patterns will have a minor to moderate long-term beneficial impact on visual quality at the Weymeyer Landing site.

Impairment: As a result of actions proposed in Alternative C there would be no impairment to the park's visual resources.

5.9 Soundscape

METHODOLOGY

As stated in the *Director's Order-47*, natural sounds are intrinsic elements of the environment that are often associated with parks and park purposes. They are inherent components of the "scenery and the natural and historic objects and the wildlife" protected by the NPS Organic Act. Intrusive sounds are of concern to the NPS because they can impede the Service's ability to accomplish its mission. Intrusive sounds may also be a matter of concern to park visitors. Noise has the potential to distract visitors from the resource. In Ozark National Scenic Riverways the ambient sounds associated with the natural setting are an integral component of the resource the park is mandated to preserve. Because visitor use at the park is focused on water related activities (canoeing, tubing, motorboating, fishing, kayaking, rafting) the acoustic environment includes human-generated sounds which can impact the natural ambient sounds along the river during periods of high use (summer weekends). This is particularly noticeable at sites along the river where vessels put-in and take-out, as well as stretches of the river that experience high levels of intense activity. Also as stated in the *Director's Order-47*, sounds made from appropriate recreational activities are acceptable. For the purposes of this analysis impacts to the natural ambient soundscape will reference visitor experiences and existing conditions. Context, time of day, duration and intensity of noise together determine the level of impact for an activity associated with human-generated sound.

IMPACT THRESHOLDS

- **Negligible:** Natural sounds would prevail; activities associated with noise (human-generated sound) would be very infrequent or absent.
- **Minor:** Natural sounds would predominate within the human-generated sounds from appropriate recreational activities can be heard occasionally.
- **Moderate:** Natural sounds would predominate, but activities associated with noise would occur occasionally at low to moderate levels. Human activity associated with noise is consistent with park objectives, noise would predominate during daylight hours during periods of peak use on summer weekends. During mid-week in summer, and other seasons of the year, noise (activity) would not be overly disruptive to noise-sensitive visitor activities and natural sounds could still be heard.
- **Major:** Natural sounds would be impacted by activities associated with noise frequently or for periods of extended time. Where activities associated with human-generated noise are consistent with park objectives, the natural soundscape would be impacted most of the day throughout the week during the summer season. Noise would disrupt conversation for long periods of time, and make enjoyment of other activities in the area difficult.
- **Impairment:** The level of noise would be heard consistently and would be readily perceived by other visitors throughout the day during the summer float season such that a visitor to the park during the summer within this zone would rarely have an opportunity to experience the natural soundscape. In addition, these adverse, major impacts to park resources and values would contribute to deterioration of the park's soundscape to the

extent that the park's purpose could not be fulfilled as established in its enabling legislation; affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in the park's general management plan or other planning documents.

- **Duration:**
  - Short-Term: Impacts to the natural soundscape occurring during the period of construction.
  - Long-Term: Impacts that affect visitor use patterns and consequently the associated impacts of human generated noise on the natural soundscape for years to come.

ALTERNATIVE A – No action

Analysis: In the No-Action alternative, given that the existing visitation numbers remain essentially the same and seasonal patterns of visitor use do not result in any appreciable changes in current recreational activities, human-generated sounds at both Weymeyer Landing and in the vicinity downstream from Pin Oak Campground will not noticeably alter the present level of noise that currently impacts the natural soundscape. However, it is possible that with the continued absence of designated limited parking for vehicles and no clear delineation of appropriate use at Weymeyer Landing that uncontrolled numbers of visitors would increase the level and duration of human-generated noise. Short-term impacts to the soundscape caused by construction would be non-existent, since a new boat ramp and parking area would not be constructed. If a new boat ramp is not constructed, motor boats would have a difficultly launching out of the Chilton Creek area (it is unstable and very steep). Existing public launch ramps located within the Van Buren 'gap' and downstream at Big Spring within the park would provide additional access to the river for boaters. The 'floater' presence (launching canoes, tubes, kayaks, rafts) would continue to impact the natural soundscape at current levels during the summer season

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: Alternative A (No-Action) would result in negligible impacts to the natural soundscape in the Chilton Creek area (providing visitation numbers and use patterns remain largely unchanged). If ad hoc parking is not controlled and continues to increase along the edges of the access road into Weymeyer Landing it is conceivable that additional numbers of visitors will use this site and this would cause at least minor long-term adverse impacts to the natural soundscape during the summer season.

Impairment: As a result of Alternative A (No-Action) there would be no impairment to the park's natural soundscape resources.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: In Alternative B human-generated noise caused by heavy equipment in and around the construction area will be noticeable. Because construction at Weymeyer Landing would be scheduled to occur during the shoulder seasons (outside of the busy summer months) the associated audio disturbance would impact the normally predominant natural soundscape that exists at that time of the year. Once construction of the new boat ramp is completed, the natural soundscape at Weymeyer Landing will be impacted by the noise generated when trucks pulling boat trailers travel the gravel road to launch boats and park, conditions which currently exist. This intermittent activity will not only occur during the busy summer months but will carry into the shoulder seasons and winter months during gigging season. By providing limited designated parking for both vehicles and boat trailers Weymeyer Landing *ad hoc* use will be curtailed, resulting in a finite number of users.

Cumulative Impacts: This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: In Alternative B minor short-term adverse impacts will occur to the natural soundscape during construction. Following construction there would be negligible impacts to the existing natural soundscape at Weymeyer Landing.

Impairment: As a result of Alternative B there would be no impairment to park natural soundscape resources.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: In Alternative C there would be a increase in human-generated noise to the natural soundscape during the period of construction activity caused by heavy equipment at both Weymeyer Landing and the site of the new boat ramp and parking area located downstream from Pin Oak campground. Because construction would be scheduled to occur during the shoulder seasons (outside of the busy summer months) the associated noise would impact the normally predominant natural soundscape that exists at that time of the year. Once construction is completed, the natural soundscape around the new site downstream from Pin Oak will be impacted by the short term noise generated when trucks pulling trailers travel the gravel road to launch boats and park. This intermittent activity will not only occur during the busy summer months but will carry into the shoulder seasons and winter months during gigging season. The site of the new ramp and parking area will provide a finite number of motorboats (parking limited to 10 boat trailers) access to the river, thus avoiding the congested launching area at Weymeyer Landing. At Weymeyer Landing by defining limited spaces for designated parking for private vehicles, *ad hoc* use will be curtailed. This will serve to contain the impact to the natural soundscape at Weymeyer Landing. Vehicles pulling boat trailers would not enter Weymeyer Landing and the associated noise generated by boat transport and launching would not impact this site.

Cumulative Impacts: Construction of a new visitor site downstream from Pin Oak will bring river access and the accompanying human-generated noise associated with recreational activity into a site that is presently dominated by the natural soundscape. However these are activities (boat launch) that would no longer occur at the Weymeyer site and the recreational activities on the river associated with this access would not change regardless of alternatives selected. This alternative would not add impacts to those that have already occurred or are occurring.

Conclusion: In Alternative C minor short-term adverse impacts will occur to the natural soundscape at Weymeyer Landing and the new site downstream from Pin Oak during construction. Following construction at the new site downstream from Pin Oak there would be minor long-term adverse impacts to the natural soundscape during periods of use. As a result of actions taken at Weymeyer Landing to delineate and limit parking and define areas of visitor use, there would be minor long-term beneficial impacts affecting the natural soundscape.

Impairment: As a result of Alternative C there would be no impairment to the park's natural soundscape resources.

5.10 Visitor Use and Experience

METHODOLOGY

Staff observation of what visitors currently experience combined with information obtained from NPS personnel on the various visitation use patterns were used to estimate the effects of each of the proposed actions. The following methodology was applied in evaluating how each of these proposed actions would impact visitor use and experience.

The purpose of this impact analysis is to determine if the restoration of a boat landing within the Chilton Creek area is compatible or in conflict with the purpose of the park, its visitor experience goals, and the direction

provided by the NPS *Management Policies*. Thus, these policies and goals were integrated into the impact thresholds. To determine impacts, the current and past uses of the area were considered and the potential effects of boat ramp replacement on visitor experience analyzed.

IMPACT THRESHOLDS

- **Negligible:** Visitors would not likely be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources.
- **Minor:** Visitors would likely be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources; however the changes in visitor use and experience would be slight and likely short term. Other areas in the park would remain available for similar visitor experience.
- **Moderate:** Visitors would be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources. Changes in visitor use and experience would be readily apparent and likely long term. Some visitors who desire to continue their chosen activity would be required to pursue their choice in other available local or regional areas.
- **Major:** Visitors would be highly aware of the effects associated with changes proposed for visitor use and enjoyment of park resources. Changes in visitor use and experience would be readily apparent and long term. The change in visitor use and experience proposed in the alternative would preclude future generations of some visitors from enjoying park resources and values. Some visitors who desire to continue their chosen activity would be required to pursue other available local or regional areas.

ALTERNATIVE A – No action

Analysis: Under the No-Action alternative, no modifications or improvements to existing facilities at Waymeyer Landing will occur beyond general maintenance and periodic grading of the access road and gravel launching area which is necessitated by ongoing erosion within this unstable section of the Current River. At present the area at Waymeyer Landing provides a minimum of basic facilities (loop access road, vault toilet, and an open 'maintained' stretch of riverside gravel) where visitors' watercraft can be launched. Since major flooding in March of 2008 washed away the previously existing gravel boat ramp at Waymeyer Landing, the park has set a temporary moratorium on further maintenance intervention to replace the boat ramp along this stretch of the gravel bar. In September 2008 work was performed at Waymeyer Landing to provide a semi-stable, temporary access for boat trailers until this EA is approved.

Currently, minimal directional signage is in place indicating the one-way traffic on the access road. Parking near the launch area is undefined and non-commercial vehicles pull-in along the edge of the wooded area along the gravel access road. No traffic flow delineation is in place to organize user group areas; such as for boaters at the previous boat launching site versus other watercraft commercial or non-commercial visitor use launching areas. Launching is generally first come, first served. Intense use and crowding on a busy weekend has resulted in user group conflicts and safety issues.

Visitation is mostly seasonal, usually between April and October, with the peak use occurring between Memorial Day and Labor Day. Weekend visitation is typically heaviest. There is a tremendous variance between the weekday activities versus the weekend activity. Concessioner Rental Agreement totals for 2006 indicate that for the period between Memorial Day and Labor Day approximately 24,000 people launched at the Waymeyer Landing access. Individual (non-commercial) visitors share the Waymeyer access. There are no comparable annual counts of non-commercial visitors accessing the park by boat or personal watercraft. No information and/or interpretive signage signifying site name, restroom, location map or park information and interpretive messages are in place.

The commercial use statistics for the area show approximately 24,000 people accessing the area. According to the *River Use Management Plan*, another 12% of the visitors are private vessels. There is a high safety risk factor at the Waymeyer Landing as it currently exists. The conflict between the various user groups is evident on busy mornings.

Cumulative Impacts: Visitation within the arrival and launch areas on the gravel bar on a busy day would continue to result in congestion. Extremely limited parking space would impact opportunities for visitors not using park concessioners. These user conflicts and traffic congestion could reduce the visitor's experience. The off-road parking would increase the need for a law enforcement presence in the area. If this program continues, there will continue to be conflict in visitor use.

Conclusion: The impact of Alternative A (No Action) would be Moderate-adverse. This alternative would result in moderate long-term impacts to visitor use and experience at Waymeyer Landing. Boaters would experience moderate long-term impacts and would have to use boat launch facilities closer to Van Buren.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: Visitor experience at Waymeyer Landing would benefit from the additional parking and boat launch. River experience from Waymeyer Landing to the boundary at "the gap" would be affected very little. In this alternative, the replacement of the boat ramp would provide increased access for motorboat owners.

A visitor's experience would benefit from a new safe and maintainable boat ramp in a new location at the Waymeyer Landing. The construction of a boat ramp and new access road to the boat ramp would allow the return of tradition boater use to the area. There would be a reduction of traffic and road congestion on the existing loop road and gravel bar launching area. Designated parking and appropriate signage, delineating parking areas and boater and floater use areas, would further reduce user conflicts.

Cumulative Impacts: The combination of separating boaters and floaters; with adding and defining parking areas with appropriate signage for user groups, will improve traffic flow and reduce visitor use congestion.

Conclusion: Alternative B would result in moderate adverse short-term impacts to visitor use and experience during the course of construction. When completed would have moderate beneficial long-term impacts on visitor use and experience. Once construction is completed and appropriate signage in place, there would be positive long-term benefits for visitor safety, and visitor's use and enjoyment of the area.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: Visitor's experience would benefit from a safe and maintainable boat ramp separate from the Waymeyer Landing. The construction of a boat ramp, parking area, and access road to the boat ramp would separate boaters from floaters. In this alternative, the replacement of the boat ramp would provide restored access for motorboats. Separation of these user groups would reduce traffic congestion and user group conflicts. There would be a reduction of traffic and road congestion on the existing loop road and gravel bar launching area. Designated parking and appropriate signage, delineating parking areas and boater and floater use areas, would further reduce user conflicts.

Cumulative Impacts: The combination of separating boaters and floaters; with adding and defining parking areas with appropriate signage for user groups, will improve traffic flow and reduce congestion, increase safety and visitor use experience.

Conclusion: Alternative C would result in negligible adverse short-term impacts to visitor use and experience during the course of construction. When completed would have moderate beneficial long-term impacts on visitor

use and experience. Once construction is completed and appropriate signage in place, there would be positive long-term benefits for visitor safety, and visitor's use and enjoyment of the area.

5.11 Park Operations (Maintenance and Law Enforcement)

METHODOLOGY

Operational efficiency, for the purpose of this analysis, refers to the adequacy of assigned staffing tasks and the necessary procurement of materials for routine maintenance and repair of the existing and/or proposed facilities and the adjacent grounds. It also includes Law Enforcement and Resource Protection services provided by park rangers. The goal is to provide for a successful visitor experience while making a concerted effort to execute the necessary park operations in accordance with the park's mission to protect and preserve vital park resources. Facilities include access roads, parking, trash receptacles, signage, and associated grounds maintenance. Park staff knowledge was used to evaluate the impacts of each alternative.

IMPACT THRESHOLDS

- **Negligible:** Changes to stated requirements for park maintenance operations and facility functioning, and Ranger presence would be barely detectable and create no noticeable difference in existing conditions. An action would have no measurable impact on operations in the Chilton Creek area.
- **Minor:** Actions with minor impacts would affect operations to some extent but would not put a noticeable strain on existing routine maintenance or Ranger requirements for staff. Impacts to park staff workloads and expenditures associated with those changes would be minimal and unlikely to adversely affect the existing maintenance regime.
- **Moderate:** There would be noticeable changes in terms of park operations. Existing staff workloads would be affected and materials and equipment costs would be measurably affected.
- **Major:** Actions would affect maintenance and Law Enforcement operations to the extent that staffing and base funding allocations would need to be modified to accommodate the change.

ALTERNATIVE A – No action

Analysis: *Maintenance:* In this alternative existing maintenance staffing requirements would remain the same. Workloads and operational equipment and materials costs for both custodial staff and the road crew would periodically increase following flood events which, given the site is a river access located within the floodplain, are expected to occur along the unstable reach of the Current River at Waymeyer Landing. *Law Enforcement:* Law Enforcement staffing and operations will continue to be impacted by unrestricted parking and traffic problems. In addition, resolving issues between different visitor user groups would continue.

Cumulative Impacts: *Maintenance:* Conditions for maintenance operations in the No-Action Alternative would remain largely unchanged with the maintenance regime periodically affected in the event of flooding. Cumulative impacts are not foreseen. *Law Enforcement:* These conflicts, traffic congestion and off-road parking would increase the need for a law enforcement presence in the area.

Conclusion: *Maintenance:* Alternative A (No-Action) would result in negligible long-term impacts to park maintenance operations at Waymeyer Landing. *Law Enforcement:* Alternative A (No-Action) would result in minor long-term adverse impacts to Law Enforcement operations at Waymeyer Landing.

ALTERNATIVE B – Restore previously existing boat launch access ramp at Waymeyer Landing –separate from the floater launch area, construct separate access road, establish/define use patterns providing additional signing and designated parking for 10 private vehicles with boat trailers and 8 cars.

Analysis: *Maintenance:* In this alternative there would be an initial expenditure to cover equipment and associated materials costs for the construction of a new boat ramp, spur road, sign installation, and parking areas. Staff workloads and time allotments would increase during the construction period for both the Lower Current Maintenance District (Big Spring Maintenance Shop) and the Roads crew (Shawnee Shop). Once construction is completed, existing maintenance operations would be comparable to the No-Action Alternative with a slight increase to the workload due to some additional periodic mowing or brushing and tread surface maintenance around the new ramp and along the new access road leading to the ramp, and around the newly defined parking areas. Additional staffing would not be required. The travel time and equipment requirements allotted to maintain custodial service at the existing vault toilet and trash pick-up would not change appreciably since the visitation to the site would remain close to the same. The road crew workload would be affected by a slight increase in time required to maintain the access road leading to the new ramp and parking areas. *Law Enforcement:* With this alternative, the restoration of the boat access and the construction of a access road, separate designated parking, and signing to define use would reduce the need for Law Enforcement presence to be onsite to direct visitor use.

Cumulative Impacts: *Maintenance:* Moderate changes will be implemented in Alternative B. There would be a modest increase to workloads resulting in impacts to park routine maintenance operations which would not require additional staff or equipment. Cumulative impacts to maintenance operations would be negligible to minor. *Law Enforcement:* The need for Law Enforcement Rangers at the site would be reduced.

Conclusion: *Maintenance:* Alternative B would result in moderate temporary adverse impacts to maintenance operations affecting staff, equipment, and materials costs during the period of construction. This would be followed by minor long-term adverse impacts to routine park maintenance operations at Waymeyer Landing. *Law Enforcement:* Alternative B would result in minor long-term beneficial impacts to Law Enforcement operations at Waymeyer Landing.

ALTERNATIVE C – Restore the previously existing boat launch access in the Chilton Creek area by relocating the boat ramp to a separate site along a segment of Current River upstream from Waymeyer Landing (approximately 1.1 mile), and provide access and parking for 10 boat trailers. Maintain existing facilities at Waymeyer Landing to serve visitor floater access (canoes, tubes, kayaks, rafts), providing additional signing and designated parking for 10-14 vehicles.

Analysis: *Maintenance:* As in Alternative B, in this alternative there would be an initial expenditure to cover equipment and associated materials costs for the construction of a new boat ramp. In addition, because this alternative proposes the development of a new site within a previously undeveloped section of the Current River, the park will also be constructing a new access road off Co. Rd. 151 and a new parking area to accommodate ten vehicles pulling boat trailers. Staff workloads and time allotments would increase during the construction period for both the Lower Current Maintenance District (Big Spring Maintenance Shop) and the Roads crew (Shawnee Shop). Once construction is completed, routine maintenance operations in the Chilton Creek area would be need to be expanded. The increase to the workload for the Lower Current Maintenance staff due to additional mowing or brushing around the new ramp, along the access road and parking area, as well as trash pick-up will require additional time and equipment expenditures. However, additional staffing would not be required to accomplish this. Travel time to and from the Chilton Creek area would remain essentially the same. The road crew workload (Shawnee Shop) would be affected by an increase in time required to maintain the new access road and parking area. *Law Enforcement:* With this alternative, the restoration of the boat access in the Chilton Creek area, separate designated parking, and signing to define use would reduce the need for Law Enforcement presence to be onsite to direct visitor use.

Cumulative Impacts: *Maintenance:* The construction of a new site in the Chilton Creek area will add to maintenance workload and increase associated expenditures for equipment and materials to some degree but the impact will be finite and should not require additional staff or equipment. Moderate changes will be implemented in Alternative B. Cumulative impacts to maintenance operations would be minor. *Law Enforcement:* The need for Law Enforcement Rangers at the site would be reduced.

Conclusion: *Maintenance:* Alternative C would result in moderate temporary adverse impacts to maintenance operations affecting staff, equipment, and materials costs during the period of construction. This would be followed by minor long-term adverse impacts to routine park maintenance operations in the Chilton Creek area. *Law Enforcement:* Alternative C would result in minor long-term beneficial impacts to Law Enforcement operations at Waymeyer Landing.

6.0 CONSULTATION AND COORDINATION

6.1 Public Involvement

On September 7, 2007 a public scoping letter was used to notify local, State, and Federal representatives, interested agencies, and the general public of the proposed action to construct a safe and maintainable boat ramp in the area of Chilton Creek. This letter was electronically posted along with contact information on how to obtain more information or comment on the action. Mailings were also sent to a select list of interested parties and stakeholders. A total of eight responses to the scoping letter were received. The responses were reviewed and filed in the administrative record kept at ONSR headquarters in Van Buren, Missouri.

6.2 Agency Consultation

Ethnographic Review

An ethnographic tribal identity study has been completed for Ozark National Scenic Riverways by Dr. Maria Zedeno which identified those Native American Tribes that have historic cultural affiliation with lands now included in the park. Native American groups having demonstrable affiliation to the region are:

a. Cherokee Nation
b. Keetoowah Band Cherokee
c. Osage Nation
d. Delaware Tribe
e. Delaware Nation
f. Eastern Shawnee Tribe
g. Shawnee Tribe
h. Absentee Tribe

In August 2003, Noel Poe, Superintendent of ONSR, and James E. Price, Ph.D., Archeologist, ONSR, consulted with leaders of these Tribes in Oklahoma in compliance with Section 101(d)(6)(b) of the NHPA. No historic accounts or archeological evidence have been found associating these Tribes with the subject tracts of land within the Chilton Creek area. In October 2006, Noel Poe, Superintendent of ONSR, Russ Runge, Deputy Superintendent of ONSR, and James E. Price, Ph.D., Archeologist, ONSR, consulted with leaders of the above Tribes to request input on the development of the park's new General Management Plan.

Section 7 – Endangered Species Act Compliance

On September 6, 2007 a letter regarding the intended action was sent to the U.S. Fish and Wildlife Service (USFWS) Field Supervisor in Columbia, Missouri to obtain information on Threatened and Endangered species within the vicinity of the Chilton Creek project area. A response to this request was received on October 18, 2007. In it the USFWS noted that there is one species of conservation concern that occurs within the project area, the Ozark hellbeneder (*Cryptobranchus alleganiensis bishopi*), which is a candidate for federal listing under the Endangered Species Act. Records indicated that Ozark hellbenders were identified approximately four miles upstream and downstream from the proposed project area on the Current River. The recommendation was to take appropriate measures to minimize siltation during the construction of a new boat ramp.

As the planning process proceeded, and information regarding site specific development for three alternatives was presented to the U.S. Fish and Wildlife Service for comment, a second response letter was received on July 2, 2008. In reviewing the alternatives, as presented at that time, the response indicated that alternative B would appear to have less of an impact to the Ozark Hellbender. There was concern that alternative C would create a river access where previously none has existed. However, based on the impact analysis in section 5.5, Threatened,

Endangered, and Species of Special Concern, it is determined that both Alternative B and C "may affect/not likely to adversely affect" Ozark hellbenders within the project area. Under Alternative C, less bottomland forest vegetation would be removed, there is a lack of suitable Ozark Hellbender habitat in the immediate vicinity, and siltation would be kept at a minimum through mitigation measures. Therefore it was determined that neither Alternative B nor C held more significant impact over the other, and both were considered to have minimal impact on the Ozark Hellbender.

Section 404 – Clean Water Act and State Water Quality Certification through Section 401 of the Act

In September of 2008, Mike Gossett, Biological Technician for ONSR, consulted with the U.S. Army Corps of Engineers(USACE), Little Rock District, to accurately identify the OHWM for the impact analysis of this EA. Since the area below the OHWM will be impacted in the two construction alternatives, a permit from the USACE and Water Quality Certification from the Missouri Department of Natural Resources will be obtained if Alternative B or C is selected.

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8.0 LIST OF PREPARERS

The following persons assisted with the preparation of this document:

Ozark National Scenic Riverways

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APPENDICES

Appendix 1: Public Scoping Letter

United States Department of the Interior

NATIONAL PARK SERVICE
Ozark National Scenic Riverways
404 Watercress Drive
P.O. Box 490
Van Buren, Missouri 63965

IN REPLY REFER TO:

D18 (xL76) (xN16)

September 6, 2007

Greetings:

The National Park Service (NPS) seeks your input on a proposal to construct a stabilized boat ramp and parking area upstream from Van Buren above the "gap" in the vicinity of Chilton Creek on the lower Current River. Attached you will find the Public Scoping Notice containing background information and a statement of purpose and need.

If inclined, please respond with any information you believe may be useful during this planning process by September 21, 2007, via the methods listed in the attached scoping notice. Ozark National Scenic Riverways is interested in hearing from you regarding your concerns or suggestions. Thank you for your time and consideration and we look forward to collaborating with you on this project.

Sincerely,

Russell R. Runge

For Noel R. Poe
Superintendent

Enclosure

Public Scoping Notice

Environmental Assessment
Ozark National Scenic Riverways

<u>Proposed Project</u>: Construction of a stabilized Boat Ramp & Parking Area (Current River – Waymeyer Landing/Chilton Creek Area) *Reference attached Location Map.*

Overview:
The National Park Service (NPS) - Ozark National Scenic Riverways (OZAR) is seeking initial comment from the general public and relevant agencies as the park begins preparing an Environmental Assessment (EA). The intent is to analyze and evaluate several proposed alternative actions which could be taken on the Lower Current River upstream from the Van Buren "gap" in the general vicinity of the Chilton Creek area. The objective will be to mitigate conditions that give rise to concerns about visitor safety, to reduce the potential for visitor-use conflicts, and to enhance the potential for a variety of visitors to enjoy their time on the river. At this stage of the planning process, scoping is an essential tool for gathering input on issues and possible alternatives that should be considered during analysis. Scoping provides an opportunity for park staff to gather additional information and also provides a forum for the public to voice relevant concerns during progressive stages of the planning process.

Background/Existing Conditions:
With the authorization of the Ozark National Scenic Riverways in 1964, Congress tasked the National Park Service with management of 134 miles of land and water resources along the Jacks Fork and Current Rivers to provide for both the protection and enjoyment of these resources. Connected to, but exclusive of the 134 miles of protected riverways, two "gaps" were to remain outside NPS jurisdiction. A four mile stretch of the Jacks Fork River at Eminence, Missouri and a four mile stretch of the Current River at Van Buren, Missouri lie outside the ONSR boundary. This has resulted in challenges for both the park and the local communities, as over time these "gaps" have flourished as centers of concentrated commercial tourist related activities.

On busy summer weekends the Current River above Van Buren is congested with hundreds of tubes and canoes, the majority floating between Waymeyer Landing and Van Buren. Boat operators electing to launch their outboard motor boats from one of the two public boat ramps at Van Buren must negotiate around "floaters" before reaching sections of the river to the north where minimal "float" traffic is encountered. There is an existing boat launch ramp within the park at Waymeyer Landing upstream from the Van Buren "gap", but the gravel ramp is steep and unstable and there is little or no parking space to accommodate vehicles pulling boat trailers. The Waymeyer Landing site also serves as a primary "put-in" for park-contracted concession operations. Concession buses transporting floaters and hauling canoe trailers/tubes arrive to launch floaters and the site becomes exceedingly congested on summer weekends.

Purpose and Need for Action:
The increased traffic on summer weekends along this stretch of river between Waymeyer Landing and Van Buren has resulted in increasing conflicts of use during the height of the summer season as thousands of tubes and canoes share this short stretch of the Current River with outboard motor

boats on busy weekends. Issues of safety and overcrowding jeopardize the quality of each of these varying types of visitor experience and have become an increasing cause for concern for the visiting public, the local community, and the park.

The desired goal and driving purpose of this EA is to examine such actions which could be taken to mitigate the conditions giving rise to concerns about visitor safety, to reduce the potential for visitor use conflicts, and to enhance the potential for a variety of visitors to enjoy their time on the river. To this end the park is evaluating a proposal to provide enhanced facilities at, or near, Waymeyer Landing in the vicinity of Chilton Creek which is situated above the Van Buren "gap". This would allow motor boat operators an opportunity to avoid the "float" traffic downstream.

Request for Public Comment:

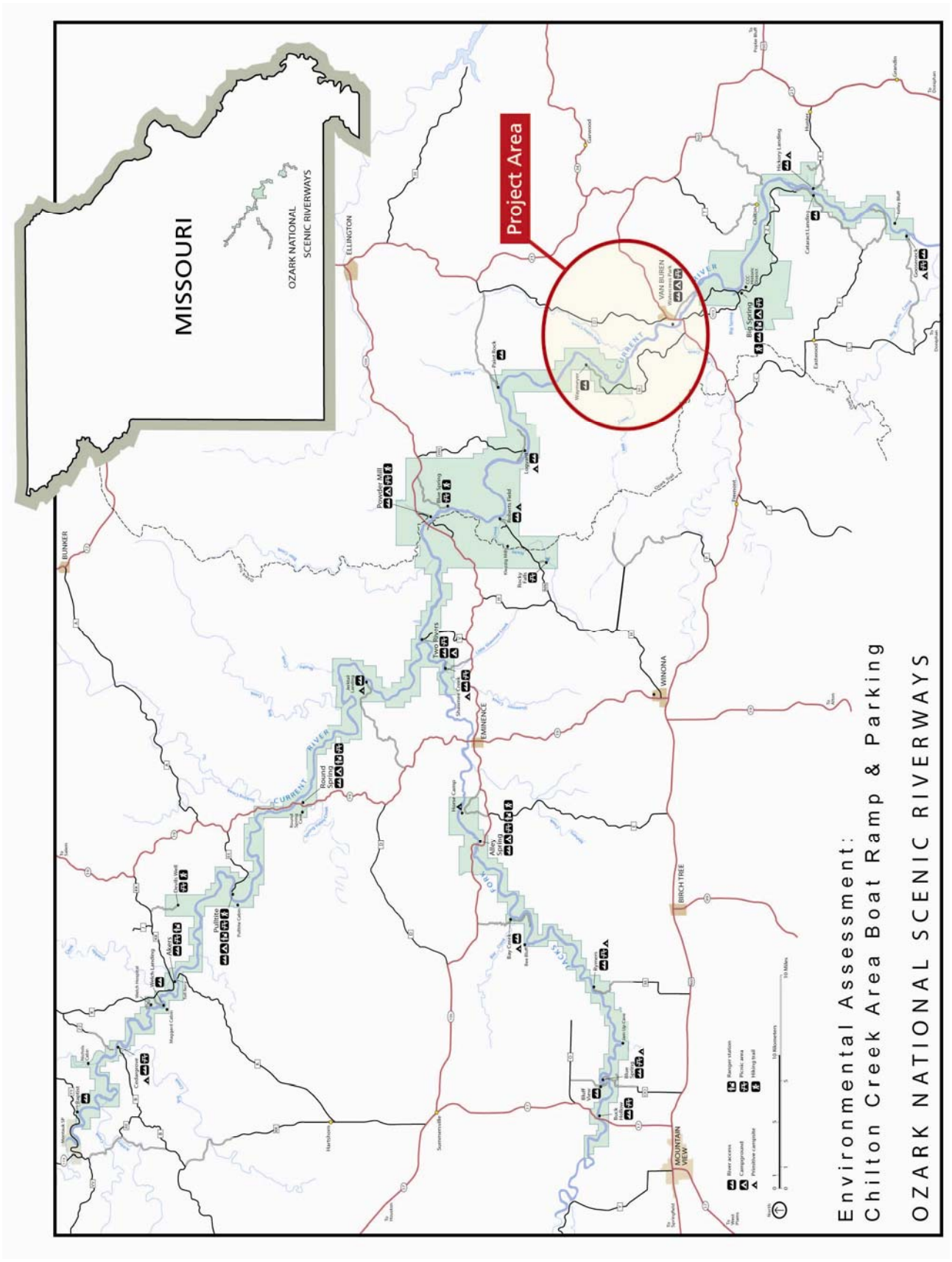
The National Park Service is taking initial public comments from interested parties at the advent of this "planning process". There will be additional opportunity to comment once the 'draft' Environmental Assessment is posted for public review in late 2007. It is critical that you, as a citizen and visitor, inform the park of relevant issues that concern you. Your comments will help to insure that we have addressed all aspects of concern, and explored a wide spectrum of alternatives. Several leading questions that might help you focus your comments are:

- Has the park identified and defined the issues/problems satisfactorily (refer to *Background* and *Purpose & Need* above)? Can you add to this? Do you agree that the issues, as stated, are a problem?

- In addition to the proposed action (alternative) to provide an upgraded boat launch facility at (or near) Waymeyer Landing---are there any other alternative actions which the park could take that would assist in alleviating the issues of crowding, lessen safety hazards, diminish the potential for conflicts between various user groups, and enhance the overall visitor experience?

Submitting Your Comments:

If you have any comments regarding this proposal, please send them in writing by September 21, 2007 to the Superintendent, Ozark National Scenic Riverways, P.O. Box 490, Van Buren, MO 63965. Or, you may elect to visit the National Park Service Planning, Environment and Public Comment (PEPC) site (http://parkplanning.nps.gov) to submit your comments.


MISSOURI
OZARK NATIONAL SCENIC RIVERWAYS
Project Area
ELLINGTON
VAN BUREN
CURRENT RIVER
Big Spring
BUNKER
Round Spring
Two Rivers
EMINENCE
WINONA
BIRCH TREE
MOUNTAIN VIEW
Alley Spring
Powder Mill
Pulltite
Akers
Environmental Assessment:
Chilton Creek Area Boat Ramp & Parking
OZARK NATIONAL SCENIC RIVERWAYS

Appendix 2: Flora – Chilton Creek Study Area

FLORA - Chilton Creek EA Project Area

Alternative A & B - Waymeyer Landing

All Species Identified are within the Bottomland Forest:

Herbaceous

Oxalis stricta- Sourgrass, Yellow sorrel
Physalis virginiana- Virginia ground cherry
Ambrosia artimisifolia- Common ragweed
Chasmanthium latifolium- River oats
Pilea pumila- Clearweed
Aristolochia serpentena- Dutchman's pipe
Lespedeza intermedia- Intermediate lespedeza
Lespedeza cuneata- Sericea lespedeza
Justicia Americana- Water willow
Cassia marilandica- Senna
Elymus virginia- Wild Rye
Ambrosia trifada- Great ragweed
Verbacena virginica- Wingstem
Parthenocissus quinquefolia- Virginia creeper
Carex grayi- Gray's sedge
Rhus radicans- Poision Ivy
Smilax hispida-Bristly green briar
Laportea canadfensis-Stinging nettle
Vitis- grape
Viola soroea- Woodland violet
Smilax bona-nox- Cat briar
Lepidium virginicum- Pepper grass
Muhlenbergia sobolifera- Muhly grass

Shrub

Cephalnthus occidentalis-Button bush
Acer negunda- Boxelder
Celtis occidentalis-Dwarf hackberry
Lindera benzoin-Spice bush
Symphoricarpos orbicultus- coral/buck brush

Subcanopy

Ulmus rubra- slippery elm
Beula nigra- River birch
Gleditsia tricnthios- Honey locust
Acer sacchrum- sugar maple

Overstory
Platanus occidentalis- Sycamore
Acer sacchrum- Sugar maple

Alternative C - Downstream from Pin Oak

Species Identified within the Bottomland Forest:

Herbaceous
Oxalis stricta- Sourgrass, Yellow Sorrel
Chasmanthium latifolium- River Oats
Pilea pumila- Clearweed
Aristolochia serpentena- Dutchman's pipe
Elymus virginia- Wild Rye
Ambrosia trifada- Great ragweed
Parthenocissus quinquefolia- Virgina creeper
Rhus radicans- Poision Ivy
Smilax hispida-bristly green briar
Laportea canadfensis/ Urtica dioaca-stinging nettle
Vitis- grape
Viola soroea- Woodland violet
Smilax bona-nox- Cat briar
Muhlenbergia sobolifera- muhly grass
Podophyllum peltatum- May apple
Cardamin bulbosa- Springcress
Desmodium pauciflorum- panicleleaf ticktreefoil
Rosa multiflora-multiflora rose
Desmodium nudiflorum-naked flower ticktreefoil
Ipomea pandurata-Potato vine
Asarum canadens-Wild ginger
Matelea decipens- climbing milkweed
Campsis radicans- trumpet vine
Hypericum perforatum- Common St. John's Wort
Erigeron strigosus- Daisy fleabane

Shrub/Subcanopy
Acer negunda- Boxelder
Lindera benzoin-Spice bush
Symphoricarpos orbicultus- coral/buck brush

Dirca palustrus- Leatherwood
Quercus muhlenbergii- Chinkapin oak

Overstory
Ulmus rubra- slippery elm
Gleditsia tricnthios- Honey locust
Carya texana- mockernut hickory
Quercus muhlenbergii- Chinkapin oak
Acer rubra- Red maple
Celtis occidentalis-Dwarf hackberry
Cercis Canadensis- Red bud (growing as a seedling)

Species identified within the Open Field:

Lespedeza cuneata- Sericea lespedeza
Chasmanthium latifolium- River Oats
Erigeron strigosus- Daisy fleabane
Physalis virginiana- Virginia ground cherry
Solidago ulmnifolia- elm leaved goldenrod
Schizachyrium scorpium-Little bluestem
Tridens flavus- purple top/greasy grass
Rudbeckia hirta- Blackeyed susan
Bumelia lanuginosum- gum bumelia
Desmodium nutallii- Nutalli's ticktreefoil

Appendix 3: Current River – Chilton Creek Area Fluvial Geomorphology Final Report

Report prepared by Chris Cash, P.E., available upon request, or it can by downloaded at the National Park Service Planning, Environment and Public Comment (PEPC) site (http://parkplanning.nps.gov).