

# RECLAMATION

*Managing Water in the West*

FONSI No. 2018-02  
Project No. 2016-073

## Resource Management Plan for Horsetooth Reservoir Carter Lake Pinewood Reservoir Flatiron Reservoir Colorado-Big Thompson Project

**Finding of No Significant Impact**

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Area Manager



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Bureau of Reclamation  
Great Plains Region  
Eastern Colorado Area Office

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## **Mission Statements**

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

## FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, as amended, and the Council on Environmental Quality's Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR Part 1500-1508), the Bureau of Reclamation has prepared an environmental assessment for revisions to the Resource Management Plan (RMP) for Colorado-Big Thompson (C-BT) Project lands and reservoirs managed by the Larimer County Department of Natural Resources (Larimer County). The RMP revisions are incorporated as Appendix A of the final Environmental Assessment. The Environmental Assessment analyzes No Action and Proposed Action alternatives.

The Environmental Assessment is programmatic; it establishes only a conceptual framework for evaluating resource impacts and does not contain sufficient detail to implement any specific activities and improvements. As such, it focuses on a broad scale of resource impacts associated with the Action Alternative and its broad level of proposed development activities. Site-specific resource impacts will be addressed under separate National Environmental Policy Act compliance tiered off of this Environmental Assessment prior to implementation.

Based on the following, Reclamation has determined that the Proposed Action will not result in a significant impact on the human environment.

### Background

The RMP includes four reservoirs constructed under the C-BT Project: Horsetooth Reservoir, Carter Lake, Pinewood Reservoir, and Flatiron Reservoir. The four reservoirs are a portion of the larger C-BT Project. The initial C-BT Project was authorized by Congress on June 15, 1937. The C-BT Project transports about 260,000 acre-feet of supplemental water annually from the western slope of the Continental Divide to meet demands of over 30 cities, towns, and irrigated farmland in the northeastern portion of the Front Range of Colorado. The public agency, Northern Colorado Water Conservancy District (Northern Water), was created to distribute C-BT Project water through a network of canals once it leaves Horsetooth Reservoir and Carter Lake.

All four reservoirs support a variety of recreational opportunities near the cities of Fort Collins and Loveland, Colorado. In 1954, Reclamation and Larimer County entered into a recreation agreement to allow Larimer County to manage public recreation on Reclamation's four reservoirs. In 1997, the original 1954 recreation agreement between Reclamation and Larimer County was replaced with a 25-year Memorandum of Understanding No. 97-AG-60-09220. Larimer County is funded mostly through sales tax and use tax. It can also receive federal cost-share monies (through what is known as Title 28 grant program) to supplement recreational improvements on federal lands. Larimer County also has the authority, under Memorandum of Understanding No. 97-AG-60-09220, to issue and administer various licenses, leases, permits and contracts with private and civic groups for the public recreation purposes at the four reservoirs. In addition to permitting numerous seasonal recreational events, such as fishing

derbies, boating regattas, and weddings, Larimer County maintains longer-term agreements, with prior approval by Reclamation, for marina and paddleboard concession operations at Horsetooth Reservoir and Carter Lake.

## **Purpose and Need**

The purpose of Proposed Action is to establish a plan that defines the management framework for the conservation, protection, and enhancement of Horsetooth Reservoir, Carter Lake, Pinewood Reservoir, and Flatiron Reservoir. The RMP guides Reclamation, along with Larimer County and other participating agencies, in managing, allocating, and appropriately using federal land and other resources at the four reservoirs while protecting the authorized C-BT Project purposes and natural resources. The proposed revisions will update and replace the current RMP issued in 2007. The update to the RMP is necessary to address an increasing amount of use at the four reservoirs and their associated recreational facilities and is expected to be used for the next 10 years.

The RMP is a planning document and it includes management goals with associated objectives for the four reservoirs. The management objectives have multiple purposes. The purposes include appropriate use and protection of the land and associated natural resources while, at the same time, protecting the authorized C-BT Project purposes and being consistent with the mission and goals identified in Reclamation's and Great Plains Region's mission and vision statements ([https://www.usbr.gov/gp/about\\_us/vision.html](https://www.usbr.gov/gp/about_us/vision.html)) and the Department of Interior's Strategic Plan. Reclamation's and Larimer County's management goals are similar and include but, are not limited to: management, development, and protection of water and other related natural resources in a safe, efficient, and effective manner. The specific goals, or desired future conditions, with associated objectives set to help reach the goals are described in the RMP.

## **Project Alternatives**

### **No Action Alternative**

For the No Action Alternative, Larimer County's 2007 RMP would not be revised. This would continue current management practices. No new facilities would be provided to meet existing and future public needs or demands. Also, current resource management practices and operations would not change and management actions would occur on a case-by-case basis to meet federal, state, and local laws and regulations. Finally, maintenance of the existing facilities would continue as needed.

### **Proposed Action**

Under the Proposed Action, Reclamation would revise Larimer County's 2007 RMP and issue an updated RMP. The Proposed Action includes a full range of activities and improvements to be implemented at all four reservoirs in the project area. The Proposed Action supports a moderate level of new recreation facility development, most of which within existing developed areas. Overall, improvements and upgrades would maintain the current level of service. In addition to facility development, the RMP provides a new management framework defining a series of use

zones with varying levels of resource protection, use types and intensity, and desired recreational experiences.

The 2018 RMP adds 72.05 acres of new development within the existing recreation footprint. The new developments include 47 acres at Horsetooth Reservoir, 24.45 acres at Carter Lake, 0.5 acres at Pinewood Reservoir, and 0.1 acres at Flatiron Reservoir. The planned campsite and additional parking spaces are listed in Table 1.

**Table 1-2018 RMP Revision Planned Campsites and Additional Parking Spaces**

	Horsetooth Reservoir	Carter Lake	Pinewood Reservoir	Flatiron Reservoir	Net Change
<i>Proposed new RV campsites</i>	0	+6	0	0	+6
<i>Proposed new tent campsites*</i>	+5	+6*	0	0	+11
<i>Proposed new cabins</i>	0	+6	0	0	+6
<i>Proposed new car parking spaces</i>	+40	+165	0	0	+205
<i>Proposed new trailer parking spaces</i>	+90	+57	0	0	+147

\*Addition of 20 sites at Big Landia, removal of 7 sites from Carter Knolls and 7 sites from Big Thompson.

Key projects under the Proposed Action at **Horsetooth Reservoir** include:

#### **North of Horsetooth Dam**

- Develop a static Archery Range near County Road 25G. This area was disturbed in the past by motorized recreational use. Allow day use only with safety as a priority (target distance, terrain shielding, etc.)
- Provide 40 parking spaces.
- Add a large group day use area and shelter.
- Provide a locked gate when archery range is closed (sunset to sunrise).
- Use wildlife-friendly Fencing around riparian and wetland area near archery range to prevent social trails, fragmentation, or disturbance.
- Construct single track walking trail with 3-dimensional targets along trail.

#### **Satanka Bay and Expanded Parking Area**

- Add guardrail path on south side of dike.
- Develop approximately 90 new trailer parking spaces. Construction would be phased in response to observed demand. This parking area would be used primarily during periods of higher demand, such as weekends and holidays.
- Construct 900 foot road access from Satanka Boat Ramp to parking north of the dam area.
- Provide 1,200 foot access trail from parking to top of the day-use area with switchbacks up ridge.
- Construct an improved paddle sports launch area. Provide sand, improved access, and other means to reduce bank erosion and improve the visitor experience.

Key projects under the Proposed Action at **Carter Lake** include:

### ***North Pines Campground***

- Add approximately 10 new parking spaces.
- Add approximately 22 new boat trailer parking spaces, including 11 pull through and 11 pull in.
- Replace existing camping sites with day use areas.
- Construct dryland boat storage racks to store up to 50 sailboats on site during winter months.
- Replace or improve the Carter Lake Sailing Club Clubhouse in partnership with the Sailing Club when needed.

### ***Big Thompson & Quarry Area***

- Convert the campground to a day use area.
- Provide approximately 90 parking spaces for day use at Big Thompson.
- Designate and delineate up to 3 areas along the shoreline for swimming.
- Construct standing grills, landscaping and trees, and Americans with Disability Act accessible paths at Big Thompson.
- Develop a trail leading south to the existing natural swim area.
- Construct quarry overflow parking area in a future phase. Parking would be a natural surface, used only seasonally during high water, and fenced. It would include approximately 45 vehicle parking spaces and 35 boat trailer parking spaces.
- Provide a floating courtesy dock.
- Construct an enhanced pedestrian crossing and steps to the courtesy dock.
- Construct an overlook along County Road 31.

### ***Big Landia***

- Construct 1 new restroom.
- Add approximately 20 parking spaces.
- Add 20 tent pads.
- Construct a group campground with large group shelter and fire ring.
- Operate group campground by reservation only, and install a locked gate for use during unreserved periods. Open camping to individual reservations if area is not reserved by groups (2 weeks out).
- Construct trail to existing natural swim area in a manner that protects the dam and install a cross walk to safely channel visitors crossing the County Road 31.
- Add a loop trail extending to the south.

Planned actions at **Pinewood Reservoir** and **Flatiron Reservoir** are largely limited to enhancements of existing facilities. The 2018 RMP revisions are in Appendix A of the final Environmental Assessment.

## Consultation and Coordination

During development of the RMP, a 45-day scoping period (July 7 to September 9, 2016) allowed the public to identify issues, opportunities, constraints, and ideas for managing resources and recreation use at the four reservoirs. Three meetings were held: one at Horsetooth Reservoir (South Bay Group Pavilion), one near Carter Lake (Larimer County Natural Resources Administration Offices), and one at The Ranch Events Complex (near I-25 and Crossroads Boulevard in Loveland, Colorado). In total, over 140 people attended the meetings.

Following initial public and stakeholder input, concepts were developed for improvements to several recreation areas at the four reservoirs. The concepts were reviewed by the public during a 30-day review period (November 4 - December 3, 2016) and public meetings were held in Fort Collins and Loveland, Colorado. A total of 93 participants attended the public meetings on alternatives. Hard copy and online questionnaires requested the public review alternative concepts and provide feedback on facilities provided, site layouts, and other content. A total of 744 people responded to the questionnaire. A summary is in the RMP.

A 60-day public comment period on the draft RMP and associated analysis was held from May 26 to July 25, 2017. The draft RMP and associated analysis was announced by publication of a Notice of Availability on Reclamation's website and two public meetings were held in Loveland and Fort Collins during the comment period. Comments were collected online, via e-mail, and writing at the public meetings and a total of 117 written comments from 39 individuals were collected. A summary of the comments received and Reclamation's responses are in the final Environmental Assessment.

The Colorado State Historic Preservation Office was consulted per Section 106 of the National Historic Preservation Act in January 2018. Consultation with tribal interests are on-going and will be concluded prior to implementation of the Action Alternative activities. Site-specific cultural resource impacts will be addressed through additional National Historic Preservation Act Section 106 consultation prior to implementation.

## Summary of Environmental Impacts

During the environmental review process, potential effects resulting from the Proposed Action were identified, either by the public, other agencies, or Reclamation. Reclamation used potential effects to help focus the environmental review process, to structure the Environmental Assessment, and to identify opportunities for mitigating or avoiding adverse effects of the Proposed Action, as appropriate.

In the attached Final Environmental Assessment, Reclamation evaluated the environmental consequences associated with implementing No Action or Proposed Action. This Final Environmental Assessment relies on information and analysis provided by Larimer County and the previous 2007 RMP and associated environmental analysis.

No unavoidable adverse impacts or irreversible and irretrievable commitment of resources are expected under the Proposed Action or the No Action. Table 2 below lists each resource

included in the RMP and includes a brief summary of impacts. Many of the proposed facilities are in areas of previous disturbance, and short-term and long-term impacts will be minor.

**Table 2-Summary of Resource Impacts**

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Hydrology and Water Quality	<b>No effect on reservoir hydrology.</b> Reservoir elevations would fluctuate based on natural inflows, precipitation, water demands, and operations. Anticipated increase in visitation may result in <b>long term minor adverse impacts to water quality</b> , such as increasing soil erosion discharge into reservoir from foot traffic and increased coliform bacteria levels due to visitors not using proper facilities. Capacity limits would not change.	<b>No effect on reservoir hydrology.</b> Capacity limits would not change. <b>Short term minor adverse impacts to water quality</b> during construction from increased soil disturbance. Erosion and soil control methods would be implemented. <b>Long term minor adverse impacts to water quality</b> and increased risk of undesirable contamination from human activities and run-off from more boating.	<b>No cumulative impacts expected</b> for hydrology or water quality. Note the Environmental Assessment does not include analysis of reservoir operations; therefore, cumulative effects to reservoir water levels have not been quantified.
Geology, Soils, Topography	Existing geologic features remain unchanged. <b>Minor long term adverse impacts to soil resources</b> would continue from ongoing maintenance activities and visitor use.	<b>Approximately 72 acres would be disturbed by construction activities.</b> Horsetooth Reservoir (47 acres), Carter Lake (25 acres), and < 1 acre at Pinewood and Flatiron Reservoirs. Erosion and soil control methods would be implemented.	<b>None expected.</b>



<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Vegetation and Fire Management	No change to existing vegetation, including sensitive species and conservation areas. <b>Negligible long term minor adverse impacts to vegetation</b> from increased visitor use. Noxious weeds would be controlled under an Integrated Pest Management Plan.	<b>Approximately 72 acres of vegetation would be disturbed by construction activities.</b> Horsetooth Reservoir (47 acres), Carter Lake (25 acres), and < 1 acre at Pinewood and Flatiron Reservoirs. Erosion and soil control methods would be implemented. <b>Short term minor adverse impacts from potential for increased noxious weeds</b> would be controlled under an Integrated Pest Management Plan.	<b>Minor</b> , related to cumulative loss of vegetation with other reasonably foreseeable projects.

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Fish/Wildlife	<p><b>Long term minor adverse impacts to wildlife resources</b> due to increased habitat degradation. Fisheries resources would face pressure from increased visitation and may need modified management/restocking practices.</p> <p>Physical closure of all non-authorized boat ramps will improve aquatic nuisance species protection at all four reservoirs where boating is allowed. Pinewood Reservoir is restricted to non-motorized vessels until funding is available to staff aquatic nuisance species (mussel) inspection.</p>	<p><b>Similar types of long term minor adverse impacts to wildlife resources as No Action</b> due to increased habitat degradation and growing public recreation use and traffic, as well as development of new facilities. Most disturbance (72 acres) would be in previously disturbed and lower density habitat. No known raptor nests or roost sites will be directly affected. Physical closure of all non-authorized boat ramps will improve aquatic nuisance species protection at all four reservoirs where boating is allowed. Pinewood Reservoir is restricted to non-motorized vessels until funding is available to staff aquatic nuisance species (mussel) inspection.</p>	<p><b>Negligible</b>, related to total loss of wildlife habitat with other reasonably foreseeable projects.</p>

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Threatened and Endangered Species and Wetlands	<p><b>No effect to threatened, endangered, or special status species.</b></p> <p><b>No effect to wetlands, riparian areas, and habitat associated with federally listed species.</b></p>	<p><b>No effect to threatened, endangered, or special status species,</b> including but not limited to the Ute Ladies'-tresses and Colorado Butterfly plant. No Colorado National Heritage Program conservation areas or other sensitive plant species will be directly affected. No water depletions are associated with Proposed Action, so no additional impact to Colorado River endangered fish species.</p> <p><b>No effect to wetlands, riparian areas, and habitat associated with federally listed species.</b></p>	<b>None expected.</b>
Recreation	<p><b>Minor long term adverse impacts on visitor use and satisfaction.</b> Current practices and boating capacity maintained. Expected shortages in parking, facilities, increased maintenance costs due to expected population growth and associated reservoir visitation.</p>	<p><b>Minor long term benefits from improved visitor satisfaction</b> from improvements and maintaining current practices and boating capacity.</p>	<b>Beneficial,</b> related to Proposed Action in addition to other increased recreational opportunities in the region.

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Visual Resources	Visual quality at all reservoir sites would remain the same. <b>No direct effects</b> to the visual resources.	<b>Minor long term adverse visual impacts to Horsetooth and Carter Lake Reservoirs.</b> Visual impacts at Pinewood and Flatiron Reservoirs negligible due to small scale projects mostly in already developed areas.	<b>Minor, long term, impacts</b> from planned improvements in addition to on-going land-use changes on private lands adjacent to reservoir sites.
Land Use	Land use at all reservoir sites would remain the same. Expected increase in population growth and associated visitation of the reservoir areas.	<b>Minor long term adverse visual impacts to Horsetooth and Carter Lake Reservoirs.</b> Negligible impacts on land use at Pinewood and Flatiron Reservoirs due to small scale of projects mostly within already developed areas. <b>No direct effects to adjacent land use.</b>	<b>None expected.</b>

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Public Facilities and Transportation	<b>Negligible adverse impacts</b> to public services. Expected population growth and increased reservoir visitation may intensify law enforcement demands and traffic congestion in some use areas.	<b>Minor long term adverse impacts to some public services and utilities from proposed developments.</b> Developments are anticipated to minimally increase visitation and traffic above the No Action; however, not to a level predicted to result in congestion or safety problems. Existing infrastructure is adequate to address predicted increases in use. Upgraded sanitation facilities will be self-contained and proposed electrical hook-up improvement will not require substantial amounts of electricity.	<b>Minor</b> , related to growing population and visitation use at reservoir sites.
Socioeconomics	Expected population growth and associated recreation visitation may be of <b>negligible long term benefit</b> to local businesses and Larimer County revenues.	<b>Negligible short term beneficial impacts</b> to socioeconomics related to construction employment and <b>minor long term beneficial impacts</b> related to increased visitation and increased expenditures.	<b>Negligible</b> , related to growing population and reservoir visitation in addition to other planned projects

Resource Topic	Alternative A No Action	Alternative B Proposed Action	Cumulative Impacts
Cultural and Heritage Resources	<p><b>No direct disturbance of cultural resources.</b> Existing access control and visitor management practices would continue. Expected increase in population growth and associated reservoir visitation may increase risk of disturbance of cultural sites.</p>	<p><b>One cultural resource potentially eligible for listing on the National Register of Historic Places could be impacted.</b> Additional field survey and eligibility evaluation would be needed prior to construction activities. Existing access control and visitor management practices would continue. Expected increase in population growth and associated reservoir visitation may increase risk of disturbance of cultural sites.</p>	<p><b>Negligible,</b> related to growing population and visitation use at reservoir sites.</p>
Paleontological Resources	<p><b>No foreseeable impacts</b> to paleontological resources.</p>	<p><b>No known paleontological resources would be impacted.</b> Additional field survey would be needed prior to construction. Existing access control and visitor management practices would continue. Expected increase in population growth and associated reservoir visitation may increase risk of disturbance of cultural sites.</p>	<p><b>None expected.</b></p>

<b>Resource Topic</b>	<b>Alternative A No Action</b>	<b>Alternative B Proposed Action</b>	<b>Cumulative Impacts</b>
Other Resources	<b>No impacts to air quality, environmental justice, Indian Trust Assets, wilderness, wild and scenic rivers, and national landmarks.</b>	<b>Same as No Action.</b>	<b>None expected.</b>

## Environmental Commitments

Environmental commitments will be implemented to offset potential impacts to resources at the four reservoirs.

No RMP activities with potential to adversely impact C-BT Project operations or maintenance activities will be authorized. This includes, but is not limited to impacts to power generation, water delivery, security, access, and safety. All proposed projects will be reviewed using a Reclamation-led conceptual design and review process. The Reclamation Operations and Maintenance Design Approval Process is included as **Exhibit A**.

A copy of the Environmental Commitments and associated Best Management Practices are incorporated as **Exhibit B**.

**1. Information Exchange (Meeting 1)**

- a. Schedule a Reclamation Operation and Maintenance (O&M) meeting with Larimer County Department of Natural Resources (Larimer County) and Northern Colorado Water Conservancy District (Northern Water) to exchange information, discuss conceptual design refinement, and collaborate on opportunities to optimize functionality and safety.
  - i. Reclamation dam safety overview and risk assessment discussion.
  - ii. Discuss ongoing Reclamation facility O&M activities and areas of concern.
  - iii. Receive information with County allowing Reclamation O&M staff to better understand County recreation goals.
  - iv. Onsite field trip to walk development locations, locate, survey, and stake pertinent Reclamation infrastructure and areas of interest (i.e. instrumentation, measuring devices, seepage holes, federal access routes, federal maintenance areas, observation areas, exclusion areas, and public hazards) with Larimer County.

**2. Conceptual Design Data Collection**

- a. For Reclamation review, the Larimer County shall overlay surveyed Reclamation infrastructure and areas of interest with conceptual designs.
- b. For Reclamation review, Larimer County shall overlay exclusion areas identified in Memorandum of Understanding No. 97-AG-60-09220, to ensure proposed development does not present encroachments.

**3. Conceptual Design Review by Reclamation staff and District**

- a. Reclamation Dam Safety, Facility Operation and Maintenance, Safety, and Security staff and appropriate Northern staff will review refined conceptual designs to identify potential interference with safety, protection, and operation of the reservoirs for irrigation, power generation and recreation.

**4. Compatibility Discussion (Meeting 2)**

- a. Schedule a Reclamation O&M meeting with Larimer County and Northern Water to review conceptual design compatibility with safety, protection, and operation of the reservoirs for irrigation, power generation and recreation.
- b. If interferences are identified, Reclamation will collaborate with Larimer County on developing mitigation opportunities if they exist (i.e. design modifications, signage, feature relocation, barriers, fencing, trail alignment adjustments).

**5. Conceptual Design Refinements**

- a. County will incorporate mitigation designs as appropriate and will make modifications as requested by Reclamation.
- b. Additional collaboration and coordination between Reclamation, Northern Water, and Larimer County, as necessary to achieve Conceptual Design approval from Reclamation.



**6. Further Design Levels**

- a. Identify a Reclamation review and approval process for more advanced Larimer County designs and specifications (30% design, 60% design, 90% design, Final Construction Documents and Specifications, etc).
- b. Starting at 30% design, Reclamation reviews the project for site-specific Colorado Big-Thompson Project impacts, security, environmental compliance, cultural compliance, and other as required under the RMP consistent with federal laws and current regulations.
- c. Any changes to project designs would require written approval from the appropriate Reclamation staff.

**7. Implementation**

- a. Reclamation will issue its final approval after review and approval of the projects final design. A notice to proceed to construction will not be issued until all site-specific compliance, permits, regulations, and other impacts have been addressed.
- b. Larimer County will provide as-builts upon completion of project.

***Recreation Facilities, Trails, and Aesthetic Values***

- Erosion control structures, such as waterbars, drain dips, checkdams, culverts, or French drains will be installed, where appropriate, to control water movement and protect soils and vegetation.
- User-created informal trails will be closed, restored, and discouraged.
- Proper regulatory and informational signing will be posted throughout the reservoir areas informing the public of rules and regulations governing the use of at the four reservoirs.
- During facilities or trails location, all efforts will be made to avoid wetlands, riparian areas, rare plant communities, cliffs, and steep and/or rocky slopes.
- In high use areas, designated campsites and signage may be used to limit ecological and social disturbance.
- Temporary recreation closures may be necessary when construction poses a risk to visitor safety or resource damage. Temporary signs and fencing would be installed when appropriate to prevent public access. Construction would be scheduled during periods of low use, to the practical extent.
- As much as possible, onsite material will be used for construction.
- Recreation facility development will complement the surrounding landscape as much as practical and will follow: (1) site specific recreation master plans; (2) design and construction criteria, guidelines, and standards; and (3) development criteria to protect the visual quality of the reservoir area.
- Reclamation and Larimer County will work with law enforcement entities to ensure enforcement of all laws and regulations.
- Mandatory boat vessel inspections will be required for all motorized boat vessels prior to launching and all unauthorized boat launches will be closed to prevent introduction of aquatic nuisance species. Authorized boat ramps will be physically closed when boat vessel inspections are not available.

***Noxious Weeds and Pest Management***

- Site and land use specific pest management protocol is discussed in the Integrated Pest Management Plan for the four reservoirs.
- Maintain compliance with state and local noxious weed laws.
- Reduce competition of undesirable plants with native and/or planted vegetation.
- Control vertebrate and invertebrate pests as necessary to protect public health and safety, and to prevent damage to public and private property.
- Clean all heavy equipment before entering and exiting construction sites to minimize transporting weed seed.
- Reseed after construction, heavy maintenance, and other soil disturbing activities.
- Minimize sources of weed seed. Use clean fill material from weed-free sources. If straw is used for stabilization and erosion control, it must be certified weed free or weed seed free.
- Control noxious weeds and prevent their establishment and spread on public and adjacent private lands.
- All known noxious weed populations at new construction sites will be treated or eliminated prior to project implementation to prevent the spread of these populations.

***Plants and Wildlife***

- Limiting construction related activities to avoid impacts to winter elk populations.
- Protect known active and inactive raptor nest areas.
- Avoid disturbing threatened, endangered, and proposed species (both flora and fauna) during breeding, young rearing, or at other times critical to survival. Areas will be closed to activities, as needed, during these periods.
- No trees suitable for bald eagle roosting will be removed unless they are dead or below the high water line.
- Maintain a database of important wildlife resources, fill data gaps that are currently unknown (e.g., active raptor nests, additional winter eagle use area).
- Establish a cooperative program to inventory and monitor wildlife resources.
- Restore disturbed areas with native plant species to enhance existing wildlife habitat; establish native plants in areas disturbed by new construction.
- Control the invasion and spread of noxious weeds and other undesirable exotic plants that threaten native habitat or biological diversity.
- Where new facilities in undeveloped areas are within Potential Conservation Areas, Larimer County natural resource and Colorado Natural Heritage Program specialists will be consulted to prevent impacts to rare species.

***Soil and Water***

- Where excessive soil impacts exist from prior activity, the emphasis shall be on reclamation and preventing any additional detrimental impact, where feasible.
- Build erosion resistance into project design to reduce costly maintenance and restoration (Clean Water Act Sections 402(p) and 404); mitigate concurrently with construction (disturbance of more than 5 contiguous acres per project requires a state storm water discharge permit; a 404 permit would be required if more than 0.5 acre of Waters of the United States are disturbed).
- Where required by state laws, appropriate permits relating to discharge and sedimentation will be obtained prior to construction.
- Erosion control plans and re-vegetation plans will be developed and implemented in project-specific National Environmental Policy Act compliance.
- When constructing roads and trails, steep slopes and areas already prone to landslides, should be avoided where possible. Specific measures to stabilize landslide potential slopes will need to be identified in the project-specific National Environmental Policy Act compliance.
- Avoid soil-disturbing actions during periods of heavy rain, wet soils, and periods of heavy snowmelt.
- Control adverse water quality effects from human activities below high water levels.
- Allow camping in designated sites only.
- Protect or restore shoreline vegetation as a means of controlling erosion.
- Ensure that operations at marinas follow best management practices for fueling boats and use of fuel containers. Control potential pollutants (gasoline, petroleum products) associated with boat activity.

- Coordinate with the Larimer County Community Development and Health and Environment Departments to minimize contamination from sewer systems and other land uses.
- Design catchment basins and or wetlands to detain runoff from campgrounds and parking lots.
- Reclamation and Larimer County would implement management practices at boat launches and marinas to control the introduction and spread of these invasive species following guidelines specified by the Colorado Parks and Wildlife Aquatic Nuisance Species Program.
- Minimize the area disturbed during construction.
- Control runoff from disturbed areas during construction.
- Revegetate disturbed areas as soon as practically possible after construction.
- Construct trails to have the minimal necessary widths.
- Construct trails to follow topographic contours or to have low slopes.
- Use retaining walls where necessary.
- Minimize native tree removal.

### ***Cultural/Paleontological Resources***

- All contracts will include “stop work” clauses if evidence of cultural resources, paleontological resources, or endangered species are found during construction. If encountered, avoidance of any further disturbance and protection of the resources discovered will occur if possible. If avoidance is not possible, Reclamation will complete consultation with the appropriate agency and implement mitigation measures prior to approving any additional construction activity around influence.
- In accordance with the National Historic Preservation Act, all significant cultural resources (historic properties) will be protected or mitigated in consultation with State Historic Preservation Office and tribes.
- Prior to the initiation of any federal undertaking within the concept areas, all cultural resources sites within the undertaking Area of Potential Effects area will be evaluated for their National Register Historic Places eligibility.
- If historic properties are located within the individual concept plan areas, and if they would potentially be adversely affected by activities, a Memorandum of Agreement will be developed. The Memorandum of Agreement would include the terms and conditions agreed upon to resolve the adverse effects of the undertaking upon historic properties.
- Should an unknown cultural resource site be discovered during construction or slope stabilization, all ground disturbing activities within 100 feet of the discovery must be suspended immediately. Reclamation’s Eastern Colorado Area Office archaeologist will be notified and appropriate measures implemented to preserve the integrity of the site. No further work will be allowed in the area until the discover has been adequately investigated. All contracts would include a “stop work” clause if evidence of cultural resources is found during construction.
- Construction will not occur in areas of significant geological features. If any structures are proposed for construction in the Lykins Formation, a geotechnical evaluation will be performed to determine the risk of construction on or near sink holes.
- Cultural resource inventories at Horsetooth Reservoir are outdated, and areas of new development will require new surveys prior to National Historic Preservation Act Section 106 compliance.

***Wetlands and Riparian Areas***

- If stream crossings or other instream structures are necessary, they will be designed to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life.
- Avoid any loss of rare wetlands such as fens and springs.