

Appendix D: Project Design Features

Introduction

Project Design Features (PDFs) are actions that the BLM will take at the time of implementation to minimize the impact of the management action. This appendix defines the PDFs from which the BLM would select when implementing projects within C-CD in order to best eliminate or minimize impacts.

The PDFs below address activities that would be allowed under one or more of the draft alternatives. They are a compilation of commonly employed practices developed through professional experience or research and designed to minimize impacts to resources. They include, but are not limited to, avoidance, structural and nonstructural treatments, operations, and maintenance procedures. Although normally preventative, PDFs can be applied before, during, and after planned activities. Project Design Features are not intended to serve as detailed engineering specifications.

As noted in the alternatives, in the event that the approved RMP for C-CD includes the use of herbicides and pesticides as a tool for implementation, Bureau mandated Standard Operating Procedures (SOPs) would be applied. Some of the standard operating procedures serve the function of PDFs. These standard operating procedures are located in Appendix B the BLM's 2007 Record of Decision for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Final Programmatic EIS (BLM 2007) and Appendix A of the BLM's 2016 Record of Decision for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Final Programmatic EIS (BLM 2016).

Best Management Practices (BMPs) are practices or a combination of practices that have been determined to be most effective and practicable in preventing or reducing impacts of management actions. Many of the PDFs are also BMPs.

Selection and Application of PDFs

For actions implemented consistent with this RMP, BLM decision-makers will confer with BLM specialists and select appropriate and applicable PDFs from the lists below. The BLM will select PDFs based upon site-specific conditions, presence of listed species, or their critical habitat, technical feasibility, resource availability, and the resources potentially impacted. Not all of the PDFs listed will be selected for any specific management action.

The PDFs below do not provide an exhaustive list of all possible measures. During project planning and analysis, the BLM may identify measures not listed below for use in addition to a selection from this appendix. All measures will be applied in conformance with the RMP management direction.

Monitoring and Adjustment

The BLM will monitor the application of PDFs through implementation and effectiveness monitoring. Post-project implementation monitoring will evaluate whether the BLM applied the PDFs selected during the project planning process. Effectiveness monitoring will evaluate whether resource objectives were met using the PDFs.

The BLM will modify PDFs if monitoring demonstrates that resource objectives are not being met. The BLM will make changes to individual PDFs, or additions or deletions to the PDF lists below, through plan maintenance, consistent with CFR 1610.5-4.

PDF Lists

The PDF lists below address core activities that may take place within the Monument under one or more of the draft alternatives.

Biological Resources

1. Surveys will be conducted at the appropriate time of year to detect sensitive species and important biological resources.
2. Surveys will comply with current BLM, USFWS, NMFS and CDFW protocols, to the extent consistent with Federal law.
3. Critical and essential habitat for federal listed anadromous salmon and steelhead will be incorporated into trails planning

Wetland-Riparian Habitat

4. Stream crossings will be designed to minimize adverse impacts to soils, water quality, and riparian vegetation and provide for fish passage as appropriate.
5. Stream crossings of critical habitat for listed anadromous fishes will require channel spanning bridges or use of existing channel-spanning infrastructure (e.g. existing earthen dams) and the BLM will employ control measures to prevent erosion into the stream.
6. Trails will be designed to minimize short- and long-term damage to soils, vegetation, and wetlands. Boardwalks will be built to protect soils and wetland areas and to avoid take of listed frogs.
Railings and interpretative signs will be used to keep people on the trails and from entering habitat for listed species.
7. The spread of non-native species between waterbodies will be prevented by cleaning equipment of debris and residue that may contain biological dispersal propagules (seeds, eggs, larvae, etc.)

Rehabilitation/Restoration

8. All disturbance features including abandoned roads and trails and other significant disturbed sites (abandoned quarries) will be evaluated, ranked by priority, and restored to natural conditions.
9. Disturbed sites will be restored to natural conditions using site-appropriate measures and timelines developed in consultation/coordination with BLM resource specialists.
10. Restoration plans and requirements will be developed on a case-by-case basis and include post-project management
11. Local, native plant species and to the extent practical, local ecotypes/genotypes, will be used for restoration. Non-native plant species with no persistence and no ability to spread, such as sterile barley, may be used as temporary erosion control.
12. The Sudden Oak Death (SOD) pathogen *Phytophthora*, is locally common in wildlands of the north Monterey Bay area, as well as in plant nurseries. Careful inspection should be made of any native plants used in restoration that are imported from SOD areas, including nurseries.

Non-native Species

13. Projects and activities on BLM lands will include measures to minimize the introduction and spread of non-native plant and animal species.

14. Certified weed-free erosion control, soil and soil amendment (e.g. compost), and road base aggregate will be used to the extent practical. Importing soil from locations outside of C-CD will be strongly discouraged to prevent the import of weed seeds. Moving large volumes of soil between separate watersheds of C-CD will be strongly discouraged to prevent the spread of weed seeds. Moving chipped plant material between separate watersheds of C-CD will be strongly discouraged to prevent the spread of weed seeds (e.g. French broom) and Sudden Oak Death (SOD). Chipped plant material produced during fuel break construction should remain onsite where it is chipped.
15. Non-native species control methods will follow integrated pest management principles.
16. The use of pesticides shall comply with applicable Federal and State laws. BLM policy requires project-specific NEPA analysis and the issuance of a Pesticide Use Permit before the application of pesticides. Only products on the California BLM's list of approved pesticides may be used.
17. The release of non-native species will be prohibited, other than those legally introduced for biological control.

Special Status Species

Many measures to protect threatened and endangered species have been developed as a result of formal consultations between the BLM and USFWS on a variety of BLM actions. BLM has also developed BMPs, SOPs, and conservation measures and design criteria to mitigate specific threats to sensitive species. As additional measures are developed to minimize the adverse effects from future management activities, they are likely to become additional SOPs.

Special status species survey, avoidance, take minimization, mitigation measures, compensation, and monitoring measures required in biological opinions (programmatic and site-specific) will be incorporated into project design attached as conditions of approval, grant, or lease terms and conditions, or otherwise implemented in all BLM projects and authorizations that may affect listed species. These measures may change due to new information or new biological requirements. Current practices are found below:

General Guidelines for Conserving Habitat and Minimizing Project Impacts

1. Habitat disturbance will be minimized and conducted in a manner that reduces, as much as possible, the potential for take of individuals of a listed species.
2. Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition. Such projects will be identified through habitat management plans or project plans.
3. Whenever possible, management activities in habitat for special status species will be designed to benefit those species thorough habitat improvement.
4. Unless specified for reducing impacts, actions will be minimized during evening hours when some listed species are active and vulnerable to vehicle or equipment-induced injury or mortality will be minimized.
5. Food items and garbage will be contained in closed containers and removed daily.
6. The protective measures being implemented for listed species shall be extended to candidate and proposed species in the project area to the maximum extent practicable.

Water Resources

California's Non-Point Source (NPS) Program Plan (adopted by SWRCB in December 1999) identifies 61 Management Measures (MMs) which constitute the State's BMPs for controlling NPS pollution. MMs applicable to BLM program and management actions include, but are not limited to, those that pertain to chemical management (pesticide use), route construction and management, soil erosion and sediment control, hydromodification, and riparian areas and wetlands.

The BLM demonstrates compliance with the Clean Water Act and State water quality objectives by implementing PDFs that are consistent with the State's MMs. A suite of PDFs have been developed by various agencies, including the BLM, to address non-point source pollution on Federal lands.

1. Protect the existing water quality improvement functions of riparian areas and wetlands as a component of NPS programs. Degraded riparian areas and wetlands should be restored where restoration of such systems will abate polluted runoff.
2. Employ soil erosion and sediment control measures during watershed restoration activities to reduce or eliminate erosion and sediment transport or incidental sediment discharge. Soil erosion control measures include seasonal limits on operations, construction of runoff dissipation features (e.g rolling dips), placement of straw rolls and hay bales, mulching, and seeding to re-establish vegetative cover.
3. Road and trail construction/reconstruction shall utilize route design measures and BMPs to minimize soil erosion and sediment transport to riparian areas and wetlands. This can be accomplished by following designs for road systems, incorporating rolling dips and adequate drainage structures, properly installing stream crossings, avoiding road construction in streamside management areas, removing debris from streams, and stabilizing areas of disturbed soil such as road fills.
4. In areas with 303D listing, work with soil and water specialists to design parking or roads which help to reduce non-point source pollution. Address area contributing to non-point source pollution as part of the project.
5. Manage roads and trails to prevent sedimentation, minimize erosion, maintain stability, and reduce the risk that drainage structures and stream crossings will fail or become less effective. Components of this measure include inspections and maintenance actions to prevent erosion of road surfaces and to ensure the effectiveness of stream-crossing structures. This measure also addresses appropriate methods for closing roads that are no longer in use.
6. Promote revegetation of areas disturbed during road or trail construction.
7. Do not apply chemicals within 100 feet of perennial streams or channels with beneficial use(s) recognized by the State.
8. Do not apply chemicals directly into intermittent streams or channels with beneficial use(s) recognized by the State.
9. Avoid aerial application of chemicals when wind speeds would cause drift or where listed aquatic species habitat cannot be avoided.

Soil Resources

1. Minimize soil disturbance by limiting developments to the smallest area possible and by using previously disturbed areas and existing roads to the extent practicable.
2. Minimize soil disturbance on steep slopes.
3. Consider restricting access and suspend authorized projects during wet weather when soil resources will be adversely impacted by rutting, compaction, and increased erosion.
4. Minimize fire control lines to the width necessary to effectively stop fire spread. Rehabilitate lines by smoothing out berms and installing waterbars prior to the rainy season.
5. Assess the need for soil stabilization and erosion control following wildfires. Use the Emergency Stabilization and Rehabilitation process to determine and implement needed actions.
6. Actively patrol public lands to prevent unauthorized off-road travel. If unauthorized routes are found, block access to minimize further soil disturbance and reduce the potential for erosion through rehabilitation action.

Cultural Resources

1. Prior to the implementation of all proposed actions, cultural resource compliance with the National Historic Preservation Act, Section 106 and 110, will be coordinated pursuant to the current and any subsequent versions, supplemental procedures and amendments of the *National Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which the BLM Will Meet its Responsibilities Under the National Historic Preservation Act* and the *State Protocol Agreement Among the California State Director of the Bureau of Land Management and the California State Historic Preservation Officer and the Nevada Historic Preservation Officer Regarding the Manner in Which the Bureau of Land Management Will Meet its Responsibilities Under the National Historic Preservation Act and the National Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation*. Should the either of these agreements be terminated, the BLM would comply with requirements under Sections 106 and 110 of the National Historic Preservation Act (NHPA) through the implementation of procedures put forth in 36 CFR 800.
2. Archaeologists, law enforcement rangers, resource staff specialists, Native Americans, or designated volunteer stewards will patrol and monitor selected significant cultural resources on public lands in the Central Coast FO to reduce threats from human and natural disturbances.
3. The BLM will coordinate with Native Americans, cultural resource specialists, interdisciplinary specialists, conservationists, and interested public, as appropriate, to apply the best available science to determine the amount and type of maintenance desired at cultural sites that are threatened by human or natural causes and how best to mitigate identified problems.
4. The Central Coast FO will continue to support access by the Native Americans to traditional material collecting and gathering locations and ceremonial places. It is a federal policy to protect and preserve for the American Indian, the inherent right of freedom to believe, express, and exercise their traditional religions, including access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonies and traditional rites (American Indian Religious Freedom Act of 1978). Executive Order 13007, Indian Sacred Sites (1996), directs federal agencies to manage federal lands in a manner that accommodates Indian religious practitioners' access to and ceremonial use of Indian sacred sites and that avoids adversely affecting the physical integrity of such sacred sites, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions.
5. Continue open dialogue and share information with Native Americans and ethnic groups that have cultural ties to lands managed by the Central Coast FO.
6. Conduct cultural resource inventory and evaluations for all projects that require soil disturbance or cause a visual intrusion on a historic property. The presence or absence of cultural properties would be determined prior to the approval of any surface-disturbing activity. When cultural properties are present, the project would be redesigned or modified to safely avoid impacting cultural sites or steps would be taken to adequately mitigate impacts through project redesign or data recovery.
7. Soil erosion can severely impact surface and subsurface cultural resource integrity. Potential secondary impacts on cultural resources caused by erosion would be analyzed during project planning. Residual impacts on cultural resources outside the project area would be carefully considered in surface-disturbing projects.

8. Identification, safe avoidance, or mitigation of potential adverse effect on cultural properties shall be required as a condition of a lease, permit, license, and other federal undertakings for both external and internal projects.
9. Any late discovery of a cultural or paleontological resource during a project would be reported to the authorized officer. All activity in the immediate discovery area associated with the project would be suspended until an evaluation of the discovery is made by the archaeologist to determine appropriate actions to prevent the loss of significant cultural, paleontological, or scientific values. A written authorization to resume the project, or to take appropriate mitigation action, would be issued by the authorized officer.

Recreation

The following criteria are used to determine suitable locations for new trails and trail reroutes within C-CD. This document utilizes terminology from the “Roads and Trails Terminology” (Technical Note 422, Nov. 2006). These criteria are to be followed as guidelines. Not all of the criteria can be met on every segment of every trail. Their purpose is to help create sustainable, low maintenance trails that provide quality recreation experiences based on predetermined trail management objectives (TMOs). Specialty trails requiring higher maintenance may be allowed in appropriate locations.

1. Access for and use by the physically challenged will be considered in all project planning.
2. Create loops and avoid dead end trails. All trails should begin and end at a trailhead or another trail. A well-planned stacked loop trail system offers recreationists a variety of trail options. Easier, shorter loops are arranged close to the trailhead, with longer, more challenging loops extending further beyond the trailhead. Occasionally, destination trails to a point of interest will require an out and back trail, but only if they cannot be reasonably incorporated into a loop.

Identify control points and use them to guide trail design and layout. Control points are specific places or features that influence where the trail goes. Basic control points include the beginning and end of the trail, property boundaries, intersections, drainage crossings, locations for turns, and other trails. Positive control points are places where you want users to visit, including scenic overlooks, historic sites, waterfalls, rock outcroppings, lakes, rivers and other natural features or points of interest. If the trail does not incorporate these features, users will likely create unsustainable social trails to get to them. - Negative control points are places you want users to avoid, such as low-lying wet areas, flat ground, extremely steep cross slopes or cliffs, unstable soils, environmentally sensitive areas, sensitive archaeological sites, streams with listed species, safety hazards, and private property.

3. Knowing these control points provides a design framework. Try to connect positive control points while avoiding the negative control points. Use cross slope and avoid flat ground whenever possible. The trail tread should generally run perpendicular to the cross slope and should utilize frequent grade reversals. This is the best way to keep water off the trail. Use curvilinear design principles to create a trail that follows the natural contours of the topography, sheds water, blends with the surrounding terrain, and provides fun recreation opportunities. The following grade guidelines and the PDFs listed in specialty sections, will help determine appropriate tread locations:
 - a) The Half Rule: “A trail’s grade shouldn’t exceed half the grade of the hillside or side slope (cross slope) that the trail traverses. If the grade does exceed half the side slope, it’s considered a fall-line trail. Water will flow down a fall-line trail rather than run across it. For example, if you’re building across a hillside with a (cross slope) of 20 percent, the trail tread grade should not exceed 10 percent.”

(IMBA 2004). Steeper cross slopes allow more flexibility for sustainable tread grades while flat or low angle cross slopes can be problematic. There is an upper limit to this rule. Sustaining a 24 percent tread grade, even on a 50 percent cross slope is unlikely. Additionally, trail segments may break this rule on durable tread surfaces such as solid rock.

- b) The Ten Percent Average Guideline: The average trail grade over the length of the trail should be 10 percent or less for greatest sustainability. Short sections of the trail may exceed this, but overall grade should remain at 10 percent or less.
 - c) Maximum Sustainable Grade: This is the upper grade limit for those short trail segments that push the limits of the previous two guidelines. It is determined by a site-specific analysis based on TMO's, environmental conditions, and observations of existing trails – what's working and what's not?
 - d) Grade Reversals: Frequent changes in direction of tread grade (gentle up and down undulations) will ensure that water is forced off the trail at frequent intervals.
4. Locate trails in stable soils.
 5. Drainage crossings are key control points and should be selected carefully. Consider both the trail's impact on the drainage (soil erosion and sedimentation), and the drainage's impact on the trail (changing tread surface, water channeling onto trail). The trail should descend into the climb out of the drainage to prevent water from flowing down the trail. Avoid long or steep entries into drainages. Design grade reversals into the trail on each side of the approach to minimize water and sediment entering from the trail. Site trail drainage crossings on rocky stream beds or bedrock, wherever possible.
 6. Avoid switchbacks. Switchbacks are difficult, time-consuming, and expensive to construct, and require regular maintenance. Users often cut them, causing avoidable impacts. Utilizing curvilinear design principles eliminates the need for most switchbacks. Climbing turns are easier to construct and maintain and utilize natural terrain features (benches, knolls, rock outcrops) to change the direction of a trail.
 7. Avoid ridge tops. Ridge tops are often primary transportation corridors for wildlife and were often used by Native Americans as travel routes. Noise from ridge top trails is broadcast over a wide area. Locate trails on side hills, off ridge tops, using ridges and watersheds as natural sound barriers to isolate noise.
 8. Use vegetation and other natural features to conceal the trail and absorb noise. Try to minimize the visual impact of the trail by following natural transitions in vegetation or soil type. A trail near the base of a side slope or on rimrock is usually less visible than a mid-slope trail. Denser vegetation will hide a trail, lessen noise transmission, and can dissipate the energy of rainfall on the bare soil of the trail tread.
 9. Carefully design intersections to avoid safety problems. When designing bicycle use trails, be aware of sighting distance and sight lines. Collisions can be avoided if recreationists can see each other. Avoid four-way intersections. Offsetting the cross traffic helps reduce speeds and reduces the risk of collisions.
 10. Sites that cannot be maintained to acceptable health and safety standards will be closed until deficiencies are corrected.