



memorandum

date September 29, 2023

to Sonoma County Regional Parks, Ag + Open Space, and Members of the Public

cc Elijah Davidian

from Dave Davis, Isaac Swanson, and ESA staff

subject Opportunities and Constraints Analysis Memorandum - Final

Project Introduction

Master Plan Purpose

Sonoma County Regional Parks (SCRIP) is developing a Master Plan for the future Mark West Creek Regional Park and Open Space Preserve (Preserve) in collaboration with the Sonoma County Agricultural Preservation and Open Space District (Ag+ Open Space), community members, and Environmental Science Associates (ESA). The Master Plan will guide the development and management of the Preserve by identifying a long-term management and design framework that integrates natural resources conservation, forest management, wildfire risk reduction, and recreational and educational programming.

Opportunities and Constraints Analysis Memorandum Purpose

This memorandum summarizes opportunities and constraints for the Preserve that will provide a basis for development of conceptual design alternatives and preliminary selection of management measures and operational elements for the Preserve's Resource Management Plan (RMP).

Preserve Location

The 1,196-acre Preserve is 11 miles north of Santa Rosa and is accessible from Porter Creek Road via a one-lane bridge crossing Porter Creek between Mark West Lodge and Safari West. The Preserve contains steep ridges and valleys with a wide variety of natural habitats, trails and ranch roads from previous land uses, and some existing buildings that survived the 2017 Tubbs Fire. The Preserve was originally stewarded by the Southern Pomo and, more recently, managed by private landowners for residential, ranching, and equestrian purposes.

The Preserve contains the headwaters of many small creeks, along with segments of Porter and Mill Creeks, which feed into Mark West Creek. Mark West Creek is a critical waterway within the Russian River Basin, and its significance is recognized by state and federal agencies. This important waterway provides vital habitat for endangered species, including steelhead trout and spawning coho salmon. In 2014, Mark West Creek was

designated as one of five high-priority streams in the California Department of Fish and Wildlife's California Water Action Plan, and it has been identified by the National Marine Fisheries Service as critical habitat for coho salmon recovery.

Public Input To-Date

Public input gathered to date includes over 1,500 individual online survey results, public comments received at Public Preview Day events, public comments received from online postings on Facebook and Instagram, and one in-person meeting with a Trails Stakeholder Group that represents a variety of trail users, such as hikers, bicyclists, and equestrians. Additional opportunities for public input will be available during the Master Planning process.

Related Project Studies

Additional studies SCRCP has conducted that will inform the development of the Preserve's Master Plan include:

- *Cal Fire Prevention grant/study*, being prepared by SCRCP
- *Cultural Resources study of the Mark West Creek Regional Park and Open Space District, Sonoma County, California*, prepared by Tom Origer & Associates
- *Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Upper Mark West Creek Watershed, Sonoma County, CA*, prepared by O'Connor Environmental, Inc.
- *Mark West Creek and Stream Assessment Project*, prepared by ESA
- *Mark West Creek Streamflow and Habitat Conditions Study*, prepared by Trout Unlimited
- *MWCRP&OSP Aquatic Resources Delineation Report*, prepared by ESA
- *MWCRP&OSP Resource Management Plan – Habitat Assessment*, prepared by ESA
- *MWCRP&OSP Vegetation Management and Prescribed Fire Plan*, being prepared by Sonoma Resource Conservation District (RCD)
- *Mark West Trails Assessment Figures*, prepared by ESA (Attachment A to this memorandum)

Regulatory Context and Terminology

Recreational Covenant and Conservation Easement

In 2002, Ag + Open Space began a 16-year effort to invest \$23 million into the purchase and transfer of the Preserve property to SCRCP. As part of the land transfer agreement, Ag + Open Space holds a Recreational Covenant and Conservation Easement on the property.

The ***Recreational Covenant*** ensures that the property will always be a publicly accessible park and open space preserve.

The **Conservation Easement (CE)** protects the natural resources, scenic, open space, recreational, and educational values of the property in perpetuity. The CE also specifies seven discrete *Easement Designation Areas (EDA)* described below, and lays out what development and allowed uses may occur within each EDA. The CE dictates that use of the Preserve is restricted to natural resource preservation, scenic and open space protection, and recreational and educational uses, with limited provisions for other uses. For instance, the CE allows low-intensity outdoor recreation (e.g., hiking, bicycling, horseback riding, and picnicking) but not athletic fields or playgrounds. The CE also requires SCRIP to seek Ag + Open Space's approval for various structures, improvements, and uses throughout the Preserve.

Easement Designation Areas

The seven Easement Designation Areas (EDA) where proposed elements such as structures and traditional park facilities may be located are shown on Figure 1.1. Each EDA, listed below, has specific allowed uses described in *Visitor Facilities Opportunities and Constraints*.

- **Primary Building Envelope** (14 acres, includes existing covered equestrian arena, and the building sites of three former residences lost in the Tubb's fire)
- **Limited Park Development Area** (4.6 acres, includes existing equestrian corrals and stables and the former *Life Estate*)
- **Secondary Building Envelope** (4.3 acres, site of an existing shop building and the former Wendle residence, which was lost in the Tubb's Fire)
- **Picnic Area** (3.7 acres, site of the former McCullough residence also lost in the Tubb's Fire)
- **Trail Camp 1** (8.5 acres, located along Mark West Creek just west of the former Palm Homestead)
- **Trail Camp 2** (10.2 acres, located on a hill in the southwestern portion of the Preserve)
- **North Trail Staging Area** (undetermined acreage located on the north side of Porter Creek Road)

Project Definition

The Mark West Creek Regional Park and Open Space Preserve Master Plan Project (Project) includes the development of new visitor-serving facilities and improvements to existing facilities, along with cultural resources preservation, natural resources enhancement, restoration, and conservation. The primary focus of development will be the seven EDAs and the Preserve's existing trails and roads. Cultural and natural resource management and protection will occur throughout the property.¹ The Master Plan includes public outreach, conceptual design, Resource Management Plan (RMP), and California Environmental Quality Act (CEQA) components.

¹ This memorandum focuses on the seven Easement Designation Areas and the Preserve's trails because RCD is preparing more detailed analysis on the other portions of the Preserve as part of the Preserve's Forest Management Plan, Timber Harvest Plan, Vegetation Management Plan, Vegetation Treatment Plan, Prescribed Fire Plan, and Environmental Compliance for those plans. These supplemental forestry plans will later be incorporated into the Project's Master Plan.

Key Natural Resource Terminology

- The **Forever Wild Recreation Area** includes all portions of the Preserve that are not Riparian Protection Areas or Easement Designation Areas. The Forever Wild Recreation Area designation is intended to preserve natural spaces for habitat connectivity and unencumbered use by wildlife (Saunders 2023).
- **Jurisdictional Wetlands and Waters.** Jurisdictional wetlands and waters are State and/or federally regulated wetlands and other water bodies that cannot be filled or altered without permits from either the U.S. Army Corps of Engineers under section 404 of the Clean Water Act or, from the State Water Resources Control Boards under either section 401 of the Clean Water Act or the Porter-Cologne Water Quality Control Act, or the California Department of Fish and Wildlife (CDFW) under section 1602 of the Fish and Game Code.²
- **Protected Trees** are individual trees regulated by Sonoma County Code. County code includes tree preservation measures and standards for tree replacement or payment of in-lieu fees for impacts to trees of certain species and size.³
- The CE-designated **Riparian Protection Area** limits impacts to the Preserve’s creeks and associated riparian habitat except if necessary for natural resource protection or water delivery systems.⁴ Within the Riparian Protection Area, the CE and zoning permits would allow two perpendicular access points each on Mark West Creek and Porter Creek, four perpendicular access points on Mill Creek, and replacing or relocating existing trails along Mill Creek provided that such replacement or relocation is at least 50 feet from the top of bank.
- **Sensitive Habitat Areas** support habitat for state or federally designated sensitive species that need to be protected during migration seasons (Figure 1.5). The locations of said Sensitive Habitat Areas were developed by County biologists. Sensitive Habitat Area locations are confidential in order to protect the sensitive species they provide habitat for. See Attachment B for more detail.
- **Sensitive Tree Alliances** are important vegetation classifications “defined by plant species composition, habitat conditions, physiognomy, and diagnostic species; at least one of the diagnostic species is typically found in the uppermost or dominant stratum” (CDFW 2015). Sensitive tree alliances cover most areas of the Preserve. They provide an opportunity to protect valuable tree species and their associated habitats and vegetation communities from development disturbance.⁵ Note that many of the Preserve’s Sensitive Tree Alliances burned with varying levels of severity in the Tubbs Fire. The vegetation growing back in since that fire is not always of the same composition of plants and trees as existed before the fire (for instance, in some cases, Douglas fir is not regrowing where existed prior to the fire).
- **Special Status Species** include plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) or the California Endangered

² Wetlands and other aquatic resources surveyed and mapped within the Easement Designation Areas are shown on Figure 1.3. Additional potential wetlands may occur outside of the Easement Designation Areas in additional locations shown on Figures 1.5 and 1.6. Unless otherwise noted, use of the term *wetlands* in this memorandum refers to jurisdictional wetlands.

³ Native oaks, big leaf maple, madrone, redwood, California bay, and their hybrids with a diameter at breast height (dbh) of at least nine inches (additive for multi-stemmed trees) qualify. The Easement Designation Areas include trees large enough to qualify as protected trees under County Code, in the Douglas fir, oak woodland, black walnut, and California bay forests.

⁴ Trails and new bridge creek crossings are permitted within the Riparian Protection Areas with a zoning permit and building permit. Natural Resources Protection (NRP) and related Natural Resources Management (NRM) activities are also allowed within the Riparian Protection Areas.

⁵ The Conservation Easement requires that Ag + Open Space-designated Core Coniferous Forest and Core Oak Woodland, its surface waters, and subsurface groundwater basin resources be protected from development. SCRIP has since requested that the Sonoma County Vegetation Mapping and Lidar Program’s more up-to-date Sensitive Tree Alliance data be used in place of the Core Oak Woodland and Core Coniferous Forest habitat designations. Sensitive Tree Alliances at the Preserve include *Acer macrophyllum* Alliance, *Adenostoma fasciculatum* Alliance, *Arbutus menziesii* Alliance, *Baccharis pilularis* Alliance, *Notholithocarpus densiflorus* Alliance, *Pinus radiata* Alliance, *Pseudotsuga menziesii* – *Notholithocarpus densiflorus* Alliance, *Pseudotsuga menziesii* Alliance, *Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizenii)* Alliance, *Quercus agrifolia* Alliance, *Quercus douglasii* Alliance, *Quercus durata* Alliance, *Quercus garryana* Alliance, *Quercus kelloggii* Alliance, *Quercus lobata* Alliance, *Quercus wislizeni* (tree) Alliance, *Sequoia sempervirens* Alliance, and *Umbellularia californica* Alliance.

Species Act (CESA); animals listed as “fully protected” under the California Fish and Wildlife Code (Section 3511); animals designated as “species of special concern” by CDFW; and plants ranked as rare or endangered by the California Native Plant Society (CNPS). See Attachment C for more detail about Special Status Species at the Preserve.

- **Riparian Corridor Combining Zone, or Streamside Conservation Areas.** Sonoma County Code regulates a streamside conservation area along “designated streams” to protect critical habitat areas within and along riparian corridors. Perennial Mark West Creek and intermittent Porter Creek are identified in the County zoning database as “designated streams.”⁶ Mark West Creek has a Streamside Conservation Area of 200 feet from the top of bank, Porter Creek has a Streamside Conservation Area of 100 feet from top of bank, and Mill Creek has a Streamside Conservation Area of 50 feet from top of bank. The Streamside Conservation Area is extended where the dripline of riparian trees extends farther away from a designated stream. Portions of the Primary Building Envelope, Limited Park Development Area, Secondary Building Envelope, and Trail Camp 1 partially overlap with the Streamside Conservation Areas (Figures 1.2 and 1.3). Examples of allowed uses within the Riparian Corridor Combining Zone include parks, trails, bicycle paths, stream restoration, riparian restoration, roads and utility lines (with a permit), invasive plant removal, fencing and maintenance of existing outdoor activity areas, grazing, selective vegetation removal, wells, and fire fuel management. County Code limits the use of grading, agricultural cultivation, structures, and parking lots within the Riparian Corridor Combining Zone.

See the *Habitat Improvement and Climate Change Resilience Opportunities and Constraints* section for additional natural resource considerations.

Project Goal and Objectives

The Preserve’s Conservation Easement and community stakeholder input gathered to date serve as the bases for the Project goal and objectives. The Project goal and objectives may evolve based upon future partner and public feedback.

Project Goal

The Project goal is to provide visitor-serving facilities, trails, emergency response, and management access that are compatible with environmental protection, habitat improvements, climate resilience, public safety, and available funding.

Project Objectives

Objectives for visitor facilities are to:

- Facilitate public access, recreation, and educational opportunities that are compatible with the Preserve’s environmentally sensitive resources.
- Use public programs, signage, and events to encourage environmental stewardship and provide educational and interpretive experiences of the Preserve’s sensitive ecology.
- Protect and preserve significant scenic and historical sites.
- Build Preserve facilities that can be maintained within the Preserve’s available operations funding.
- Generate revenue to fund Preserve stewardship.

⁶ Exemptions for trails and other park development can be approved with a Zoning permit.

Objectives for emergency response and management access are to:

- Provide maintenance and emergency response access to required areas of the Preserve.

Objectives for trails are to:

- Provide opportunities for all user groups to access and enjoy the Preserve's trails.
- Design trails that minimize conflicts between user groups
- Minimize the environmental impacts of trail use.

Objectives for environmental protection, habitat improvements, and climate resilience are to:

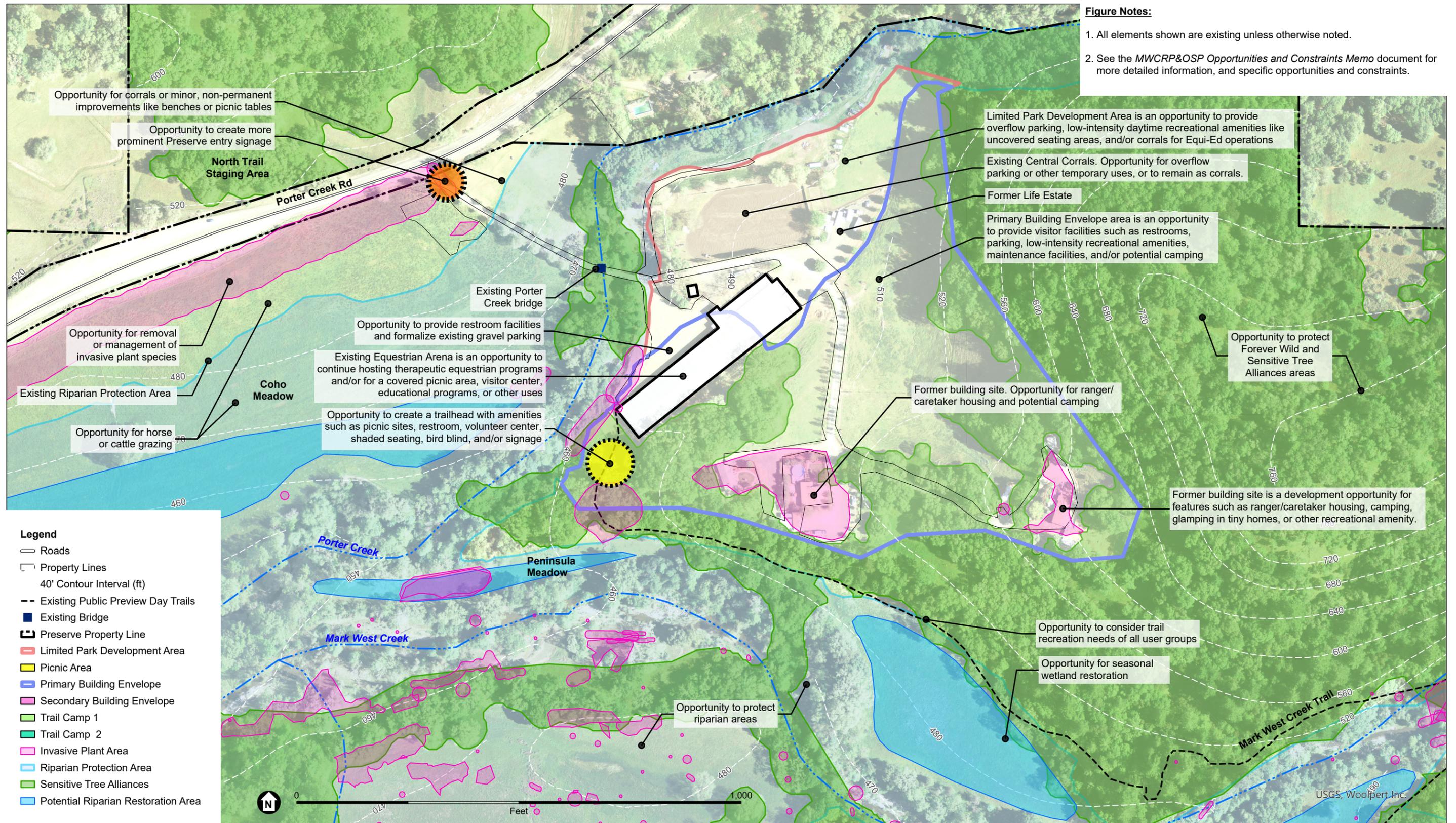
- Manage the Preserve's aquatic, riparian, and upland habitats to protect rare and special-status species and to improve ecological health, biological diversity, habitat connectivity, and key ecosystem functions and services.
- Control invasive species along the Preserve's trails and within the Easement Designation Areas.
- Contribute to regional wildfire risk reduction efforts and foster fire-adapted ecosystems through sustainable forest management, vegetation management, and prescribed burning.
- Support habitat regeneration in areas of the Preserve adversely affected by the Tubbs Fire.
- Protect the most sensitive areas of the Preserve from recreation impacts.
- Identify and self-mitigate environmental effects of providing public access to the Preserve.
- Decommission trails in sensitive habitats and resource areas and restore to natural condition.

Opportunities and Constraints for Capital Improvements and Management of the Preserve

The opportunities and constraints for capital improvements and management of the Preserve provide a basis for preparing the Preserve's Master Plan and RMP. They are informed by community input, Trails Stakeholder Group feedback, County guidance, the Conservation Easement and Ag + Open Space guidance, a review of pertinent County reports and studies, on-the-ground site reconnaissance, and analysis of geospatial data.

Opportunities and constraints for capital improvements and management of the Preserve are organized by four thematic categories: 1) visitor facilities; 2) emergency response and management access; 3) trail system; and 4) environmental protection, habitat improvements, and climate resilience. These four thematic categories correspond to the following opportunities and constraints plan-view figures:

- *Figure 1.1: Visitor Facilities Overview*
- *Figure 1.2: Visitor Facilities Inset; Primary Building Envelope and Limited Park Development Area*
- *Figure 1.3: Visitor Facilities Inset; Secondary Building Envelope, Picnic Area, Trail Camp 1 & 2*
- *Figure 1.4: Emergency Response and Management Access*
- *Figure 1.5: Trail System*
- *Figure 1.6: Habitat Improvements and Climate Resilience*



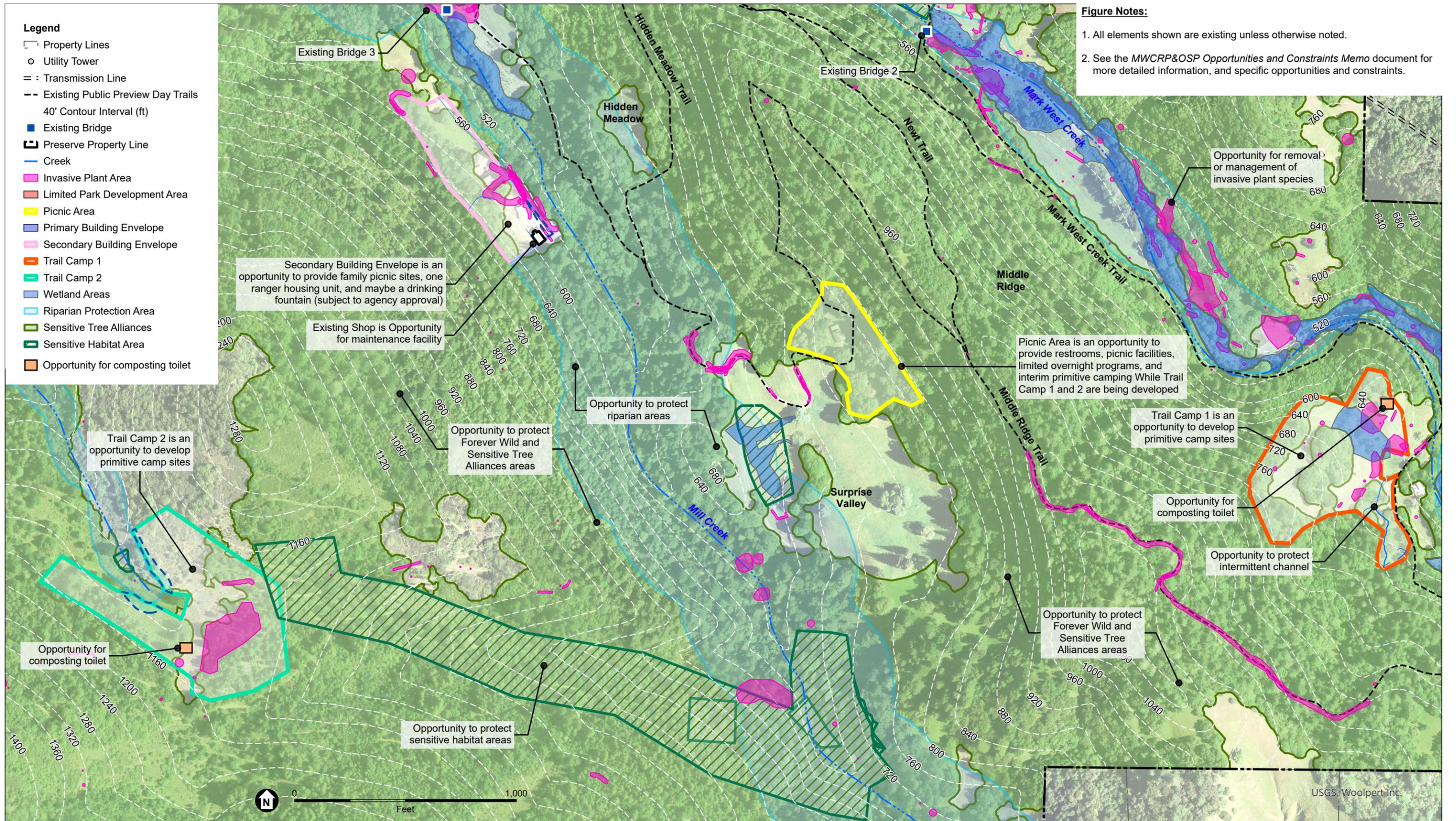
SOURCE: USGS; ESA, Sonoma County, State of California, 2022

Mark West Creek Regional Park and Open Space Preserve

Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983



Figure 1.2
 Opportunities and Constraints
 Visitor Facilities Inset 1: Primary Building Envelope and Limited Park Development Area



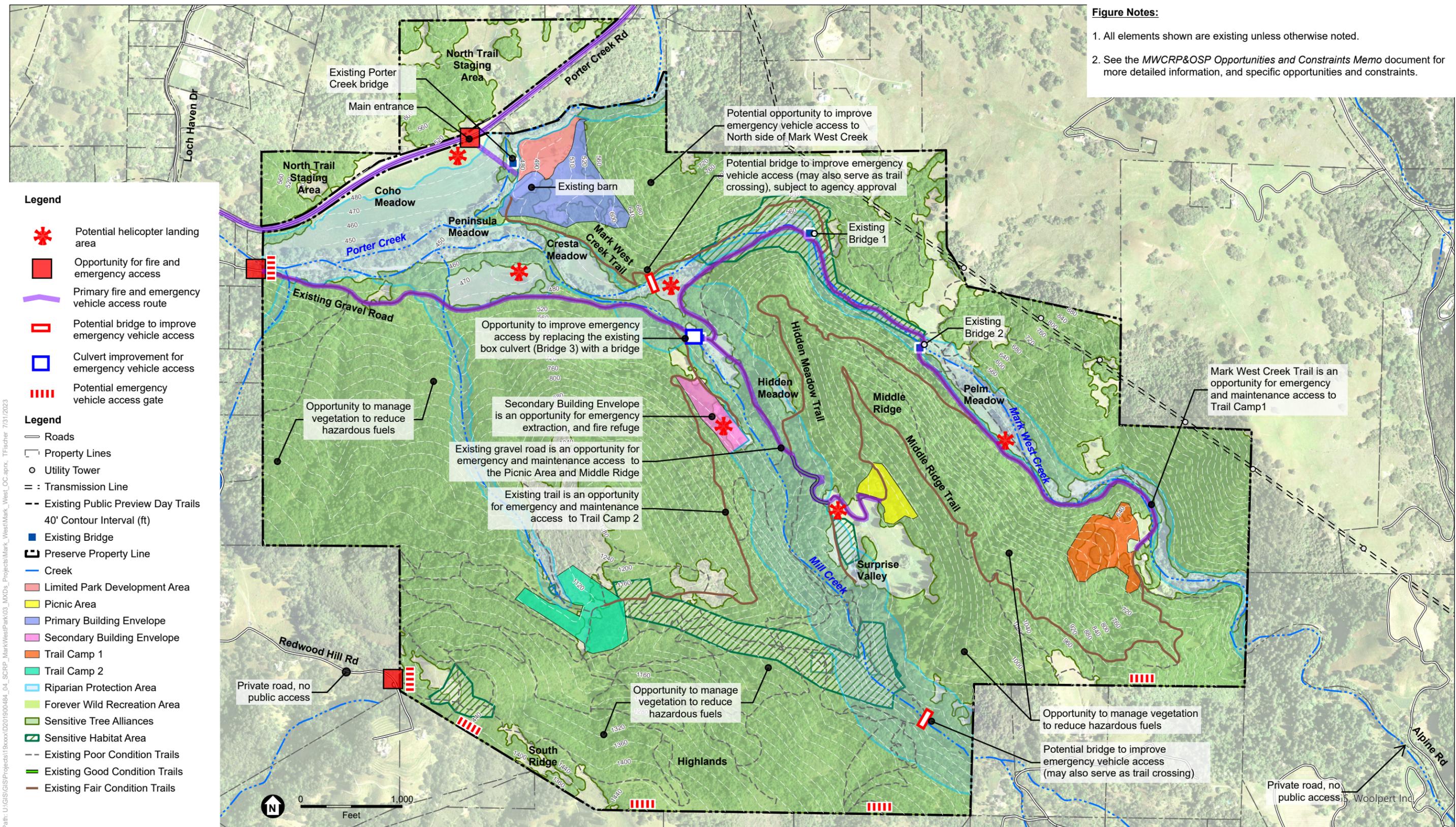
SOURCE: USGS; ESA, Sonoma County, State of California, 2022

Mark West Creek Regional Park and Open Space Preserve

Coordinate System: US State Plane California Zone II
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Figure 1.3
 Opportunities and Constraints
 Visitor Facilities Inset 2: Secondary Building Envelope, Picnic Area, and Trail Camp 1 & 2



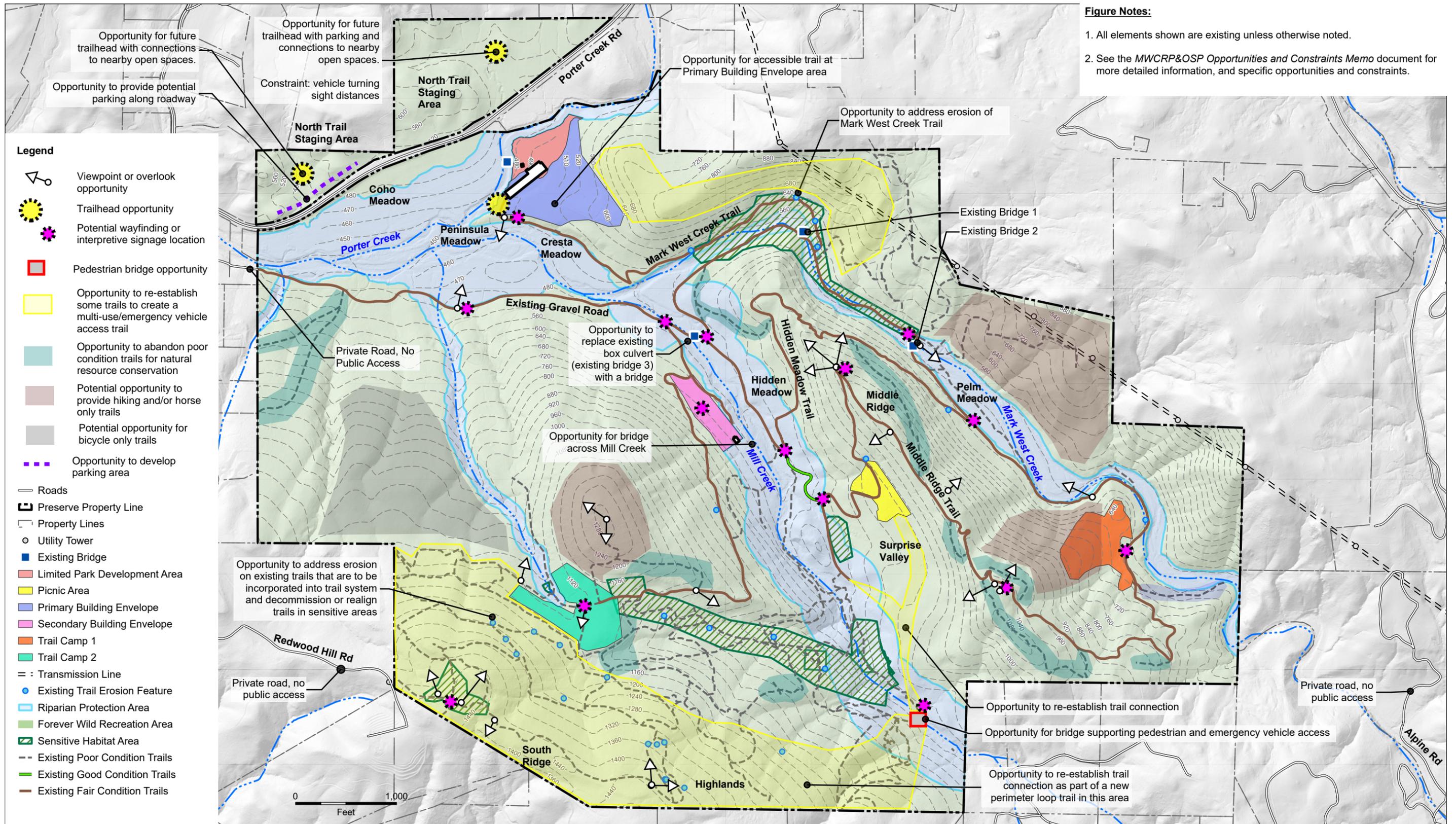
SOURCE: USGS; ESA, Sonoma County, State of California, 2022

Mark West Creek Regional Park and Open Space Preserve

Coordinate System: US State Plane California Zone II
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Figure 1.4
 Opportunities and Constraints
 Emergency Response and Management Access



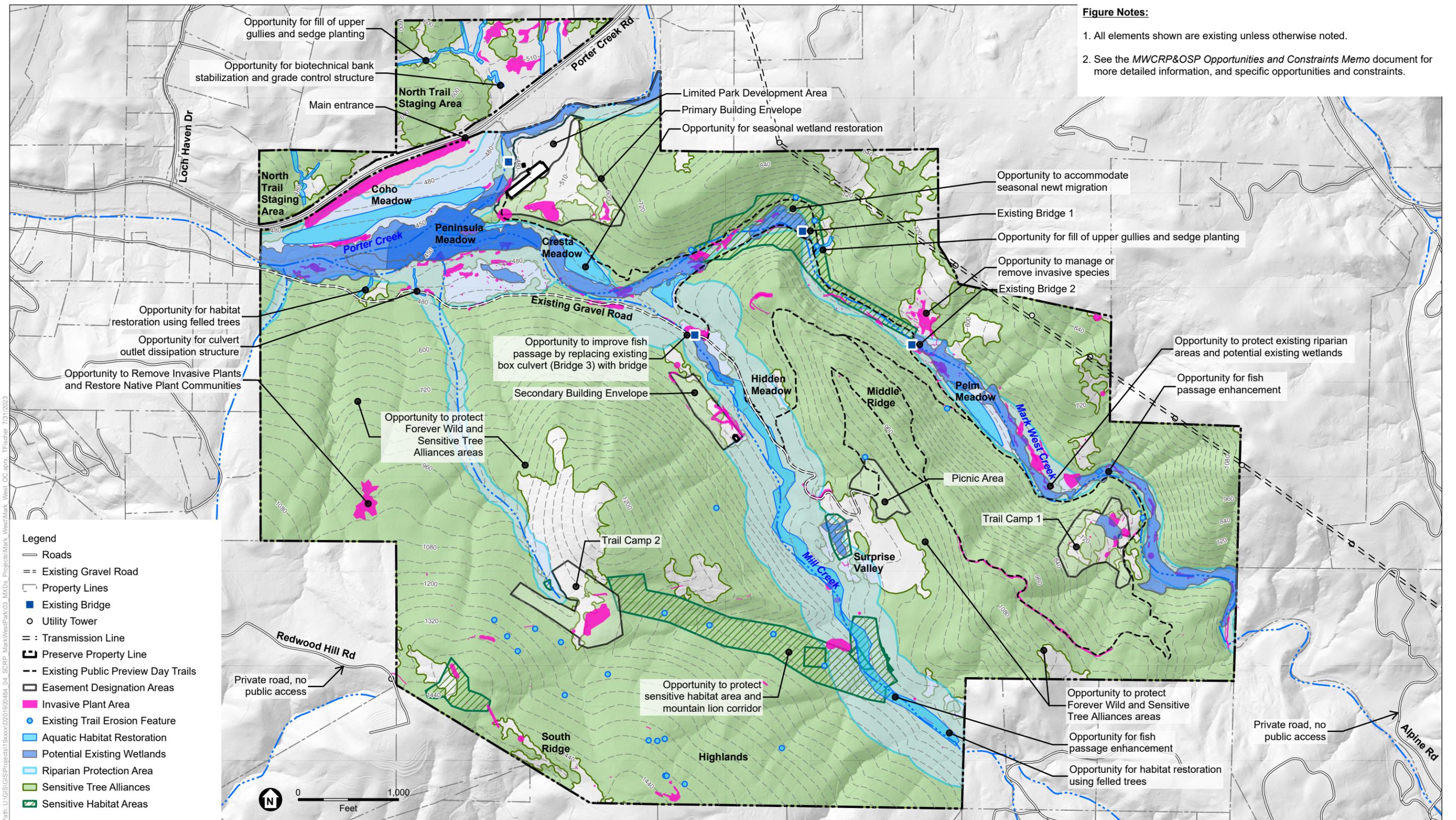


SOURCE: USGS; ESA, Sonoma County, State of California, 2022

Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983

Mark West Creek Regional Park and Open Space Preserve

Figure 1.5
 Opportunities and Constraints
 Trail System



SOURCE: USGS; ESA, Sonoma County, State of California, 2022

Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983



Mark West Creek Regional Park and Open Space Preserve

Figure 1.6
 Opportunities and Constraints
 Habitat Improvements and Climate Resilience

Visitor Facilities Opportunities and Constraints

Opportunities and constraints for visitor-serving facilities focus on the seven EDAs (Figure 1.1). These reflect potential facilities development, operations and maintenance, natural resource, and Conservation Easement-related considerations. General opportunities for visitor-serving facilities include low-intensity nature-based recreation, educational and interpretive opportunities, and maintenance facility development.

Primary Building Envelope, Limited Park Development Area, and Secondary Building Envelope Opportunities and Constraints

Opportunities

- General Opportunities:
 - Increase camping and trail options in Sonoma County to facilitate outdoor equity and relieve pressure on existing parks.
 - Minimize impacts to Sensitive Tree Alliances, protected trees, wetland and aquatic resources, and special-status plant and animal species.
 - Treat hardscape surface water runoff with bio-retention facilities to protect water quality in the Preserve's creeks.
 - Expand public knowledge about the Preserve via interpretive signage and educational programs related to: historical Indigenous land management of the Preserve, Preserve property and wildfire history, fire-adapted forest stewardship, unique aspects of the Preserve's ecology (such as salmonids and newts), poisonous plants, Sensitive Tree Alliances, and the importance of habitat protections for special status plant and wildlife species such as *Taricha rivularis* (red-bellied newt), *Oncorhynchus kisutch* (coho salmon), *Oncorhynchus mykiss* (steelhead), and *Puma concolor* (mountain lion).
 - Provide site interpretation around general site history associated with historic-era architectural resources identified in the Preserve (e.g., Pleasant Bench Pond, Mill Creek Pool, Mark West Springs Dam).
 - Provide site interpretation around Indigenous meaning and use of the Preserve and vicinity.
 - Create more prominent Preserve entry signage.
 - Enhance the birding experience at the Preserve by installing bird blinds in locations allowed by the Conservation Easement, such as at Peninsula Meadow.
 - Re-establish utilities such as power, sewer or septic, communications, and water lines to Easement Designation Areas as allowed by the Conservation Easement.
 - Locate buildings in areas that allow for efficient evacuation in the event of wildfire.
 - Support emergency services and generate revenue by installing cellular or radio towers within Easement Designation Areas like the Primary Building Envelope and Secondary Building Envelope (subject to Ag + Open Space review and approval for conformance with the CE).
 - Generate revenue from recreation, education, and user fees.⁷ Opportunity to apply revenue generated from activities at the Preserve towards the Preserve's operations, maintenance, habitat restoration or

⁷ Potential user fees include camping, group picnic areas, and parking fees.

enhancement, or towards the cost of educational or recreational uses or programs that take place on the property.

- Per Cal Fire 2007 and 2011 data, the entire Preserve is within a wildfire hazard zone (SCRP 2022). Regional Parks managing this large piece of land for recreation and preservation allows the opportunity to explore fire management regimes that allow more frequent, small burns that enhance the fire-adapted habitats at the Preserve and make our neighbors and the adjacent community safer.
- Opportunities related to specific Easement Designation Areas:
 - The Conservation Easement allows within the **Primary Building Envelope**: a combined total of 114,000 square feet of roadway/trail improvements and enclosed visitor facility buildings of up to 24 feet in height, restrooms, storage and staging facilities, camping facilities and/or indoor short-term visitor accommodations, environmental education classrooms, up to two staff housing units, and formalized parking stalls and vehicular circulation, including horse trailer parking and electric vehicle charging stations (Figure 1.2). Recreational and educational special events of up to 50 participants are allowed with unrestricted frequency. Additional possibilities include historical exhibits, picnic area, accessible paved trails, equestrian facilities, and possibly a natural play area for kids if determined consistent with the CE by Ag + Open Space.
 - Provide potable water (via wells) and a new septic system for new facilities. This will require an upgrade to the existing well and delivery systems, and a State of California drinking water permit.
 - The former *Life Estate* within the Limited Park Development Area can be used for temporary staff housing or a caretaker residence while the property is being developed.
 - Opportunities for the **Limited Park Development Area** include construction of non-structure daytime park amenities such as paths and trails, seating areas, corrals, and permanent or overflow parking if needed⁸ (Figure 1.2), subject to review and approval by Ag + Open Space.
 - Continue hosting Equi-Ed’s (Equines and Education Therapeutic Equestrian Program) equestrian therapeutic programs at the Preserve’s equestrian facilities in the Primary Building Envelope and Limited Park Development Area during the Master Plan process (Figure 1.2). Determine the long-term use, location, extents, and fit of the Preserve’s existing equestrian facilities during the Master Plan process.
 - The Conservation Easement allows within the **Secondary Building Envelope**: site improvements and structures of up to 24 feet in height totaling 16,000 square feet, one staff housing unit, Preserve maintenance facilities (existing shop), picnic areas, site furniture such as benches, other park recreational elements, and possibly a drinking fountain (Figure 1.3). It would also allow for other maintenance related buildings under the 16,000 square foot maximum for structures and improvements.
- Opportunities communicated by the public in online survey comments:
 - 90% of the 1,500 public survey respondents requested restroom facilities and a water filling station near the main entrance.
 - Provide shaded picnic tables in multiple locations close to parking.
 - Construct ADA-accessible paved trails that provide firm and stable walking surfaces for users with mobility devices or strollers.

⁸ For Interim Public Access, the rectangular shape within the Limited Park Development Area designated for temporary parking on the Project Structure Map may be used for this purpose (see Figure 1.2).

- Approximately 25% of public survey respondents requested a dog-friendly Preserve.
 - Provide a fenced off-leash dog area at the Primary Building Envelope if consistent with the CE as determined by Ag + Open Space.
- Provide a horse manure bunker that would prevent un-treated runoff from entering the Preserve’s creeks.
- Approximately 25% of public survey comments requested that Equi-Ed continue its programming at the Preserve.
 - Continue using the Preserve’s covered riding area, corrals, stables, and related facilities for equestrian programming.
 - Relocate the Equi-Ed facilities to other locations within the EDAs, or to another existing ranch property.
- Multiple survey respondents requested opportunities to learn about Indigenous peoples, including recognition that the Preserve is part of unceded lands of Indigenous tribes.
- Multiple survey respondents requested opportunities for accessible camping with cars or small recreational vehicles or travel trailers, or small cabins.

Constraints

- General Constraints:
 - Off-roadway vehicular access is prohibited except for maintenance and emergency uses.
 - Leashed dog access within the park will be determined during the master plan process and balanced with natural resource protection.
 - Artificial outdoor lighting within the Primary and Secondary Building Envelopes is limited to the minimum amount needed for safety and security purposes in order to preserve night sky viewing.
 - No outdoor sound amplification is allowed outside of the Primary Building Envelope and Ag + Open Space must approve the use in writing for special public recreational and educational events like a trail race.
 - The existing equestrian covered riding arena, barn, stables, and corrals take up a sizeable portion of the Primary Building Envelope and Limited Park Development Area.
 - Steep terrain and oak woodland are constraints to where site improvements can be located within the Primary Building Envelope.
 - The County’s limitations on structures and infrastructure within the Streamside Conservation Areas is a potential constraint to the construction of visitor facilities along the margins of the Primary Building Envelope and Limited Park Development Area.⁹ In addition, camping is not an allowed use within the Limited Park Development Area.

⁹ Locating parking and trail infrastructure on developed land within the portions of the Primary Building Envelope and Limited Park Development Area that overlap with the Streamside Conservation Area is subject to approval by Permit Sonoma and Ag + Open Space.

- Per Cal Fire 2007 and 2011 data, the entire Preserve is within a wildfire hazard zone (SCRIP 2022).¹⁰ Wildfire is a constraint to building structures and related infrastructure.
- Avoidance and minimization measures for protected wildlife species may be constraints for development within portions of Easement Designation Areas that are in or near potential habitat for special-status species. See Attachment C for more detail.
- Special-status plant populations are potential constraints to site improvements within the Primary and Secondary Building Envelopes.

Picnic Area Opportunities and Constraints

The picnic area provides opportunities for passive recreation in a grove of trees with ample shade (Figure 1.3).

Opportunities

- Create an area with passive recreation elements that could serve as a destination or resting point for users of the trail system.
- Provide a restroom facility up to 1,000 square feet enclosed area and 14 feet in height with running water and electricity.¹¹
- Provide individual and group picnic sites for up to 50 people, seating, paths, waste collection, and possibly wildlife viewing or birding features.
- Host up to 12 guided nighttime programs at the Picnic Area or on trails each year.
- Develop up to four primitive campsites for tent camping and up to twelve guided overnight group programs per year as an interim use until Trail Camps 1 and 2 are developed (see constraint below).
- Opportunities communicated by the public in online survey comments:
 - Include a group campsite large enough to accommodate a scout troop. *Note: primitive camping at the Picnic Area would be limited to small groups per the CE.*

Constraints

- Per the Conservation Easement, Trail Camp 1 or Trail Camp 2 would need to be left undeveloped if primitive campsites are developed at the Picnic Area.

Trail Camp 1 and 2 Opportunities and Constraints

The Conservation Easement allows for up to four primitive camp sites and minimal site development at each of the two Trail Camps (Figure 1.3). The first public survey indicated these amenities would be appreciated by the community.

Opportunities

- Provide wildland camping close to developed areas; develop pack-it-in-pack-it-out traditions by providing campsites at reasonable beginning backpacker distances.

¹⁰ Most of the Preserve is within a moderate fire severity zone. The Preserve's northeast corner is in a high severity zone.

¹¹ Utilities (including an existing well) are available near this site and can be developed to serve the Picnic Area.

- Provide tent sites, picnic tables, wildlife-proof food lockers, and potentially vault or composting toilets.
- Provide non-potable water at Trail Camp 2 by restoring an existing well and water tank burned in the Tubbs Fire. Explore water development near Trail Camp 1, including the original well for the Palm House.
- The Conservation Easement's restriction on the use of nighttime lighting in the trail camps is an opportunity for backcountry campers to enjoy dark nighttime skies.
- Opportunities communicated by the public in online survey comments:
 - Install hammock poles.
 - Equestrian users indicated they would like horse corrals or paddocks with a water spigot at the camping areas.¹²

Constraints

- Design and location of composting or vault toilet installation would need approval by Ag + Open Space.
- Restrictions on structures and infrastructure within the Streamside Conservation Area (Riparian Corridor) is a constraint to the construction of visitor-serving facilities along the eastern edge of Trail Camp 1.
- Red flag warning days would close the trail camps.
- Cooking could be restricted to camp stoves with no open fires.
- Water would need to be boiled or treated for bacteria before use.
- Camping at Trail Camp 1 and 2 is limited to small groups.

North Trail Staging Area Opportunities and Constraints

Opportunities

- Provide new trailhead parking and staging area to serve future access to trail easements to the north as they are developed.

Constraints

- Any new visitor-serving improvements at the North Trail Staging Area would require a new access from Porter Creek Road for maintenance and emergency vehicles, with no direct connection across Porter Creek Road to the Preserve's main entrance.
- The driveway for a new parking lot and/or roadside parking serving the North Trail Staging Area will need at least 555 feet of sight distance for turns onto and off of Porter Creek Road.

¹² A spigot would be possible with well development.

Emergency Response and Management Access

The Preserve contains steep, mountainous terrain and densely vegetated areas that pose unique opportunities and constraints to emergency and management access (Figure 1.4). For the purposes of this memorandum, management access includes but is not limited to maintenance access and patrol of the Preserve.

Opportunities

- Develop an emergency access plan that:
 - outlines routes and procedures for accessing different areas of the Preserve in the event of emergencies; and
 - considers the emergency access needs of the Easement Designation Areas and the trail system.
- Provide emergency vehicle access (EVA) from private roads that abut the Preserve property line (Redwood Hill Road, Foothill Ranch Road, and Alpine Road) via new controlled access gates, and cooperate with neighbors on access for maintenance if needed.
- Improve and construct new roads if needed for emergency access and maintenance, provided they do not impact the Riparian Protection Area. This is an opportunity for widening and improving the surfacing of existing ranch roads and trails and building bridges at Mill Creek crossings for improved emergency and maintenance access.
- Use existing ranch roads for controlled burns, fire breaks, or for designating fire management units within the Preserve.
- The Primary Building Envelope and Secondary Building Envelope are opportunities for building Preserve maintenance facilities, subject to approval by Ag + Open Space.
- The Conservation Easement permits a Preserve ranger, land manager, or caretaker to reside on the Preserve at both the Primary Building Envelope and Secondary Building Envelope. This is an opportunity for on-site staff to be responsive to emergencies, maintenance needs, and situations requiring enforcement of Preserve rules and regulations.
- Manage vegetation to reduce hazardous fuels, wildfire severity, and danger to first responders, and to increase access for emergency responders.
 - Graze the North Trail Staging Area and areas like Coho Meadow for vegetation management to reduce fuel loads.
- Design Preserve facilities and infrastructure to be resilient and climate durable to reduce the strain on first responders during emergencies.
- Incorporate emergency access waypoints, evacuation infrastructure, and fire refuge at the Primary and Secondary Building Envelopes, subject to Ag + Open Space approval.
- Designate and maintain helicopter landing pads for emergency services use in level, open areas to supplement road-based emergency access.
- Improve communication infrastructure with cellular and radio towers to support emergency and maintenance activities, as allowed by the Conservation Easement. There may also be an opportunity to install emergency call boxes in the Easement Designation Areas.

- Reduce fire risk and generate revenue by:
 - removing hazardous trees and selling them as campfire wood in parks that allow campfires; and
 - charging leaseholders for grazing.

Constraints

- The Preserve’s remote wildland setting is a constraint to emergency response time and access during natural disasters. Some trails (e.g., Mark West Creek Trail and singletrack) are too narrow or steep to accommodate emergency vehicles, and emergency vehicles may not be able to cross Mill Creek’s natural creek crossings.
 - There is only one public entrance to the Preserve: 3000 Porter Creek Road, leading to the Primary Building Envelope and the Limited Park Development Area. All other roads that approach the Preserve’s boundary are private and cannot be used for public access. The County has an easement across Cresta Road for staff and emergency access, but SCRP cannot plan emergency access or exits via other private roads for which the County does not have easements (Saunders 2023).
- Dense trees and vegetation restrict helicopter access and the ability to land in remote areas of the Preserve.

Trail System Opportunities and Constraints

The Preserve contains an existing network of trails with varying surface materials, widths, and running slope (steepness), and with trail conditions ranging from good to impassible (Figure 1.5). The *MWCRP&OSP Existing Trails Assessment* (Attachment A) provides a detailed assessment of these physical attributes.

Opportunities

- General Opportunities:
 - Provide accessible trails and destinations for people of all physical abilities.
 - The Preserve’s existing ridgetops and meadows contain beautiful views of the Mark West Creek watershed. These areas are ideal locations for scenic overlooks, benches, family picnic tables, gathering areas, and interpretive signage.
 - Create future trailhead(s) at the North Trail Staging Area that could connect to nearby open spaces and other existing and future public trail easements.¹³
 - Prevent erosion at existing, reclaimed, and new trails by creating outsloped trail beds¹⁴, providing passing areas, armoring sections of trail where ephemeral drainages cross, and ensuring any new trail alignments are side-slope trails.
 - Use trimming and rotational livestock grazing to reclaim former ranch roads and singletrack that have become overgrown with vegetation and poison oak.
 - Install wayfinding signage with location maps and allowed trail uses at trail junctions to help trail users navigate the large Preserve.

¹³ Creating such trail connections is outside of scope of this Master Plan, but it is key among SCRP’s goals for future expansion of the Mayacamas Mountains’ protected open space network.

¹⁴ Outsloped trails are graded so that runoff flows perpendicular to the trail and downslope instead of being channeled down the inside edge of the trail.

- Use shorter loop trails to create a stacked loop trail system.
- Host special public recreational and educational events of 50–250 participants (such as non-motorized trail race events) up to six times per year.
- Host recreational and educational special events of up to 50 participants with unrestricted frequency.
- Include up to two bridges across Porter Creek, up to two bridges across Mark West Creek, and up to four crossings of Mill Creek. A crossing can be a natural crossing, armored crossing, the existing box culvert (Bridge 3), or a bridge.
 - Preserve the two existing bridges across Mark West Creek: Bridge 1 and Bridge 2 (Figure 1.5), or replace Bridge 1 and/or Bridge 2 with bridges elsewhere across Mark West Creek, provided that such replacement is demonstrated to benefit the CE’s Conservation Values.
 - SCRIP is building a new vehicular bridge at the Preserve’s main entrance across Porter Creek, next to the existing bridge. This is a potential opportunity to refurbish the existing bridge for non-vehicular use by adding railings to the existing bridge.
 - Mill Creek has one existing box culvert (Bridge 3) and several natural creek crossings of varying condition. Opportunity to improve the condition, accessibility, and code compliance of Mill Creek’s crossings for greater trail connectivity, expanded loop trail options, and visitor safety.
- Use suitable existing trails as emergency access routes to remote areas of the Preserve.
- Build parallel trails for different user groups if site-specific conditions allow. Opportunity for parallel trails along the heavily used section of the Mark West Creek Trail between the Primary Building Envelope and Bridge 1.
- Decommission informal trails that enable people and dogs to unlawfully walk into and impact the best remaining salmonid habitat along Mark West Creek (Cody 2023, ESA 2022).
- Decommission trails that impact sensitive resources, are poorly designed, and are excessively steep and restore with native vegetation wherever possible.
- Use decommissioning trails to create meaningful habitat restoration, increase patch sizes, and enhance wildlife connectivity.
- Delineate where wetlands and other aquatic resources occur and to design and manage the trail system to prevent disturbances to those natural resources. Wetlands that occur along the Preserve’s existing trails have not been surveyed.
- Limit disturbance to Sensitive Tree Alliances, documented Sensitive Habitat Areas, and special-status plant and wildlife species.
 - Use knowledge of mountain lion preferred paths of travel as documented by County biologists to plan useful travel corridors and avoid mountain lion disturbance.
 - Build sections of boardwalk to allow newts to safely pass underneath the Mark West Creek Trail.
- Opportunities communicated by the Trails Stakeholder Group:
 - Create a shaded trailhead and gathering space including educational and informational signage about the trail system, trail etiquette for safe shared trail use, and Preserve regulations near the main Preserve entry.

- Develop an online map with downloadable trail system information such as trail lengths, degree of difficulty, and allowed uses to improve the Preserve’s trail experience.
- Establish a cohesive perimeter loop trail, potentially assembled from a combination of existing trails and impassable trail segments.
- Use trail surfacing materials that minimize erosion during the wet season.
 - Gravel all trails used by horses and bikes to prevent trail erosion (American Trails 2022).
- Existing narrow trails over 10% running (lengthwise) slope may be well suited for dedicated downhill directional bicycle trails given that the Trails Stakeholder Group indicated that slopes over 10% are not ideal for equestrians, runners, or hikers.
- Provide signage to alert trail users of seasonal newt migrations.
- Signage about natural predators such as mountain lions and about trail etiquette for safe shared trail use may be opportunities to persuade dog owners to keep dogs on leash.
- Develop rules and regulations for trails that reduce user conflicts.
- Provide equestrian and hiker-only trail access on wider, relatively flat trails such as former ranch roads.
- Provide horse hitching points, turnarounds, and passing areas on trails used by equestrians.¹⁵
- Use the International Mountain Bike Association (IMBA) Trail Guide as a reference for sustainable bike-friendly features.
- Repurpose former water wells for use as horse troughs and water sources for dogs, which may help keep animals out of the Preserve’s creeks. Opportunity for troughs near hill tops.
- Opportunities communicated by the public in online survey comments:
 - Provide shaded seating areas throughout the trail system.
 - Enforce seasonal trail closures to minimize trail damage during the wet season or rain events.
 - Community members frequently requested trails that users can enjoy without fear of collisions with different user groups (especially between bicyclists and equestrians).
 - Dedicate certain trails to specific user groups either geographically (i.e., Trail A for equestrians/hikers, Trail B for bicyclists) or temporally (i.e., day of the week).
 - Public responses from hikers, equestrians, and bicyclists favored steep downhill directional single-track for dedicated bicyclist use.
 - Bicyclists identified the opportunity to work with Redwood Trails Alliance and local volunteers to design bicycle trail features that bicyclists enjoy,¹⁶ but in conjunction with obstacles and signage to slow down bicyclists at locations where speed and trail user conflict is a concern. Opportunity to renovate existing trail(s) or create new singletrack trail(s) geared specifically towards downhill mountain bike use.

¹⁵ Equestrians need 8–10 feet clear vertically and at least 4 feet clear width on singletrack.

¹⁶ Features that mountain bikers enjoy include flow trails with berms (banked turns), grade reversals, rolling dips, and 10–15% downhill slopes, or steeper trails with rock features and gap jumps.

- Leverage offers from several survey respondents for volunteer work to design, build, and maintain bicycle trails and clear non-native vegetation and poison oak.

Constraints

- Trailhead access is restricted to the main Preserve entrance at 3000 Porter Creek Road and a possible future trailhead at the North Trail Staging Areas. All other roads that abut or approach the Preserve’s property line are private. The public does not have permission to enter or exit the Preserve via such private roads.
- The Conservation Easement requires that all roads and trails not directly needed for property access, maintenance, and recreation shall be decommissioned and revegetated. This requirement necessitates the decommissioning of a substantial quantity of trails.¹⁷
- Avoidance and minimization measures for protected plant and wildlife species may be constraints for trail improvements that are in or near potential habitat for special-status species or other sensitive resources areas. See Attachment C for more detail.
 - Newt migration is a constraint to trail use during the late fall and winter newt migration seasons.
- The Conservation Easement limits impacts to the Riparian Protection Area and disallows direct physical contact with Mark West Creek and Porter Creek.
- Existing trails historically used for equestrian and ranching purposes may not be suitable for re-purposed uses such as mountain bike flow trails.
- Many existing trails are eroded, unstable, steep, overgrown by vegetation and blocked by fallen trees, which renders them impassible. Significant thickets of poison oak are prevalent throughout the Preserve – particularly along all singletrack and near the Preserve’s South Ridge and Highlands areas – and areas impacted by the Tubbs Fire have grown back with dense vegetation.
 - Trail running slopes over 10% are not preferable for most equestrians, runners, or hikers.
 - The Conservation Easement affords limited opportunities for paved pathways outside of the Primary Building Envelope unless needed for building code compliance.
 - The box culvert’s (Bridge 3) lack of guardrails are a constraint to safe visitor passage across Mill Creek.

Cultural Resources

Eighteen cultural resources, including 10 archaeological sites (most of which are indigenous) and several historic-era architectural resources have been identified in the Preserve. Impacts to these resources are regulated by federal, state, and local agencies. Cultural resources identified in the Preserve are described in the *Cultural Resources Study of the Mark West Regional Park and Open Space District, Sonoma County, California* (Barrow, 2020). Though many have been assessed, there remain a number of the cultural resources identified in the Preserve have yet to be assessed for significance or “eligibility” (i.e., eligibility for listing in the California Register of Historical Resources [California Register]), which would require additional cultural resource investigations. Providing public access to or to the vicinity of cultural resources that have been assessed as

¹⁷ Most of the existing trails identified via desktop analysis are strong candidates for decommissioning, as many of these trails are extremely steep (>30% slopes) old cattle tracks/game trails and/or are impassible due to fallen trees and overgrown vegetation (Figure 1.5). In addition, existing fall-line trails are strong candidates for decommissioning given the erosion they create and the Conservation Easement’s requirements that trails not erode into the Preserve’s salmon-carrying waterways.

significant (California Register-eligible) or that have yet to be assessed for significance could result in damage or destruction of significant cultural resources from resource collection, ground disturbance from pedestrian/bicycle use, defacing or general wear from physical touching, and general irreverence to indigenous resources.

At least some of these cultural resources – many of which are within or adjacent to existing trails or in areas that may, for other reasons, be otherwise suitable for new trails – may be constraints to public use, improvement of existing trails, or the creation of new trails.

Environmental Protection, Habitat Improvements, and Climate Resilience

The Preserve contains a diverse ecosystem that would thrive with appropriate environmental planning, maintenance, and management. Figure 1.6 speaks to environmental protection, habitat improvements, and climate resilience opportunities and constraints for the Preserve.

General Opportunities

- Developing the Preserve’s Master Plan and RMP in compliance with CEQA is an opportunity to protect the Preserve’s natural environment by evaluating, avoiding, and mitigating impacts to the Preserve’s sensitive natural features, and affirming SCRPs and the County’s commitment to follow-through.
- The Conservation Easement restrictions on allowed uses of the Preserve is an opportunity to protect and enhance habitats of special status plant and wildlife species.
- Limit vehicle access in the Forever Wild Recreation Area, sensitive habitat areas, and Riparian Protection Areas to SCRPs staff and emergency vehicles.
- Strategically plan habitat restoration project locations to improve wildlife connectivity between adjacent lands for particularly sensitive species.
- Hydrologic System
 - Enhancing wetland and aquatic habitat is an opportunity to improve the Preserve’s habitat and climate resilience. The *Mark West Stream and Wetland Assessment* proposes aquatic habitat restoration in several locations (ESA 2022). These seasonal wetland depressions, biotechnical bank stabilization areas, culvert outlet dissipation structures, sedge plantings, fish passage enhancement areas, grade control structures, step-pool dissipation structures, and wood loading areas are opportunities to increase the Preserve’s resilience to climate change by increasing summer streamflow, decreasing stream temperature, and improving fish passage for salmonids (Figure 1.6). Similar restoration and enhancement plans have been developed for Mark West Creek near Trail Camp 1 (Prunuske Chatham, Inc., 2020).
 - Replace an existing box culvert (Bridge 3) across Mill Creek with a free span bridge to improve habitat connectivity, the natural stream channel bottom, flood conveyance, fish passage, and salmonid habitat while decreasing the erosive power of the box culvert (White 2023).¹⁸
 - Use “the significant amount of large wood [debris] supplied from fire damaged trees” to wood load Mill Creek and the area near its banks to “enhance [creek] habitat conditions for juvenile salmonids, force [water] flow out of [Mill Creek’s] banks, and promote capture of incoming sediment (ESA 2022).

¹⁸ The Mark West Stream and Wetland Assessment recommended improving this box culvert with a “boulder apron at the outlet and grouted boulders/baffle structures within the culvert to enhance fish passage conditions” (ESA 2022). A bridge replacement would be an even more resilient solution (White 2023).

- The one intermittent channel and four ephemeral channels identified between the Secondary Building Envelope and Trail Camp 1 are opportunities to create protected wildlife corridors within these Easement Designation Areas (ESA 2023). Opportunity to protect the intermittent creek in Trail Camp 1 as a wildlife corridor for special-status species like western pond turtle (*Emys marmorata*), red-bellied newt (*Taricha rivularis*), and California giant salamander (*Dicamptodon ensatus*).
- Limit Erosion
 - Protect habitat by implementing seasonal closures on erosion-prone trails (particularly for user groups that cause the greatest trail damage during the wet season) and trails bordering Sensitive Habitat Areas¹⁹, enacting seasonal limitations on large events taking place on Preserve trails, and by decommissioning trails that cause heavy erosion, such as fall-line trails near the Preserve’s South Ridge and Highlands.
 - Consider providing gates to discourage visitors from damaging trails during the wet season.
 - Post trail closures on the Regional Parks website.
 - Identify problematic erosion and sediment sources and develop a comprehensive, prioritized treatment plan.
- Trail decommissioning is an opportunity to increase the amount of larger contiguous areas of uninterrupted natural habitat. Decommissioning some trails in remote portions of the Preserve is an opportunity to increase the amount of larger contiguous chunks of habitat to better support species with large ranges like mountain lions and those with diverse habitat requirements, such as newts and amphibians (Cody 2023).
- Build bioretention areas to capture nutrients and sediment from stormwater runoff before it enters the Preserve’s creeks.
- The Forever Wild Recreation Area is an opportunity to improve climate resilience by preserving natural spaces for habitat connectivity and unencumbered use by wildlife (Saunders 2023).
- Forest and Woodland Habitat
 - Knowing that Sensitive Tree Alliances exist within Easement Designation Areas and along trails presents the opportunity to preserve and limit disturbance to valuable Preserve vegetation communities like oak, redwood, big leaf maple, Douglas fir, California bay, Monterey pine, tanoak, coyote brush, chamise, and Pacific madrone alliances in these areas (Saunders 2023). Opportunity to self-mitigate for any impacts to these habitats with in-kind vegetation in order to have a positive balance of natural resources.
 - The mountain lion travel corridor documented in the Preserve is an opportunity to protect large chunks of contiguous habitat from segmentation by roads or trails.
- Install fencing and/or obliterate and rehabilitate informal trails in targeted locations to restrict physical public access to creek banks in accordance with Riparian Protection Area requirements (American Trails 2022²⁰). This would address the informal trails that already exist from the existing trails to the creek bank, particularly near Bridge 1, where people and dogs sometimes unlawfully walk into and impact Mark West Creek’s best remaining salmonid habitat (Cody 2023, ESA 2022).
- Enhance riparian habitat in portions of the Streamside Conservation Area that overlap with the Primary Building Envelope and the Limited Park Development Area.

¹⁹ Seasonal trail closures would protect sensitive newt habitat during the newt migration seasons.

²⁰ Obliterating and rehabilitating informal trails can involve installing barrier fencing, rocks, sticks, logs, soil, wattles, plants, and/or seed in the footprint of trails to be decommissioned (California State Parks 2023).

- Manage poison oak in a way that prevents access to and activity in protected areas like the Preserve's Riparian Protection Area.
- Invasive Species Control
 - Control non-native invasive plant species and weeds with mechanical or chemical removal, grazing, or manual flaming²¹, and by limiting grazing to non-native grassland areas, such as Coho Meadow.
 - Conduct prescribed burns that can control or limit invasive species, reduce fire risk, manage understory fuels, reduce competition from invasive annuals with native plants, and stimulating germination or regrowth of native fire-adapted plants. Prescribed burns have the potential to reduce catastrophic wildfire potential and contribute to the long-term ecosystem resiliency of the Preserve. See Attachment D for more detail about prescribed burns opportunities and constraints.
 - Control the spread of invasive plants by planting native plants in areas slated for invasive species treatment.
- Increase public knowledge about fire safety, history, and potential as an effective land management tool at the Preserve. These actions can enhance the region's overall resilience by adding to conversations about public health and safety, with the goal of aligning with fire-adapted communities.

Opportunities communicated by the public in survey comments:

- 71% of 1,082 respondents to the Project survey in 2022 indicated that they support preserving large habitat zones in the Preserve that are not bisected by trails.²²
- Include indigenous representation in land management practices like controlled burns.
- Engage the neighboring Pepperwood Preserve's Native Advisory Council as a resource for strategies to engage the potentials of cultural burning at the Preserve.
- Provide staff housing or Ranger residences on site that enables implementation of Preserve regulations that are intended to protect natural resources.
- Use grant funds for planning, permits, and implementation of vegetation management at the Preserve.
- Assess compatibility of dog access with dogs' impacts on sensitive habitat, wildlife populations, and water resources.

Constraints

- Sediment and nutrient loading are constraints to habitat improvement.²³

²¹ Manual flaming wilts, rather than burns, the plants. Flaming can be adopted as a hand-held weed control technique for non-native invasive plants, typically when they are young. In the right conditions, it can target seedlings early in the season before they grow and require more time to be manually controlled.

²² 9% of survey respondents did not support preserving large habitat zones.

²³ Per the North Coast Regional Water Quality Control Board (Regional Board), Mark West Creek is on the Clean Water Act 303(d) list of Impaired Waters for sediment, nutrients, pathogens, and temperature (Cody 2023). This means that MWC has degraded water quality that does not support all beneficial uses of the water, including endangered salmonid (Coho, Steelhead) habitat and other wildlife, such as Foothill Yellow Legged Frogs (FYLFs). To reverse this degradation, the Regional Board is developing Total Maximum Daily Loads (TMDLs) for all of these pollutants. In the adopted action plan of the pathogen TMDL, the discharge of fecal waste into waters of MWC is prohibited by the Regional Board. Any use of the Preserve by humans, horses, dogs, cattle, and goats must be managed in order to not increase sediment or nutrient loading of the Preserve's creeks.

- Dogs can be a constraint to water quality and habitat improvement. Some survey respondents said not all dog owners pick up bags of dog poop left alongside the trail. One respondent raised concerns that dog poop would raise fecal levels in the Preserve's creeks.
- Increased visitor amenities, trails, and visitor use at the Preserve is a constraint to wildlife habitat and wildlife corridors due to habitat fragmentation, lighting, and visual and noise disturbance.
- Increased visitor use at the Preserve may increase the diversity and amount of invasive plant species introduced to and establishing at the Preserve.

Next Steps

SCRIP and ESA will use public and Ag + Open Space feedback on the *Opportunities and Constraints Analysis Memorandum* to inform three conceptual design alternatives for the Preserve for public feedback and refinement into a Preferred Alternative. There will be variations between each conceptual design alternative to assist the community with prioritizing goals and objectives for the development and management of the Preserve. The conceptual design alternatives will be posted on the project's website along with an online video and opportunities for public comment.

References

- American Trails. (2022). The Science of Sustainable Trail Design and Management. Advancing Trails Webinar Series.
- Barrow, Eileen. (2020). Cultural Resources Study of the Mark West Regional Park and Open Space District, Sonoma County, California. Prepared by Tom Origer & Associates, Rohnert Park, CA. Prepared for Sonoma County Regional Parks.
- California Department of Fish and Wildlife, and California Native Plant Society Vegetation Program. (2015). Classification of the Vegetation Alliances and Associations of Sonoma County, California.
- California State Parks. (2023). Chapter 27: Erosion/Sediment Control and Trail Removal.
- Cody, Kasey. (2023). Email.
- EBA Engineering. (2021). Construction Drawings for Sonoma County Regional Parks Mark West Springs Bridge.
- ESA. (2023). Mark West Creek Regional Park and Open Space Preserve Resource Management Plan – Habitat Assessment Technical Memorandum.
- _____. (2022). Mark West Creek Regional Park and Open Space Preserve Survey #1.
- _____. (2022). Mark West Creek Park and Open Space Preserve Trails Stakeholder Group. Meeting #1. Meeting Notes.
- _____. (2023). Mark West Easement Designation Areas Wetland Delineation Report.
- _____. (2022). Mark West Stream and Wetland Assessment Project Memorandum.

_____. (2022). Mark West Trails Assessment Figures.

McCullough, Carolyn, Trails Stakeholder Group Member. (2021). Personal Conversation.

Murphy, Sheila. (2021). Newts on the Move! Email.

O'Connor Environmental, Inc. (2020). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Upper Mark West Creek Watershed, Sonoma County, CA.

Prunuske Chatham, Inc. (2020). Upper Mark West Creek Salmonid Habitat Enhancement Project. Construction Drawings.

Questa Engineering Corp. (2022). Mark West Cresta Road Slide Repair.

Rob Evens & Associates. (2022). Mark West Creek Regional Park & Open Space Preserve Conservation Easement Baseline Documentation. Prepared for Sonoma County Agricultural Preservation & Open Space District.

Saunders, Laura, SCRIP Planning Technician. (2023). Conversation.

Sonoma County Regional Parks. (2022). GIS Data.

Sonoma County Agricultural Preservation and Open Space District. (2018). Conservation Easement. Deed and Agreement By and Between the County of Sonoma and The Sonoma County Agricultural Preservation and Open Space District Conveying a Conservation Easement and Assigning Development Rights.

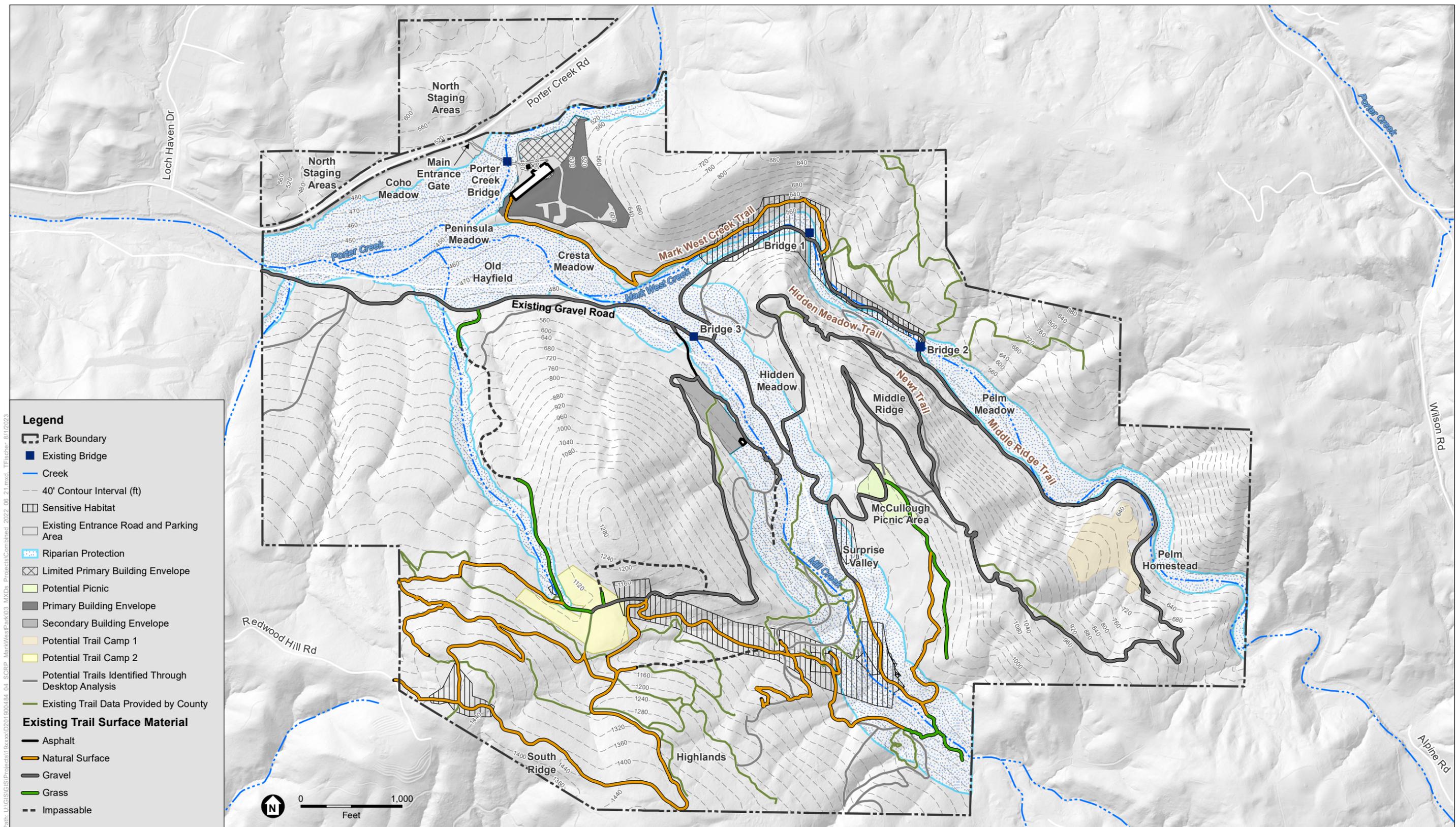
Trout Unlimited. (2022). Mark West Creek Streamflow and Habitat Conditions Overview. Presentation.

White, Jason, ESA Hydrologist. (2023). Email.

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Attachment A

Trails Assessment Figures



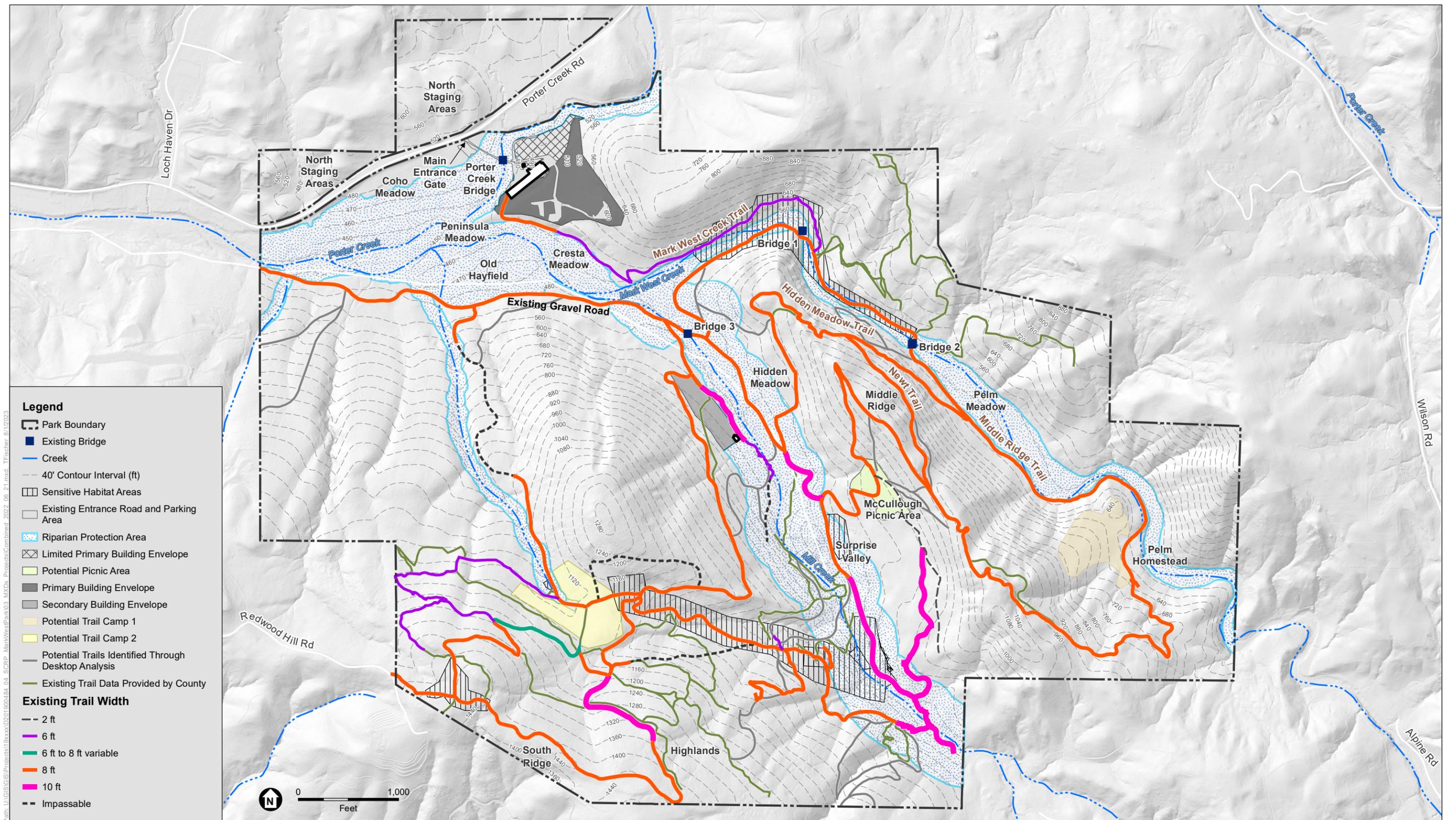
- Legend**
- Park Boundary
 - Existing Bridge
 - Creek
 - 40' Contour Interval (ft)
 - Sensitive Habitat
 - Existing Entrance Road and Parking Area
 - Riparian Protection
 - Limited Primary Building Envelope
 - Potential Picnic
 - Primary Building Envelope
 - Secondary Building Envelope
 - Potential Trail Camp 1
 - Potential Trail Camp 2
 - Potential Trails Identified Through Desktop Analysis
 - Existing Trail Data Provided by County
- Existing Trail Surface Material**
- Asphalt
 - Natural Surface
 - Gravel
 - Grass
 - Impassable

SOURCE: USGS; ESA, 2022
 Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983

Mark West Creek Regional Park and Open Space Preserve Existing Trails Assessment

Figure 1
 Existing Trail Surface Material





Legend

- Park Boundary
- Existing Bridge
- Creek
- 40' Contour Interval (ft)
- Sensitive Habitat Areas
- Existing Entrance Road and Parking Area
- Riparian Protection Area
- Limited Primary Building Envelope
- Potential Picnic Area
- Primary Building Envelope
- Secondary Building Envelope
- Potential Trail Camp 1
- Potential Trail Camp 2
- Potential Trails Identified Through Desktop Analysis
- Existing Trail Data Provided by County

Existing Trail Width

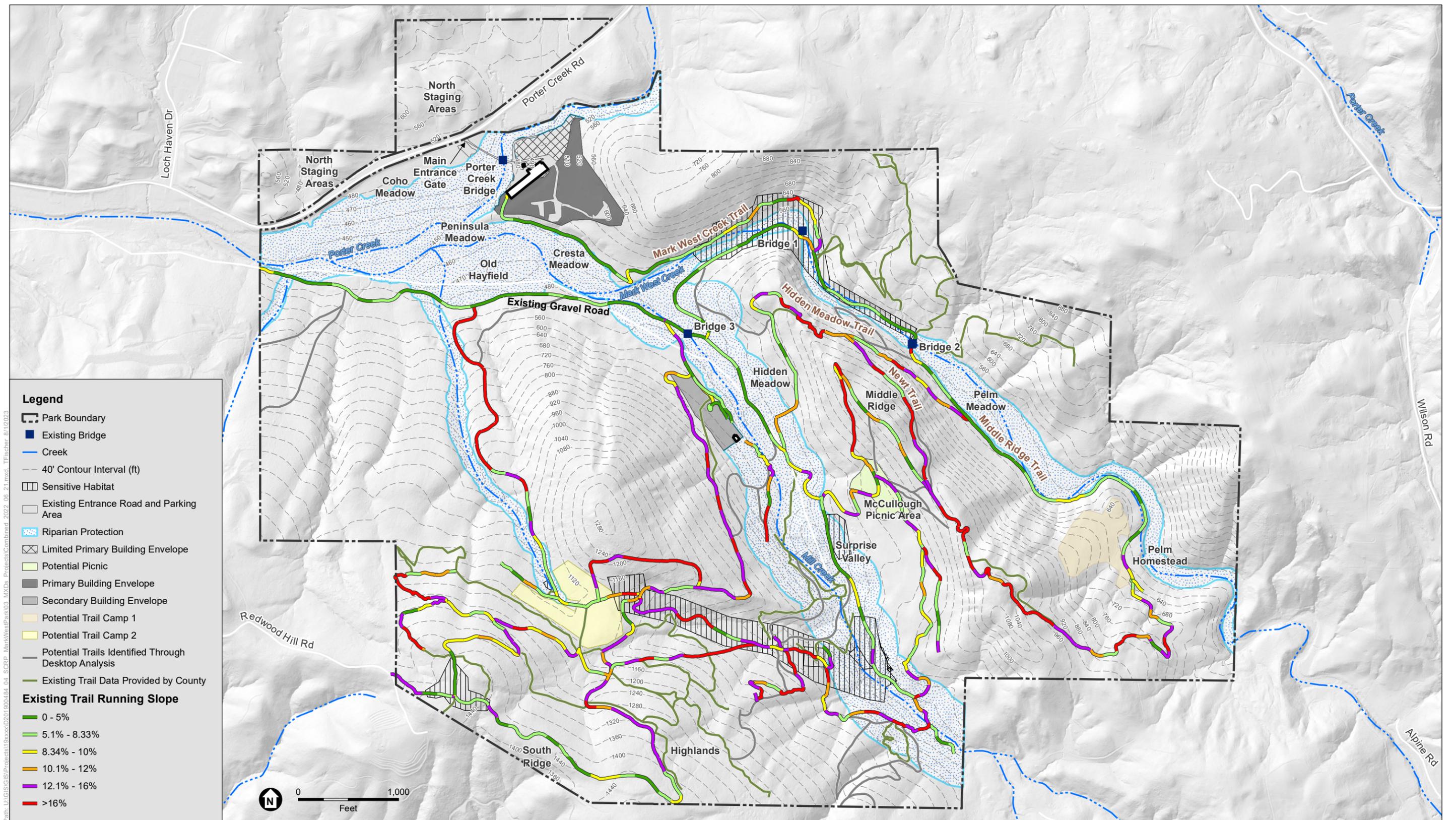
- 2 ft
- 6 ft
- 6 ft to 8 ft variable
- 8 ft
- 10 ft
- Impassable

SOURCE: USGS; ESA, 2022
 Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983

Mark West Creek Regional Park and Open Space Preserve Existing Trails Assessment

Figure 3
Existing Trail Width



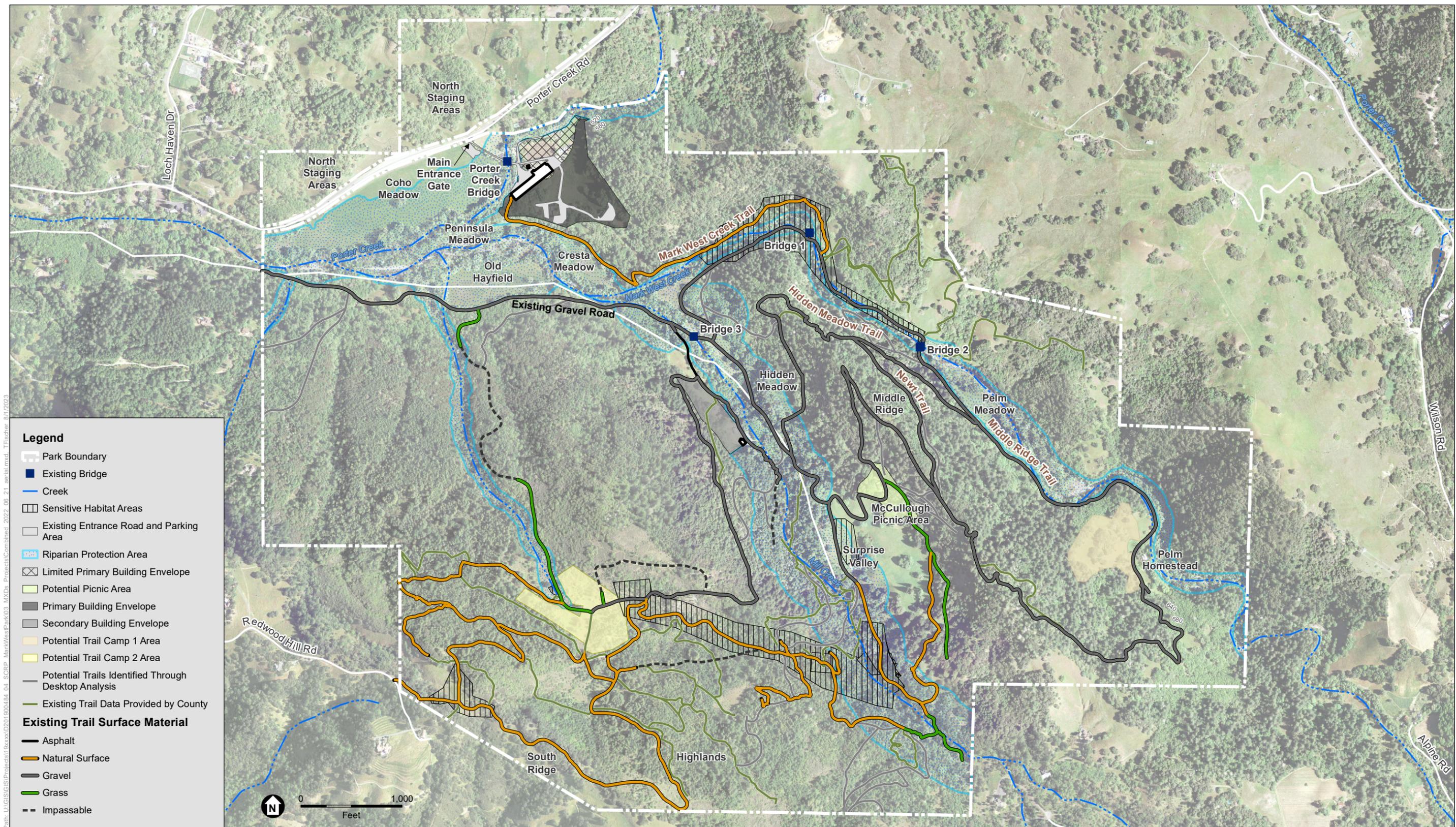


SOURCE: USGS; ESA, 2022
 Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983

Mark West Creek Regional Park and Open Space Preserve Existing Trails Assessment

Figure 4
 Existing Trail Running Slope





Path: U:\GIS\GIS\Projects\19xxxx\19000164_04_SCRP_MarkWestPark\103_MXD\Projects\Combined_2022_06_21_aerial.mxd - Fischer 6/14/2023

SOURCE: USGS; ESA, 2022

Coordinate System: US State Plane California Zone II
 Projection: Lambert Conformal Conic
 Datum: North American Datum 1983



Mark West Creek Regional Park and Open Space Preserve Existing Trails Assessment

Figure 5
Existing Trails

Attachment B

Sensitive Habitat Areas

County biologists have identified a number of sensitive habitat areas supporting sensitive species that need to be protected during migration seasons (Figures 1.1, 1.3, 1.5, 1.6). These are areas that may require extra surveys, best management practices, and avoidance and minimization measures with regards to trail improvements and management actions to ensure these sensitive species are not impacted by the Master Plan's design or management elements.

- Newt species documented on-site include red-bellied newt (*Taricha rivularis*) and rough-skinned newt (*Taricha granulosa*). They can be spotted first in the fall after the first rains, and again in January and February when they head to their breeding grounds (Murphy 2021). Newts at the Preserve are most active when humidity is high, temperatures are mild (39 – 58 degrees Fahrenheit), and within a couple days of rain (Murphy 2021). They are most prevalent along the Mark West Creek Trail and on the roads adjacent to Mark West Creek (Figure 1.5).
- Figures 1.5 and 1.6 show a section of existing trail that County biologists have documented as a heavily-used mountain lion travel corridor via wildlife camera footage. The desire to minimize disturbance to this shy keystone species is an opportunity to set aside large contiguous areas of natural habitat and is a constraint to the length and locations of the Preserve's future trails that go through this sensitive habitat area.

Attachment C

Special Status Species

Protected Wildlife Species

The Preserve includes 2.47 miles of Mark West Creek, 0.35 miles of Porter Creek, and 0.75 miles of Mill Creek, supporting federal and State-listed wildlife species including yellow-legged frog (*Rana boylei*), steelhead trout (*Oncorhynchus mykiss irideus*), and Coho salmon (*Oncorhynchus kisutch*). The red-bellied newt (*Taricha rivularis*), California giant salamander (*Dicamptodon ensatus*), and western pond turtle (*Actinemys marmorata*), considered Species of Special Concern by CDFW, have been observed on the Preserve by Ag + Open Space staff. Protection and enhancement of the Mark West Creek watershed and its fishery is an objective shared by many resource agencies including CDFW, U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), Sonoma County Water Agency (Sonoma Water), and the North Coast Regional Water Quality Control Board (NCRWQCB). Upland habitats in the Preserve provide potential habitat for nesting birds, including several species of special concern, Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), and American peregrine falcon (*Falco peregrinus anatum*). Special-status mammals that may use habitat in the Preserve include pallid bat (*Antrozous pallidus*), and American badger (*Taxidea taxus*). Avoidance and minimization measures may be constraints for development activities in or near potential habitat for special-status species.

Protected Plant Species

The Preserve and surrounding watershed support a number of special-status plant species. Several species have been observed in the Preserve during a floristic survey conducted in 2011 (Warner 2011), including: fragrant fritillary (*Fritillary liliacea*), Napa false indigo (*Amorpha californica var. napensis*), pale yellow hayfield tarweed (*Hemizonia congesta ssp. congesta*), Jepson's leptosiphon (*Leptosiphon jepsonii*), redwood lily (*Lilium rubescens*), Napa lomatium (*Lomatium repostum*), Lobb's aquatic buttercup (*Ranunculus lobbii*), and green monardella (*Monardella viridis ssp. viridis*). Potential habitat exists for several other rare plant species that have been observed nearby, and recorded in the California Natural Diversity Database (CNDDB). Updated protocol-level rare plant surveys are needed to confirm the location of special-status plant populations within the Easement Designation Areas. Special-status plant populations are potential constraints to development within Easement Designation Areas.

Attachment D

Prescribed Burning Opportunities and Constraints

Prescribed Burning Opportunities

The Conservation Easement allows SCRP to manage vegetation to reduce fire risk, including via brush removal, mowing, grazing, and prescribed burning, subject to prior approval from Ag + Open Space. The Preserve's geography and fire history underscore that fire has been part of the Preserve's ecology for millennia. In addition, fire has long been a powerful Native land management tool, with distinct cultural, spiritual, and ecological histories and practices belonging to the Indigenous peoples of the region. Prescribed burns have the potential to support native plant communities, reduce risks associated with catastrophic wildfire, manage invasive species, and provide a setting for public educational programs or nature-education. The Preserve can stand as a model of prescribed fire integration by embracing its multi-faceted ecological and cultural histories, and benefits to surrounding communities today.

- Prescribed burns are an opportunity to improve climate resilience by managing hazardous fuels associated with wildfire risks and supporting appropriate management actions along trails in alignment with the County's forest management plan for the Preserve.
- Prescribed burns are an opportunity to enhance habitat restoration efforts by reducing woody encroachment or unsuitable understory in certain habitats, reducing competition from invasive annuals, and stimulating germination or regrowth of native fire-adapted plants. Many plant species on the property have the ability to regenerate by basal and/or epicormic sprouting, and the heat from fire stimulates seed germination of other species. For example, many of the mature Douglas Fir and Oak trees on the property survived the Tubbs Fire due to their protective bark, while other, more open areas that only burned at lower intensities were left largely intact. Many of the Redwood stands on the property were burned at moderate to high severity by the Tubbs Fire, but due to their fire-adaptations have vigorously resprouted epicormically and from their bases, with Redwood seedlings now emerging from the mineral soil (Rob Evans & Associates 2022).
- Prescribed burns are an opportunity to control or limit invasive species that reduce habitat quality or threaten sensitive species.
- The Preserve's trail system and existing roads create an opportunity to demarcate burn units for the Preserve.
- Connecting with existing prescribed fire learning networks²⁴ to develop public outreach and Preserve programs would be an opportunity to increase public knowledge about fire safety, history, and potential as an effective land management tool at the Preserve. These actions can enhance the region's overall resilience by adding to conversations about public health and safety, with the goal of aligning with fire-adapted communities²⁵.

Tribal Engagement & Leadership

One community member requested "Native representation in land management practices like controlled burns." The neighboring Pepperwood Preserve's Native Advisory Council could serve as a resource for strategies to engage the potentials of cultural burning at the Preserve. Connecting with Tribal representatives regarding potential involvement in cultural burns, prescribed fire trainings, interpretive signage or programs, or establishing a Native Advisory Council for the Preserve would be an opportunity to improve habitat and the climate resilience.

²⁴ Such prescribed fire learning networks include the Northern California Prescribed Fire Council and The Nature Conservancy's North America Fire Initiative.

²⁵ See fireadapted.org.

Prescribed Burning Constraints

Prescribed burns can be an extremely effective vegetation management tool with multiple benefits for habitat, recreation, and safety. Constraints to the use of prescribed fire include existing and proposed facilities and infrastructure, regulatory restrictions (including jurisdictional requirements, permits, seasonal limitations, and liabilities), physical site conditions, required resources, and community feedback.

Existing and Proposed Facilities & Infrastructure

Burn plans developed for the Preserve must consider distances from buildings, under and above-ground utilities, and other built features that may require buffer zones. Existing trails and roads, including emergency access roads, may present both opportunities and constraints; the constraints being that trails and roads may need to be closed, and also act as natural firebreaks which can alter fire's behavior during a burn. This constraint should also be considered with regard to structures on neighboring properties.

Regulatory Constraints

While California continues to make great strides, regulatory processes still present challenges to integrating prescribed burns within the Preserve.

- The Preserve will need to develop and approve a burn plan for the area(s) of the site that will be managed with fire to meet vegetation management and other goals.
- Any prescribed fire trainings, or public-facing demonstrations or events, may require additional agreements or memorandums of understandings.
- The legal landscape surrounding liabilities for prescribed burning may itself be considered a constraint due to its complexity. Liability may be a constraint given that it is possible for burn bosses and practitioners to be held responsible for damages resulting from planned burns even if they meet all permit requirements – however, recent California legislation (SB 332) has offered significant protections for those conducting burns, lessening the burden of liability and providing benefits further described in *Opportunities*.
- Regional air quality regulations such as burn bans may make the practice of brush burning difficult (McCullough 2022).
- Prescribed burns may require permitting approval from both Cal Fire and local air resources control boards, which may have supplemental requirements such as a smoke management plan. There may be local, state, or federal limitations on the size, method, and timing of prescribed burns, such as the official “fire season” and burn bans due to air quality, or weather conditions that present elevated safety risks. Burns of less than 3 acres and for specific purposes such as habitat management may have fewer supplemental requirements.

Physical Site Conditions

Prescribed burns may require site work, such as surveys, treatments, and vegetation or debris removal, to prepare the area for safe and effective burning. This is largely a constraint for areas that have accumulated very dense understory growth, and may need thinning or other treatments prior to ignition. These and other physical site constraints should be outlined more specifically in the required burn plan.

Required Resources

Prescribed burns typically require resources such as trained professionals, specialized equipment, emergency supplies, and time. These and other resources should be outlined more specifically in the burn plan.

Community Feedback

Public perception of prescribed burns is an often-overlooked constraint. While there are many opportunities as well, it should be expected that fear is a common response to prescribed burn projects, and community pushback could deter burn planning or incur additional costs. Care needs to be taken in the education, outreach, and relationship-building that may be necessary in order to conduct effective burning at the Preserve.