



RUETER-HESS

RESERVOIR

2016 RECREATION MASTER PLAN





Looking west over Rueter-Hess Reservoir



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PROJECT INTRODUCTION



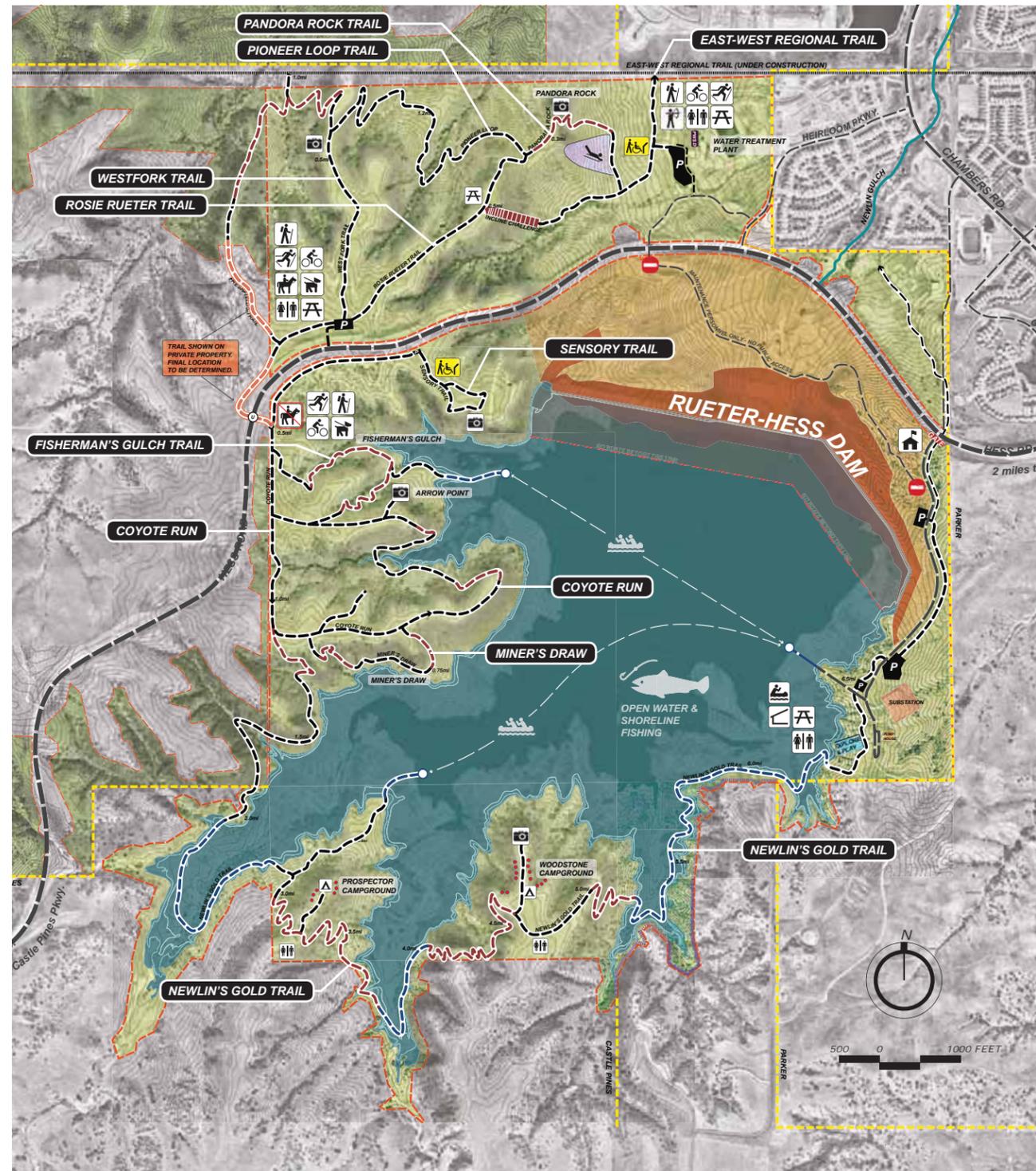
Rueter-Hess Reservoir (RHR) is nestled in the sandstone-rimmed bluffs and Gambel Oak valleys of north eastern Douglas County. Abundant in history and rugged landscape, the reservoir resides on the property owned by **Parker Water and Sanitation District (PWSD)**. It is an invaluable water resource to residents in Douglas County and people of the greater Front Range of Colorado. It is located on Hess Road, one mile east of I-25 at the Castle Pines Parkway exit 188, and three miles west of Parker Road.

Numerous archaeological artifacts were discovered during the reservoirs' construction that provides evidence of a long history of human inhabitation of the land dating back 9,000 years. Native and immigrant settlers of the region relied on the land for their livelihood from hunting to mining gold to homesteading and ranching.

Although the ranching community of Douglas County still thrives on the land, continual growth of adjacent developments and an influx of people moving to the region has increased the demand for water.

As stewards of the land and community, it is the wish of PWSD and its' local partners to preserve this land as a resource and to educate visitors about the history of RHR, Newlin Gulch Tributary, and the region to ensure that it continues to be a sanctuary for wildlife and to respect its' important heritage. Jointly, the reservoir will serve as a unique recreational destination to accommodate a broad range of communities and adventure seekers from near and far.

Outstanding local participation in the reservoir's recreation master planning process has resulted in a preferred concept for the property's outdoor recreational and educational opportunities. Upon the reservoir opening, the public will be invited to experience what the land has to offer through

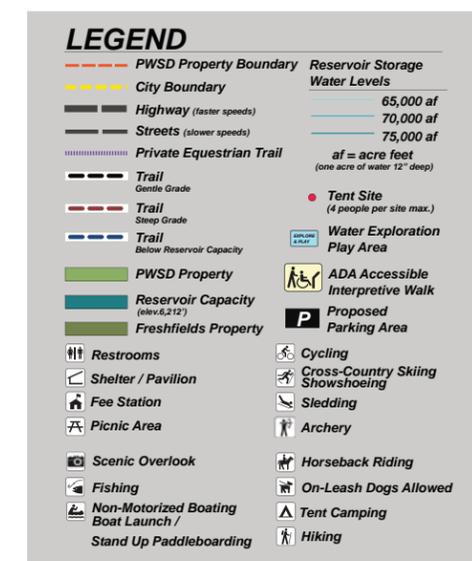


exploring trails, engaging with the water, and learning in an environment dedicated to providing healthy habitats and a clean water supply. The plan includes places to take an archery class, learn to canoe, and identify native plant and animal species on an accessible prairie walk. Visitors can connect with local history throughout the property via trails and signage. Whether it is on cross-country skis, the incline challenge or the sledding hill, people visiting the property will have a way to interact with their community and enjoy the outdoors year-round.

The RHR Recreation Master Plan is intended to be a flexible plan and document. Development is continuing around the reservoir property. Program elements may adjust based on available funding and community trends and needs.

The community must remain involved in protecting this land and educating generations to come about the reservoir and adjacent lands' rich history, unique outdoor space, and preserved native environment while securing a valuable water future.

Preferred Concept Plan



EXISTING CONDITIONS + SITE ANALYSIS

Existing Conditions

An environmental impact statement and 404 permit was established for the property as part of the construction of the reservoir. The permit allows permanent recreation facilities on the east side of the reservoir as well as north of Hess Road. The west side of the reservoir is restricted to soft surface trails and activities that don't impact the wildlife and natural character of the site.

Fishing will be allowed around the reservoir. The PWSO began stocking the reservoir in 2014.

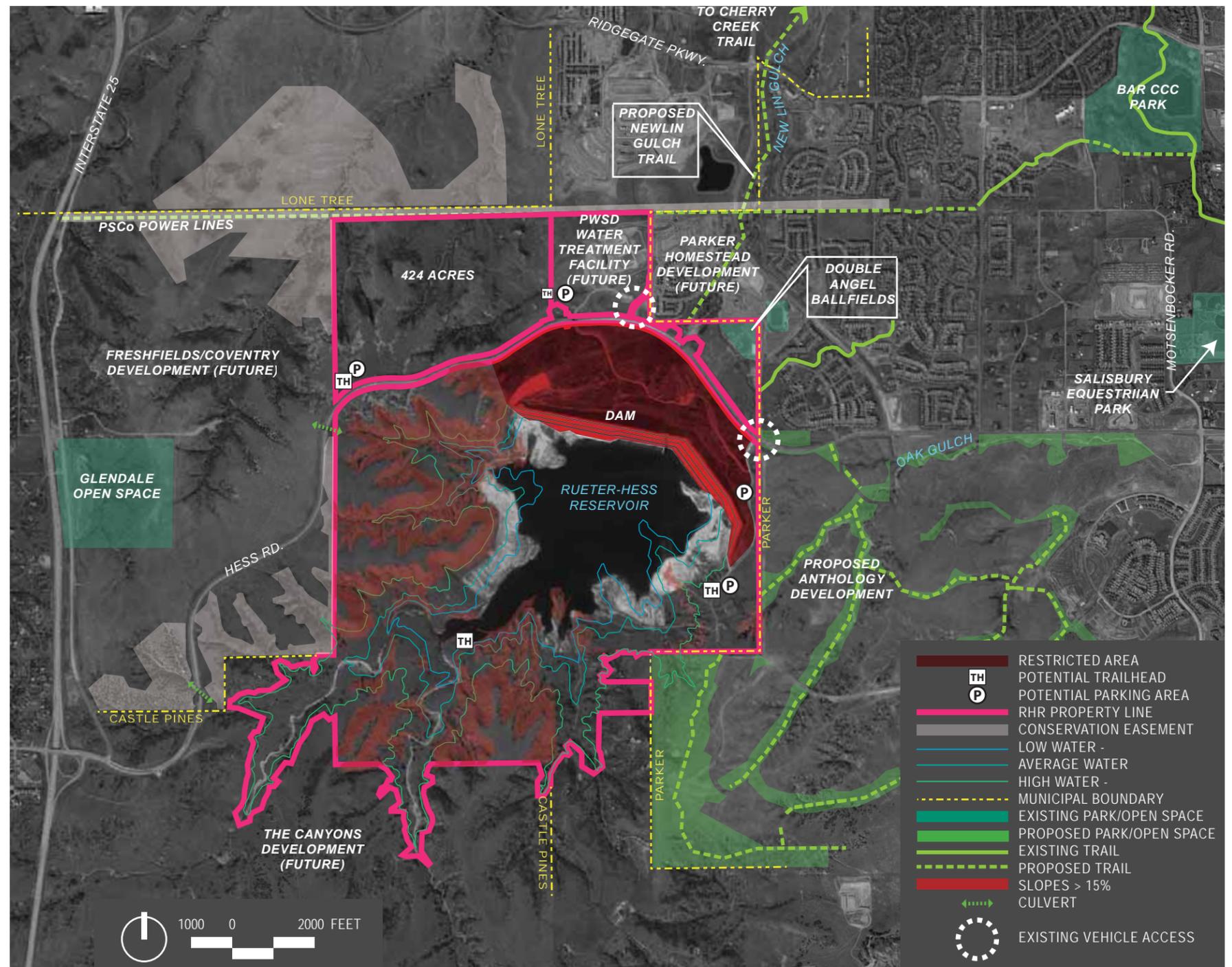
Based on the restrictions on the site, the property can be broken up into two distinct zones; the property surrounding the reservoir south of Hess Road and the 425 acres located north of Hess Road. These two zones have different potentials for recreation based on protection of the reservoir's water quality.

For the property surrounding the reservoir, it is critical that considerations for water quality be a top priority. Protecting the reservoir's sensitive infrastructure from threats like vandalism, Zebra Mussel infestation, water contamination by human and animal waste are major concerns when developing a public recreational amenity central to a drinking water source.

In addition to protecting the reservoir's infrastructure and water quality, design of trails, community gathering spaces, and permanent infrastructure is also dependent the fluctuating water levels of the reservoir. Currently the reservoir is approximately 33% full. In the future, if the reservoir reaches its maximum capacity, the shoreline could come within one to two hundred feet of the property line. This may cause challenges with building and maintaining trails on the property that could eventually become submerged as the water line rises.

The 425 acres north of Hess Road, which provides more land space, has potential to include amenities that wouldn't be allowed around the reservoir, such as equestrian use or higher active uses.

Preparing the site to withstand degradation in the coming years of potentially heavy usage is key. Adjacent development parcels such as the Freshfields and Coventry Development (north), The Canyons Development (south) and the Anthology Development (east) will bring large numbers of housing and people that will cause wear and tear



EXISTING CONDITIONS



on the property. Limiting user access to a few maintained and staffed entrances will help protect the valuable resources found at Rueter-Hess while remaining available to the public for learning and recreation.

Water Resource

The reservoir's location makes it very easy to access as a regional amenity. The Town of Parker, the Town of Castle Rock, the City of Lone Tree, the City of Castle Pines, Douglas County and PWSD make up the six regional partners contributing to the water storage and the potential recreation components.

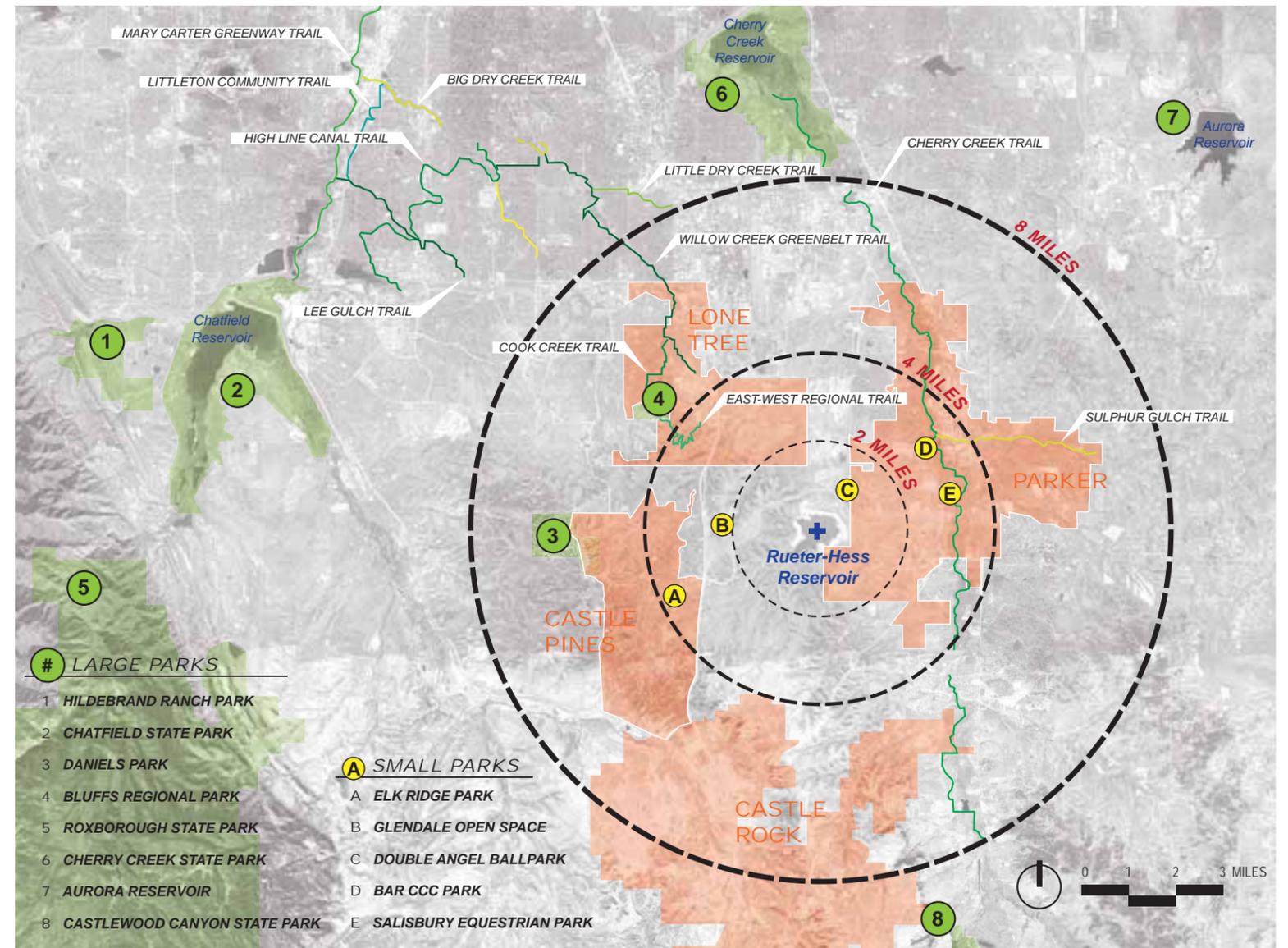
Chatfield Reservoir, Cherry Creek Reservoir, and Aurora Reservoir are the closest nearby large bodies of water providing recreation uses to the front range. Rueter-Hess Reservoir is unique to many other reservoirs in Colorado in that there is no moving body of water consistently running through the reservoir, such as a river. In contrast, water is pumped into Rueter-Hess Reservoir from various sources – and in turn, water is taken out of the reservoir for immediate processing through the District's water purification facility. Because of this, protecting the District's water quality from zebra mussels or invasive plant materials is essential.

CURRENT ADJACENT RESERVOIR COMPARISONS

RESERVOIR	MAX. OPERATING CAPACITY (AF)*	MAX. DEPTH	SURFACE ACRES	USE
Rueter-Hess	75,000**	184'	1,170	Drinking/Storage
Chatfield	27,162	47'	1,479	Flood/Recreation
Cherry Creek	13,960	26'	850	Flood/Recreation
Aurora	31,679	79'	3,233	Drinking/Recreation

* 1 acre/foot (AF) = 328,851 gallons (2 families use in a year)

** Current Volume 25,000+



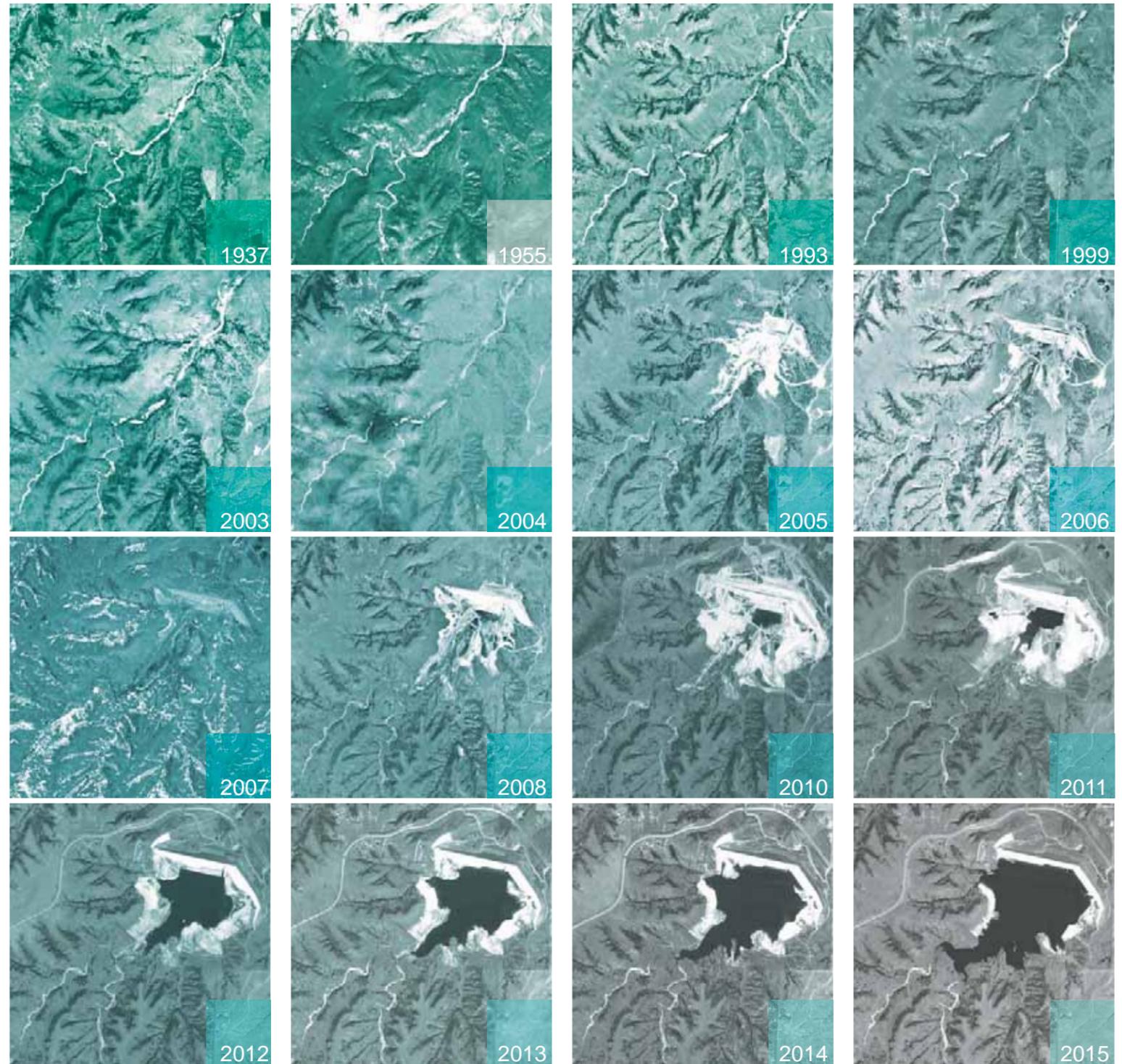
CONTEXT MAP

Site History + Past Uses

Rapid population growth in Douglas County is increasing the surrounding community's demand for water. The Parker Water and Sanitation District (PWSD) finished the construction of Rueter-Hess Reservoir in 2012 which will serve as drinking water for residents in Parker, Castle Rock, Castle Pines, Lone Tree, and Douglas County helping to prevent a water shortage problem in the future. Rueter-Hess has a capacity of 75,000 acre feet and will have a water surface of 1,170 acres. Approximately 1,600 acres of open land will remain within the PWSD property surrounding the reservoir north and south of Hess Road.

Large areas of the site are considered 'culturally sensitive' where cultural and archaeological artifacts were discovered during construction. Protecting these sensitive areas can be done through trail design and education on the significance the site's heritage.

The evolution of Rueter-Hess Reservoir.



Historical mining equipment.





Site Analysis

Parker Water and Sanitation District's mission for the reservoir and the surrounding property is to maintain the tranquil and serene qualities of the site. The Rueter-Hess property is rich in its cultural and natural history and the master plan aims to protect, yet also highlight, these rich qualities while also providing a place for people to be active in the outdoors and their community year round.

Four project areas were identified based on access and site character. Area A is accessed by the main entrance, Area B is near the PWSD water purification facility north of Hess Road, Area C is the western half of the 425 acres, and area D is the west and south side of the reservoir. Area D is the most limited for recreational development based on the Environmental Impact Statement for the property.



AREA B - Looking southeast toward Jaeger Dam and PWSD water purification facility



AREA C - Looking north



AREA A - Looking west over Rueter-Hess Reservoir



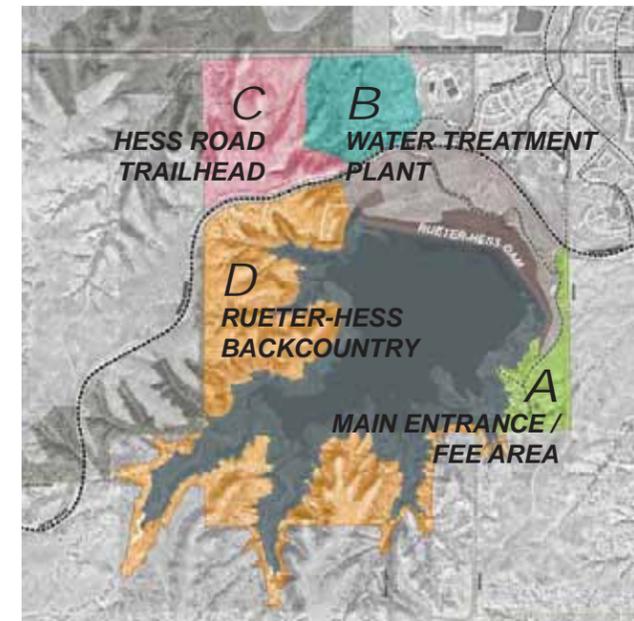
AREA D - Looking east over Rueter-Hess Reservoir



AREA C - Rock outcroppings form the terrain



AREA D - Looking southeast over Newlin Gulch



Project Areas Key Map - Site "Areas" were identified based on access and site character early on in the process for planning purposes.

Programs Considered

Potential programs were broken down into five categories: natural areas, trails, aquatic activities, cultural programs, and adventure recreation. Recreation uses that could jeopardize the water quality of the reservoir were not considered in the master planning process, as these ultimately do not meet the PWSD's mission. Such uses include motorized boats, dog parks near the water, swim beaches, and other uses that have potential water quality risk. Each potential program was considered for viability on the 425 acres and the property surrounding the reservoir based on available land space, topography, water resources, and protection of the water quality.

NATURAL AREAS

	NOT ALLOWED	POTENTIALLY ALLOWED ON 425-ACRE SITE	POTENTIALLY ALLOWED ON RUETER-HESS RESERVOIR SITE
WILDLIFE PRESERVE		●	●
AQUATIC PRESERVE / FISH HATCHERY			●
OPEN SPACE		●	●
NATIVE PRAIRIE INTERPRETIVE WALK		●	●
BIRD WATCHING		●	●
OUTDOOR EDUCATION		●	●



ADVENTURE RECREATION

	NOT ALLOWED	POTENTIALLY ALLOWED ON 425-ACRE SITE	POTENTIALLY ALLOWED ON RUETER-HESS RESERVOIR SITE
FRISBEE GOLF		●	
ZIPLINE	●		
ALPINE SLIDE	●		
SLEDDING		●	
CHALLENGE COURSE		●	
PAINTBALL / TACTICAL ZONE	●		
BOULDERING		●	
ARCHERY		●	
OVERNIGHT TENT CAMPING		●	●
NATURE PLAY		●	●



TRAILS / ATHLETIC TRAINING

	NOT ALLOWED	POTENTIALLY ALLOWED ON 425-ACRE SITE	POTENTIALLY ALLOWED ON RUETER-HESS RESERVOIR SITE
CROSS COUNTRY RUNNING & SKIING		●	●
MOUNTAIN BIKING		●	●
HIKING & SNOWSHOEING		●	●
HORSEBACK RIDING		●	
INCLINE CHALLENGE		●	
ON-LEASH DOG RUN		●	●
SPECIAL EVENTS		●	●
5K / 10K COMMUNITY EVENTS			
TRIATHLON			
XTERRA TRIATHLON			



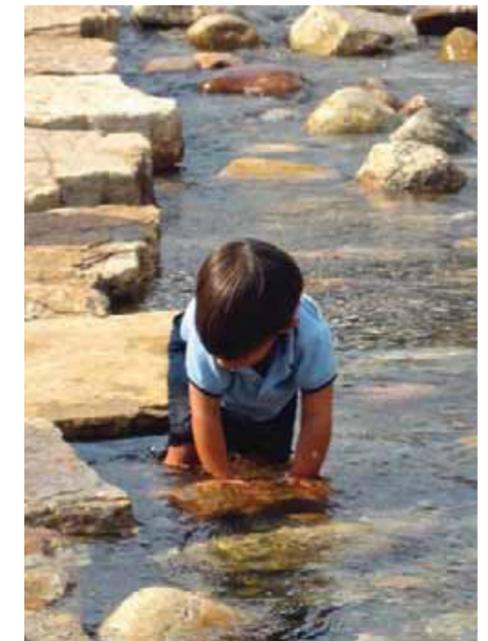
CULTURAL PROGRAMS

	NOT ALLOWED	POTENTIALLY ALLOWED ON 425-ACRE SITE	POTENTIALLY ALLOWED ON RUETER-HESS RESERVOIR SITE
HERITAGE TRAIL LOOP		●	●
LIVING HISTORY ACTIVITIES		●	●
OUTDOOR CLASSROOM (PAVILION)		●	
HISTORICAL SOCIETY EXTENSION		●	●



AQUATIC ACITIVITES

	NOT ALLOWED	POTENTIALLY ALLOWED ON 425-ACRE SITE	POTENTIALLY ALLOWED ON RUETER-HESS RESERVOIR SITE
FISHING.....			●
SMALL BOAT SAILING.....			●
CANOE / KAYAK / PADDLEBOARD.....			●
SWIM BEACH.....	●		
DIVERTED WATER PLAY FEATURE.....			●
SCUBA DIVING.....			●



Public Outreach + Survey Feedback

The recreation planning process had tremendous feedback from the community. Nearly 4,000 people participated in two online surveys and four public open houses.

An initial survey was posted online to get input from area residents about recreational activities at the reservoir. Over 3,700 people participated in the first survey from 14 different municipalities. The survey results were used to develop three concepts for the reservoir.

The concepts were presented at four open houses throughout the outreach region. The locations for the open houses included Castle Rock, Town of Parker, Lone Tree, and PWSD.

Public Meeting #2 held at the South Suburban Rec Center in Lonetree hosted 50 local residents who came to view the plan alternatives for Rueter-Hess Reservoir.



The final public meeting held at the Parker Water and Sanitation District's main office hosted local resident who came to review the final masterplan for the reservoir.

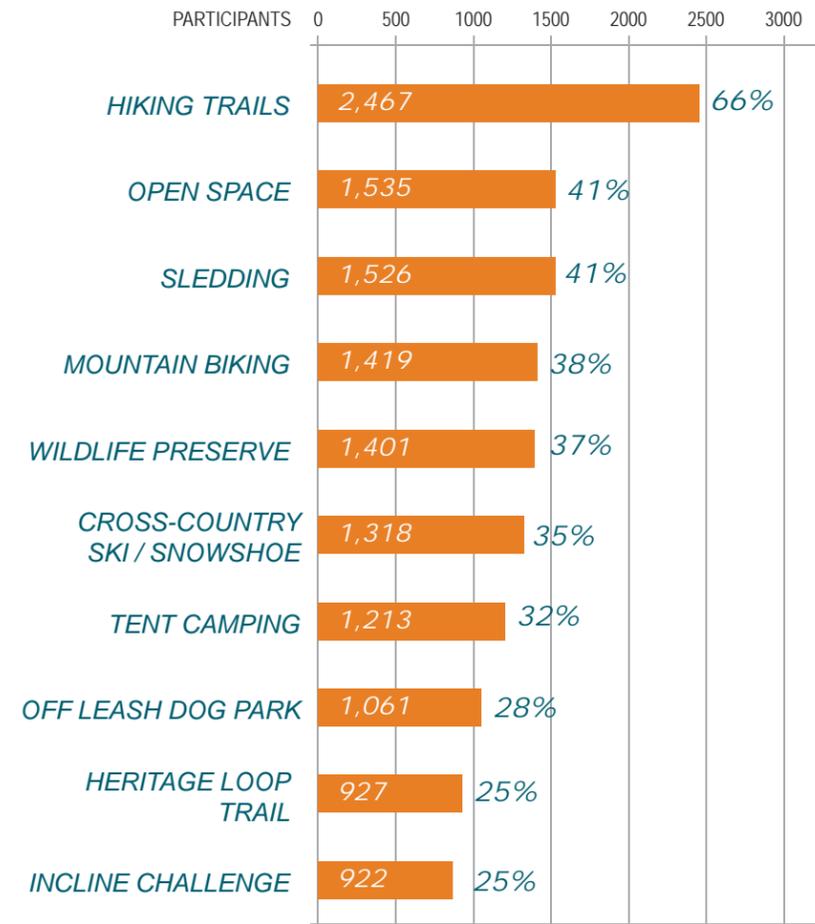


TOP 3 RESULTS BY PROGRAM CATEGORY

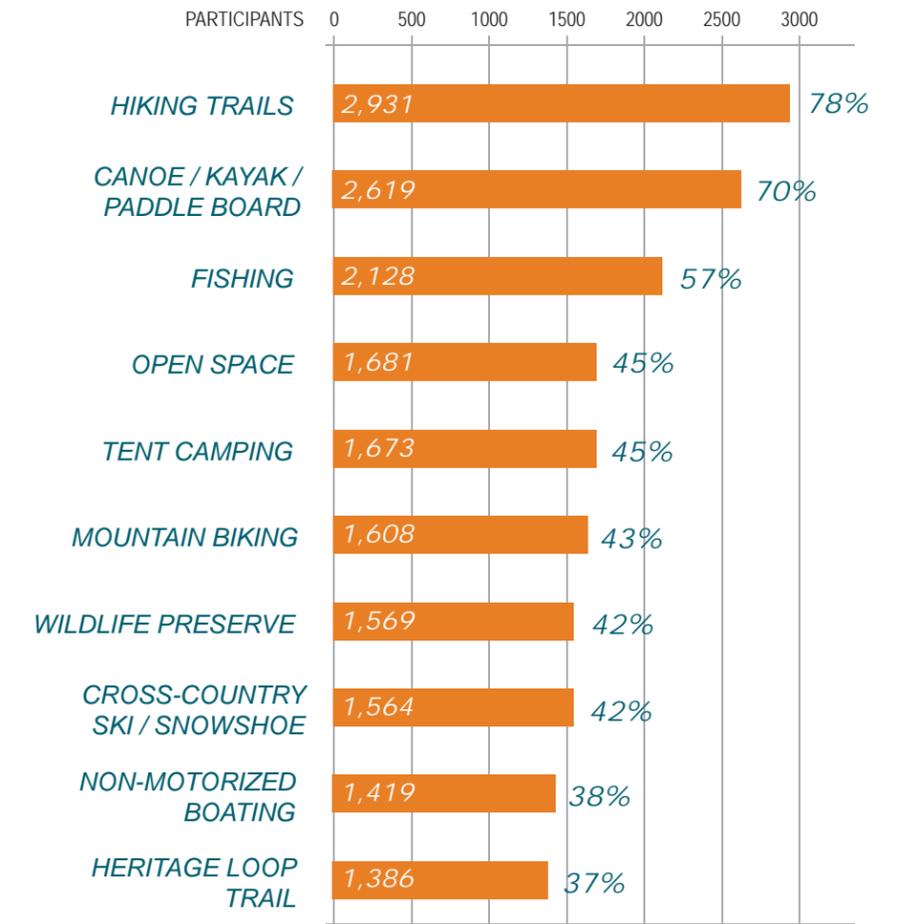


WHAT WE HEARD FROM 3,756 SURVEY PARTICIPANTS FROM 14 MUNICIPALITIES

TOP TEN RESULTS FOR THE 425-ACRE SITE



TOP TEN RESULTS FOR RESERVOIR PROPERTY



We Asked Participants to Include Additional Feedback ... Here's What They Said.



"Let us use our own non-motorized watercraft. Don't make us rent."

"We are lacking water recreation sports and this is a great opportunity to bring non-motorized water activities to the young people and families in our community!"

"When can we volunteer to build trails?"

"It would be great to see lots of animal habitat incorporated... nest boxes, fallen logs in water, etc., with educational signs about various animal habitats for kids and adults to read all around the reservoir."

"I would love to see a Nature Center in Douglas County that focuses on wildlife, ecosystem, and conservation programming as this is something we currently lack as a county. Let me know if you need help, this idea should make it into the plans."

"Equestrian trails would be SO awesome, but please take trailer parking into consideration."

"Please don't overbuild our open spaces!"

"I am in favor of the least amount of development and amenities in order to have nature be the focal point."

"I'm very happy to see that the main concern is water quality."

"Excited for the potential of this new outdoor asset!"

"The smaller elements will always be best to preserve the integrity of the land and water. The more you offer in a small reservoir the more risk you place on the water."

"I love kayaking and hiking and have grandchildren, so it would be nice for all three."

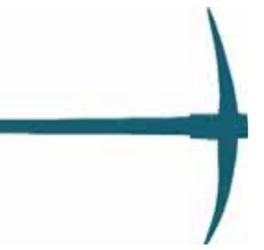
"The overall plan must support and educate about the importance of nature and conservation to our society."

"I care more about the amount of trails for mountain biking and hiking than other amenities. A full loop trail around the lake would be key."

"Don't try to be all things to all people. Keep it simple."

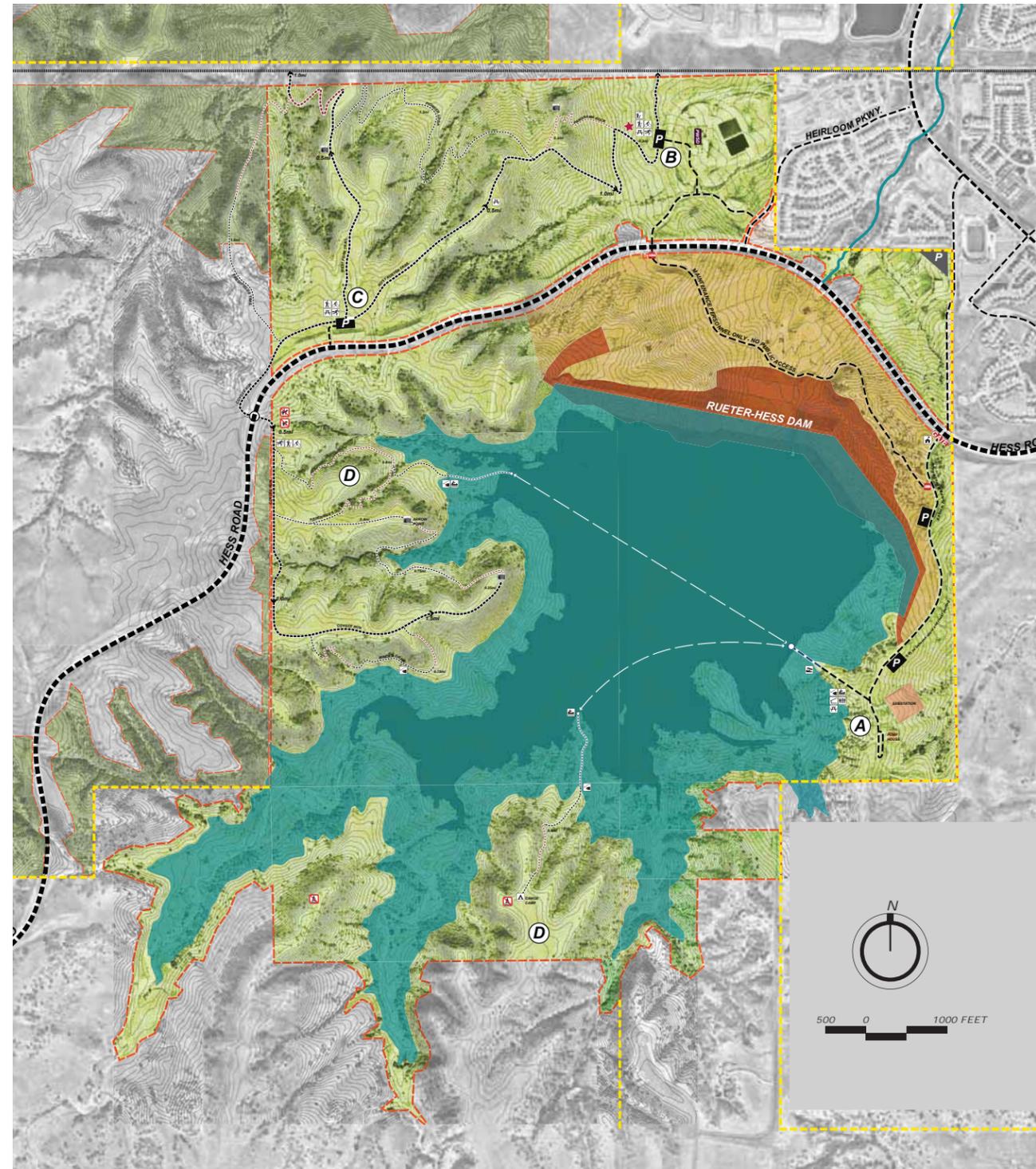
"Douglas County is known for its equestrian culture and heritage. Building on this only makes sense in keeping the area a fun, agricultural- based environment."

CONCEPT DEVELOPMENT



Concept 1: Nature Preserve

Concept 1 is the least impact alternative and explores the potential of the site as a natural preserve. Amenities are limited to hiking trails and interpretive signage to preserve the site's natural characteristics. Dogs and horses would not be allowed and the trail loop does not connect around the reservoir. Boats would be allowed, but only rented on site.

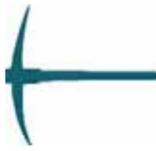


Site Elements in ALL Concepts

- Soft surface trails
- Nature play area
- Equestrian trails (limited to 425 ac. site)
- Picnic area & restrooms
- Praire - native plant walk
- Non-motorized boating (canoe, kayak, paddleboard)
- Backcountry camp sites
- Fishing

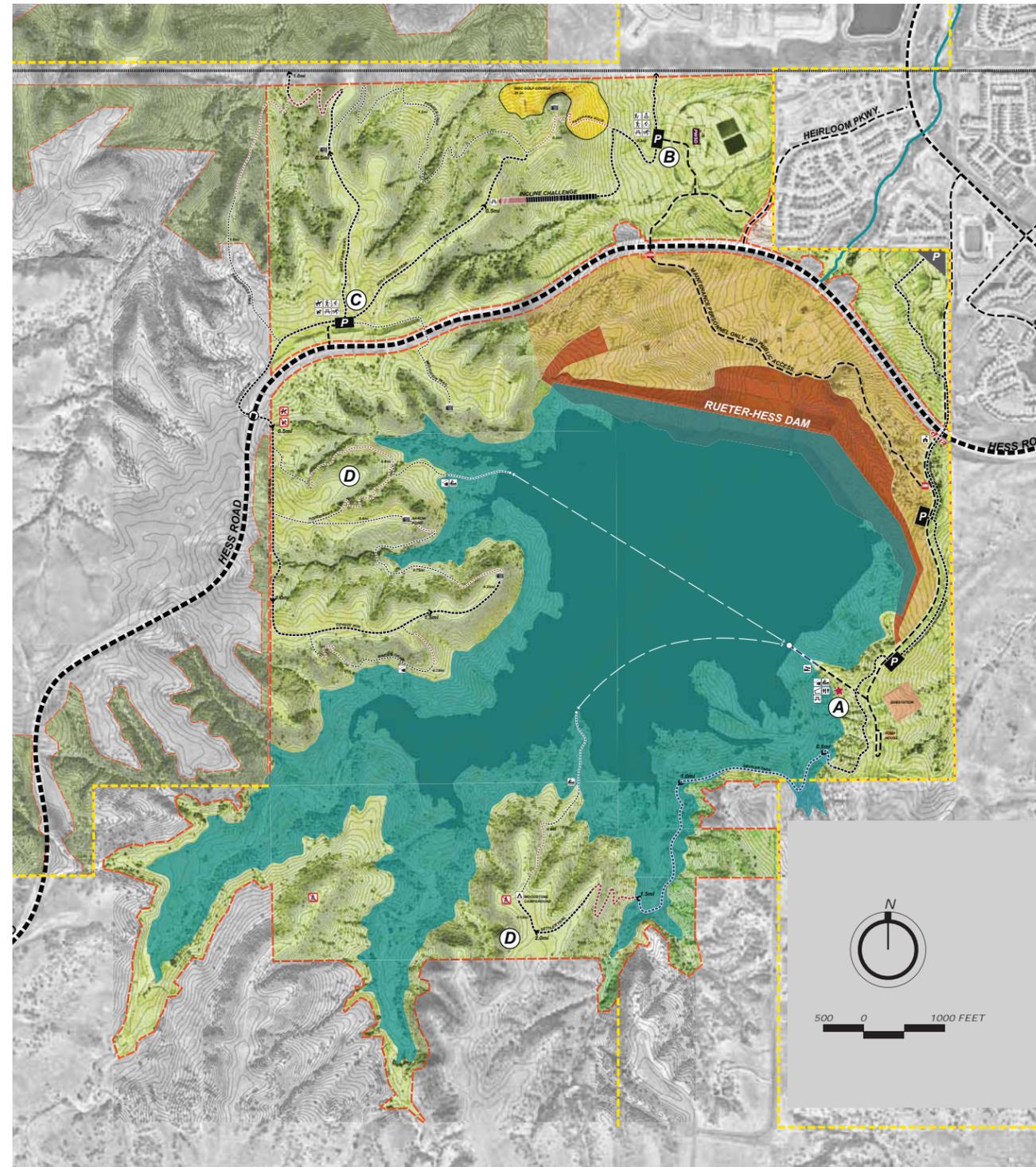
LEGEND

PWSD Property Boundary	Nature Play / Discovery Area
City Boundary	
Highway (faster speeds)	
Highway (faster speeds)	
Streets (slower speeds)	
Trail - Gentle Grade	
Trail - Steep Grade	
Trail - Below Reservoir Capacity	
Canoe Route	
PWSD Property	
Reservoir Capacity (elev. 6,212')	
Rueter-Hess Dam	
No Public Access	
Freshfields Property	
Proposed Parking Area	
Fishing	Amphitheater
Non-Motorized Boating	Restrooms
Boat Launch	RV Camping
Horseback Riding	Shelter / Pavilion
Dogs Allowed	Fire Pit
Picnic Area	Small-boat Sailing
Cross-Country Skiing	Sledding
Hiking	Interpretative Walk
Cycling	Wind Surfing
Scenic Overlook	Stand Up Paddleboarding
Tent Camping	Archery
Fee Station	Handicap Accessible



Concept 2: Community Gathering

Concept 2 is the medium impact alternative and focuses on amenities that could provide community gathering spaces. The trails extend from the main parking area to the south of the reservoir, but do not connect fully around the site. An outdoor classroom, frisbee golf course, meditation walk and incline challenge provide community amenities. Dogs would be allowed on the trails on-leash and horses would be allowed on the 425 acres. Personal boats would also be allowed, if the concerns for water quality could be resolved. An inspection area would be required, which adds additional staffing.



Concept 2 Additional Site Elements

- Disc golf
- Nature play area
- Trail access to camping
- ADA trail off of Hess Rd.
- Intermediate mtn. bike trails on 425 ac. site
- Storage and inspection area for boats
- Meditation circle overlook
- Incline Trail
- Outdoor classroom / amphitheater

LEGEND

PWSD Property Boundary	Nature Play / Discovery Area
City Boundary	
Highway (faster speeds)	
Highway (faster speeds)	
Streets (slower speeds)	
Trail - Gentle Grade	
Trail - Steep Grade	
Trail - Below Reservoir Capacity	
Canoe Route	
PWSD Property	
Reservoir Capacity (elev. 6,212')	
Rueter-Hess Dam	
No Public Access	
Freshfields Property	
Proposed Parking Area	
Fishing	Amphitheater
Non-Motorized Boating	Restrooms
Boat Launch	RV Camping
Horseback Riding	Shelter / Pavilion
Dogs Allowed	Fire Pit
Picnic Area	Small-boat Sailing
Cross-Country Skiing	Sledding
Hiking	Interpretative Walk
Cycling	Wind Surfing
Scenic Overlook	Stand Up Paddleboarding
Tent Camping	Archery
Fee Station	Handicap Accessible



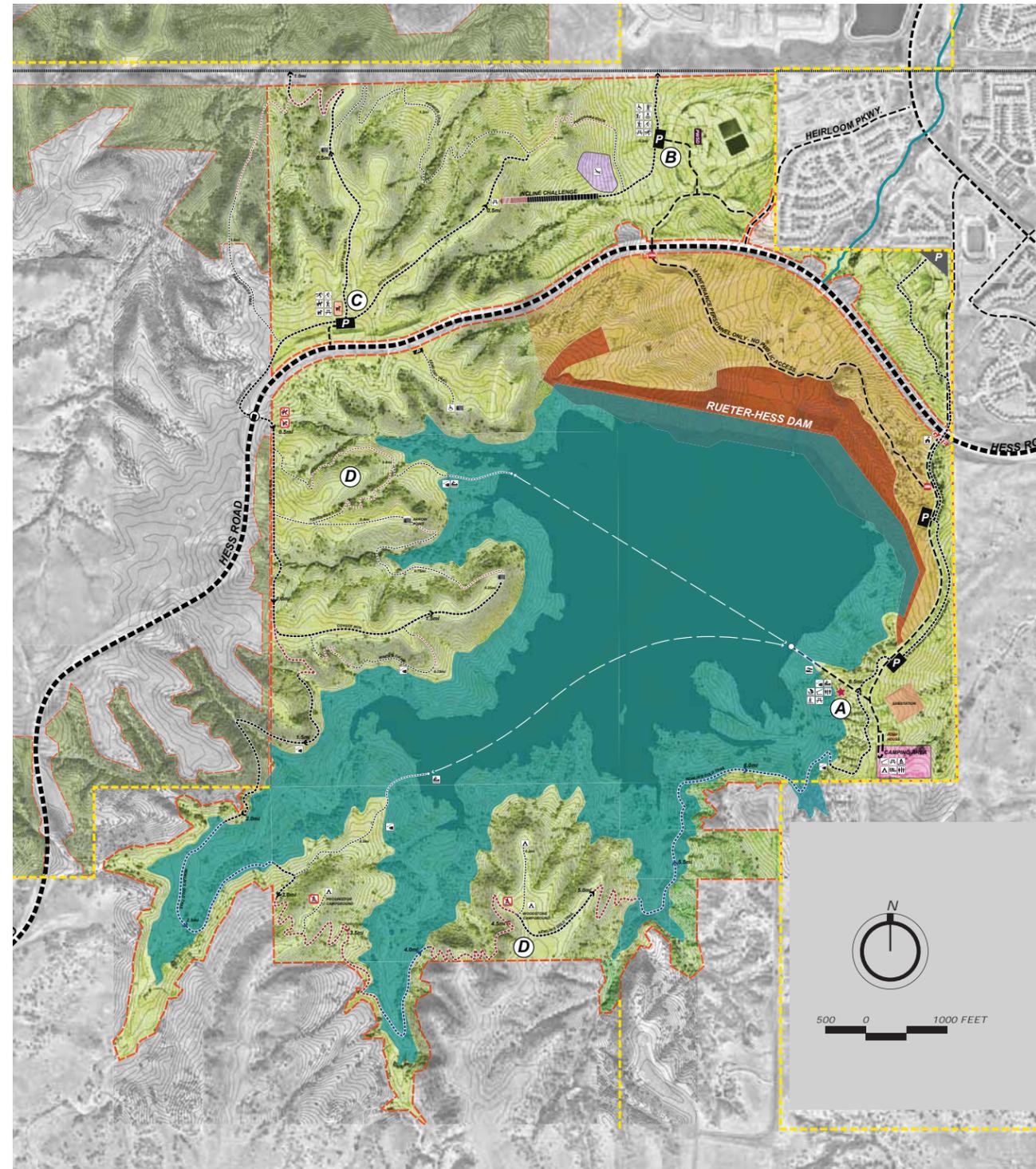
Concept 3: Regional Destination

Concept 3 is the maximum impact within the limits of the 404 permit. This concept has the most regional amenities including personal boats (if water quality concerns can be resolved), archery, sledding, incline challenge, a cultural center building, an off-leash dog park, water exploration area, and a full trail loop around the reservoir.

Concept 3 was the preferred plan based on public feedback because of the trail loop and the additional regional resources it provided. Written comments also suggested that the site should not be overbuilt and try to serve all people.

Concept 3 Additional Site Elements

- All elements listed in Concepts 1 & 2 (except disc golf)
- Water exploration area
- Off-leash dog park
- Additional camp site
- Two ADA trail options
- Advanced mtn. bike trails on 425 ac. site
- Cultural center building
- Archery
- Sledding
- Soft surface trails connect to form perimeter trail



LEGEND

PWSD Property Boundary	Nature Play / Discovery Area
City Boundary	
Highway (faster speeds)	
Highway (faster speeds)	
Streets (slower speeds)	
Trail - Gentle Grade	
Trail - Steep Grade	
Trail - Below Reservoir Capacity	
Canoe Route	
PWSD Property	
Reservoir Capacity (elev. 6,212')	
Rueter-Hess Dam	
No Public Access	
Freshfields Property	
Proposed Parking Area	
Fishing	Amphitheater
Non-Motorized Boating	Restrooms
Boat Launch	RV Camping
Horseback Riding	Shelter / Pavilion
Dogs Allowed	Fire Pit
Picnic Area	Small-boat Sailing
Cross-Country Skiing	Sledding
Hiking	Interpretative Walk
Cycling	Wind Surfing
Scenic Overlook	Stand Up Paddleboarding
Tent Camping	Archery
Fee Station	Handicap Accessible

MASTER PLAN + RECOMMENDATIONS



The Master Plan

Outstanding local participation in the reservoir's recreation master planning process has resulted in a preferred concept for the property's outdoor recreational and educational opportunities.

The public expressed overwhelming interest in soft surface trails, mountain biking, and non-motorized boating as their top desires for uses at the reservoir. The plan incorporates these elements as well as other activities that meet the tranquil and serene goals of the community.

The Rueter-Hess Recreation Authority and PWSO's Boards agree that introducing water sport opportunities in a conservative and managed manner, with potential to grow in the future, will allow visitors to take advantage of the water resource while still meeting the goals for water quality.

TRAILS

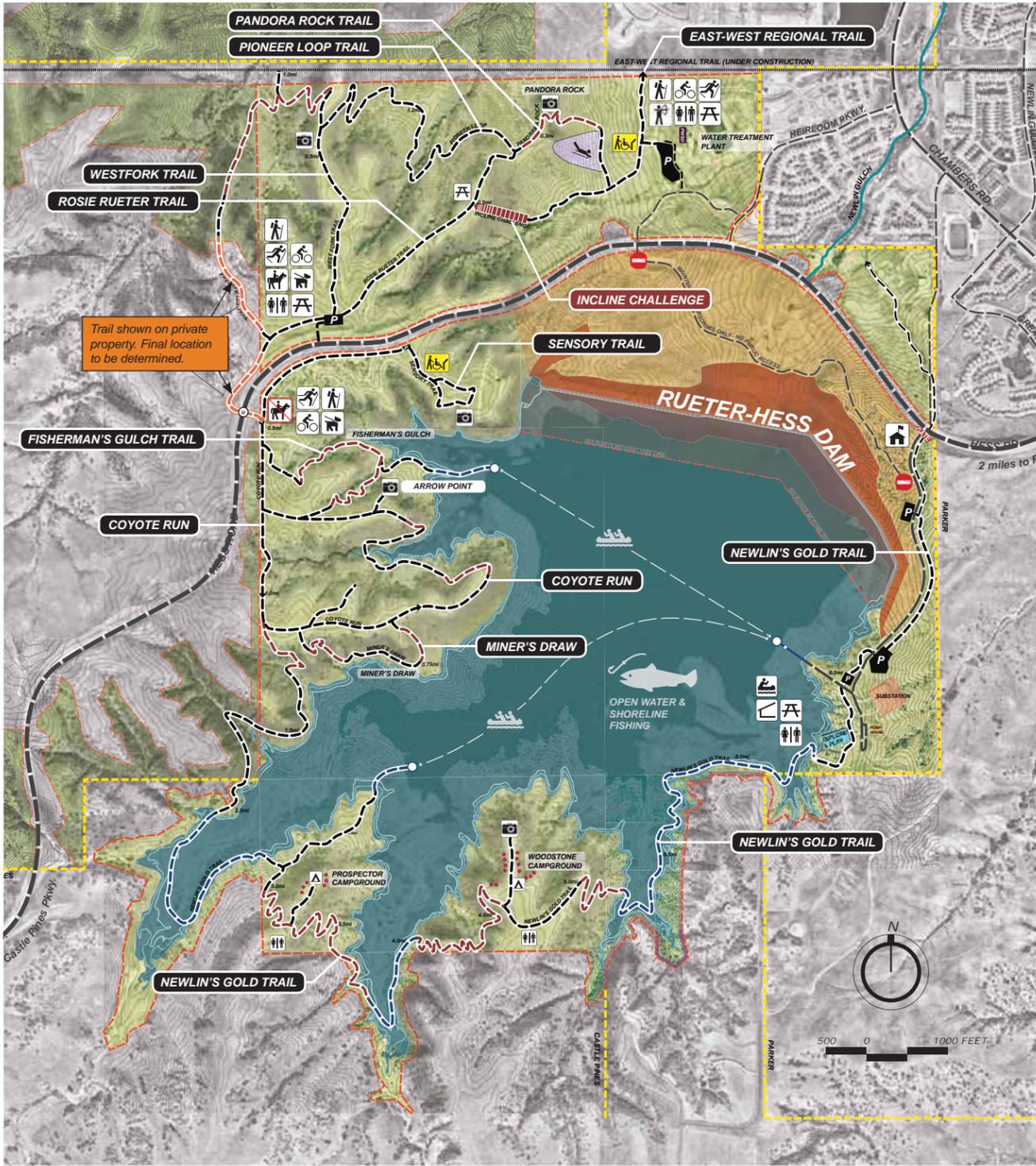
The master plan includes approximately 17 miles of trails for users to explore including a connected loop around the reservoir, which was an important element desired by the public. To make for a pleasurable experience, picnic gazebos, overlook areas, and educational information will be highlighted on the trail system.

The plan for the 425 acres site north of Hess Road offers approximately 5.5 miles of trails for hikers, on-leash dog walkers, mountain bikers, horseback riders, and cross country skiers and snowshoers, when conditions allow. These trails connect to the future East West Regional Trail directly north of the property, allowing connections to Clear Creek Trail, the Town of Parker, I-25 and beyond.

The property around the reservoir offers nearly 12 miles of trails for users, with the exception of

horseback riding. Equestrians are not permitted around the reservoir in order to maintain high water quality of the reservoir. The complete loop around the reservoir is approximately 10 miles. During a typical day, the access road connecting the water purification facility and the Reservoir property will be gated and only accessible for maintenance vehicles. This is required because of the need to protect the valuable water treatment infrastructure in that area. However, for events, the access road below the dam can be utilized to provide a loop connection that has a separated crossing of Hess Road and stays on the reservoir property. When the road is closed, during non-events, trail users will need to cross Hess Road at the main entrance gate. The trail system includes a small segment that traverses through the neighborhood to the northeast of the 425 acres north of Hess Road to provide the connected loop. Further study of the crossing at Hess Road should be evaluated to address safety issues.

The terrain of the property is rolling and fairly steep in areas. Access around the Rueter-Hess Reservoir will require switchbacks and steep grades in some areas to create the full loop access. The trail surface is planned to be a natural surface trail. ADA access will be considered where possible. Three areas have been identified in the master plan to provide activities and experiences that are close to the trailheads. These include access at the main entrance, the native plant walk at the Rosie Rueter trailhead, and the sensory trail at the ADA access point across from the Hess Road Trailhead.





AREA A: Main Entrance / Fee Area

AREA A is located at the main entrance to the reservoir and extends to the trailhead near the existing boat ramp. An entry gate and small ranger station welcomes visitors at the entrance. Three parking areas are located along the drive up to the reservoir providing approximately 400 parking spaces.

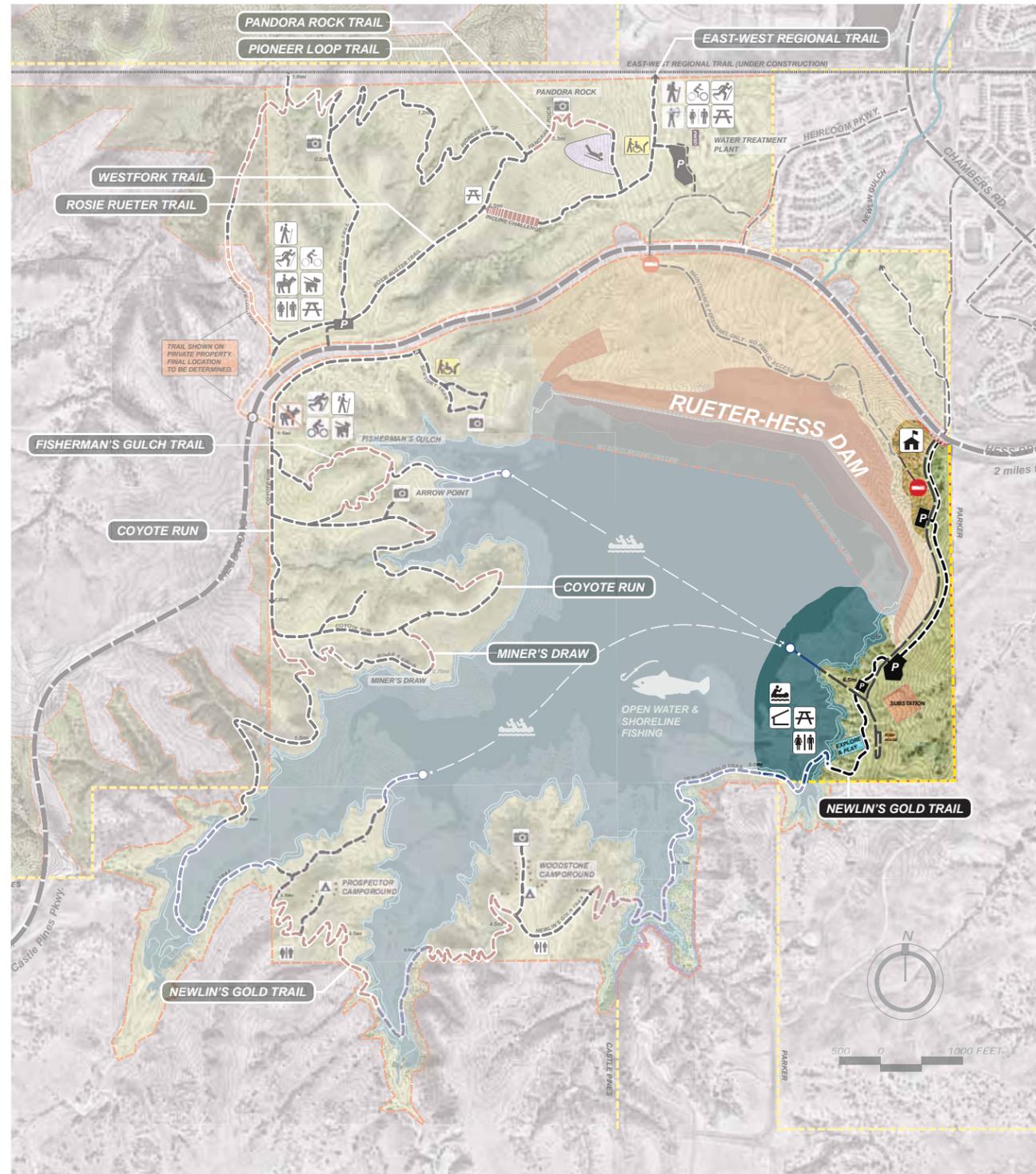
The main trailhead provides close access to the existing boat ramp. This trailhead not only serves access to the water for kayaks, paddle boards, and canoes, but also serves as the beginning of Newlin's Gold Trail which provides access around the reservoir. Shoreline fishing will be available around the reservoir with some limitations due to natural terrain and possible safety hazard areas.

Additional amenities include nature play features, educational signage and a future water exploration area. The water exploration area is an opportunity for visitors to interact with the water without direct contact with the reservoir. A water channel would be diverted and treated prior to going into the reservoir, creating a place to sit along the water's edge, and safely play in shallow pools and falls.

In the future, a concessionaire building may be considered near the pump house. The concessionaire building could be a future phase of the planned PWSD facilities building which would allow it to share infrastructure and utilities. The concessionaire building could potentially provide boat storage, public restrooms, and an indoor gathering space.



WATER EXPLORATION PLAY AREA



PADDLE BOARDING



NON-MOTORIZED BOATING

LEGEND

PWSD Property Boundary	Reservoir Storage Water Levels
City Boundary	65,000 af
Highway (faster speeds)	70,000 af
Streets (slower speeds)	75,000 af
Private Equestrian Trail	<small>af = acre feet (one acre of water 12" deep)</small>
Trail	Tent Site (4 people per site max.)
Trail (Gentle Grade)	Water Exploration Play Area
Trail (Steep Grade)	ADA Accessible Interpretive Walk
Trail (Below Reservoir Capacity)	Proposed Parking Area
PWSD Property	Restrooms
Reservoir Capacity (600,000 af)	Shelter / Pavilion
Freshfields Property	Fee Station
Restrooms	Picnic Area
Shelter / Pavilion	Scenic Overlook
Fee Station	Fishing
Picnic Area	Non-Motorized Boating Boat Launch / Stand Up Paddleboarding
Cycling	Cross-Country Skiing
Cross-Country Skiing	Showshoeing
Sledging	Archery
Archery	Horseback Riding
Horseback Riding	On-Leash Dogs Allowed
On-Leash Dogs Allowed	Tent Camping
Tent Camping	Hiking



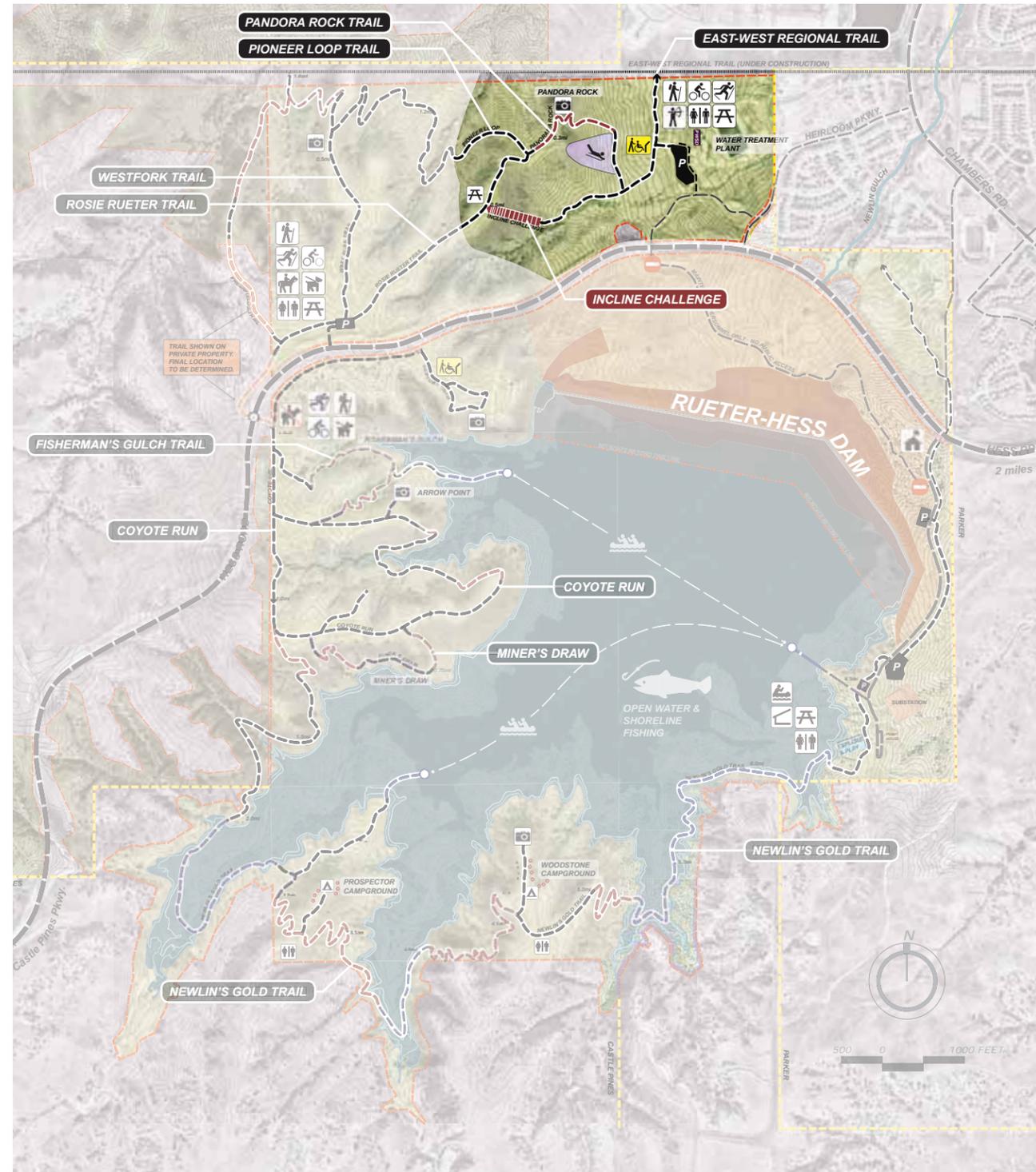
AREA B: Water Treatment Plant

AREA B provides access to the 425 acres north of Hess Road at the existing water purification facility. Program elements in this area take advantage of the scenic views and topography of the property.

The Rosie Rueter Trailhead, named after one of the historical settlers of the property, provides access to trails, a sledding hill, and an incline challenge. Amenities at the trailhead include picnic areas, restrooms, nature play and educational signage. The trailhead would serve as a destination point for visitors to gather, socialize, and play. An informal outdoor classroom could be used by groups coming to the property for hikes, archery classes, or training groups gathering before or after exercising on the incline challenge.

A prairie or native plant walk provides visitors with educational and historical information to explore the native landscape and features of the area. The incline challenge provides a destination for families to challenge themselves in the outdoors. The staircase has the opportunity to gain 200 feet vertically in a 1,500 foot span.

The archery area considered in the master plan is a controlled, classroom-type setting area. It would not be open for use daily, but as permitted through a program with the Recreation Authority Board. This element would be considered as a future amenity once higher priority elements have been implemented.



INCLINE CHALLENGE



SLEDDING HILL



ADA ACCESSIBLE INTERPRETIVE WALK

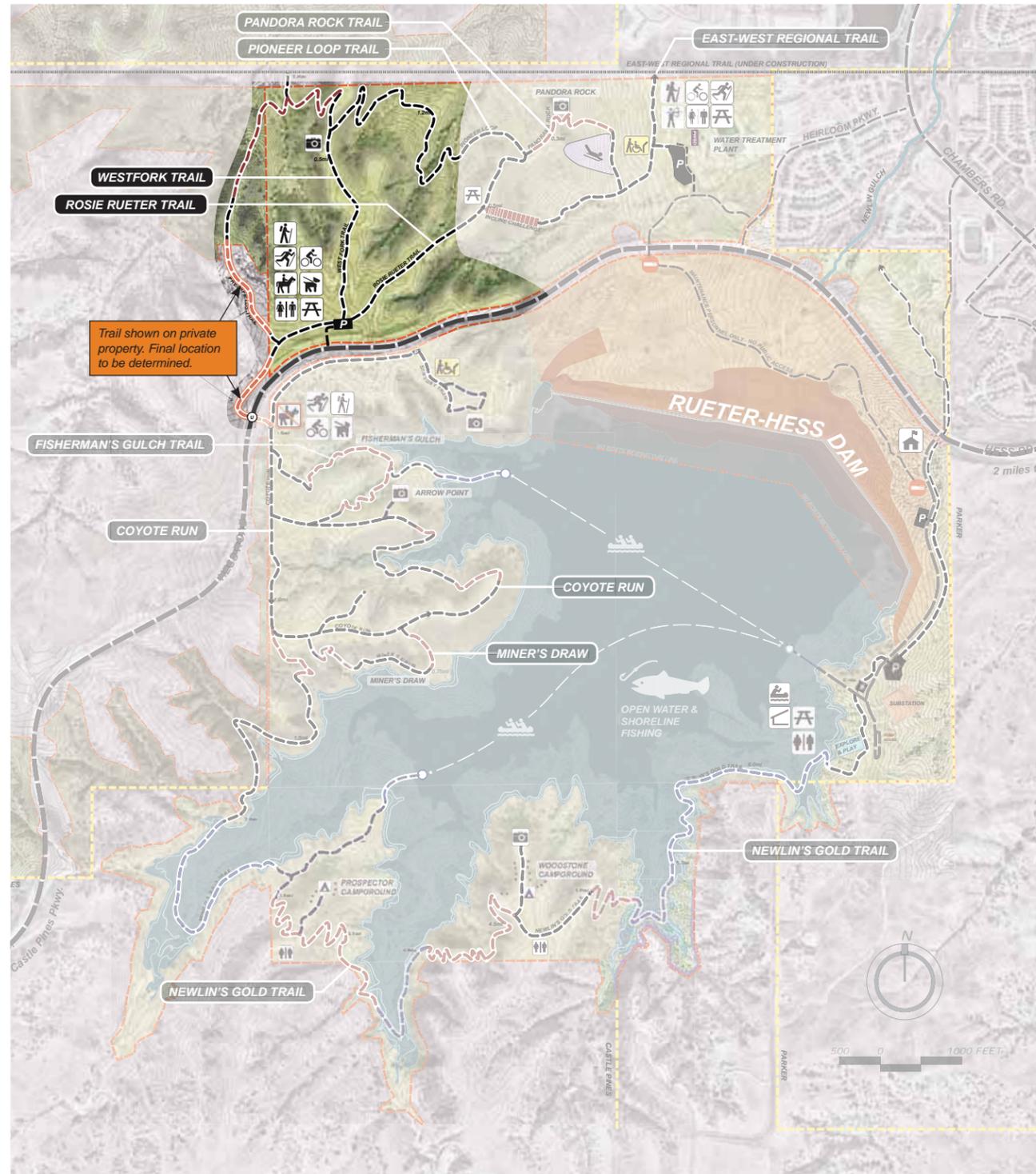
LEGEND	
	PWSD Property Boundary
	City Boundary
	Highway (faster speeds)
	Streets (slower speeds)
	Private Equestrian Trail
	Trail Gentle Grade
	Trail Steep Grade
	Trail Below Reservoir Capacity
	PWSD Property
	Reservoir Capacity (elev. 6,212')
	Freshfields Property
	Restrooms
	Shelter / Pavilion
	Fee Station
	Picnic Area
	Scenic Overlook
	Fishing
	Non-Motorized Boating Boat Launch / Stand Up Paddleboarding
	Reservoir Storage Water Levels
	65,000 af
	70,000 af
	75,000 af
	af = acre feet (one acre of water 12" deep)
	Tent Site (4 people per site max.)
	Water Exploration Play Area
	ADA Accessible Interpretive Walk
	Proposed Parking Area
	Cycling
	Cross-Country Skiing
	Showshoeing
	Sledding
	Archery
	Horseback Riding
	On-Leash Dogs Allowed
	Tent Camping
	Hiking



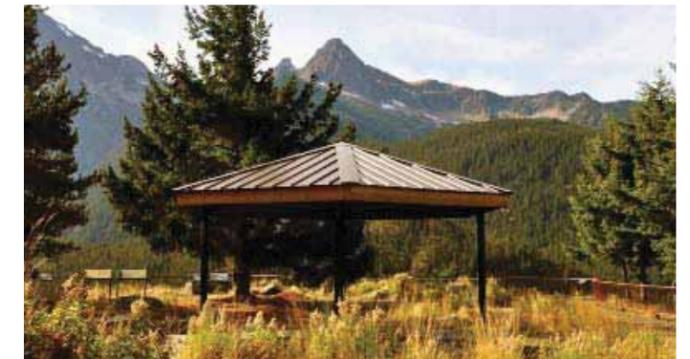
AREA C: Hess Road Trailhead

AREA C is located on the west portion of the 425 acres north of Hess Road. This trailhead provides access for equestrians, mountain bikers, and hikers. From this trailhead, mountain bikers and hikers can connect to the reservoir site through an existing grade-separated crossing at Hess Road.

Equestrian trails are permitted on the 425-acre site, but not on the reservoir property. The Hess Road Trailhead will be designed to allow for trailer parking. Equestrian visitors may also be able access the site from the future East West Trail that runs along the northern border of the site. This connection allows for a longer loop on the 425-acre site.



EQUESTRIAN TRAILS



PICNIC AREAS



SCENIC OVERLOOKS

LEGEND

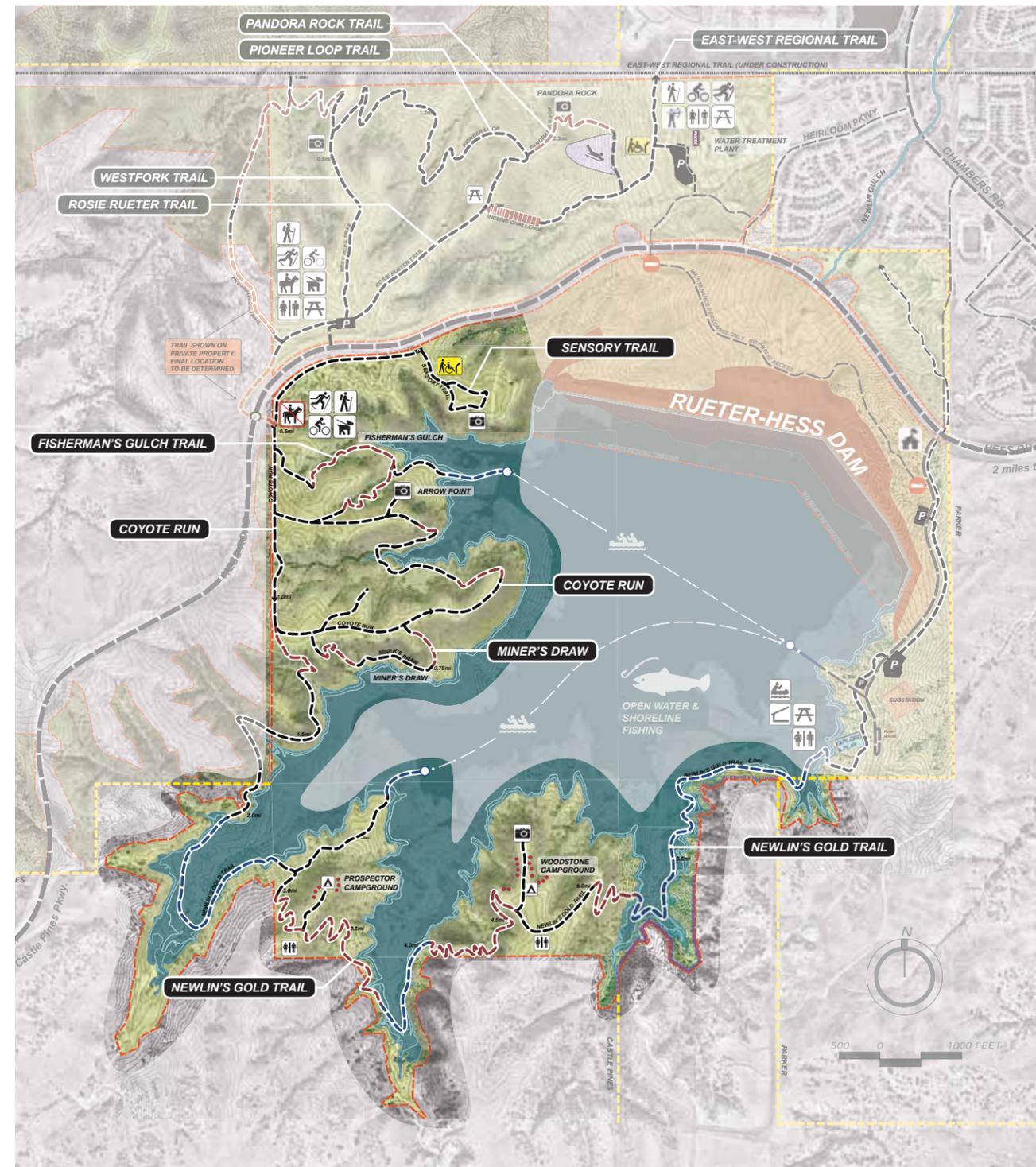
PWSO Property Boundary	Reservoir Storage Water Levels
City Boundary	65,000 af
Highway (faster speeds)	70,000 af
Streets (slower speeds)	75,000 af
Private Equestrian Trail	<small>af = acre feet (one acre of water 12" deep)</small>
Trail (Gentle Grade)	Tent Site (4 people per site max.)
Trail (Steep Grade)	Water Exploration Play Area
Trail (Below Reservoir Capacity)	ADA Accessible Interpretive Walk
PWSO Property	Proposed Parking Area
Reservoir Capacity (600,000 af)	Restrooms
Freshfields Property	Shelter / Pavilion
Restrooms	Fee Station
Shelter / Pavilion	Picnic Area
Fee Station	Scenic Overlook
Picnic Area	Fishing
Scenic Overlook	Non-Motorized Boating
Fishing	Boat Launch / Stand Up Paddleboarding
Non-Motorized Boating	Cycling
Boat Launch / Stand Up Paddleboarding	Cross-Country Skiing
Cycling	Showshoeing
Cross-Country Skiing	Sledding
Showshoeing	Archery
Sledding	Horseback Riding
Archery	On-Leash Dogs Allowed
Horseback Riding	Tent Camping
On-Leash Dogs Allowed	Hiking
Tent Camping	
Hiking	



AREA D: Backcountry

The **Rueter-Hess backcountry** is one of the most pristine areas of the plan and offers visitors an opportunity to enjoy a quiet hike, shoreline fishing, and wildlife viewing opportunities.

Remote camping sites are considered in the master plan. These sites would be accessible only by hiking or canoeing. Initially, sunrise to sunset recreational opportunities will be offered (i.e., no overnight camping or other events). Two remote camping areas, with improved sites such as restrooms and cleared land, are included in the plan for consideration in the future. Considerations for future additions include site access, general personal safety improvements, and access for fire and other emergency health services.



MOUNTAIN BIKING



WINTER SPORTS



BACKCOUNTRY CAMPING

LEGEND	
	PWSD Property Boundary
	City Boundary
	Highway (faster speeds)
	Streets (slower speeds)
	Private Equestrian Trail
	Trail
	Trail
	Trail
	PWSD Property
	Reservoir Capacity (elev. 6,212')
	Freshfields Property
	Restrooms
	Shelter / Pavilion
	Fee Station
	Picnic Area
	Scenic Overlook
	Fishing
	Non-Motorized Boating Boat Launch / Stand Up Paddleboarding
	Reservoir Storage Water Levels
	65,000 af
	70,000 af
	75,000 af
	af = acre feet (one acre of water 12' deep)
	Tent Site (4 people per site max.)
	Water Exploration Play Area
	ADA Accessible Interpretive Walk
	Proposed Parking Area
	Cycling
	Cross-Country Skiing
	Showshoeing
	Sledging
	Archery
	Horseback Riding
	On-Leash Dogs Allowed
	Tent Camping
	Hiking

PHASING + IMPLEMENTATION



Phasing + Implementation

The estimate of probable cost for the Rueter-Hess Master Plan preferred concept is between \$7.5 million and \$8 million. The full estimate includes a concessionaire building, water exploration area, and camping sites. Excluding these larger items, priority recreation elements identified through the planning process can be constructed for approximately \$3.5 million and would include trails, adventure recreation and natural area access.

It is anticipated that the preferred concept for the Rueter-Hess Reservoir Master Plan will be built in phases as funding becomes available. To allow for the greatest flexibility, the Master Plan has been broken up into plan elements that allow for flexible phasing scenarios. Plan elements can be arranged in different phasing scenarios based on recreation priorities and available funds.

FUNDING

Funding for implementation of the Master Plan is anticipated through the regional partners who include Douglas County, the Towns of Parker, and Castle Rock, and the Cities of Lone Tree and Castle Pines, as well as grants, public-private partnerships, and revenue from programmed events.

A potential phasing strategy, shown on the following pages, was developed for build out of the recreation elements. The first phase focuses on organized activities such as special events, classes, and programs led by the regional partners. This will allow the opportunity for users to access and utilize the site in a controlled environment while building enthusiasm for the next phases. Phase 2 includes the entry station at the reservoir which allows for gated access. Phase 3 expands to the trailheads on the north property. Phase 4 completes the trail loop around the reservoir, and Phase 5 completes all the trails in the master plan. Future phases include camping, the concessionaire building and the water exploration area. As funding becomes available, the phasing scenario can adjust to meet the priorities and needs.

COST ESTIMATE ASSUMPTIONS

- Costs are based on available 2016 construction data. Actual contractor prices may vary at the time of construction.
- All items include a 25% contingency.
- All items include a 10% general conditions and mobilization fee.
- All items include an 8% design fee. Design fees may vary for items based on survey needs, disciplines and review processes required.
- Traffic studies and roadway work along Hess Road are not included. Coordination will likely be required at the time of design.
- Allowances for utility infrastructure are limited.
- Irrigation is not included.

ESTIMATED COST OF PLAN ELEMENTS

PLAN ELEMENT	ESTIMATED CAPITAL COST
Lower Parking Lot at the Reservoir & Fencing at the Dam	\$ 164,000
Port-o-let at the Lower Parking Lot	\$ 73,000
Trail along Entry Road	\$ 182,000
Entry Fence & Drive	\$ 218,000
Entry Station Building	\$ 60,000
Upper Parking Lot	\$ 227,000
Vault Toilet at Upper Parking Lot	\$ 87,000
Trails – SE stretch of Newlin's Gulch Trail	\$ 40,000
Hess Road Trailhead Parking	\$ 105,000
Trails – South of Hess Road; Coyote Run & Fisherman's Gulch	\$ 56,000
Port-o-let at Hess Road Trailhead	\$ 78,000
ADA Parking Lot	\$ 142,000
Accessible Trail Loop	\$ 198,000
Rosie Rueter Trailhead Parking Lot	\$ 388,000
Trails – Rosie Rueter Trail	\$ 47,000
Trails – Panorama Rock Trail	\$ 16,000
Incline Challenge	\$ 84,000
South Overlook (no structure)	\$ 4,000
Picnic Areas – Upper Lot	\$ 228,000
Trails – Newlin's Gulch to Boat Launch	\$ 66,000
Trails – West access to water/Boat Launch	\$ 42,000
Picnic Areas – Hess Trailhead	\$ 221,000
Trail – Southwest Stretch of Newlin's Gulch	\$ 70,000
Trial – Coyote Run Loop & Miner's Draw	\$ 92,000
Overlook – Arrow Point	\$ 4,000
Overlook – North of Hess Road	\$ 8,000
Port-o-let at Rosie Rueter Trailhead	\$ 78,000
Picnic Areas – Rosie Rueter Trailhead	\$ 224,000
Archery Facility	\$ 88,000
West Fork Trail Connection to E-W Trail	\$ 17,000
Pioneer Loop Trail	\$ 39,000
Freshfields Trail	\$ 30,000
Overflow Parking lot	\$ 182,000
Woodstone Camping Sites (12 sites)	\$ 32,000



Potential Phasing Strategy

PHASE 1 **\$419,000**
Entry I

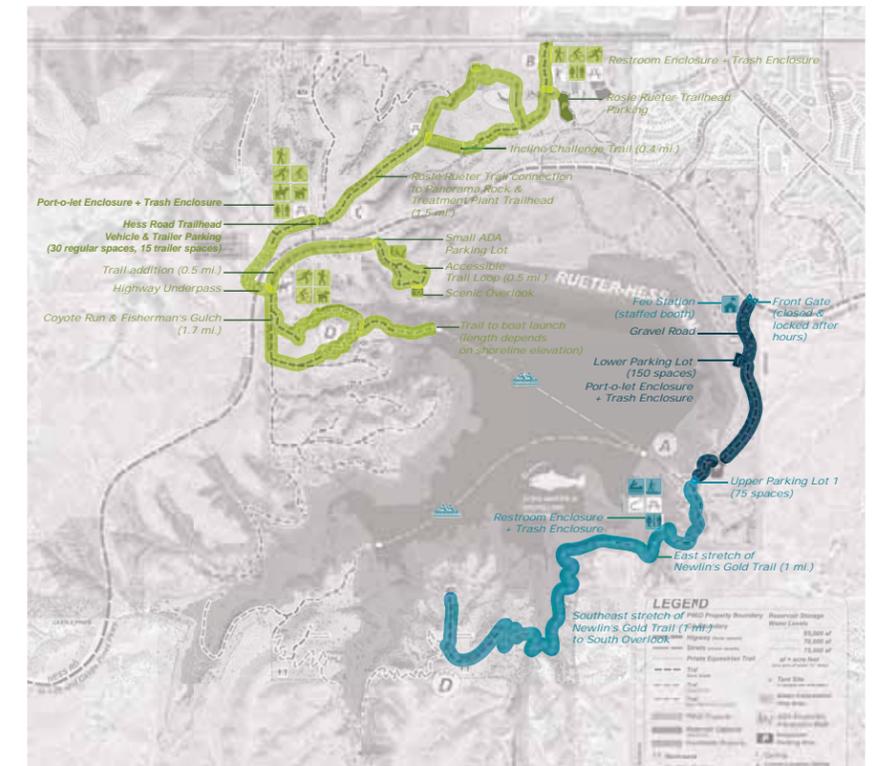
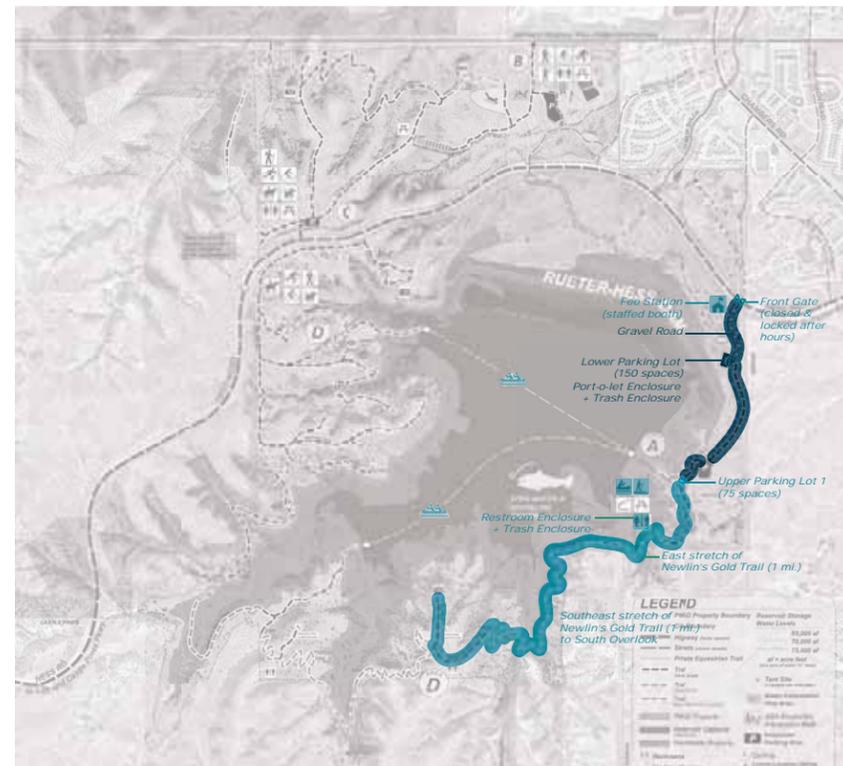
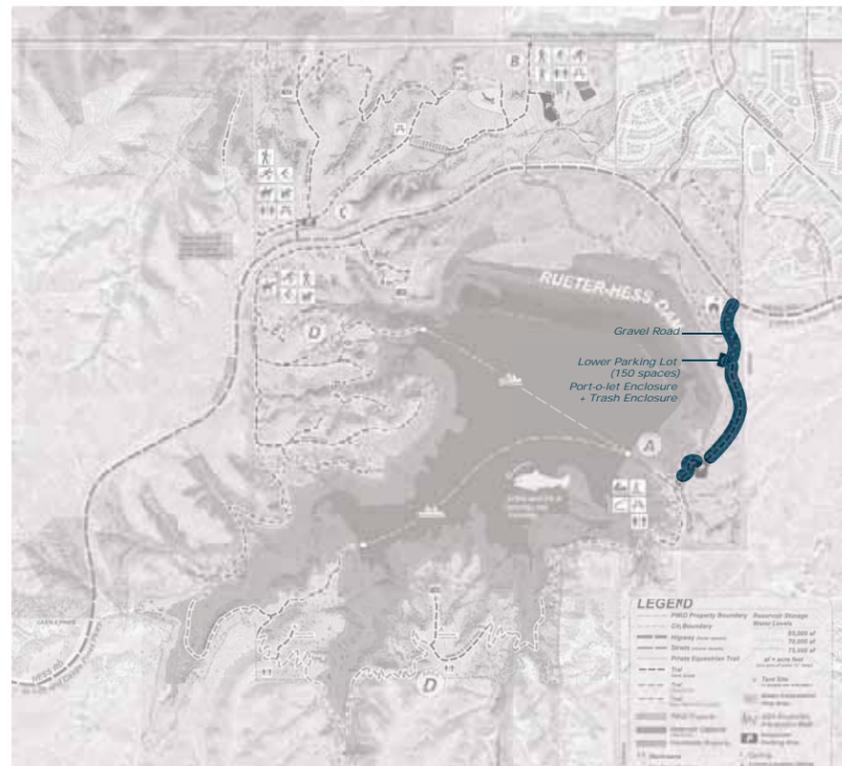
Lower Parking Lot at the Reservoir & Fencing at the Dam	\$ 164,000
Port-o-let at the Lower Parking Lot	\$ 73,000
Trail along Entry Road	\$ 182,000

PHASE 2 **\$632,000**
Entry II

Entry Fence & Drive	\$ 218,000
Entry Station Building	\$ 60,000
Upper Parking Lot	\$ 227,000
Vault Toilet at Upper Parking Lot	\$ 87,000
Trails – SE stretch of Newlin's Gulch Trail	\$ 40,000

PHASE 3 **\$1,114,000**
North & West Trailheads

Hess Road Trailhead Parking	\$ 105,000
Trails – South of Hess Road; Coyote Run & Fisherman's Gulch	\$ 56,000
Port-o-let at Hess Road Trailhead	\$ 78,000
ADA Parking Lot	\$ 142,000
Accessible Trail Loop	\$ 198,000
Rosie Rueter Trailhead Parking Lot	\$ 388,000
Trails – Rosie Rueter Trail	\$ 47,000
Trails – Panorama Rock Trail	\$ 16,000
Incline Challenge	\$ 84,000



PHASE 4 \$1,125,000
Fishing Access & Perimeter Trail

South Overlook (no structure)	\$ 4,000
Picnic Areas – Upper Lot	\$ 228,000
Trails – Newlin’s Gulch to Boat Launch	\$ 66,000
Trails – West access to water/Boat Launch	\$ 42,000
Picnic Areas – Hess Trailhead	\$ 221,000
Trail – Southwest Stretch of Newlin’s Gulch	\$ 70,000
Trial – Coyote Run Loop & Miner’s Draw	\$ 92,000
Overlook – Arrow Point	\$ 4,000
Overlook – North of Hess Road	\$ 8,000
Port-o-let at Rosie Rueter Trailhead	\$ 78,000
Picnic Areas – Rosie Rueter Trailhead	\$ 224,000
Archery Facility	\$ 88,000

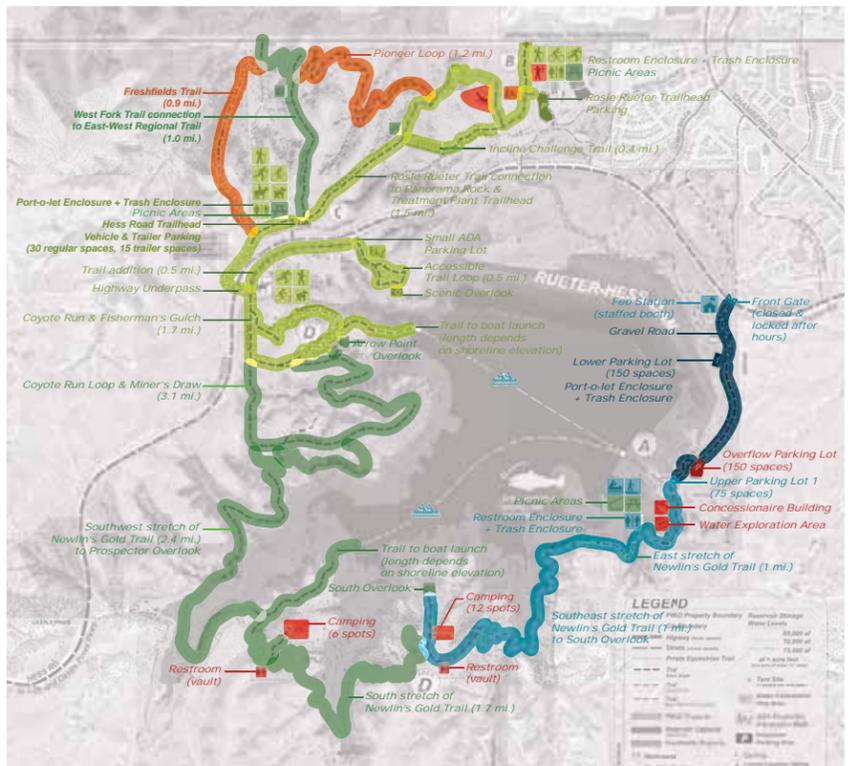
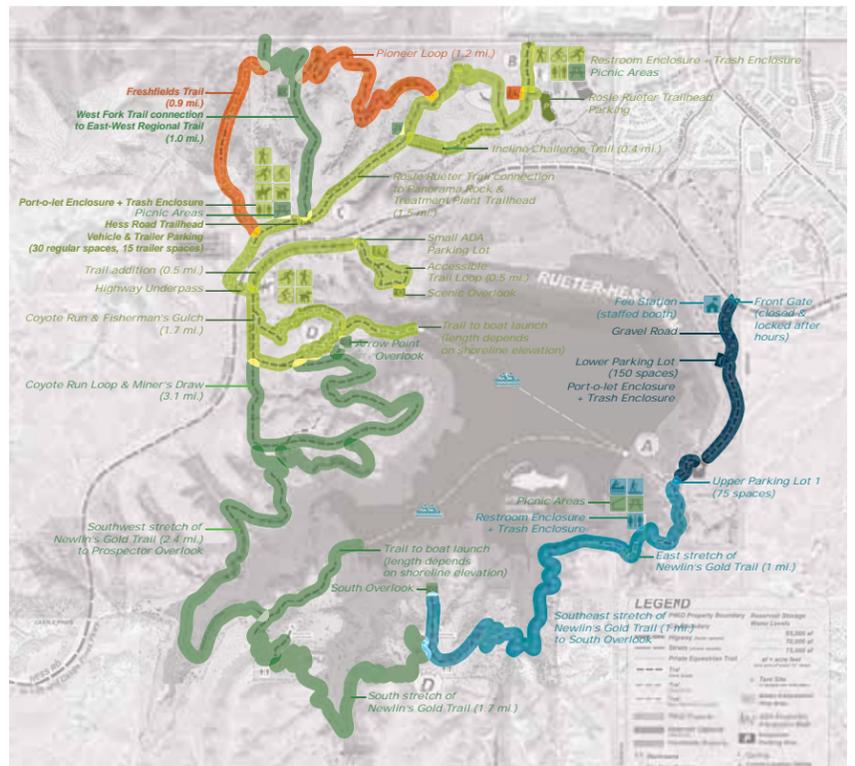
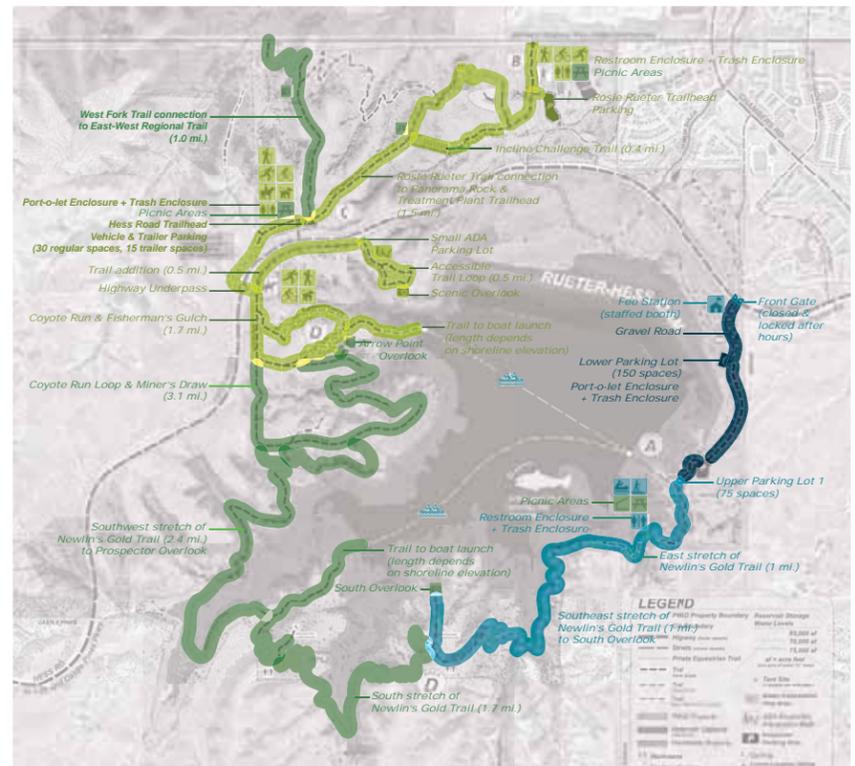
PHASE 5 \$86,000
Completed Trail Network

West Fork Trail Connection to E-W Trail	\$ 17,000
Pioneer Loop Trail	\$ 39,000
Freshfields Trail	\$ 30,000

FUTURE PHASES \$4,661,000
Additional Future Potentials

Overflow Parking Lot	\$ 182,000
Woodstone Camping Sites (12 sites)	\$ 32,000
Vault Toilet at Camping Area	\$ 223,000
Prospector Camping Sites (6 sites)	\$ 16,000
Vault Toilet at Camping Area	\$ 223,000
Concessionaire Building	\$ 1,003,000
Water Exploration Area	\$ 2,970,000
Sledding Hill	\$ 12,000

Estimated cost of Phases 1-5 \$3,376,000





Financial Analysis Comparison

In order to construct a financial model of recreational operations at Rueter-Hess, the design team examined the recreational operating characteristics and budgets of other similar reservoirs and parks around the state, including several near the Denver metro area. Many public parks and open spaces typically operate at a loss. For example, the relatively small Standley Lake Regional Park had a 2015 net operating loss of almost \$17,000, while Chatfield State Park expenditures outpaced revenues by nearly \$91,000. Other examples of public reservoirs in the metro area including info about annual expenditure and revenue are below.

AURORA RESERVOIR City of Aurora

Size	800 acres
Full Time Employees	7.5
Annual Visitation	270,000
Annual Revenue	\$948,000
Annual Operating Expenditures	\$1,500,000
Net Operating Costs	-\$552,000

BOULDER RESERVOIR City of Boulder

Size	700 acres
Full Time Employees	3 (75-100 seasonal)
Annual Visitation	250,000
Annual Revenue	\$1,030,000
Annual Operating Expenditures	\$960,000
Net Operating Costs	\$70,000

HORSETOOTH RESERVOIR Larimer County Natural Resources Dept.

Size	2,040 acres
Full Time Employees	8 (36 seasonal)
Annual Visitation	900,000
Annual Revenue	\$980,000
Annual Operating Expenditures	\$1,000,000
Net Operating Costs	-\$20,000



Appendix I - Financial Analysis of Recreational Facilities

In October 2016, BBC Research & Consulting (BBC) developed an updated financial analysis for capital investments and the associated operating revenues and expenditures based on capital construction costs distributed by Wenk Associates for incorporating recreational facilities and activities at Reuter-Hess Reservoir.

BBC also constructed estimates of the incremental visitation, expenditure, and revenue impacts of each phase after the completion of the baseline Phases I and II. The exercise was intended to provide the Reuter-Hess Recreation Authority Board (Board) with an illustration of how financial operations might vary if the phasing schedule were to be altered.

Introduction

In order to construct a financial model of recreational operations at Reuter-Hess, BBC examined the recreational operating characteristics and budgets of other similar reservoirs and parks around the state, including several near the Denver metro area. Many public parks and open spaces typically operate at a loss. For example, the relatively small Standley Lake Regional Park had a 2015 net operating loss of almost \$17,000, while Chatfield State Park expenditures outpaced revenues by nearly \$91,000.

BBC incorporated data and assumptions from these and other locations in order to estimate the annual financial operations of recreational activities, based on the capital construction cost schedule. It is important to note that Phases I-V are likely to be implemented in relatively close succession, while Phase VI describes a longer-term plan for improvements that will occur at in an uncertain order and time.

The financial model estimates an average annual operating loss of \$32,179 for recreational activities at Reuter-Hess once all elements in Phases I-V of the master plan are built out. These estimates are due in part to lower visitation during the initial capital construction phases, and limited revenue opportunities.

As the recreational infrastructure expands according to the phasing schedule, estimated operating revenues and costs increase from \$1,500 and \$39,986 in Phase I, to \$271,183 and \$318,397 by Phases V, and \$392,105 and \$455,931 once Phase VI is implemented, respectively. The projected ratio of operating revenues to expenditures at Reuter-Hess ranges from 3.8 to 130.9 percent across the initial five phases, with an overall average of 66.5 percent. Revenues exceed expenditures only in Phase IV of the cumulative model.

There are several considerations for improving the projected financial performance of recreational operations at Reuter-Hess. For example, the recreational fees in the model are based on the average fees for similar activities at other locations. However, Reuter-Hess could choose to charge tiered fees for nonresidents in order to generate higher revenues. The model includes several other operating assumptions that will significantly influence projected operating cash flows, described in detail in the attached figures.

The remainder of this appendix serves as a guide to the updated financial analysis. The updated aggregated capital cost schedule is presented in Figure 1. Figure 2 illustrates the cumulative infrastructure completed in each phase. The operating pro forma is found in Figures 3 through 5. The six phases of the capital cost schedule are considered as one time period each, regardless of the time necessary to complete each. A full list of assumptions can be found in Figure 6, and a breakdown of the data collected from other recreational sites can be found in Figure 7.

Capital Expenditures and Infrastructure by Phase

Figure 1 provides the capital costs from the phasing schedule. These costs are aggregated by category where possible, and divided into two primary groups. The buildings, facilities, & equipment panel shows the aggregated cost estimates for the physical structures and recreational equipment. The roads, trails, & infrastructure panel describes all other capital infrastructure expenditure. The cost schedule includes a 25 percent contingency cost for each estimate, as well as a 10% mobilization and general conditions cost and an 8% design cost. These costs are compounded and added to the total cost of each capital construction phase at the bottom of the figure.

Figure 2 presents the cumulative infrastructure completed in each phase. This figure describes the cumulative completed infrastructure, based on the new schedule of capital construction, providing a snapshot of the Reuter-Hess recreational site in any given phase. For example, two miles of trail are constructed in Phase I, and one mile in Phase II, for a Phase II total of three miles. The percent of total capital costs incurred represents the cumulative proportion of the total capital budget that has been spent as of each phase.

Operating Expenditures by Phase

Figure 3 presents estimates of the operating costs in each phase, based on the cumulative capital infrastructure completed in that phase, annual visitation, and expenditure characteristics at other recreational sites.

Labor costs. Estimated annual salary, benefits, and wage expenses are presented in this panel. BBC assumes an average annual salary of \$59,000 and hourly wage of \$13. The annual cost of fringe benefits for salaried workers is estimated as 35 percent of the salary, and each seasonal worker is assumed to work 1,000 hours per season (40 hours per week in the summer



season). Based on other reservoirs and parks in Colorado with similar characteristics and/or recreational facilities, BBC assumes three seasonal workers per each full time employee.

During the first phase there will be no entry station or major infrastructure, so BBC assumes that maintenance and oversight can be provided by two seasonal staff. Once the entry station is constructed in Phase II, one full time equivalent (FTE) worker will be necessary to oversee operations, increasing to two FTEs as group picnic sites are completed in Phase IV, and to three FTEs in Phase VI as all infrastructure is completed. The Board has indicated that watercraft rentals and archery lessons will likely be conducted by a third party concessionaire, requiring no additional labor costs for Rueter-Hess.

Operating costs. The estimates in this panel are based on a review of the budgets and characteristics of these other sites. For example, BBC calculated the average utilities cost per square foot of building or covered structure from other parks, and multiplied this figure by the Rueter-Hess building square footage scheduled to be completed in each phase. Other operating costs are calculated in a similar fashion, based on completed infrastructure and annual visitation. BBC also includes cost estimates for up to two vehicles dedicated to operational activities at the reservoir. These estimates are based on a three-year, \$500 per month lease agreement for a new full-size pickup truck, and the average per-vehicle maintenance and fuel costs from other sites. Operating costs for watercraft and archery activity will be borne by the respective concessionaires.

Operating Revenues by Phase

Figure 4 presents projected operating revenues based on projected Rueter-Hess total visitation numbers. Visitation is also presented by activity since activity-based revenues will be driven by activity-specific visitation.

Annual visitation. Since there will be limited facilities for visitors to take advantage of during the early years of operation, BBC assumes a conservatively low initial baseline visitation of 15,000. BBC assumes that visitation will increase steadily to a total of 200,000 annual visits by the time the capital infrastructure is completed in the final phase, based on the average annual visitation at Aurora and Boulder Reservoirs.

Activity-specific visitation is estimated based on the facilities completed in each phase. For example, 18 campsites are scheduled for completion in Phase VI; assuming a 20 percent annual occupancy for each campsite and an average camping group size of 2.5, BBC estimates a Phase VI camping visitation of 3,285. Similarly, group picnic visitation is based on the number of completed picnic sites, with an assumption of 25 events per site per year and an average of 20 attendees per event.

Watercraft visitation is expected to begin in Phase II once the main entry station is constructed and the concessionaire can set up a rental site. Initial boating visitation is projected at 1,000 per year with the primary point of entry being the existing east side boat ramp, growing to 1,500 by Phase IV when more trails to the waterfront are completed and additional shore-line launching around the reservoir becomes possible.

The Board indicated that the archery range will host classes conducted by members of the recreational staff or a concessionaire. BBC estimates that Rueter-Hess could host 50 one-hour group classes per year during summer weekends, with an average of 15 attendees per class once the archery range is

complete.

Revenues. In this panel, BBC estimates operating revenues for each activity, based on associated visitation numbers. The first source of revenue is collected through gate fees. Since park fees will likely be charged on per car basis, BBC assumes that Rueter-Hess visitation will consist of similar numbers of vehicles and passengers per vehicle as seen at other sites. The average fee for similar sites is \$8, with an average gate fee revenue of \$1.09 per visitor. Note that there are no gate fee revenues collected in Phase I because the entry station is not scheduled for construction until Phase II.

Camping revenues are based on a \$15 daily camping fee as seen at Horsetooth Reservoir for non-electric sites, and picnic revenues are based on the \$75 fee to reserve picnic sites at the Aurora Reservoir.

Watercraft rental revenues are based on a \$10 hourly rental fee for reservoir-owned small watercraft at Aurora Reservoir. In the preferred concessionaire model, BBC assumes that the operator will share back 30 percent of revenues, or \$3 per watercraft rental hour, with an average rental length of 2.5 hours. All watercraft visitors will have to rent equipment, as private watercraft will not be allowed. Additional revenues may also be generated through educational watercraft classes. BBC assumes that the concessionaire could hold approximately 50 two-hour watercraft classes per year, with an average attendance of five people per class during summer weekends and a fee of \$70 (including equipment rental), based on the group paddleboard lessons provided by 5280 Paddle Sports. As with rentals, BBC assumes a 30 percent revenue shareback agreement between Rueter-Hess and the concessionaire.

Revenues generated from group archery range classes are based on a fee of \$20 per person, per class, based on group lesson fees at Quickdraw Archery in Highlands Ranch. BBC

assumes that this price will include equipment rentals from the concessionaire, and that the operator will share back 30 percent of the class fee revenues to Rueter-Hess.

Many Board members expressed interest in hosting special events at the Reservoir such as races, weddings, and other social or programmed events. BBC includes three special events during the first year of operations, increasing to six events per year by Phase VI, each with an associated event fee of \$500. Finally, merchandise and concession sales may commence once the concessionaire building is completed in Phase VI. Revenues from these sales are estimated based on sales per visitor at other parks.

Financial Analysis by Phase

Figure 5 combines information from the previous figures to provide annual cash flows based on the assumptions described above.

Operations. The first panel in Figure 5 presents the annual operations cash flow based on the revenues and costs calculated in previous sections. The average operating cash flow over the initial five phases equals negative \$32,179. BBC calculates the average ratio of operating revenues to expenditures across the initial five phases, which is equal to 66.5 percent.

Operations & Capital. The second panel presents a separate financial analysis that includes the capital construction cost estimates, by phase. This allows the Board to factor in the capital costs incurred in each phase, in order to examine whether and to what degree operations might cover some capital costs. As expected, the inclusion of capital costs significantly reduces the financial performance indicators. The average annual net cash flow in Phases I-V is negative \$705,348. Average annual self-sufficiency after incorporating capital expenditures is reduced 20.5 percent. Finally the net return on capital investment of negative 40.2 percent is calculated as the total annual net

cash flows divided by total capital costs in Phases I-V. The inclusion of Phase VI in these averages would yield lower performance metrics as this last phase includes several large capital expenditures such as the water exploration area, and has projected operating expenditures that are higher than revenues.

Incremental Financial Impacts of Each Phase

Members of the Board expressed an interest in examining the individual visitation and financial impacts of each phase, in the event that the phasing schedule is altered from the current plan. BBC utilizes the results of the cumulative model described above to isolate and estimate the independent impacts of each phase, after baseline operations are established with Phases I and II.

The total revenues and expenditures of each phase in the cumulative model are divided by the total visitation in that phase to generate an average revenue and expenditure per visitor. BBC estimates the incremental visitation for each phase, based on the scheduled capital infrastructure completion and associated visitation effects from the cumulative model. The average revenue and expenditures per visitor are then multiplied by the estimated incremental visitation to calculate incremental revenue and expenditure impacts, for each phase.

Phase VI is separated into three sub-phases as requested by the Board, allowing for separate examinations of the incremental effects of adding campsites (Phase VI.1), constructing the water exploration facility (Phase VI.2), and constructing the concessionaire building (Phase VI.3).

Figure 6 presents the incremental effects of each phase after baseline operations are established in Phases I and II. Each column can be thought of as the effects of the corresponding phase, if it were to be implemented directly after Phases I and II are completed.

Financial Plan Assumptions

Figure 7 provides a full list of assumptions and calculations used in this financial analysis. Many of these assumptions were incorporated based on the recreational operations of other reservoirs and parks. Other assumptions are based on conversations with park managers and previous BBC experience with park planning and finances. In many cases, small changes in these assumptions can have major impacts on the projected financial performance of recreational activities.

Inputs from Other Parks and Recreational Sites

Figure 8 provides an overview of recreational facilities planned at Rueter-Hess, and the observed infrastructure and operating characteristics from ten other locations around the state. Estimates are averaged across all locations where data was available.

Summary

This appendix describes and presents the results of the updated financial analysis of recreational capital construction and operations at the Rueter-Hess Reservoir, based on the new capital construction schedule, data from other sites around the state, and various BBC assumptions. The first section presents a cumulative financial model under the assumption that each phase is completed as scheduled. A second analysis considers the incremental visitation and financial effects of each phase if it were implemented directly after baseline operations are established in Phases I and II.

The purpose of this financial model is to provide the Board with actionable estimates of the visitation, revenues, and expenditures associated with the proposed capital infrastructure and recreational activities at Rueter-Hess.



Table 1. Capital Expenditures by Phase

Phase	I	II	III	IV	V	VI
Buildings, Facilities, & Equipment						
Entry Station Building (300 sq. ft.)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Port-O-Let Enclosure	\$ 32,000	\$ -	\$ 32,000	\$ 32,000	\$ -	\$ -
Fixtures, Furnishings, & Equipment	\$ -	\$ 25,000	\$ -	\$ -	\$ -	\$ -
Trash Enclosures	\$ 18,000	\$ 8,000	\$ 18,000	\$ 18,000	\$ -	\$ -
Front Gate And Fencing	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ -
Entry Station Electrical	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -
Trash Receptacles	\$ 2,000	\$ -	\$ 2,000	\$ 43,400	\$ -	\$ -
Vault Toilets	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 100,000
Shelters	\$ -	\$ -	\$ -	\$ 190,000	\$ -	\$ -
Picnic Tables	\$ -	\$ -	\$ -	\$ 108,000	\$ -	\$ -
Grills	\$ -	\$ -	\$ -	\$ 31,800	\$ -	\$ -
Backcountry Campsites	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,000
Benches (Metal Or Stone)	\$ -	\$ -	\$ -	\$ 22,500	\$ -	\$ -
Water Exploration Area	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,500,000
Concessionaire Building (1,666 sq. ft.)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000
Fee Stations / Kiosks	\$ -	\$ -	\$ 45,000	\$ -	\$ -	\$ -
Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 150,000
Equipment Storage Building (Archery)	\$ -	\$ -	\$ -	\$ 15,000	\$ -	\$ -
Archery Equipment	\$ -	\$ -	\$ -	\$ 5,000	\$ -	\$ -
Roads, Trails, & Infrastructure						
Fencing Around The Dam	\$ 90,000	\$ -	\$ -	\$ -	\$ -	\$ -
Signage	\$ 5,000	\$ 20,000	\$ 22,500	\$ 10,000	\$ 7,500	\$ 2,500
Soft Surface Trail	\$ 118,880	\$ 23,000	\$ 66,550	\$ 163,850	\$ 46,850	\$ -
Parking Lot + Gravel Road Repairs/Improvement	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -
Curb Stops	\$ 7,500	\$ -	\$ 10,250	\$ -	\$ -	\$ 7,500
Trail Stabilization (Steps & Water Bars)	\$ 660	\$ 1,372	\$ 3,749	\$ 7,021	\$ 3,247	\$ -
Clearing And Grubbing	\$ -	\$ 11,475	\$ 36,575	\$ 19,625	\$ -	\$ 63,588
Asphalt Paving	\$ -	\$ 191,250	\$ 297,000	\$ -	\$ -	\$ -
Gravel Paving	\$ -	\$ -	\$ 45,000	\$ -	\$ -	\$ 90,000
Road Connection To Restroom	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 200,000
Concrete Paving For Shelter Areas	\$ -	\$ -	\$ -	\$ 64,800	\$ -	\$ -
Deciduous Trees	\$ -	\$ -	\$ -	\$ 18,000	\$ -	\$ -
Timbers	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,000
Crusher Fines Pad For Tent	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,400
Concrete Trail	\$ -	\$ -	\$ 126,720	\$ -	\$ -	\$ -
Lane/Parking Striping	\$ -	\$ 3,750	\$ -	\$ -	\$ -	\$ -
Timber Steps	\$ -	\$ -	\$ 42,240	\$ -	\$ -	\$ -
Earthwork (Earth Berm Safety Backstop)	\$ -	\$ -	\$ -	\$ 3,600	\$ -	\$ -
Paving At Shooting Line	\$ -	\$ -	\$ -	\$ 900	\$ -	\$ -
Capital Costs	\$ 284,040	\$ 423,847	\$ 747,584	\$ 753,496	\$ 57,597	\$ 3,636,988
25% Contingency Costs	\$ 71,010	\$ 105,962	\$ 186,896	\$ 188,374	\$ 14,399	\$ 909,247
Capital Costs with Contingency	\$ 355,050	\$ 529,809	\$ 934,480	\$ 941,870	\$ 71,996	\$ 4,546,235
General Conditions & Mobilization Costs	\$ 35,505	\$ 52,981	\$ 93,448	\$ 94,187	\$ 7,200	\$ 454,624
Design Costs	\$ 31,244	\$ 48,623	\$ 82,234	\$ 82,885	\$ 6,336	\$ 400,069
Total Capital Costs	\$ 421,799	\$ 629,413	\$ 1,110,162	\$ 1,118,942	\$ 85,532	\$ 5,400,927

Table 2. Infrastructure by Phase

Phase	I	II	III	IV	V	VI
Facility Inputs						
Reservoir Size	1,170	1,170	1,170	1,170	1,170	1,170
Percent of Total Capital Costs Incurred	4.8%	12.0%	24.7%	37.4%	38.4%	100.0%
Miles of Trails	2.0	3.0	8.2	17.1	20.2	20.2
Entry Station	-	1	1	1	1	1
Concessionaire Building	-	-	-	-	-	1
Buildings	-	1	1	1	1	2
Parking Spaces	150	225	430	430	430	580
Square Feet	-	300	300	300	300	1,966
Port-a-Lets	1	1	2	3	3	3
Vault Toilets	-	1	1	1	1	3
Campsites	-	-	-	-	-	18
Group Picnic Sites	-	-	-	36	36	36
Incline Challenge	-	-	1	1	1	1
Water Exploration Area	-	-	-	-	-	1
Archery Range	-	-	-	1	1	1
Sledding Hill	-	-	-	-	-	1
Special Events	3	3	4	4	5	6

Table 3. Operating Expenditures by Phase

Phase	I	II	III	IV	V	VI
Labor Costs						
Full Time Staff	-	1	1	1	2	3
Average Annual Salary Paid	\$ -	\$ 59,000	\$ 59,000	\$ 59,000	\$ 118,000	\$ 177,000
Average Benefits (35%)	\$ -	\$ 20,650	\$ 20,650	\$ 20,650	\$ 41,300	\$ 61,950
Subtotal FT Labor Cost	\$ -	\$ 79,650	\$ 79,650	\$ 79,650	\$ 159,300	\$ 238,950
Seasonal workers	2	3	3	3	6	9
Total Seasonal Hours Worked	2,000	3,000	3,000	3,000	6,000	9,000
Subtotal Seasonal Labor Cost (\$13/hr)	\$ 26,000	\$ 39,000	\$ 39,000	\$ 39,000	\$ 78,000	\$ 117,000
Subtotal Labor Costs	\$ 26,000	\$ 118,650	\$ 118,650	\$ 118,650	\$ 237,300	\$ 355,950
Operating Costs						
Utilities (based on sq. ft.)	\$ -	\$ 564	\$ 564	\$ 564	\$ 564	\$ 3,697
Equipment & Materials (based on sq. ft.)	\$ -	\$ 857	\$ 857	\$ 857	\$ 857	\$ 5,615
Building Repair & Maintenance (based on sq. ft)	\$ -	\$ 74	\$ 74	\$ 74	\$ 74	\$ 488
Land Repair & Maintenance (based on trail-mile)	\$ 1,386	\$ 2,078	\$ 5,681	\$ 11,847	\$ 13,995	\$ 13,995
Equipment Repair & Maintenance (per visitor)	\$ 365	\$ 1,179	\$ 1,975	\$ 3,227	\$ 4,017	\$ 4,870
Purchased Services (per visitor)	\$ 4,110	\$ 13,271	\$ 22,227	\$ 36,320	\$ 45,207	\$ 54,802
Uniforms (based on total employees)	\$ 66	\$ 132	\$ 132	\$ 132	\$ 264	\$ 396
Vehicles Leased	1	1	1	1	2	2
Vehicle Lease Costs (\$6,000/yr)	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 12,000	\$ 12,000
Vehicle Repair & Maintenance Costs	\$ 194	\$ 194	\$ 194	\$ 194	\$ 389	\$ 389
Vehicle Fuel Costs	\$ 2,059	\$ 2,059	\$ 2,059	\$ 2,059	\$ 4,119	\$ 4,119
Subtotal Operating Cost	\$ 13,986	\$ 26,216	\$ 39,569	\$ 61,081	\$ 81,097	\$ 99,981
TOTAL OPERATING COSTS	\$ 39,986	\$ 144,866	\$ 158,219	\$ 179,731	\$ 318,397	\$ 455,931



Table 4. Operating Revenues by Phase

Phase	I	II	III	IV	V	VI
Annual Visitation						
Baseline Visitation	15,000	47,433	79,866	112,299	144,732	175,965
Camping Visitation	-	-	-	-	-	3,285
Group Picnic Visitation	-	-	-	18,000	18,000	18,000
Water Exploration Area Visitation	-	-	-	-	-	500
Boating Visitors	-	1,000	1,250	1,500	1,500	1,500
Archery Visitors	-	-	-	750	750	750
Total Annual Visitation	15,000	48,433	81,116	132,549	164,982	200,000
Revenues						
Average Gate Revenue per Visitor	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09
Subtotal Gate Revenue	\$ -	\$ 52,895	\$ 88,590	\$ 144,762	\$ 180,183	\$ 218,427
Camping Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,710
Group Picnic Revenue	\$ -	\$ -	\$ -	\$ 67,500	\$ 67,500	\$ 67,500
Subtotal Camping/Picnic Revenue	\$ -	\$ -	\$ -	\$ 67,500	\$ 67,500	\$ 87,210
Watercraft Annual Rental Revenue	\$ -	\$ 7,500	\$ 9,375	\$ 11,250	\$ 11,250	\$ 11,250
Educational Watercraft Class Revenue	\$ -	\$ 5,250	\$ 5,250	\$ 5,250	\$ 5,250	\$ 5,250
Subtotal Watercraft Revenue	\$ -	\$ 12,750	\$ 14,625	\$ 16,500	\$ 16,500	\$ 16,500
Archery Class Annual Revenue	\$ -	\$ -	\$ -	\$ 4,500	\$ 4,500	\$ 4,500
Subtotal Archery Revenue	\$ -	\$ -	\$ -	\$ 4,500	\$ 4,500	\$ 4,500
Special Events	3	3	4	4	5	6
Subtotal Special Event Revenue	\$ 1,500	\$ 1,500	\$ 2,000	\$ 2,000	\$ 2,500	\$ 3,000
Merchandise & Concession Sales	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 62,468
TOTAL OPERATING REVENUES	\$ 1,500	\$ 67,145	\$ 105,215	\$ 235,262	\$ 271,183	\$ 392,105

Table 5. Financial Analysis by Phase

Phase	I	II	III	IV	V	Phases I-V Average	VI
Operations							
Annual Operating Revenues	\$ 1,500	\$ 67,145	\$ 105,215	\$ 235,262	\$ 271,183	\$ 136,061	\$ 392,105
Annual Operating Costs	\$ (39,986)	\$ (144,866)	\$ (158,219)	\$ (179,731)	\$ (318,397)	\$ (168,240)	\$ (455,931)
Annual Operations Cash Flow	\$ (38,486)	\$ (77,720)	\$ (53,005)	\$ 55,531	\$ (47,214)	\$ (32,179)	\$ (63,826)
Revenue-to-Expenditures Ratio	3.8%	46.4%	66.5%	130.9%	85.2%	66.5%	86.0%
Operations & Capital							
Annual Net Cash Flow	\$ (460,286)	\$ (707,133)	\$ (1,163,167)	\$ (1,063,411)	\$ (132,745)	\$ (705,348)	\$ (5,464,753)
Self Sufficiency	0.3%	8.7%	8.3%	18.1%	67.1%	20.5%	6.7%
Total Capital Investment	\$ 8,766,775						
Return on Investment	-40.2%						