Virtual-Based Trail Planning and Design at Valle de Oro National Wildlife Refuge

A REFUGE IN DEVELOPMEN

- Established in 2012 as the first Urban Wildlife Refuge of the Southwest region
- 570 acres in the South Valley of Albuquerque, New Mexico
- 7 miles south of downtown Albuquerque
- Previously Price Dairy, Valley Gold Farms
- Established through a collaboration between neighbors, partner organizations, and program sponsors
- Valle de Oro National Wildlife Refuge(NWR) visitor center and wetland habitats are currently under construction



Right: Site map of Valle de Oro NWR showing size of property. (ource: USFWS, Rodriguez-McGill)

TRAIL PLAN NEEDS

Valle de Oro NWR development was guided by Environmental Assessment (EA) planning efforts conducted in 2017 based on over 3 years of conversations with staff, neighbors, and partner groups. Out of four options, "Alternative B" (Alt B) was the chosen site plan. Trail alignments in Alt B considered community meetings, placement of habitats, and other limiting environmental factors. Although Alt B identified a trail network design, it was not intended to be the final design. Therefore, a finalized trail plan was needed.





plan and determine if it still accomplishes refuge goals.

Identify Suporting **Trail Facilities** Identify placement and style of amenities

and large infrastructure





Points of Interest Ensure the trail plan connects major points of interest across the refuge. Limit Habitat

Segmentation Ensure trails provide uninterrupted habitat for wildlife health and safety.

Refine Trail Design

Provide trail design specifics like width, height, surfacing, amenities, and corridor needs.



U.S. Fish & Wildlife Service Valle de Oro National Wildlife Refuge Alternative B



In addition to this map, the EA provided other parameters for the trail network:

- No more than 10 miles of trail
- The Perimeter Trail will be 4 mi. long and 18 ft. wide
- Cycling, horses, jogging, and dogs on leash will only be allowed on Perimeter Trail
- Trails will provide amenities and visitor facilities



METHODOLOGY

Site planning at Valle de Oro NWR had to be done virtually over Zoom and Microsoft TEAMS because of the COVID-19 pandemic. Additionally, because the refuge is still in development, many of the habitat features are not built, so they had to be visualized using other means including:

- Site photos and measurements gathered during solo site visits
- Site plans and drawings for current projects on-site
- Virtual maps generated using Google Earth, Adobe Illustrator, and ArcGIS.

Site Photos and Site Visits





Site Plans and Drawings



- Identify key areas of conflict to photograph for the group
- Measure and provide scale for the group to assist discussion and decision making

Reference site plans

and designs from



Virtual Visual Aides



- current construction projects on-site including the wetlands and storm water swale drawings.
- The most essential tool in virtual planning is utilizing a virutal editable map
- The team used various site plans layered over satelite imagery in staff planning meetings
- Google Earth also helped provide measurements, historical, and current satellite imagery for the site
- This layered, editable map allowed refuge staff to see a comprehensive view of the refuge while considering the trail network

Virtual Meetings



- Refuge staff would review materials and annotate maps using Zoom and Microsoft TEAMS
- The Fellow would edit the master map to reflect planning decisions

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ADVANCED PUBLIC LANDS TRANSPORTATION FELLOW

Valle de Oro National Wildlife Refuge, Homeland of the Tiwa People Albuquerque, NM

VALLE DE ORO NWR TRAIL NETWORK

Final Trail Alignment

The final alignment accomplishes multiple goals not captured in Alt B:

- Connects visitors directly to the bosque
- Limits habitat segmenting on the west side
- Uses levees as trails where feasible to limit infrastructure needs: Perimeter Trail and Swale Trail
- Takes into account changes in habitat and infrastructure design

Final Trail Design

The matrix to the right shows the final managed use, designated use, length, width, and surfacing for each trail.



Trail	Designated Use	Length	Tread Width	Surfacing	Shoulder	Shoulder Type
Perimeter Trail	Pedestrian,	4 mi.	15 ft.	Sweetened	3 ft.	Planted
	Cycling, Equestrian			Road		
Swale Trail	Pedestrian	1 mi.	15 ft.	Sweetened Road	6 ft.	Planted
Interior Trail	Pedestrian	0.5 mi.	8 ft.	Crusher Fine	4 ft. varies	Planted
El Camino Trail	Pedestrian	1 mi.	10 ft.	Crusher Fine	4 ft. varies	Gravel
Uplands Trail	Pedestrian	TBD	6 ft.	Natural Earth	0 ft.	N/A
Boardwalks	Pedestrian	Varies	8 ft.	Composite Decking	TBD	N/A

Trail Element Renderings and Designs



upon refuge staff planning efforts.



The trail network will have different sized bump outs based upon anticipated volume (left to right):

- Rest areas
- Small Gathering Spaces
- Large Gathering Spaces



lemonstrates needed length of ramp from the interior trail to the swale trail in order to maintain ABA standards of accessibility.



Above: Two different desians for observation decks were created to test different types of railing and also provide a sense of scale for refuge staff.



What is the Transportation Fellows Program?

The PLTF program provides fellowships to recent graduates in a transportation-related field. The fellows are provided with a unique opportunity for career development and public service working directly with staff of Federal Land Management Agencies (FLMAs) on key visitor transportation issues. The assigned projects help the land units develop transportation solutions that preserve valuable resources and enhance the visitor experience. See footer for a list of sponsors.



CRITICAL CONNECTIONS

In addition to connections within the refuge, the trail network will connect to regional trail connectors including:

- 1. 2nd street bike path
- 2. Extension of the Paseo del Bosque bike path
- 3. North and south community trailhead entrances along the Interior Barr Drain
- 4. Trails along the bosque to the west of the refuge

NEXT STEPS & CONCLUSION





Trail design decisions generated by staff are included in a variety of planning documents to guide future development of the trail network including:

- Valle de Oro NWR Habitat and Visitor Services Development and Management Plan (HVSDMP)
- Trail Development Plan (TDP)
- Refuge Access Plan (RAP)

ACKNOWLEDGEMENTS









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> Western Institute







