#7 - FRESHWATER WETLANDS

PROJECT SUMMARY

This project converts one or more of the effluent holding ponds in the northwest area of the plant to a series of wetland ponds optimized for ecological enhancement and nutrient removal. These holding ponds are currently underutilized and could be re-purposed to achieve multiple benefits. The train of ponds could provide a valuable recreational opportunity in an under-served area with minimal access to parks. This could include wildlife viewing opportunities as well as educational components including signage describing the design and purpose of each pond.

Plan view drawing of site and restoration - NTS

Project Goals

- Use treated wastewater to create a freshwater marsh habitat area;
- Establish a publicly-accessible open space with educational and recreational value that improves both visitor and employee experiences;
- Create approximately 1 mile of walking trails with opportunities for seating and shade; and
- Incorporate educational signage telling the story about wetland plants, habitat, wildlife, and indigenous communities.

Why? What Vulnerability Addressed?

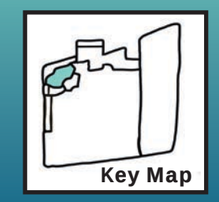
- Reduce nutrient discharge to the San Francisco Bay that contribute to harmful algeal blooms.
- Provide additional habitat for the 1.5 million birds along the Pacific Flyway.

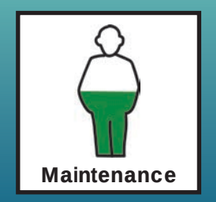
Project Benefits

- Optimize for habitat quality and quantity
- Optimize for recreation & education opportunities
- Demonstrate an innovative and novel nature-based solution
- Reduce dry weather flows to Suisun Marsh
- Optimize for nutrient removal

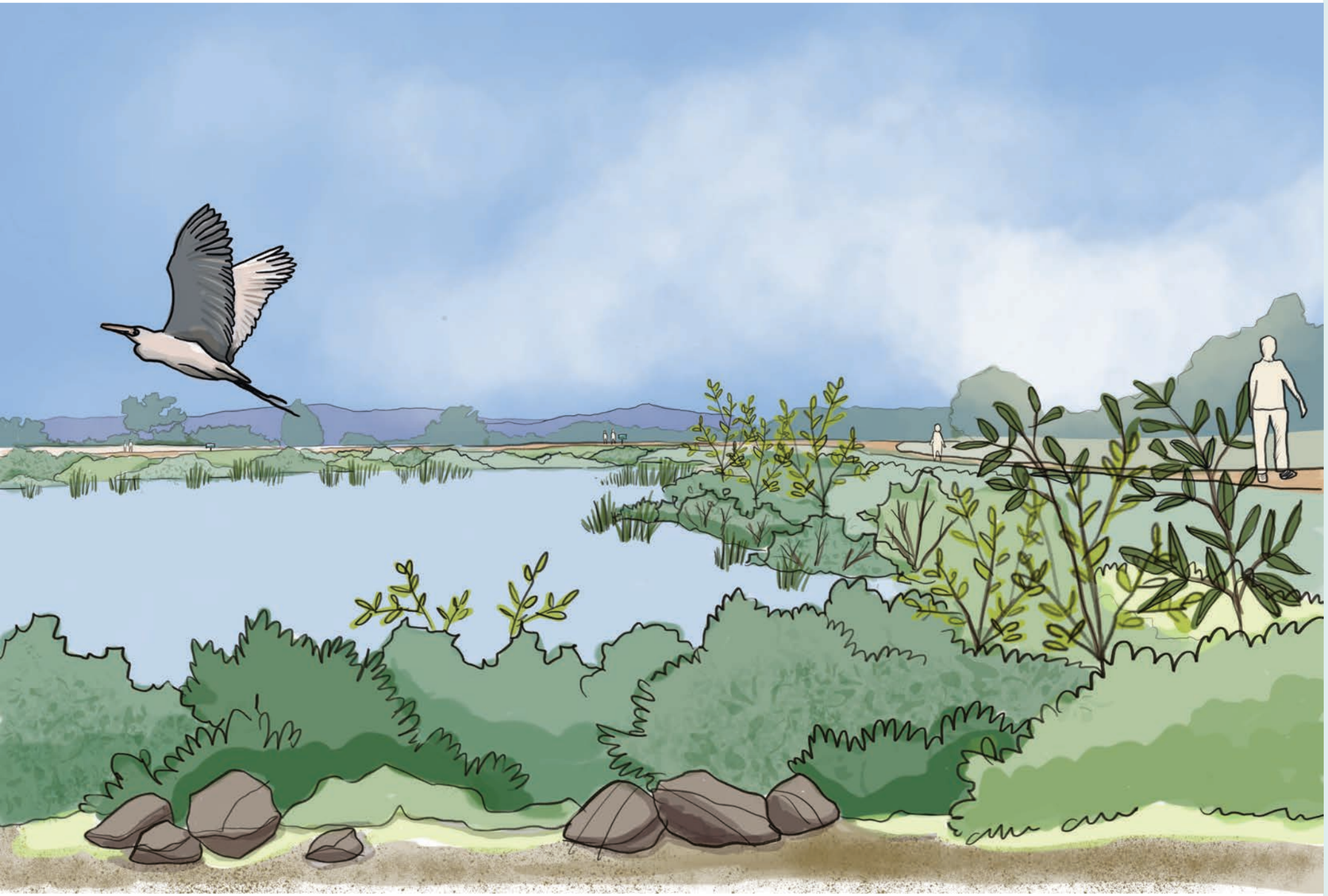
Image Key

1. Image of Milkweed on-site, Monarch butterfly habitat
2. Showy Milkweed on-site, ideal monarch butterfly habitat





#7 - FRESHWATER WETLANDS



Freshwater wetland habitat enhancement and trails.

Climate - Mitigation & Adaptation - Potential

- MITIGATION: Carbon Capture potential from accumulated organic matter (peat) within the managed wetland areas.
- ADAPTATION: Increased greening provides shade, which reduces temperatures and wildfire risks.

Regulatory Considerations

- Insurance liability of increasing public access areas on-site
- Land use conflicts
- Creation of jurisdictional wetland habitat

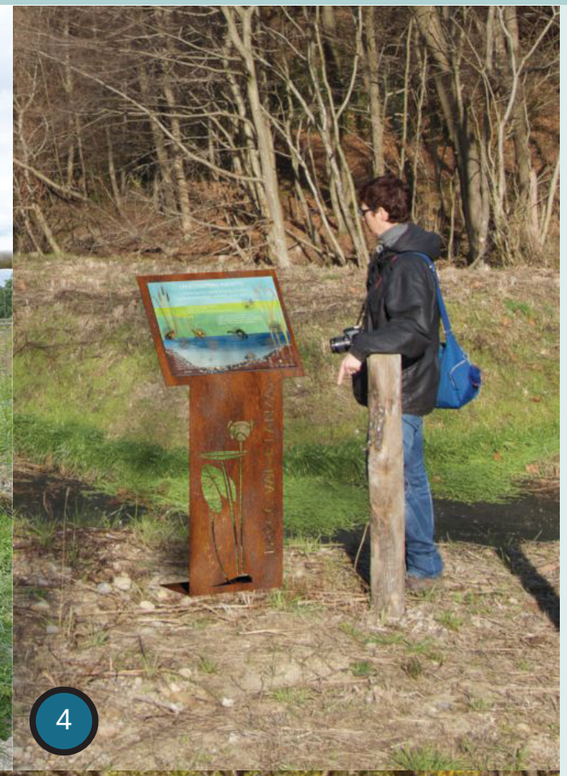
Next Steps (to Implement) Major Tasks and Time-line

- Planning Level Design
- Identification of Regulatory or Land Use Conflicts
- Scoping/business modelling for carbon crediting costs and benefits

Long-term O&M Considerations

- Irrigation for native plants, mowing, weed abatement, yearly wetland management
- Trail management - weed and trash
- Built structure maintenance - shade structures and tables
- Consider potentially reduced ability to retain emergency effluent storage capability on very rare occasions.

#7 - FRESHWATER WETLANDS



Planning Level Cost Estimate

1. Capital Cost = 1,000,000
2. Operations & Maintenance = 50,000

Grant Funding Potential / Ideas

- FEMA's Building Resilient Infrastructure and Communities
- Measure AA
- EPA Region 9 Water Quality Improvement Fund

Potential Project Partners

- UC Davis
- Ducks Unlimited
- Pacific Flyway
- Collaborate with Solano Community College's Maker-space for the creation of the structures
- Solano Land Trust
- Suisun Wildlife Center
- International Bird Rescue Center

Image Key

1. Features such as bird viewers allow staff and visitors to see wildlife close up – Port des Salines (source: Bureau d'Etudes Au Fil du Temps)
2. Steel signs are a good option where signage will be in remote outdoor settings with minimal maintenance
3. Wood and changeable signage allow for seasonal displays along wetlands path (source: DAB Graphics)
4. Steel signs allow for a durable option and may be combined with graphics (source: Studio PAN)
5. Outdoor shade structures allow for staff use and complement the natural setting (source: Tucson Audubon Paton Center)