03 June 2024

#### Background: How Did We Get Here?

Two Mile Pond, located above the Cerro Gordo crossing of the Santa Fe River, holds cultural and ecological value as a beloved remnant of a larger reservoir formed by the Two Mile Dam, which was decommissioned in 1994 due to safety concerns. Since 2009, a portion of the water from the upper watershed, up to 1,000 acre-feet, has flowed through McClure and Nichols Reservoirs as part of the "Living River" initiative. Previously, some of this water was diverted to maintain flow in Two Mile Pond. However, in 2018, the State Engineer's Office mandated a halt to surface water diversions into the pond. By spring 2023, the structure facilitating flow into the pond was dismantled, and concerns about stagnation prompted City staff to clean the outflow pipe, regulating the water surface elevation to the designated level set in 1994.

The riparian area stretching from the base of Old Stone Dam to the outflow of Two Mile Pond represents the valley's lowest point and is sustained by groundwater from river seepage and regional sources. Consequently, perennial flow through Two Mile Pond continued throughout 2023. The wetted valley, spanning over 5 acres, is expected to endure despite the suspended diversions. Notably, the open water area of Two Mile Pond is less than 1 acre.

The City of Santa Fe, in collaboration with John Shomaker and Associates, Inc. (JSAI), is embarking on a thorough evaluation of the Two Mile Pond area. This initiative includes conducting hydrologic monitoring and ecological assessments aimed at understanding ecosystem and watershed dynamics. The project involves measuring inflow and outflow at four dedicated monitoring stations, studying the pond's ecosystem, and monitoring landscape changes through the establishment of six permanent transects for ecological assessment. By leveraging this data, the City aims to develop evidence-based policies and future management strategies, ensuring the continued delivery of ecological benefits and quality of life enhancements to the community.

#### Summary of Findings:

The Two-Mile Pond Complex riparian area emerged after the decommissioning of Two-Mile Dam and Reservoir in 1994 and has remained relatively stable in size for the past two decades. Significant tree growth has been observed around Old Stone Dam since 2005. Soil moisture levels in the area vary, with a large extent rated as moist to wet. Stream flow at Two-Mile Pond Complex originates from groundwater discharge at Old Stone Dam, ranging from 0.16 to 0.40 cfs with an average of 0.24 cfs in the first quarter of the year. As of March 7th, 2024, the riparian area's condition is rated between "good" and "excellent," and further monthly field investigations will track changes in both biotic and abiotic metrics, expecting increased species diversity as biotic life rebounds from dormancy.

#### Frequently Asked Questions:

*1. What is the purpose of this monitoring report?*

The monitoring report aims to assess the riparian area of the Two-Mile Pond Complex. It provides insights into the current conditions, health of the system, and effects due to changes in the hydrologic regime. It presents data collected, assessment of the data, and observations to understand the current conditions and health of the riparian system.

*2. Who conducted the monitoring?*

The monitoring was conducted by John Shomaker & Associates, Inc. (JSAI), contracted by the City of Santa Fe Public Works Department.

*3. What are the key features of the Two-Mile Pond Complex?*

The Two-Mile Pond Complex includes the Restoration Channel, remnants of the Old Stone Dam and decommissioned Two-Mile Dam, and an established riparian area along the Restoration Channel.

*4. What areas were monitored?*

The monitoring area spans from the Restoration Channel staff gauge to the decommissioned Two-Mile Dam, focusing on the riparian area associated with the Restoration Channel and Two-Mile Pond Complex. Six monitoring transects were identified for assessment.

*5. What methods were used for monitoring and assessment?*

The monitoring follows standardized riparian monitoring and assessment methods described by the New Mexico Rapid Assessment Method (NMRAM) Field Guide prepared by the New Mexico Environment Department Surface Water Quality Bureau. These methods include evaluating landscape context, biotic metrics, abiotic metrics and soil moisture.

*6. What does ecological monitoring cover and why is it important?*

The assessment evaluates wetland condition using both remote and field-collected data, encompassing landscape context (buffer integrity, connectivity, wetland size, land uses), biotic features (relative native plant composition, invasive species cover, and native tree regeneration), abiotic metrics (physical patch diversity, channel equilibrium, stream bank stability, and soil surface condition), and soil moisture. These monitoring efforts help to evaluate the impact of changes in streamflow conditions and track the health of the riparian system, which is crucial for maintaining biodiversity and ecological balance.

*7. What is the significance of the riparian area?*

The riparian area is crucial for maintaining ecological balance and providing habitat. It plays a vital role in supporting biodiversity and preserving water quality in the Santa Fe River system.

*8. What are the concerns regarding streamflow changes?*

Changes in streamflow conditions through the Two-Mile Pond Complex, particularly due to the cessation of diversions and storage of water, may impact the established riparian system. This monitoring aims to assess any such impacts.

*9. What data and information were used in the assessment?*

Existing data and information, including NMED riparian habitat mapping, historical aerial imagery, and streamflow monitoring data from the Santa Fe Water Division, and site characterization data collected both remotely and, in the field, were compiled and analyzed.

*10. What are NDMI and NDVI images, and how were they used?*

Normalized Difference Moisture Index (NDMI) and Normalized Difference Vegetation Index (NDVI) images are utilized to determine vegetation water content, monitor droughts, and to quantify green vegetation in the area.

*11. What are the main findings of the monitoring?*

The riparian area is in good to excellent condition (A to B ranking) with moist to wet soils observed during the investigation. Streamflow through the complex originates from groundwater discharge at the base of Old Stone Dam.

*12. What is the significance of the riparian ranking?*

An excellent condition (A) riparian system indicates intact functions and processes, while a good condition (B) system may have minor disturbances or factors affecting condition.

*13. What are the recommendations for future monitoring?*

Monthly field investigations are recommended to assess potential changes in biotic and abiotic metrics, with a focus on observing recovering biotic life and monitoring changes throughout the investigation duration.

*14. Will there be enhancements made to data collected moving forward?*

Yes. Following a comprehensive review of the report by City staff, it became evident that there were opportunities for further improvement in the data collection carried out by our consultants. Consequently, a decision was made to augment the existing data parameters. In addition to the ongoing monitoring efforts, consultants will now gather fundamental water quality metrics at most transects and significantly enhance species identification efforts.