Joint Village Strategic Planning
Report to Hopi Tribal Commissions

October 4, 2022 | Volume 2

As Requested by the Hopi Tribal Council H-51-2022 Resolution

Joint Village Strategic Planning

UMV, VML & YPC

Project Purpose

The purpose of Joint Village Strategic Planning (JVSP) is to address the impacts of the Bennett Freeze and Forced Relocation by planning for infrastructure, housing, community facilities, and economic development investments.

JVSP coordinates with the Hopi Tribal Council to advocate for such funding and investment.

Joint Village Strategic Planning (JVSP) has been active since 2017.
JVSP has held weekly meetings virtually every Tuesday morning at 10 am MST since the spring of 2020.

Report #2 Focuses Upon Three Moenkopi Water Solutions

Submitting Monthly Reports

In addition to the distribution of meeting agendas and meeting notes, the Hopi Tribal Council has requested that JVSP submit a written monthly report to appropriate Hopi Committees. This report is being distributed to the Water Energy Team and the Hopi Land Commission at this time. If additional Hopi Committees should receive this report, JVSP will add to the distribution list.

In addition, Andrew Gashwazra of the Hopi Office of Community Planning Economic Development and Land Information Services (OCPEDLIS) strives to update appropriate committees on the work and recommendations of JVSP.

Focusing Upon Moenkopi Water

Although the goals of JVSP are inclusive of three Villages/Communities and broader than water infrastructure, this second report details the three-pronged effort being advocated by JVSP to assist Moenkopi to address its short-term, medium-term, and long-term water supply needs. JVSP routinely coordinates with the Moenkopi Utility Authority (MUA), Hopi Utilities Corporation (HUC), and the Hopi Office of Mining and Minerals in order to generate and update this documentation.

Addressing the Short-term, Medium-term and Long-term Water Supply Needs at Moenkopi

Joint Village Strategic Planning

UMV, VML & YPC

The most pressing concern at Moenkopi is the possibility that the village will "run out of water by 2025." It has been a priority of Upper Moenkopi Village (UMV) and the Moenkopi Utility Authority (MUA) to work to address this potential crisis since 2020.

What has emerged is a three-prong solution that address the short-term, medium-term, and long-term water supply needs for the area. Three separate organizations have worked independently – and collaboratively due to the work of Joint Village Strategic Planning (JVSP) – over the past several years.

The content in this document relates to three water development projects potentially benefitting UMV and VML:

1. Short-term Project – MUA Pasture Canyon Water Development Project
2. Medium-term Project – HUC Siderock Well Project
3. Long-term Project – Hopi Uranium Mill Tailings Remedial Action Program (UMTRAP) Water Well #9 Pre-feasibility Study and Project

Why Advancing Both the MUA and HUC Projects are Essential

The JVSP membership is unanimous in its advocacy for all of the water development projects. The bullets below underscore the importance of advancing the Siderock Well project even if both Water Well #1 and Water Well #2 of the MUA (short-term project) is completed in the near term.

- The Pasture Canyon project address current demand; the HUC project addresses long-term growth opportunities
  - It is typically the policy of IHS to address only the current needs
  - The future demand could be 40 new home sites and servicing 20 additional businesses
    - The Village wishes to set the stage for future generations
- Wells drilled at different locations (Pasture Canyon and Siderock) help to address "well interference"
  - The water sources tie into different portions of the aquifer
    - The wells at Siderock are closer to the confined portion of the N-Aquifer
- The Siderock Well project supports new community development at Range Unit 251
- The projects are informed by the Arizona Department of Water Resources 2015 study related to the LCR
- Sufficient water is critical for the health and safety needs of Moenkopi
- Because the right-of-way related to the Siderock Well requires negotiations with Navajo, the timing and outcome is uncertain
- The Siderock project is described and supported by the Daniel B. Stephens engineering firm

The JVSP committee, which has met weekly for three years, will continue to assist the various efforts to bring about all three solutions to the water supply crisis.

Some background and highlights of the three initiatives are provided below.

Short-term: MUA Pasture Canyon Water Development Project

The Moenkopi Utility Authority, with support from Upper Moenkopi Village, is advancing a $1.5 million water development project that includes: 1) the transmission line from Pasture Canyon (including tunneling under the highway), 2) the pump house, 3) the SCADA System, 4) fencing, and 5) a 230,000-gallon fiberglass tank.

The existing well has been drilled and capped but it is not enclosed. The project has been signed off and does have approved blueprints. Well #1 currently can produce 45 gallons per minute.

MUA currently serves 210 residential customers and 10 businesses. All of the businesses are served by the same water system.

Medium-term: HUC Siderock Well Project

The development of the Siderock well at Range Unit 251 was identified by the Hopi Tribe as a very high priority during the funding allocation phase for CARES Act funding in late 2020. This led to the drilling of Well #2 in December of 2020 followed by the drilling of Well #3 in December of 2021. There is still consideration of potential drilling of Well #4 and Well #5, although no funding has been allocated for this purpose as of August 2022. The project has been coordinated by the Hopi Utilities Corporation (HUC). HUC has indicated that the water supply from Well #2 (85 gallons per minute) and #3 (105 gallons per minute) could meet the medium-term demand for Moenkopi. Drilling Well #4 and #5 could accommodate the 50-year growth projection. (There is not a well referred to as Water Well #1).

The next goal associated with the Siderock Well project is to develop the right-of-way and to construct the transmission line from the new wells to Moenkopi. The estimated cost to develop the transmission line as of January 2022 was $19 million.

One consideration is the identification of the precise right-of-way from Range Unit 251 to Moenkopi. One option is along Hwy 160 and the other option is along the Questar right-of-way which would also serve the proposed Poosiwlelena Community Development Project being advanced by the Village of Moencopi (Lower). The JVSP committee supports the development along the Questar right-of-way because it could benefit the Poosiwlelena Project.

Much of the engineering and design of the project has been done by Daniel B. Stephens and Associates which regularly advises HUC.

Long-term: Hopi UMTRAP Water Well #9 Pre-feasibility Study and Project

The Hopi UMTRAP is coordinating with the US Department of Energy to utilize $150,000 from a Cooperative Agreement for pre-feasibility evaluation of potentially multiple options, rough order-of-magnitude estimates for capital and operating costs, potentially identifying and recommending a few viable alternatives for supplemental water supply, as part of our overall compliance strategy for the Tuba City site. Water Well #9 is capable of pumping 500-600 gallons per minute. The pre-feasibility evaluation would be a necessary first step, performed as a subcontract under your Cooperative Agreement, and would evaluate technical and cost factors including, but not limited to:

- Condition, evaluation and serviceability of the Black Mesa wells, pumps and storage tanks, and interconnection to the coal slurry pipeline:
- Well-water quality and production capacity,
- Current condition and remaining service life of the coal slurry pipeline (interior and exterior corrosion, weld integrity, susceptibility to a seismic stress),

- Rehabilitation potential (such as slip lining in a smaller diameter potable-quality pipe through the 70-mile pipeline route),
- Vulnerability assessment (vandalism impacting water quality),
- Ancillaries – distribution spur lines, storage, water treatment (filtration, removal of trace constituents, disinfection);
- System adequacy to meet supply needs based on long-term demographic and economic development planning, and
- Capital and operating expense (order-of-magnitude estimates), lifecycle cost analysis.

Other alternative water-supply alternatives may also exist regionally. For example, additional water supply may be available from Navajo Tribal Utility Authority (NTUA) wells located north of the Tuba City site, with potentially new, shorter lines, at potentially lower cost. If additional supply is available from this source, it should be included as a prefeasibility option and evaluated in parallel to the Black Mesa wells and re-purposed pipeline.

The initial evaluation should also address governmental jurisdictional factors including: Navajo Nation and Tuba City Chapter participation, adjudication of water rights and pipeline right(s)-of-way, and the structuring of other governmental support and authorities (such as through the Bureau of Reclamation, Indian Health Service, Bureau of Indian Affairs, and others).

Conceptual and detailed engineering design for a selected alternative would be conducted under a subsequent subcontract, which DOE would also support under our Cooperative Agreement. Under the initial subcontract, the Hopi Tribe would develop a detailed Statement of Work and bid package to secure a qualified engineering firm that specializes in potable water supply to explore available options. The report from the initial subcontract would identify a preferred alternative and recommendations for work to follow.