

## **INDIAN WELLS VALLEY WATER DISTRICT WATER SUPPLY ENHANCEMENT GENERAL PLAN**

The Indian Wells Valley Water District (District) is a County Water District serving approximately thirty thousand (30,000) people in and around the Ridgecrest, California area. The District has but a single source of supply, the local ground water aquifer underlying the Indian Wells Valley (Valley). Demands for groundwater have increased and have exceeded the natural recharge to the ground water basin. As a result, areas of the Indian Wells Valley have experienced water levels that exhibit a downward trend through time without recovery. To address concerns arising from decline of the Valley's ground water levels, the District has developed this Water Supply Enhancement Plan (Plan). This Plan is intended to assist the District in addressing not just the present needs, but also future needs.

In the evaluation of any portion of this Plan, which addresses issues of area wide concern, the District will, in addition to being mindful of environmental concerns, be mindful of concerns expressed by others, including those who may wish to collaborate with the District regarding portions of this Plan. The District encourages collaborative efforts.

The goals of this Plan are:

- to further the District's ongoing efforts to optimize use of the existing water supply (Valley ground water), and
- to evaluate the feasibility of obtaining or developing one or more supplemental water supplies for potential future use.

This Plan will be implemented through various studies to determine the costs of exploration, development, and operation of optimization alternatives, and potential supplemental supplies, as well as their dependability, quantity, and quality. These studies may include:

1. **Optimizing Use of the Existing Ground Water Supply:** The District intends to continue and to enhance the following ongoing efforts, each of which has already contributed to the District's efficiency in producing and delivering water to meet local demands. As a result of the District's conservation efforts, the average annual water consumption for connections within the District has decreased from approximately .84 acre feet per year (afy) in the 1980's to approximately .72 afy in 2002.
  - **Conservation based rate structure:** The District has, since 1982, developed and utilized an ascending block water rate structure. This rate structure provides for higher water rates when higher water usage occurs, and is intended to encourage water conservation.

- Conservation education: The District will continue to provide, educational services to inform the public about the need for water conservation and how to use water more efficiently. These educational services are provided via school programs, presentations to various organizations, demonstration gardens, public service announcements, and the District’s newsletter.
- Conservation measures: The District is committed to implementing water conservation and recycling programs and has adopted various “Best Management Practices.” These conservation practices include water surveys, plumbing retrofits, water audits/leak detection, system repairs, landscape conservation assistance, public information programs, detailed accounting of water usage, and cooperation with the City of Ridgecrest. In addition, the District has a part-time conservation coordinator.
- Conservation regulations: The District has adopted its own conservation ordinance.

2. Developing Supplemental Water Supplies: The District intends to identify and evaluate potential supplemental water supplies from within the Valley as well as from outside the Valley as follows:

- Inside the Indian Wells Valley: The District will continue to consider potential alternative sources of supplemental water from within the Valley. By making efficient use of such potential alternative sources, the District can minimize the possibility of a future requirement to import water.
  - Galleries: The District will consider the construction of galleries within the foothills of the surrounding mountain ranges which may allow the District to capture and utilize more of the Valley’s recharge.
  - Ground Water Blending: The District has considered, and will continue to consider, the blending of poorer quality ground water with good quality ground water in order to extend the useful life of the ground water aquifer and avoid or minimize treatment costs. While this blending process will not "increase" the total quantity of ground water available, it will extend the useful life of the ground water presently available within the Valley.
  - Ground Water Treatment: The District has considered, and will continue to consider, the treatment of poorer quality ground water in order to extend the useful life of the local ground water aquifer. The treatment of such water will require the construction of one or more water treatment plants. Treatment of poorer quality ground water will increase the useful life of the ground water aquifer, and such treated water could be blended with poorer quality ground water.

- Rainfall augmentation: The District will consider augmenting rainfall within the Valley by commercial means such as cloud seeding.
  - Reclaimed or recycled water: The District has the legal authority to accept, treat, and deliver wastewater effluent as recycled water. The District does not however, at this time, have access to wastewater effluent for recycling. Such water is currently under the jurisdiction of the City of Ridgecrest. Presently, all treated wastewater is being utilized by and through the City of Ridgecrest.
  - Undeveloped source areas: The District will continue in its efforts to gain information and knowledge regarding the groundwater underlying the Indian Wells Valley. To the extent undeveloped water sources exist and are identified, the District will consider the development of such areas for additional water.
  - Outside the Indian Wells Valley: The District will continue to consider potential sources of supplemental water from outside the Valley. The District's goal is to identify/acquire up to 4,500 acre-feet (based upon existing minimum month average day demand) of potential supplemental water supplies from outside the Valley.
    - County and local: Occasionally, the District receives information, which indicates supplemental water may be available on a relatively local basis. The District will continue to consider potential available supplemental water supplies with county and local sources.
    - Federal: To date, no water has yet been made available through federal programs, but if and when such water becomes available, the District will consider it as a possible supplemental source and, when necessary, will seek assistance from appropriate federal agencies and legislators.
    - State: The District continues to consider water made available from the State Water Project and, when necessary, will seek assistance from appropriate state agencies and legislators.
    - Public: The District will continue to consider potential available supplemental water supplies with entities in the public sector.
    - Private: The District will continue to consider potential available supplemental water supplies with entities in the private sector.
3. Site selection and source evaluation in analyzing supplemental water supplies: While not all-inclusive, the following are some of the factors that may be considered in any site and source evaluation.

- Future availability of water: The District will consider whether or not availability of water from a particular location would remain reliable over the long term.
  - Hydrogeology evaluation: The District will consider such things as water quality, quantity, and extractability.
  - Income producing property: The District will consider whether or not the property is, or has the ability to produce income.
  - Proximity to conveyance facilities: The District will consider the location of any water conveyance facilities that may be necessary or useful.
  - Proximity to power sources: The District will consider the location of power sources available to operate the well and any of its appurtenances.
  - Resale of property in whole or in part: The District will consider whether or not the selected property could be sold in the future.
  - Site and source availability: The District will consider whether a currently available site or source would reasonably be expected to remain available in the future.
  - Well locations: The District will consider the location of any existing well and/or well(s) to be constructed and the location of the property. The District will also consider the proximity of the well(s) to other well locations, and will consider other factors which may have an effect on the well or surrounding wells.
4. Water characteristics: In evaluating any potential supplemental water supply source, factors such as quality, quantity, and any necessary treatment requirements must be considered.
- Quality and quantity: The District has not predetermined its requirements for quality and quantity, but shall consider quality and quantity of available water in conjunction with all other pertinent factors.
  - Treatment requirements: The District will consider any requirements to treat the supplemental water source. Typically, surface water supplies must be treated prior to domestic use. Currently, good quality groundwater supplies typically do not require treatment unless the method of transportation creates the necessity for treatment.
5. Working with local communities: In evaluating a supplemental water supply source, the District shall be cognizant of the local needs of the community involved. While not all needs can be identified at present, the District intends to work closely with any community in which a possible supplemental source is located.

- Investigating local needs: The District intends to work closely with the local community(s) in an effort to determine local needs with respect to water supplies. By acknowledging the local needs, the District can best assess its role for maintaining or improving the well-being of the community involved.
  - Keeping local constituencies informed: The District intends to timely advise appropriate local agencies and interested persons of the nature and extent of any aquifer testing program which it intends to conduct.
  - Local collaborative planning: The District presently is involved in local collaborative planning issues, particularly with respect to water. The District will continue its involvement in such planning efforts and will expand its planning activities to include other interested parties, depending upon the nature and location of the supplemental water source under consideration.
  - Local property taxes: In working with local communities, the District will consider, on a case-by-case basis, whether or not an acquired property should remain on the tax rolls of any existing taxing authority. In some circumstances, it may be appropriate to maintain such real property upon the local tax rolls.
  - Sharing of test results: The District intends to advise appropriate local agencies and interested persons of the results of any aquifer testing program which it has conducted.
6. Institutional considerations: The District is aware that many supplemental water supplies will require permitting and/or other approvals.
- Federal, State, local concerns: The District intends to address federal, state, and local issues of concern in a reasonable and appropriate manner.
  - Permitting: Permits may be required to construct wells, conduct testing or perform other activities. The District intends to comply with all necessary permitting requirements.
7. Conveyance and storage requirements: In any analysis of a potential supplemental water supply, the District will consider facilities that may be necessary or required in order to transport water to and/or within the District.
- Existing (aqueduct): The Los Angeles Aqueduct (owned and operated by the City of Los Angeles) traverses the westerly boundary of the Indian Wells Valley. The aqueduct would be considered the most favored method of transporting water to the District from outside the Valley. Prior to the utilization of the aqueduct for transportation, negotiations with the Los Angeles Department of Water and Power would be necessary.

- Ground water banking: An additional possible source of supply might be created through a ground water banking program. Ground water banking may be employed to store water for District use as well as for use by other possible entities. In the event a banking program is established, facilities will be required to both recharge (deposit) and extract (withdraw) water.
  - New (pipelines): Depending upon the source and location of a supplemental supply, additional transportation facilities may be necessary.
  - Power generation: Depending upon the nature of the supplemental water source, the method used to transport the water, and the schedule for receiving the water, it may be possible to generate hydroelectric power. Electrical power generated by the facility could be used by the District or sold to others.
8. Environmental considerations: Although this document is only a feasibility/planning document, the District will consider and be mindful of environmental factors in the adoption of this plan, and in the implementation of any portion of this plan.
- Environmental Regulations: The District will comply with the California Environmental Quality Act (CEQA) and other environmental rules and regulations, to the extent they apply, when performing any new project that may be undertaken by the District. Some projects or actions by the District may, on a case-by-case basis, be deemed exempt. Other projects may require environmental review, analysis, and documentation.
  - Groundwater levels: The District, as a general rule when performing aquifer tests, will monitor certain groundwater conditions, as available or as otherwise deemed appropriate by the District.
  - Local economic environment: The District will be mindful of the economic environment of any local area in which the District investigates a potential supplemental water supply. Consideration will be given to protection and the possible enhancement of the local economic environment.
  - Social and non-economic environment: The District intends to, at all times, be mindful of the social and non-economic environment of any local area in which the District investigates a potential supplemental water supply. Consideration will be given to protection and the possible enhancement of such environment.
9. Cost comparison and alternatives: The District intends to determine and identify the most beneficial cost effective long term supplemental water supply alternative(s) available. Cost-sharing proposals will be considered as appropriate.

- Capital cost considerations: The District will consider the probable capital costs associated with each analyzed alternative source, including acquisition, development, and construction costs of the necessary facilities for delivery, treatment, and storage.
  - Operating cost considerations: The District will consider operating costs associated with the source, and the ancillary operating costs associated with delivery, treatment, and storage.
10. Financing: In all supplemental water supply scenarios, the District will be required to fund the acquisition and operating costs associated with any chosen supply. Therefore, financing alternatives will be considered. The District will encourage collaborative efforts.
- Bonds: In some scenarios, the District may determine that the most advantageous financing mechanism for the capital component(s) of a particular alternative supply is through the issuance of bonds. An analysis of bond funding would necessarily be made after a particular supplemental supply is chosen, and would be based upon the then-current economic and financial conditions.
  - Cash: In some supplemental water supply scenarios, the District may be able to fund the capital costs through its then-adopted and approved budget. Additionally, the District must fund, under each scenario, the operation and maintenance costs of the facilities through its annual revenues.
  - Grants: To the extent that grants are available to fund, in whole or in part, any capital or operating component associated with a particular supplemental supply, or to fund an investigation or study of a particular source of supply, the acquisition of such grant funding would be a preferred alternative, depending upon grant conditions and availability at the time of the project.
  - Loans: In some scenarios, the District may determine that the most advantageous financing mechanism for the capital component(s) of a particular supplemental supply is through the acquisition of loans. An analysis of loan funding would necessarily be made after a particular supplemental supply is chosen, and would be based upon the then-current financial conditions and loan availability.
11. Historic efforts: The District has historically been involved in numerous activities regarding water issues at both the state and local levels.
- Participating in Indian Wells Valley Cooperative Groundwater Management Group: The District has consistently participated in water planning, studies, and conservation efforts. For example, the District presently participates in local cooperative groundwater management meetings in an effort to cooperate with others in the area with regard to the Valley's water resources.

- The District also has participated and assisted in the funding of numerous water studies and is involved in various ways with statewide water organizations such as the Association of California Water Agencies and others. The District intends to continue in these efforts in both the short term and the long term.

This Plan is not intended to require the District to undertake any specified water supply enhancement activities described herein. This Plan may also be modified as new information becomes available or conditions change.