

# Upper San Pedro Water District



Comprehensive Water Resources Draft Plan

July 27, 2009

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**UPPER SAN PEDRO WATER DISTRICT  
COMPREHENSIVE WATER RESOURCES  
DRAFT PLAN**

**This is a preliminary working document that is subject to modification  
resulting from the public input process described in III B of this Draft Plan**

**JULY 27, 2009**

**PREPARED FOR:  
THE UPPER SAN PEDRO WATER DISTRICT  
BOARD OF DIRECTORS**

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# Comprehensive Water Resources Plan

## I. Introduction

In 2007 the Arizona Legislature enacted House Bill 2300 which enabled the establishment of the Upper San Pedro Water District (District). This District if permanently created would be unique in that it is intended to be solely focused on the special water related issues, as they currently exist or may evolve over time, in a portion of the Upper San Pedro Groundwater Basin approximately equal to the Sierra Vista Subwatershed (Subwatershed).

The goal of the District as established by the authorizing legislation is “... *to maintain the aquifer and base flow conditions needed to sustain the Upper San Pedro River and to assist in meeting the water supply needs and water conservation requirements for Fort Huachuca and the communities within the District.*”

Located within the District’s boundaries are the San Pedro Riparian National Conservation Area (SPRNCA), the Sierra Vista metropolitan area, Huachuca City, Tombstone, part of Bisbee and Fort Huachuca. (See Figure 1) Increasing demand for municipal and domestic water supplies over the past several years has resulted in the overdraft of the groundwater. The overdraft of groundwater occurs when more groundwater is being pumped from the aquifer than is being naturally or artificially recharged into the aquifer. For the better part of twenty years, concerns have been raised by the public and government officials that the increasing levels of groundwater pumping may have a detrimental impact on the surface water flows in the San Pedro River.

Scientific studies have shown that if the groundwater levels within the Subwatershed continue to decline, the flow of the San Pedro River will be disrupted and vegetation near the river will be lost. At sometime in the future, the result from the loss of vegetation would be severe erosion and loss of habitat for hundreds of species of plants, fish and wildlife, including impacts to endangered species.

In early July of 2005, the San Pedro River stopped flowing at the Charleston gaging station for the first time on record; a condition that persisted for 10 days. The USGS has continuously collected data from this gaging station since 1936. The flow at the Charleston gaging station very nearly ceased again in both 2006 and 2007 (USGS) prior to the onset of the monsoon. While no analysis has been completed that can quantitatively assess the reason, or reasons, for these low flows, allowing groundwater overdraft to disrupt the flow of the San Pedro River is not an acceptable long-term alternative for the communities and Fort Huachuca since these severe environmental impacts could lead to Department of Defense mission adjustment actions that would result in unacceptable economic impacts to the region.

As a result of these challenges many actions have already taken place to address the groundwater overdraft problem. For example, federal law requires the Department of

1 Defense to take reasonable and prudent actions to avoid harm to endangered species.  
2 So, Fort Huachuca has implemented numerous intensive water conservation and reuse  
3 programs to reduce the groundwater overdraft. These actions, however, are not  
4 sufficient to completely reduce the long-term increase in groundwater overdraft because  
5 much of the growth of the Sierra Vista metropolitan area also contributes to the  
6 problem.

7  
8 To assist the Fort in meeting its environmental requirements, the cities, county, private  
9 organizations and others have implemented their own water use reduction and recharge  
10 programs. These same entities have also successfully organized the Upper San Pedro  
11 Partnership to obtain federal funds and support for completing hydrological studies.  
12 These studies indicate that additional actions are required to reduce the long-term  
13 groundwater overdraft to protect flows in the river. If the environmental and associated  
14 regulatory issues are not adequately addressed, the committee that determines Base  
15 Relocation and Closures could decide to reduce the mission of the Fort or close Fort  
16 Huachuca altogether. The current presence and mission of Fort Huachuca contributes  
17 more than \$2.5 billion annually to the economy of the State of Arizona (McGuire Study  
18 2007). In addition, nature-based tourism in the area in 2002 resulted in a total  
19 economic output to the area of \$17 to \$28.3 million while generating 350-590 jobs  
20 (UofA, 2002). Protecting the River is therefore essential for providing significant  
21 economic protection to the area.

22  
23 The importance of the river to national, state, local and even international interests has  
24 been an ongoing concern for many years. In recognition of the community concerns in  
25 the area, the Legislature authorized the local communities to form a District to protect  
26 the River, the environment and the economies that are dependent on it. The proposed  
27 District is intended to have a significant component of “local control” over water  
28 management decisions. The District will be overseen by a Board of Directors  
29 comprised of seven members who must all be elected by the registered voters residing  
30 within the District’s boundaries. Until such time that a District has been approved by the  
31 voters, a gubernatorial and legislatively appointed nine member Organizing Board has  
32 been established and is responsible for organizing the election to approve the formation  
33 of a District and elect the first permanent board members.

34  
35 This Comprehensive Water Resources Plan has been prepared by the Organizing  
36 Board of the Upper San Pedro Water District (District) in cooperation with the Arizona  
37 Department of Water Resources (ADWR) in accordance with the statutory requirements  
38 set forth in A.R.S 48-48-6403.01.B which states that...

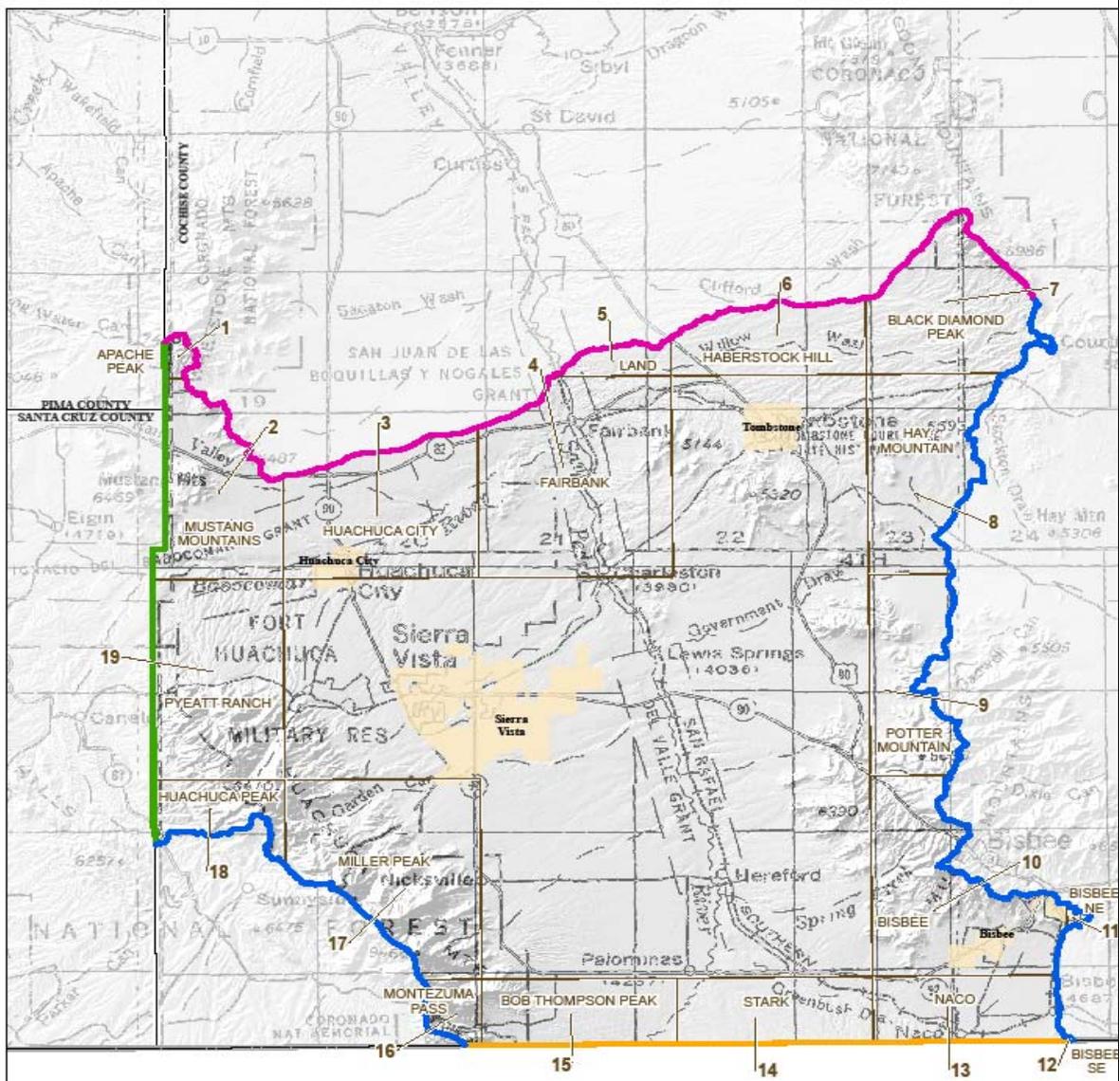
39  
40 “The Organizing Board for the Upper San Pedro Water Resources District (District) shall  
41 prepare and provide to the public...a comprehensive plan for the conservation, reuse,  
42 recharge, and augmentation of water in the District designed to achieve the goal of the  
43 District. The plan shall include measurable objectives to be met by the District not later  
44 than ten years after the District is established.”

1 This Plan is focused only on the water resources elements of conservation, reuse,  
2 recharge and augmentation as set forth above. The state legislation authorizing the  
3 potential formation of a District also tasks the Organizing Board to prepare three other  
4 plans – an Organizational Plan, a Financial Plan, and an Election Plan. These other  
5 plans are also critical components in determining if and how the District will operate.  
6 They will focus on “how” the District will perform its duties, while this Comprehensive  
7 Water Resources Plan will focus on “what” functions the District will perform.  
8  
9

10 A. The Organizing Board of Directors and Permanent Board of Directors

11  
12 This Comprehensive Water Resources Plan has been prepared under the direction of  
13 the Organizing Board in cooperation with ADWR staff. The Organizing Board is  
14 comprised of the following members:  
15

- 16 **Mike Rutherford**, Chairman – President of Rutherford Industries, Representing a  
17 business or professional interest
- 18 **Holly Richter**, Vice Chairman – Upper San Pedro Program Director for the The  
19 Nature Conservancy, Representing a conservation organization that is involved  
20 in the Upper San Pedro Partnership
- 21 **Rick Coffman**, Treasure – Representing an investor owned utility
- 22 **Steve Pauken**, Secretary – City Manager for the City of Bisbee, Representing a  
23 city in the district with a population of less than thirty-five thousand persons  
24 (Bisbee)
- 25 **Mike Boardman** – Representing a retired military personnel or military support  
26 organization
- 27 **Carl Robie** – Director of Water Policy for Cochise County, Representing Cochise  
28 County
- 29 **John Ladd** – Representing a resource based business (agricultural and  
30 ranching)
- 31 **Mary Ann Black** – Supervisor, Education Center Director Hereford NRCD and  
32 Associate Broker of Mike Dennis Realty, Representing a natural resources  
33 conservation district
- 34 **James Herrewig** – Community Development Director for the City of Sierra Vista,  
35 Representing a city in the district with a population of greater than thirty-five  
36 thousand persons (Sierra Vista)



## Upper San Pedro Water District

### Boundaries of the Upper San Pedro Water District

- Adjudication Subwatershed Boundary (Sierra Vista)
- ADWR Groundwater Basin Boundary (Upper San Pedro)
- County Boundary (Cochise)
- International Boundary (U.S./Mexico)

1:24,000 Scale USGS Topographic Quadrangle Index

**15** Map Index Number

City

County Boundary

International Boundary



1:270,000



PUECO  
PIMA COUNTY WATER  
REGULATORY DISTRICT  
April 2007

Basemap: 1:500,000 Scale USGS Topographic Map, 1974

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3

Figure 1

1 The Organizing Board has been meeting regularly since October, 2007 and is  
2 responsible for preparing the planning documents that will be necessary to advise the  
3 public within the potential District's boundaries about how a water district might assist  
4 the communities in recharging, reusing and obtaining water supplies to protect the  
5 aquifer and base flow of the river. The determination to form a district will be made by a  
6 vote of the registered voters residing within the District's boundaries.

7  
8 At the same election, which will be held for determining the approval of the formation of  
9 the District, the voters will elect seven people to the Board of Directors. Contingent  
10 upon a favorable vote for District formation, the newly elected Board members will serve  
11 staggered four year terms and be responsible for the administration of the District. In  
12 order to create the staggered terms, three of the elected board members, determined by  
13 drawing lots, will serve for a two year initial term.

14  
15 The purpose of this comprehensive plan is to provide the information necessary for the  
16 Organizing Board to inform the public about the water resource management  
17 challenges and possible solutions. Within this plan, the Organizing Board makes  
18 recommendations to the Permanent Board for a Water Resources Plan. The  
19 Permanent Board, if approved, will be the governing body that adopts and implements  
20 the final plans. To best inform the Permanent Board, and to stimulate public discussion  
21 about water resource challenges and concerns, the Organizing Board will hold a series  
22 of public meetings. Information garnered from those public meetings will be used to  
23 modify this preliminary water resources plan. In this way, the Organizing Board will be  
24 able to recommend a plan that is most acceptable to the public.

25  
26 B. Focus of this Plan

27  
28 As suggested by the statutory authorization for this Plan, the focus of the District's  
29 measurable objectives address accomplishments within a ten year time frame.  
30 Therefore the focus of this initial ten-year Comprehensive Plan is on water  
31 conservation, reuse activities, water recharge programs and water augmentation  
32 concepts that can be implemented or enhanced within that fairly short time frame.  
33 Assuming the District is established by the voters, additional plans and action elements  
34 will be needed to address mid-term and long-term water management objectives.

35  
36 In considering the action elements to achieve the short-term objectives for the proposed  
37 District, the Organizing Board observed that some entities have already taken a great  
38 many actions to conserve, reuse and recharge water to reduce the potential negative  
39 impacts of human and vegetation related water use on the River. Some of these  
40 actions are located in areas where they will or have already benefitted baseflows on the  
41 river within relatively short time periods. New water users and new development will  
42 erase the gains that current water users have made unless they also do their part to  
43 contribute toward equitable water management in the future. Any projects or programs  
44 that the District undertakes specifically to address water use by new users should be  
45 paid for by those users. In particular, large scale augmentation programs that require  
46 major investments need to be financed by those that benefit the most.

1 The Upper San Pedro River region has been the beneficiary of a great deal of  
2 hydrologic research, monitoring, and data analysis. However, there are limits to the  
3 amount of information available and, without a doubt, there are several areas where  
4 more data will need to be collected and analyzed. This Comprehensive Plan has been  
5 prepared based exclusively on existing information and will need to be reviewed and  
6 updated periodically as the knowledge base expands due to future scientific research  
7 and monitoring efforts, or in response to a changing legal and institutional setting.

## 8 9 **II. Identification of Problems**

### 10 11 **A. Description of the Problem Statement**

12  
13 The Organizing Board developed and adopted the following problem statement on  
14 September 15, 2008:

15  
16 *To maintain the aquifer and base flow conditions needed to sustain the Upper San*  
17 *Pedro River while assisting Fort Huachuca and the communities within the District in*  
18 *meeting their water supply needs and water conservation requirements.*

19  
20 The assumption made by the Organizing Board in developing and adopting this problem  
21 statement is that at a minimum the current condition of the river is acceptable and  
22 should be maintained. The most comprehensive study completed to date regarding the  
23 current status of the river and riparian system is the USGS Scientific Investigations  
24 Report 2005-5163 entitled "Hydrologic Requirements of and Consumptive Ground-  
25 Water Use by Riparian Vegetation Along the San Pedro River, Arizona", Chapter C,  
26 especially pages 99-101.

27  
28 This study concluded that at least 43% of the San Pedro Riparian National  
29 Conservation Area (SPRNCA) within the Sierra Vista Subwatershed had perennial flows  
30 and shallow, stable alluvial groundwater levels with average depths to groundwater of 2  
31 to 2.5 meters throughout the floodplain. The remaining reaches of the SPRNCA within  
32 the Sierra Vista Subwatershed had flows in the river at least 50% of the time with  
33 average depths to groundwater of 2.5 to 3 meters in the floodplain (See Figure 2).

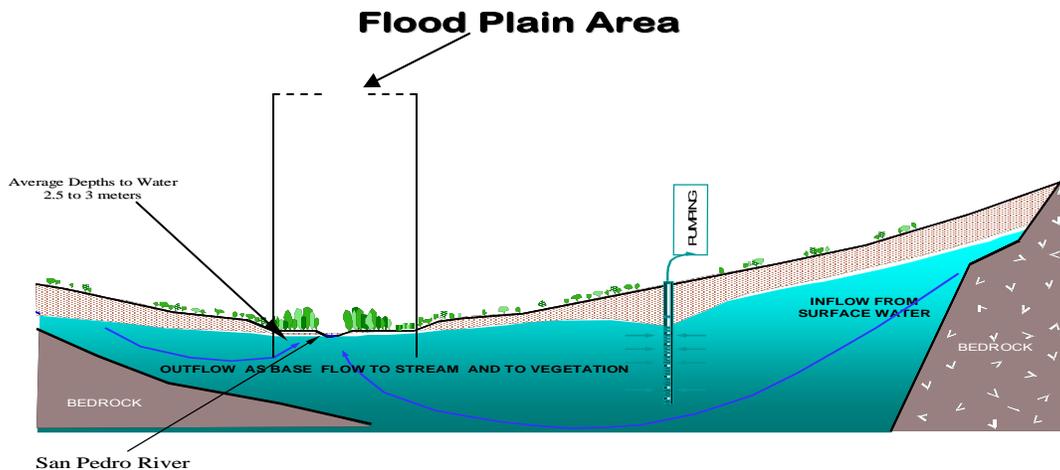


Figure 2 - (USGS)

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5 Maintaining the alluvial groundwater levels is dependant on controlling groundwater  
6 withdrawals in key areas, maintaining natural flood flow regimes that recharge the  
7 alluvial aquifer, as wells as sustaining the subsurface inflow entering the United States  
8 from Mexico. The District's ability to implement water management programs to  
9 maintain alluvial groundwater levels and the success of these programs is dictated by  
10 numerous factors. Because the river channel actually lies on federally managed lands  
11 within the SPRNCA and its management is under the control of the federal government,  
12 the District's ability to implement any water management programs within the SPRNCA  
13 is subject to the approval and cooperation of the U.S. Bureau of Land Management  
14 (BLM). Other influences on the water levels of the river alluvium that cannot be  
15 controlled by the District include actions upstream within Mexico, the effects of long-  
16 term drought and potential climate change. The District's measures for success must  
17 take into consideration any factors that cannot be controlled by the District.

18  
19 B. Measurable Objectives and Planning Goals

20  
21 The first step in the planning process was for the Organizing Board to identify and adopt  
22 an acceptable Measurable Objective for quantifying the hydrologic conditions necessary  
23 for sustaining the River and maintaining the health of the SPRNCA.

24  
25 For planning purposes and as stated previously, the Board has assumed at a minimum,  
26 maintaining the river in its current condition is acceptable. Based upon this assumption,  
27 the District has adopted the following Measurable Objectives for sustaining the health of  
28 the SPRNCA and the Upper San Pedro River taking into account the uncontrollable  
29 factors mentioned previously.

1 1. Adopted Measurable Objectives

2  
3 The proposed Measurable Objectives for sustaining the health of the SPRNCA and the  
4 Upper San Pedro River are:

- 5  
6 • Maintain or improve the groundwater levels within the District, measured at the  
7 SPRNCA’s boundaries.  
8  
9 • Ensure perennial flows are maintained in at least 17 miles of the San Pedro River  
10 within the District’s boundaries.  
11

12 These Measurable Objectives may be assessed in the context of the impacts of climate  
13 variability including long-term drought, and changes in river flow characteristics caused  
14 by entities outside of the jurisdiction of the District.  
15

16 2. Adopted Planning Goals

17  
18 The Organizing Board has adopted and is recommending the following short-term, mid-  
19 term and long-range goals for the District. These goals recognize the effects of  
20 voluntary conservation, recharge and education programs that have been implemented  
21 by the U.S. Department of the Army at Fort Huachuca, the City of Sierra Vista, the  
22 County and other entities. The short-term, mid-term, and long-range goals  
23 recommended by the Organizing Board are as follow:  
24

- 25 • Short-term goal (by 2020): implement projects to maintain current baseflow and  
26 groundwater conditions through conservation, reuse, recharge and augmentation  
27 during the first 10 years after the establishment of the permanent Upper San  
28 Pedro Water District.  
29  
30 • Mid-term goal (by 2030): implement projects that reduce the groundwater  
31 overdraft ( $\approx$  5,000 acre-feet annually) to zero within 20 years of the  
32 establishment of the permanent Upper San Pedro Water District.  
33  
34 • Long-term goal (after 2030): implement projects that are sufficient to offset the  
35 total volume of groundwater that is being pumped within the District so that  
36 groundwater supplies begin to accrete to the aquifer through mountain front and  
37 other natural recharge.  
38

39 **III. Recommended Actions for a Comprehensive Ten Year Water Resources**  
40 **Action Plan, 2011-2020**

41  
42 A. Introduction – Nature of a Plan – Importance of Public Input  
43

44 The role of the Organizing Board is to prepare a recommended comprehensive water  
45 resources plan for the Upper San Pedro Water District if it should be formed. The  
46 purpose of such a plan is to inform the residents of the Subwatershed about the

1 possible scope of water management actions that the proposed District may need to  
2 adopt.

3  
4 The Organizing Board has interviewed many experts and scientists about the nature of  
5 the water resources and the future challenges associated with supporting historical  
6 water uses, growth, and the environmental values of the San Pedro Riparian National  
7 Conservation Area (SPRNCA). These experts included researchers from the U.S.  
8 Geological Survey, U.S. Bureau of Reclamation, the Arizona Department of Water  
9 Resources, among others. Based on this information, the Organizing Board developed  
10 an understanding of the problems and some preliminary ideas and action elements for  
11 the draft water resources plan. The Organizing Board has evaluated the action  
12 elements based on input received to date from the scientists and experts. The action  
13 elements were evaluated in terms of addressing the water resources problems, the goal  
14 and the measurable objectives. Based on this evaluation the Board has created this  
15 proposed ten-year water resources plan (2011-2020) for public review, comment and  
16 discussion.

17  
18 Any proposed plan will be constrained by the law that authorized the District, financial  
19 considerations, and the public's acceptance of the plan. Because the plan is the basis  
20 for voter approval of the permanent District, public input to the plan will greatly influence  
21 the recommendations of the Organizing Board. The recommended plan will not be  
22 completed until public input has been solicited and considered by the Board.

#### 23 24 B. Public Input Process

25  
26 A series of open public forums will be held throughout the Subwatershed as part of  
27 finalizing this plan. The initial round of these forums will explain the water resource  
28 challenges as understood by the Board. The initial round of forums will also focus on  
29 the consequences of "no action" or continuing on the current course of action without a  
30 water district. There will also be discussion on the long-term goal and measurable  
31 objectives that were developed and adopted by the Organizing Board.

32  
33 Public discussion and input about the types of "action elements" that are allowed under  
34 the law that created the Board will be sought. Public input regarding the acceptability of  
35 different programs and projects will be considered and incorporated into a final plan.  
36 Before the plan is made final, a second round of forums will be held to discuss the  
37 recommendations of the Organizing Board for a Comprehensive Water Resources Plan.  
38 The final plan will be recommended to the Permanent Board if a majority of the  
39 registered voters within the proposed District boundaries votes in favor of forming the  
40 District.

#### 41 42 C. Summary of Comprehensive Water Resource Action Plan Recommendations

43  
44 A successful comprehensive water resource plan must address what goal and  
45 objectives need to be achieved, what prevents these objectives from being achieved,  
46 what current actions are taking place that assist in the achievement of the objectives,

1 and most importantly, recommends the most effective and feasible strategies for the  
2 District to pursue. This plan begins with the statement of the planning goal and  
3 measurable objectives for the first 10-year planning period as identified previously.  
4 Each of the action elements are chosen specifically to assist in achieving the planning  
5 goal and objectives. A description of the challenges that need to be addressed to  
6 achieve the objectives, and then a description of the on-going programs that need to be  
7 continued upon, or added can be found in the Appendix.  
8

9 Many action elements discussed in detail in the Appendix have already been adopted  
10 by some of the stakeholders in the Subwatershed and these elements need to be  
11 recognized, continued and expanded upon if the proposed District is to achieve its long-  
12 term goals. Other elements of this plan are entirely new.  
13

#### 14 1. Overall District Goal and Objectives

- 15
- 16 • Short-term Goal (by 2020): Implement projects to maintain current baseflow and  
17 groundwater conditions through conservation, reuse, recharge, and  
18 augmentation during the first 10 years after the establishment of the permanent  
19 Upper San Pedro Water district. Augmentation refers to any project that  
20 enhances the availability of supply to the region, including enhanced recharge  
21 from urban runoff.  
22

##### 23 Measureable Objectives:

- 24
- 25 • Maintain or improve the groundwater levels within the District as measured at the  
26 SPNRCA boundaries. The groundwater levels shall be the average depths to  
27 water of the recent years as determined by the Permanent Board.
- 28 • Ensure perennial flows in at least 17 miles of the San Pedro River within the  
29 District's boundaries.  
30

#### 31 2. Challenges Toward Meeting Ten Year Goal and Objectives

- 32
- 33 • Possibility of development and increased groundwater withdrawals near the San  
34 Pedro and Babocomari Rivers. The types of development could include  
35 residential subdivisions, industry, or agriculture.
- 36 • The cumulative impacts of existing groundwater withdrawals near the SPRNCA  
37 boundaries for residential, industrial or agricultural uses.
- 38 • The need to minimize existing and/or new groundwater withdrawals away from  
39 the river that contribute toward the regional overdraft of groundwater and long-  
40 term threat to baseflow of the river when these strategies do not preclude other  
41 projects with more immediate benefits toward the District's goals and objectives.  
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3. Support for the Objectives

- Eight miles of the western boundary and 7.5 miles of the eastern boundary of the SPRNCA are owned and controlled by Fort Huachuca or the U.S. Bureau of Land Management. No new development is expected on these lands.
- 3,242 acres of land near the SPRNCA have conservation easements that prevent new development. 1,546 acres of land near the Babocomari River have conservation easements. Together these easements have retired 1,079 acre-feet of water per year in the Subwatershed that was previously pumped for irrigation. They also will preclude the addition of approximately 1,177 homes that would have pumped approximately 8,308 acre-feet per year in these key areas.
- Cochise County adopted the Sierra Vista Subwatershed Zoning Overlay District, which limits density increases unless the subdivider incorporates water savings that prevent any net increase in water usage over that projected for existing zoning. (Note: Current population projections are factored into projected deficits for the Subwatershed.) Additionally it prohibits increasing densities within 2 miles of the SPRNCA. Building codes, site development standards and subdivision regulations are the principle means whereby the county can influence water use. Most of the unincorporated area, however, continues to be served by the unregulated private wells and individual septic systems. In these cases, public education and incentives will be brought to bear.
- Water conservation measures for incorporated areas differ from those in unincorporated areas mainly due to water supplies being furnished by either the municipality (Tombstone and Huachuca City) or by private water companies (Bisbee and Sierra Vista.) Most municipal water use is therefore metered. Nevertheless, development codes continue to be the principle vehicle for influencing water use along with public education and incentives. Municipal sewer systems also allow for the treatment, reuse and recharge of effluent.
- Fort Huachuca has implemented more extensive water conservation measures. The water conservation standards for site development, building, and landscaping very high at the Fort. For example, the Fort has implemented costly conservation projects such as using artificial turf in-lieu of natural grass on athletic and parade fields. Like other jurisdictions, Fort Huachuca makes use of education and mandatory training. Unlike other jurisdictions, a military reservation can more easily impose and enforce behavioral conservation measures on its residents.
- Conservation policies and practices are under continuous review by all jurisdictions in the Subwatershed, both independently and as part of participation in water related organizations, Fort Huachuca’s Conservation Committee, The Upper San Pedro Partnership and other formal and informal affiliations.
- Sierra Vista and Fort Huachuca have active recharge sites to recharge treated municipal effluent. Both sites are located between the River and the regional cone of depression. Sierra Vista’s Environmental Operations Recharge Park has already shown beneficial influence on groundwater elevations along several miles of the SPRNCA’s perimeter (ADWR 2009).

- 1 • NRCD/BLM vegetation management practices that support the reduction of
- 2 invasive mesquite where it can access groundwater near the River.
- 3 • Huachuca City is expected to eventually transfer its effluent to Fort Huachuca to
- 4 be treated and recharge. This effort will not have an appreciable impact on
- 5 groundwater elevations near the SPRNCA boundary within the first 10 years, but
- 6 will have an effect on the region's overall water budget as well as being
- 7 supportive of the longer term goals of the District.
- 8 • The City of Bisbee will reuse approximately 100 acre-feet of treated municipal
- 9 effluent to irrigate an existing golf course. This effort is also not likely to have an
- 10 appreciable impact on groundwater elevations near the SPRNCA boundary in the
- 11 first 10 years, but it, too, is supportive to the longer term goals of the District.
- 12 • Current water conservation practices, ordinances, and codes that are in effect for
- 13 Cochise county, Sierra Vista, Bisbee, Tombstone, Huachuca City, and Fort
- 14 Huachuca have already begun to build public awareness for the need to
- 15 conserve water resources and will be essential to ensure the District's ultimate
- 16 support and success, even though the direct benefits to the river may be minimal
- 17 within this planning timeframe (before 2020).

18

19 D. Comprehensive Ten Year Water Resources Action Plan for Review and

20 Consideration by the Public

21

22 Over the past ten years the Fort, BLM, cities, county, USPP, NRCD, and others within

23 the proposed District boundaries have implemented water resource management and

24 conservation projects that have reduced the groundwater overdraft minimizing the short-

25 term impacts to the River. Unless the District implements new and expanded water

26 projects, the projected increase in growth and its associated increase in demand will

27 reverse this trend, resulting in greater overdraft of the groundwater and ultimately

28 impacts on the River. The District will take a leadership role in coordinating with the

29 federal, state, local and private entities as well as take independent action to implement

30 projects that will continue the trend in reducing the overdraft of groundwater. In the first

31 ten years the District will focus its efforts on the implementation of the following four

32 priority projects:

33

34 **Vegetation Management:** The District will identify available funding sources as well as

35 pursue the obtainment of additional funds to provide voluntary cost share

36 assistance to reduce invasive mesquite to conserve groundwater consistent with

37 the standard practices and maintenance of baseflow conditions that sustain the

38 River. The District will utilize the information generated by the USGS that

39 identifies the most effective areas for reducing invasive Mesquite and then work

40 with the landowners to provide voluntary cost share assistance.

41

42 **Enhanced Stormwater Recharge:** Working with the USGS and the BOR the District

43 will identify locations for the construction of detention basins to enhance

44 recharge of stormwater throughout the District that is consistent with the goal of

45 the District. The District will pursue the obtainment of funding and will construct

46 detention basins at identified locations. The District will also provide funding

1 assistance to cities, towns, counties, NRCD and private individuals to construct  
2 and maintain detention basins.

3  
4 **Rainwater Harvesting:** The District will provide funding incentives to local cities, towns  
5 and individuals for the implementation of rainwater harvesting systems that  
6 reduce the use of groundwater for the irrigation of plants. The District will  
7 coordinate with and provide funding support to the cooperative extension, NRCD  
8 and others to promote the use rainwater harvesting practices.

9  
10 **Conservation:** The District will provide conservation incentives to projects and  
11 programs that are consistent with the goal of the District. The District will  
12 coordinate with and provide funding support to the cooperative extension, NRCD  
13 and others to promote conservation education and awareness. The District will  
14 develop a preferred list of conservation practices, in consultation with the  
15 counties, cities, towns and water companies, for all new domestic, commercial  
16 and industrial developments. The preferred list of practices will be recommended  
17 to the county, ADWR, cities, towns, and private water companies for adoption  
18 and implementation.

19  
20 In addition to the four priority projects the proposed District will implement the following  
21 six action elements:

22  
23 1. Conservation Action Element

- 24  
25 • Endorse and assist where possible with education and implementation of the  
26 current water conservation practices in effect for Cochise County, Sierra Vista,  
27 Bisbee, (Tombstone and Huachuca City), Fort Huachuca and the NRCD.  
28 • Create a list of preferred conservation practices (BMP) for the District. The list  
29 must be advisory for use as a public information document. Submit to ADWR as  
30 allowed by statute for consideration in the ADWR Adequate Water Supply Rules.  
31 • Investigate new and appropriate conservation technology. Consult and  
32 coordinate with cities, towns, and private water companies to encourage  
33 adoption of new technologies.  
34 • Support public education and information activities to advise about new, effective  
35 conservation techniques, including commercial, industrial and turf facilities.  
36 • Enter into cooperative agreements with the NRCD to provide conservation  
37 education.  
38 • Enter into cooperative agreements with the NRCD, State Land, NRCS, BLM and  
39 private individuals to reduce invasive mesquite and conserve groundwater.  
40 • Fund voluntary conservation easements throughout the District, focusing on  
41 areas closest to the San Pedro and Babocomari Rivers in the first 10 years.

42  
43 2. Recharge Action Element

- 44  
45 • Set a management objective that all cities shall collect treat and recharge effluent  
46 in a manner that is compatible with the District's goal and objectives.

- 1 • Set a management objective that all new subdivisions near a city’s sewer  
2 collection system, deliver effluent to the City for treatment and recharge. The  
3 details of the hook-up fees, extent of the sewer area and other issues would  
4 be established in cooperation with and agreement from the City.
- 5 • Enter into agreements with Fort Huachuca to expand the existing effluent  
6 facilities as necessary to accommodate growth of effluent supplies north of Sierra  
7 Vista in a manner that will directly support the District’s short-term planning goal  
8 and objectives.
- 9 • Advise ADWR about the effluent recharge requirement for inclusion in the ADWR  
10 Adequate Water Supply Rules.
- 11
- 12 3. Augmentation Action Element
- 13
- 14 • Investigate the opportunities for capturing urban runoff and detention of storm  
15 water runoff for enhanced recharge at points of detention in ephemeral channels  
16 and at key areas that will directly support the District’s short-term planning goal  
17 and objectives.
- 18 • Obtain Federal, State and local funding to implement urban augmentation and  
19 recharge projects.
- 20 • Offset impacts from new development near the river – in accordance with the  
21 comprehensive plan, establish a measurable goal regarding the withdrawal of  
22 groundwater near the SPRNCA boundaries and/or the San Pedro and  
23 Babocomari Rivers. A subdivider or water provider would have to demonstrate  
24 that its proposed wells would maintain the aquifer and baseflow conditions of the  
25 San Pedro River for a period of time based on standards established by the  
26 Permanent Board. In lieu of a demonstration of minimal impact to the River, the  
27 District could assist in obtaining water supplies. In the first ten years of operation  
28 of the District, the assistance could be the construction of wells in a special  
29 groundwater zone away from the River and delivery of that water to a water  
30 provider in order to maintain the aquifer and baseflow conditions of the San  
31 Pedro River.
- 32
- 33 4. Create Augmentation Fund
- 34
- 35 • Require all new subdivisions within the District to contribute to the formation of an  
36 investment fund for long-term augmentation planning, design and construction.  
37 The contributions would be mandatory to support the goal of the District. In the  
38 first 10-year plan, the fund may be used for appraisal and feasibility studies for  
39 augmentation alternatives.
- 40 • Enter into an IGA with Fort Huachuca and the Department of Homeland Security  
41 whereby they could contribute to an augmentation fund for any increased water  
42 use over current conditions for mitigation purposes.
- 43
- 44 5. Reuse Action Element
- 45
- 46 • Encourage efforts to expand the use of gray-water in the Subwatershed.

- 1 • Encourage efforts to expand rain water harvesting in the Subwatershed.
- 2 • Support and assist reuse activities of cities, towns, and the county where
- 3 applicable.
- 4
- 5 6. Monitoring Action Element
- 6
- 7 • Create a groundwater monitoring plan utilizing the best data available including
- 8 ADWR, USGS, ARS and BLM monitoring well sites to asses the status and
- 9 trends of groundwater levels at the SPRNCA boundary. If necessary, advise
- 10 ADWR to add wells to its monitoring index line.
- 11 • Create a surface water monitoring plan utilizing USGS and BLM monitoring data
- 12 to assess the status and trends of perennial flows.
- 13 • Establish a monitoring technical committee that includes technical specialists
- 14 from ADWR, USGS, Fort Huachuca, BLM and CLIMAS to advise the District on
- 15 groundwater, surface water and climate conditions.
- 16 • Monitor, in cooperation with the City of Sierra Vista, Fort Huachuca and other
- 17 relevant partners, the groundwater changes down gradient of the effluent
- 18 recharge sites to determine the effectiveness of the sites.
- 19 • Investigate the number, annual withdrawals, water levels for all large wells in the
- 20 District and their impact on the water budget.
- 21 • Investigate the number of active domestic and stock wells, estimated
- 22 withdrawals, and impact on the water budget.
- 23 • Work with the USGS and ADWR to prepare an annual water budget.
- 24 • Monitor effectiveness and water savings of conservation activities.
- 25
- 26
- 27