Section 7.2
Gila Bend Basin

7.2.1 Geography of the Gila Bend Basin

The Gila Bend Basin, located in the east central part of the planning area, is 1,284 square miles in area. Geographic features and principal communities are shown on Figure 7.2-1. The basin is characterized by washes and a series of small mountain ranges. Vegetation types include Lower Colorado River Valley and Arizona uplands Sonoran desertscrub. (See Figure 7.0-9)

- Principal geographic features shown on Figure 7.2-1 are:
    - The Gila River running east to west in the northern portion of the basin and Painted Rock Reservoir, which during flood events impounds the river
    - Quilotosa and Sauceda Washes south of Gila Bend
    - Maricopa and Sand Tank Mountains in the eastern portion of the basin, the Sauceda Mountains in the south and the Gila Bend Mountains in the north
    - The highest point in the basin at 3,183 feet in the Maricopa Mountains
    - The lowest point in the basin about 660 feet at Painted Rock Dam where the Gila River exits the basin

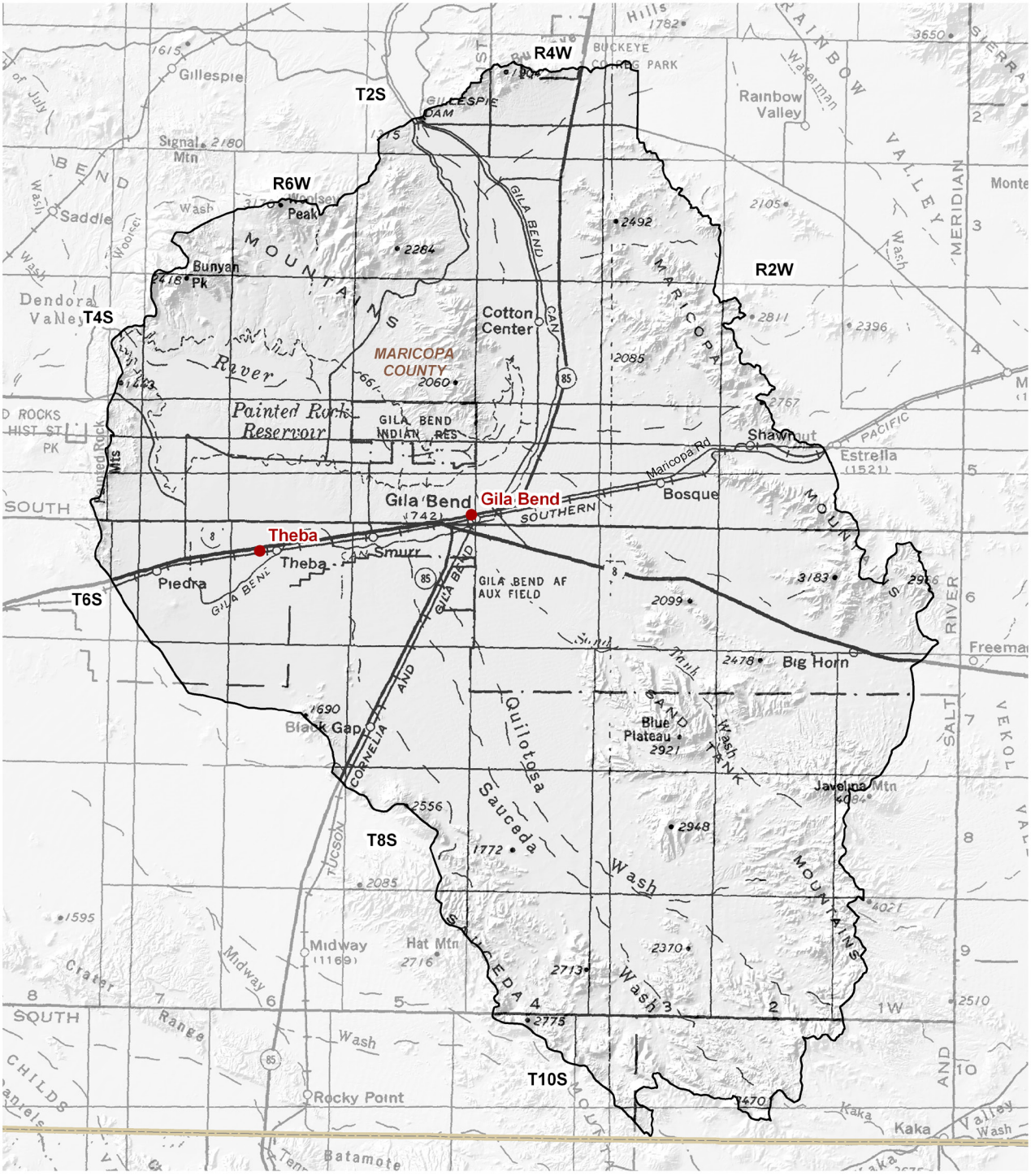

Figure 7.2-1
Gila Bend Basin
Geographic Features

7.2.2 Land Ownership in the Gila Bend Basin

Land ownership, including the percentage of ownership by category, for the Gila Bend Basin is shown in Figure 7.2-2. Principal features of land ownership in this basin are the large areas of military and Bureau of Land Management lands. A description of land ownership data sources and methods is found in Volume 1, Appendix A. More detailed information on protected areas is found in Section 7.0.4. Land ownership categories are discussed below in the order of largest to smallest percentage in the basin.

U.S. Bureau of Land Management (BLM)

- 41.7% of the land is federally owned and managed by the Lower Sonoran Office of the Bureau of Land Management.
- BLM land in this basin includes 238,700 acres of the 487,000 acre Sonoran Desert National Monument and 49,000 acres of the 64,000 acre Woolsey Peak Wilderness. (See Figure 7.0-12)
- Land uses include resource conservation, recreation and grazing.

U.S. Military

- 33.5% of the land is federally owned and managed by the U.S. Military as the Barry Goldwater Air Force Range.
- Primary land use is military activity.

Private

- 15.7% of the land is private.
- The majority of the private land is in the center of the basin in the vicinity of Gila Bend, Highway 89 and Interstate 8.
- Land uses include domestic, commercial and ranching.

State Trust Land

- 6.2% of the land is held in trust for the public schools under the State Trust Land system.
- Primary land use is grazing.

Indian Reservation

- 2.8% of the land is under tribal ownership including all of the Gila Bend Indian Reservation and a small portion of the Tohono O'odham Indian Reservation. Both are part of the Tohono O'odham Nation
- Land uses include agriculture, domestic and grazing.

Other (Game and Fish, County and Bureau of Reclamation Lands)

- 0.1% of the land is owned by Maricopa County.
- County land is located on the northern basin boundary and is managed as the Buckeye Hills County Park.
- Primary land use is recreation.

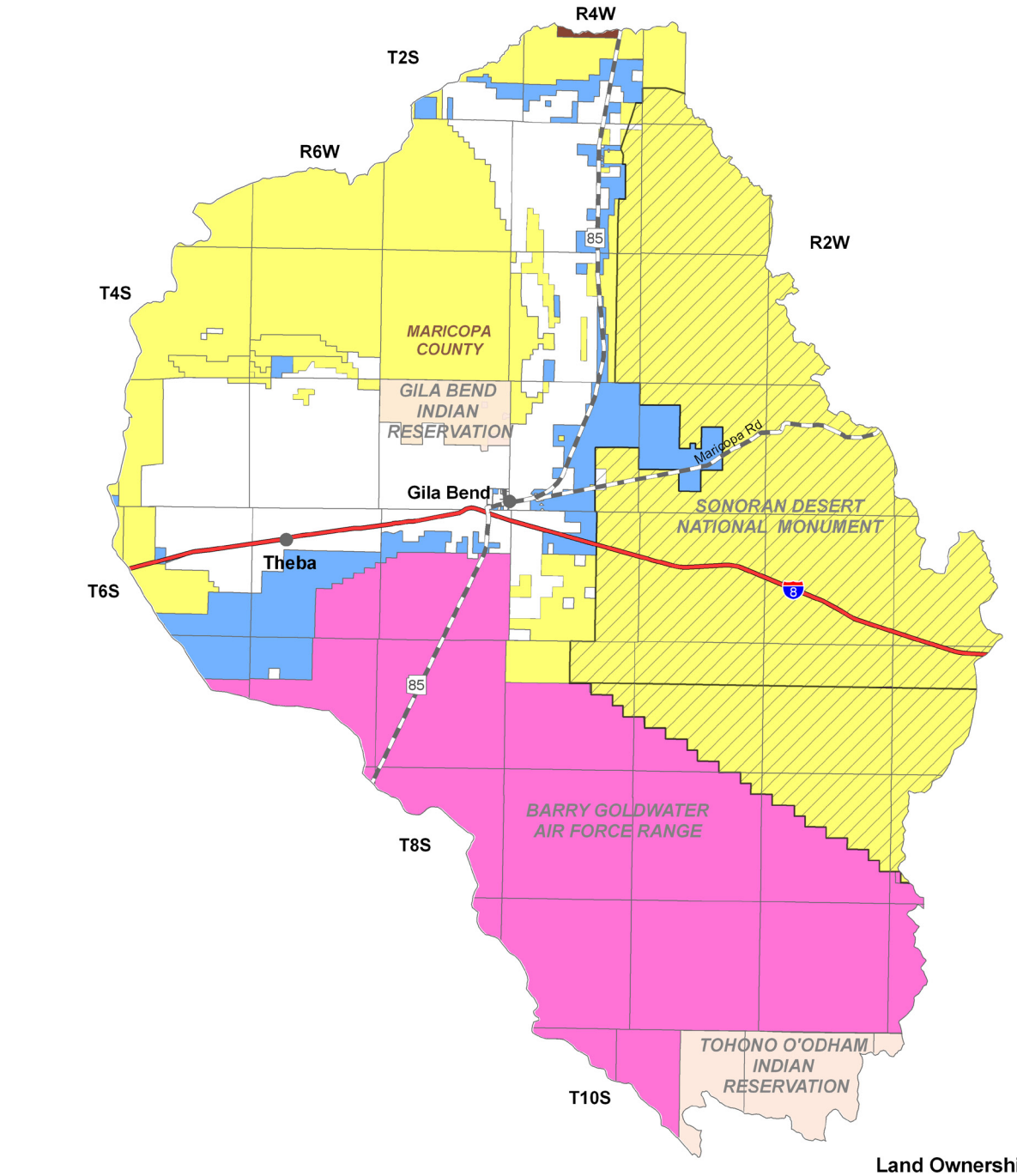

Figure 7.2-2
Gila Bend Basin
Land Ownership

7.2.3 Climate of the Gila Bend Basin

Climate data from NOAA/NWS Co-op Network and AZMET stations are complied in Table 7.2-1 and the locations are shown on Figure 7.2-3. Figure 7.2-3 also shows precipitation contour data from the Spatial Climate Analysis Service (SCAS) at Oregon State University. The Gila Bend Basin does not contain Evaporation Pan or SNOTEL/ Snowcourse stations. More detailed information on climate in the planning area is found in Section 7.0.3. A description of climate data sources and methods is found in Volume 1, Appendix A.

NOAA/NWS Co-op Network

- Refer to Table 7.2-1A
- There is one NOAA/NWS Co-op Network station in the basin, Gila Bend, with a maximum monthly temperature of 94.1°F in July and a minimum monthly temperature of 55.0°F in December and January.
- Highest average seasonal rainfall, 2.49 inches, occurs in both the summer (July-September) and fall (October-December) seasons when 66% of the annual average precipitation occurs.

AZMET

- Refer to Table 7.2-1C
- There is one evaporation pan station in the basin, Paloma. This pan is at 719 feet and has an annual evaporation rate of 75.27 inches.

SCAS Precipitation Data

- See Figure 7.2-3
- Additional precipitation data shows average annual rainfall as high as 14 inches at the southeastern tip of the basin and as low as four inches along the western basin boundary.

Table 7.2-1 Climate Data for the Gila Bend Basin

A. NOAA/NWS Co-op Network:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Temperature Range (in F)		Average Precipitation (in inches)				
			Max/Month	Min/Month	Winter	Spring	Summer	Fall	Annual
Gila Bend	730	1971 - 2000	94.1/Jul	55.0/Dec, Jan	2.21	0.39	2.49	2.49	7.01

Source: WRCC, 2005

B. Evaporation Pan:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Avg. Annual Evaporation (in inches)
None			

C. AZMET:

Station Name	Elevation (in feet)	Period of Record	Average Annual Reference Evaportranspiration, in inches (*Number of years to calculate averages*)
Paloma	719	1999 - current	75.27 *(9)*

Source: Arizona Meteorological Network, 2007

D. SNOTEL/Snowcourse:

Station Name	Elevation (in feet)	Period of Record	Average Snowpack, at Beginning of the Month, as Inches Snow Water Content *(Number of measurements to calculate average)*					
			Jan.	Feb.	March	April	May	June
None								

Figure 7.2-3
Gila Bend Basin
Meteorological Stations
and Annual Precipitation

7.2.4 Surface Water Conditions in the Gila Bend Basin

Streamflow data, including average seasonal flow, average annual flow and other information are shown in Table 7.2-2. Flood ALERT equipment in the basin is shown in Table 7.2-3. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 7.2-4. The location of streamflow gages identified by USGS number, flood ALERT equipment, USGS runoff contours and large reservoirs are shown on Figure 7.2-4. Descriptions of stream, reservoir and stockpond data sources and methods are found in Volume 1, Appendix A.

Streamflow Data

- Refer to Table 7.2-2.
- Data from three stations located at two watercourses are shown in the table and on Figure 7.2-4.
- Average seasonal flow is highest at most stations in the winter (January-March) or spring (April-June).
- The largest annual flow recorded in the basin is 5.7 million acre-feet (maf) in 1993 at the Gila River below Gillespie Dam station with a contributing drainage area of 49,650 square miles. Gillespie Dam was breached during the 1993 flood.

Flood ALERT Equipment

- Refer to Table 7.2-3.
- As of October 2005 there were nine stations in this basin.

Reservoirs and Stockponds

- Refer to Table 7.2-4.
- The basin contains one large reservoir, Painted Rock, with a maximum storage of 4,831,500 acre-feet. This reservoir is used for flood control and is only filled during flood events.
- Surface water is stored or could be stored in two small reservoirs in the basin.
- There are 24 registered stockponds in this basin.

Runoff Contour

- Refer to Figure 7.2-4.
- Average annual runoff is highest, 0.2 inches per year or 10.66 acre-feet per square mile, in the southernmost portion of the basin and decreases to 0.1 inches, or 5.33 acre-feet per square mile, in the remainder of the basin.

Table 7.2-2 Streamflow Data for the Gila Bend Basin

Station Number	USGS Station Name	Drainage Area (in mi^2)	Gage Elevation (in feet)	Period of Record	Average Seasonal Flow (% of annual flow)				Annual Flow/Year (in acre-feet)				Years of Annual Flow Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9519500	Gila River below Gillespie Dam	49,650	753	8/1921-current	66	13	7	13	0 (1956)	43,185	327,935	5,675,984 (1993)	84
9519760	Sauceda Wash near Gila Bend	126	900	10/1989-9/1994 (discontinued)	6	0	83	10	4 (1992)	195	385	1,144 (1990)	4
9519800	Gila River below Painted Rock Dam	50,910	519	10/1959-current (real time)	36	36	16	13	0 (1962, 2002)	5,185	330,347	5,088,672 (1993)	43

Source: USGS (NWIS) 2005 & 2008

Notes:
NA = Not available
Statistics based on Calendar Year
Annual Flow statistics based on monthly values
Annual Flow/Year statistics were only completed for those gages that had at least 3 years of 12 month records
Summation of Average Annual Flows may not equal 100 due to rounding
Period of record may not equal Year of Record used for annual Flow/Year statistics due to only using years with a 12 month record
In Period of Record, current equals November 2008
Seasonal and annual flow data used for the statistics was retrieved in 2005

Table 7.2-3 Flood ALERT Equipment in the Gila Bend Basin

Station ID	Station Name	Station Type	Install Date	Responsibility
5060	G&F Woolsey Peak	Weather Station/Stage	6/25/2003	Maricopa County FCD
6905	Gillespie Dam	Precipitation	4/12/1994	Maricopa County FCD
6910	Gila Bend Landfill	Weather Station	4/7/1993	Maricopa County FCD
6920	Sauceda Wash	Precipitation/Stage	2/28/1990	Maricopa County FCD
6930	Sand Tank @ I-8	Precipitation/Stage	6/28/2001	Maricopa County FCD
6940	Sand Tank Wash	Precipitation	7/21/1983	Maricopa County FCD
6950	Rainbow Wash	Precipitation/Stage	11/6/2000	Maricopa County FCD
6955	Maricopa Mountains	Precipitation	4/21/2005	Maricopa County FCD
6960	Bender Wash	Precipitation/Stage	1/12/1982	Maricopa County FCD

Source: ADWR 2005b

Notes:
FCD = Flood Control District

Table 7.2-4 Reservoirs and Stockponds in the Gila Bend Basin

A. Large Reservoirs (500 acre-feet capacity and greater)

MAP KEY	RESERVOIR/LAKE NAME *(Name of dam, if different)*	OWNER/OPERATOR	MAXIMUM STORAGE (AF)	USE[1]	JURISDICTION
1	Painted Rock	Bureau of Reclamation	4,831,500	C	Federal

B. Other Large Reservoirs (50 acre surface area or greater)

MAP KEY	RESERVOIR/LAKE NAME *(Name of dam, if different)*	OWNER/OPERATOR	MAXIMUM SURFACE AREA (acres)	USE	JURISDICTION
None identified by ADWR at this time					

Source: Compilation of databases from ADWR & others

C. Small Reservoirs (greater than 15 acre-feet and less than 500 acre-feet capacity)

Total number: 2
Total maximum storage: 171 acre-feet

D. Other Small Reservoirs (between 5 and 50 acres surface area)

Total number: 0
Total surface area: 0 acres

E. Stockponds (up to 15 acre-feet capacity)

Total number: 24

Notes:
[1]C = Flood control

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Stream Data Source: ALRIS, 2005

0 3 6 Miles

N

S

Figure 7.2-4
Gila Bend Basin
Surface Water Conditions

- USGS Annual Runoff Contour for 1951-1980 (in inches) — 2
- Stream Channel (width of line reflects stream order)
- Large Reservoir — 1
- USGS Gage and Station ID — 9999999
- Flood ALERT Equip. & Station ID — 9999
- Interstate Highway
- Major Road
- City, Town or Place

7.2.5 Perennial/Intermittent Streams and Major Springs in the Gila Bend Basin

The total number of springs in the basin are shown in Table 7.2-5. The locations of perennial streams are shown on Figure 7.2-5. Descriptions of data sources and methods for intermittent and perennial reaches and springs are found in Volume 1, Appendix A.

- There are no perennial streams and one intermittent stream, the Gila River.
- There are no major or minor springs in the basin.
- The total number of springs, regardless of discharge, identified by the USGS varies from zero to one, depending on the database reference.

Table 7.2-5 Springs in the Gila Bend Basin

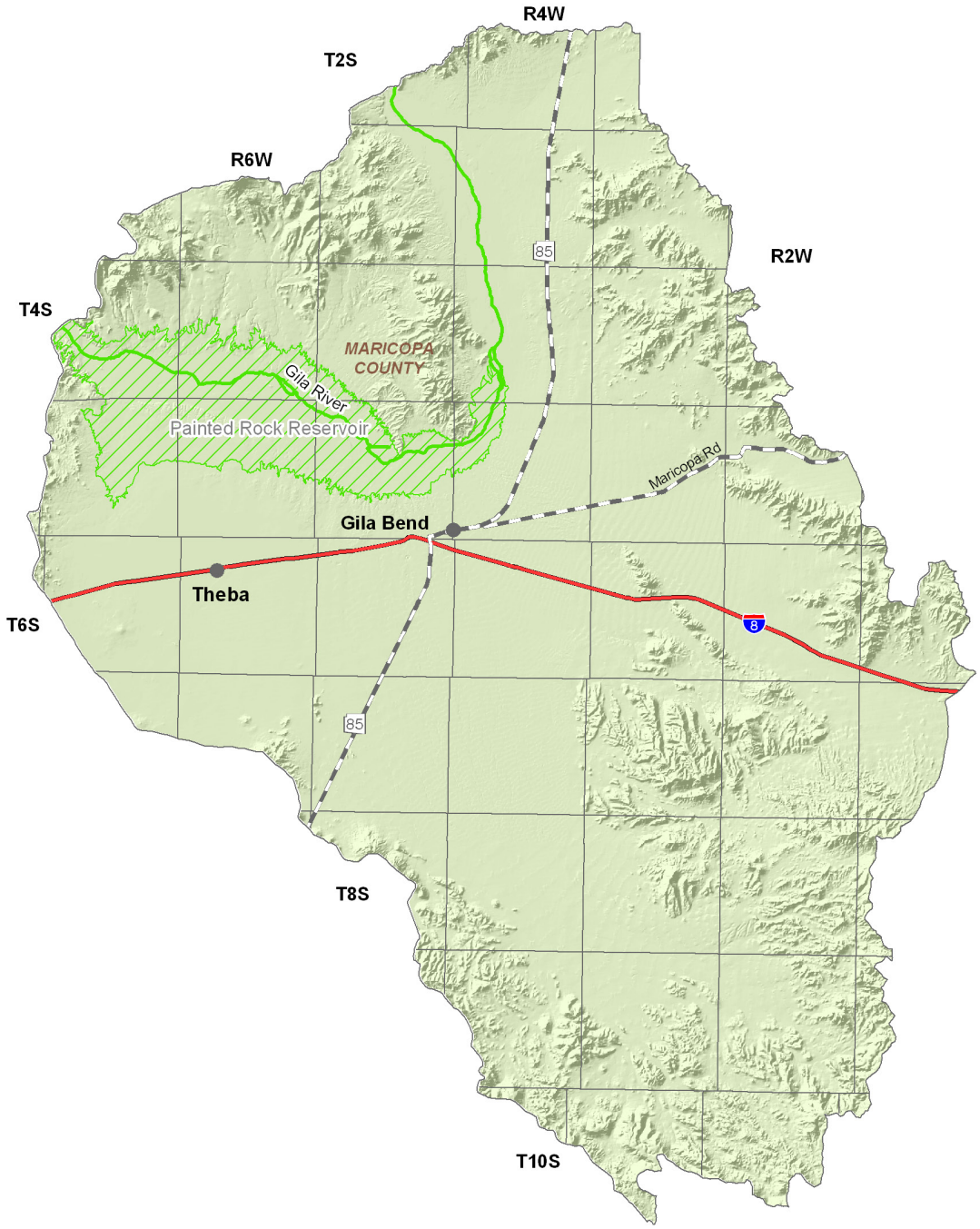
A. Major Springs (10 gpm or greater):

Map Key	Name	Location		Discharge (in gpm)	Date Discharge Measured
		Latitude	Longitude		
None identified by ADWR at this time					

B. Minor Springs (1 to 10 gpm):

Name	Location		Discharge (in gpm)	Date Discharge Measured
	Latitude	Longitude		
None identified by ADWR at this time				

C. Total number of springs, regardless of discharge, identified by USGS (see ALRIS, 2005a and USGS, 2006a): 0 to 1



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Stream Data Source: AGFD, 1993 & 1997

0 3 6
Miles

N
S

Figure 7.2-5
Gila Bend Basin
Perennial\Intermittent Streams and Major (>10 gpm) Springs

Intermittent Stream
Extent of Potential Inundation
Interstate Highway
Major Road
City, Town or Place

7.2.6 Groundwater Conditions of the Gila Bend Basin

Major aquifers, well yields, estimated water in storage, number of index wells and date of last water-level sweep are shown in Table 7.2-6. Figure 7.2-6 shows aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 7.2-7 contains hydrographs for selected wells shown on Figure 7.2-6. Figure 7.2-8 shows well yields in five yield categories. A description of aquifer data sources and methods as well as well data sources and methods, including water-level changes and well yields are found in Volume 1, Appendix A.

Major Aquifers

- Refer to Table 7.2-6 and Figure 7.2-6
- The major aquifer is basin fill.
- Flow direction is from north to southwest in the center of the basin and from the west to east in the northern portion of the basin.

Well Yields

- Refer to Table 7.2-6 and Figure 7.2-8
- As shown on Figure 7.2-8, well yields are generally greater than 2,000 gallons per minute (gpm).
- One source of well yield information, based on 242 reported wells, indicates that the median well yield is 2,700 gpm.

Natural Recharge

- Refer to Table 7.2-6
- Natural recharge estimates range from 10,000 acre-feet per year (AFA) to 37,000 AFA.
- The largest source of natural recharge in the basin occurs from Gila River flood events and infiltration of water impounded behind Painted Rock Dam (ADWR 1994b).

Water in Storage

- Refer to Table 7.2-6
- Storage estimates for this basin range from 17maf to 61 maf, both to a depth of 1,200 feet.

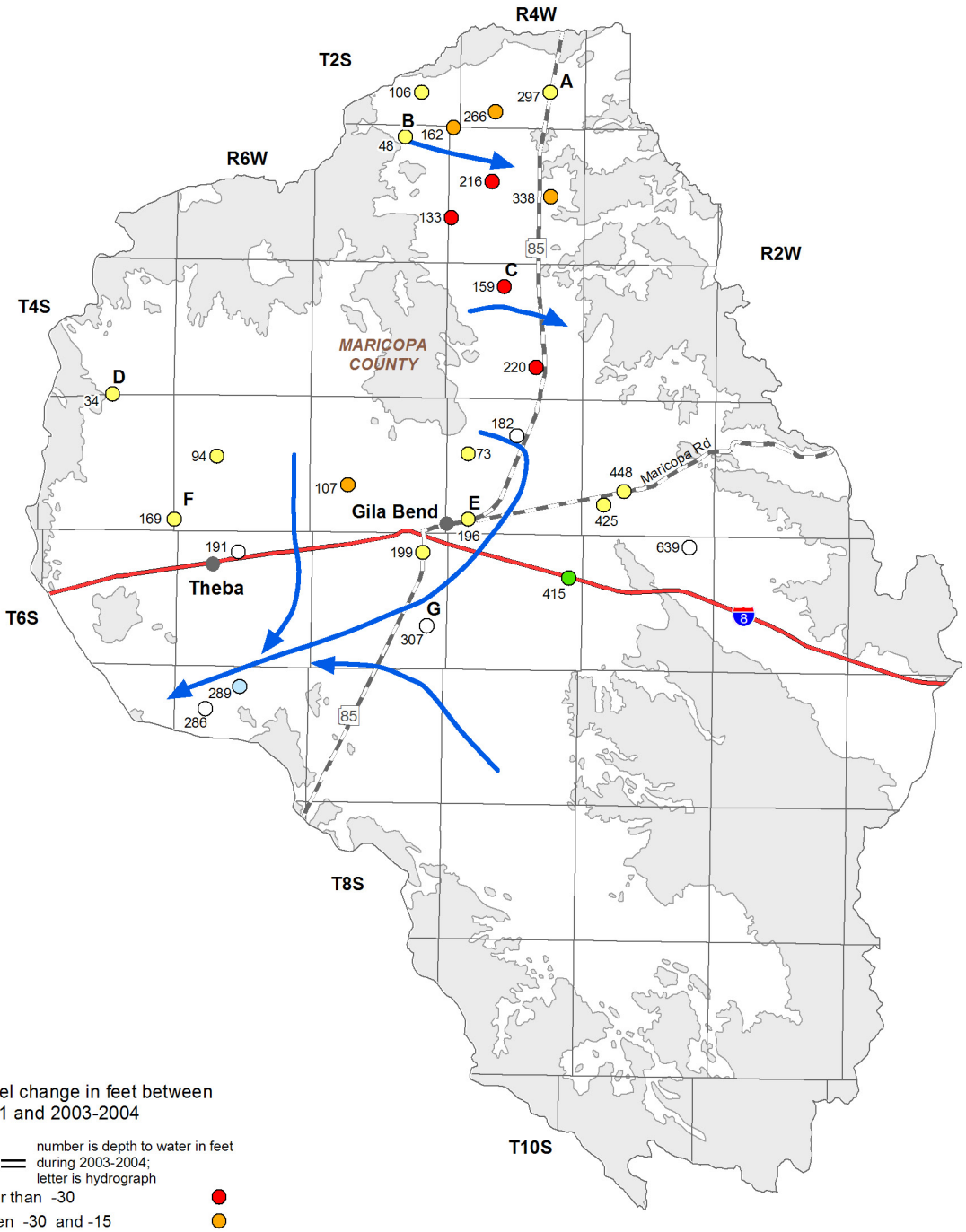
Water Level

- Refer to Figure 7.2-6. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 30 index wells in this basin. Hydrographs for seven index wells are shown on Figure 7.2-7.
- The deepest water level shown on the map is 639 feet south of Maricopa Road and the shallowest is 34 feet near the western basin boundary.

Table 7.2-6 Groundwater Data for the Gila Bend Basin

Basin Area, in square miles:	1,284	
Major Aquifer(s):	**Name and/or Geologic Units**	
	Basin Fill	
Well Yields, in gal/min:	Range 300-4,266 Median 2,221 (107 wells measured)	Measured by ADWR (GWSI) and/or USGS
	Range 7-5,800 Median 2,700 (242 wells reported)	Reported on registration forms for large (>10-inch) diameter wells (Wells55)
	Range 300-3,000	ADWR (1990)
	Range 0-2,500	Anning and Duet (1994)
	Range 1,000-5,000	ADWR HMS 29 (1996)
Estimated Natural Recharge, in acre-feet/year:	26,000	ADWR (1996)
	37,000	Freethey and Anderson (1986)
	10,000	Arizona Water Commission (1975)
Estimated Water Currently in Storage, in acre-feet:	27,600,000 (to 1,200 ft)	ADWR (1994b)
	17,000,000[1] (to 1,200 ft)	Freethey and Anderson (1986)
	61,000,000 (to 1,200 ft)	Arizona Water Commission (1975)
Current Number of Index Wells:	31	
Date of Last Water-level Sweep:	2008 (241 wells measured)	

[1]Predevelopment Estimate



Water-level change in feet between 1990-1991 and 2003-2004

375 H — number is depth to water in feet during 2003-2004; letter is hydrograph

- Greater than -30
- Between -30 and -15
- Between -15 and -1
- Between -1 and +1
- Between +1 and +15
- Change Data Not Available
- Generalized Flow Direction
- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments
- Interstate Highway
- Major Road
- City, Town or Place

0 3 6 Miles

N

S

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Figure 7.2-6
Gila Bend Basin
Groundwater Conditions

Figure 7.2-7
Gila Bend Basin
Hydrographs Showing Depth to Water in Selected Wells

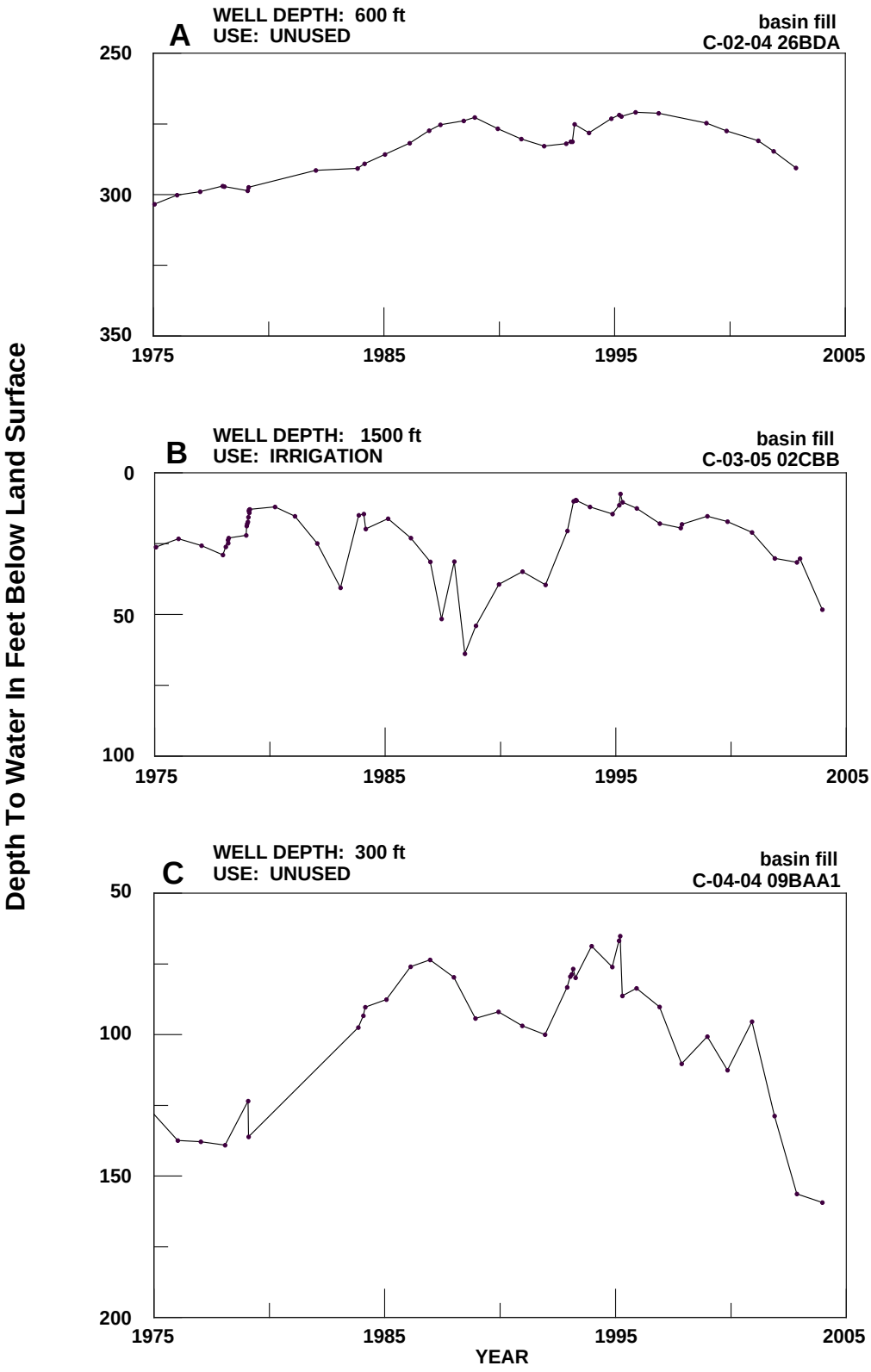
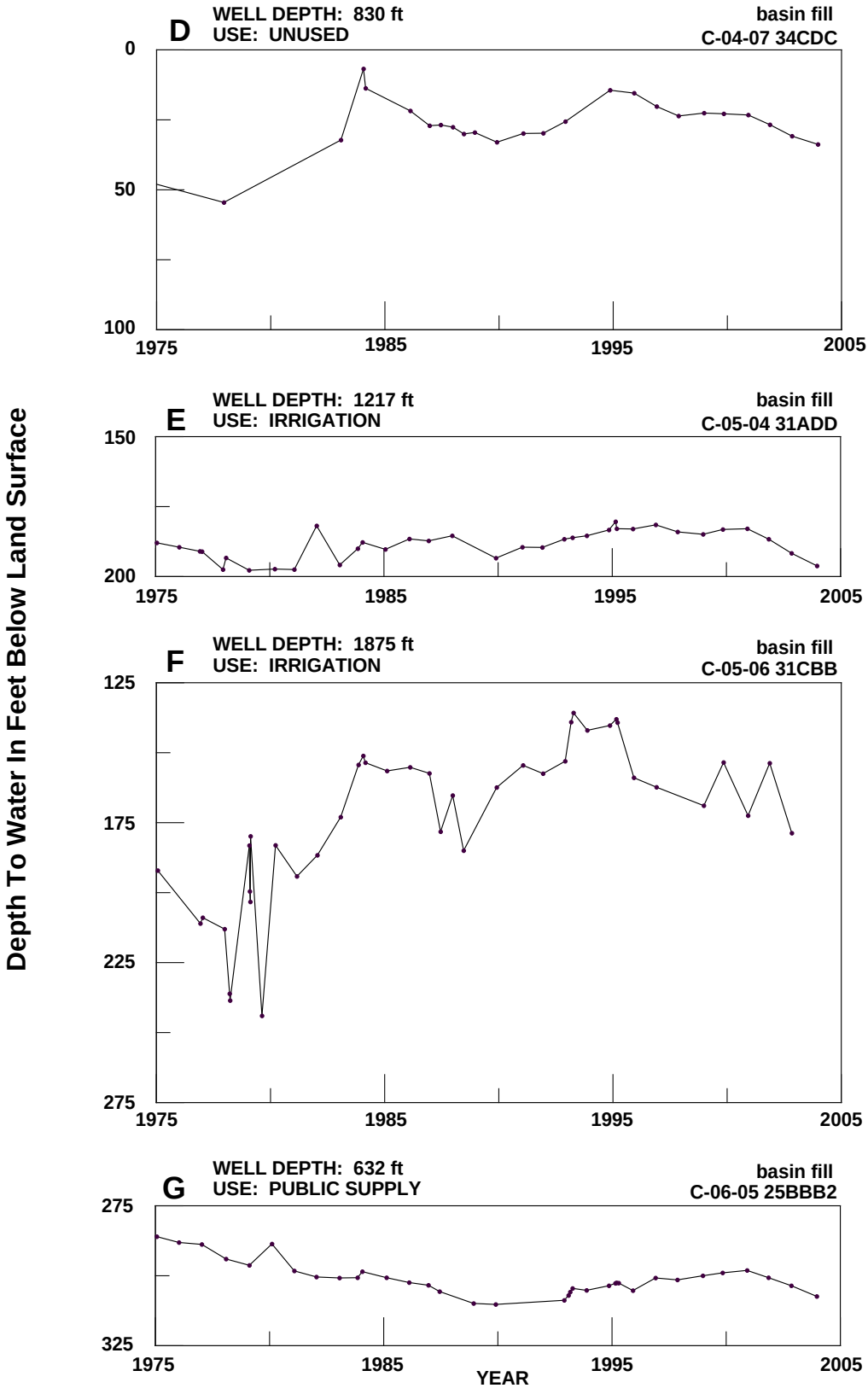
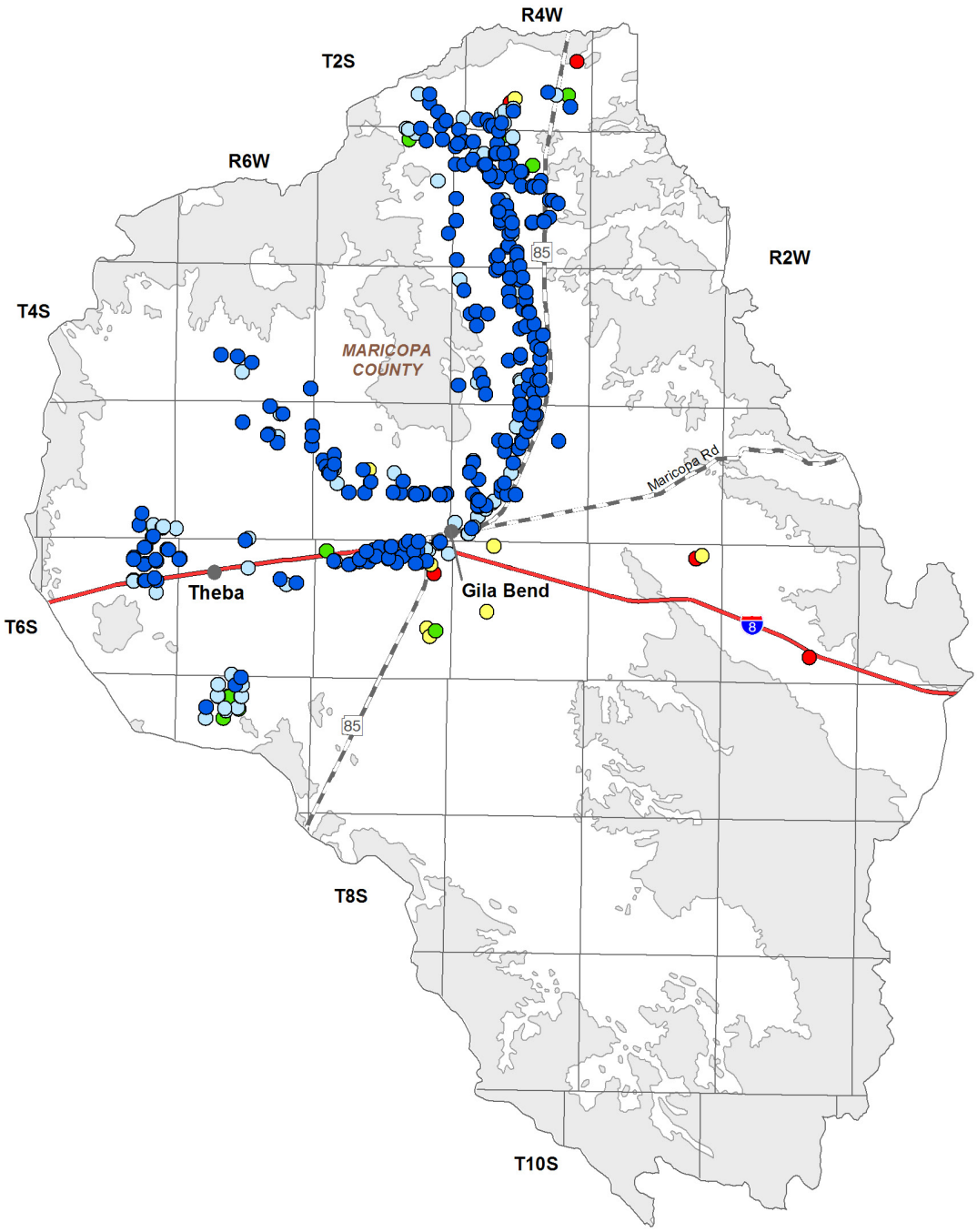


Figure 7.2-7 (Cont)
Gila Bend Basin
Hydrographs Showing Depth to Water in Selected Wells





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0 3 6 Miles

N
S

Figure 7.2-8
Gila Bend Basin
Well Yields

Well Yields
- Greater than 2000 gals/min
- Between 1000 and 2000 gals/min
- Between 500 and 1000 gals/min
- Between 100 and 500 gals/min
- Less than 100 gals/min

Consolidated Crystalline & Sedimentary Rocks
Unconsolidated Sediments

Interstate Highway
Major Road
City, Town or Place

7.2.7 Water Quality of the Gila Bend Basin

Wells, springs and mine sites with parameter concentrations that have equaled or exceeded drinking water standard(s), including location and parameter(s) are shown in Table 7.2-7A. Impaired lakes and streams with site type, name, length of impaired reach, area of impaired lake, designated use standard and parameter(s) exceeded is shown in Table 7.2-7B. Figure 7.2-9 shows the location of water quality occurrences keyed to Table 7.2-7. All community water systems are regulated under the Safe Drinking Water Act and treat water supplies to meet drinking water standards. Not all parameters were measured at all sites; selective sampling for particular constituents is common. A description of water quality data sources and methods is found in Volume 1, Appendix A.

Well, Mine or Spring sites that have equaled or exceeded drinking water standards (DWS)

- Refer to Table 7.2-7A.
- One hundred and twenty-two wells have parameter concentrations that have equaled or exceeded drinking water standards.
- Ninety-two percent of the wells measured equaled or exceeded the parameter for fluoride.
- Other parameters equaled or exceeded include arsenic, nitrate, mercury, selenium and total dissolved solids.

Lakes and Streams with impaired waters

- Refer to Table 7.2-7B.
- The water quality standard for organics was equaled or exceeded in three reaches of the Gila River totaling 41 miles. The standard for organics was also equaled or exceeded in 100 acres of the Painted Rock Reservoir.
- None of the reaches or the lake are part of the ADEQ water quality improvement effort, the Total Maximum Daily Load (TMDL) Program, at this time.

Effluent Dependent Reaches

- See Figure 7.2-9
- There is one effluent dependent reach north of Gila Bend. This reach receives effluent from the Gila Bend Wastewater Treatment Plant.

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
1	Well	2 South	4 West	25	F
2	Well	2 South	4 West	25	F
3	Well	2 South	4 West	32	F
4	Well	2 South	4 West	32	F
5	Well	2 South	4 West	33	F
6	Well	2 South	4 West	33	F, NO3, TDS
7	Well	2 South	4 West	33	F
8	Well	2 South	4 West	33	F
9	Well	3 South	4 West	5	F
10	Well	3 South	4 West	9	F, NO3
11	Well	3 South	4 West	9	F
12	Well	3 South	4 West	9	F
13	Well	3 South	4 West	15	F
14	Well	3 South	4 West	15	F
15	Well	3 South	4 West	16	F
16	Well	3 South	4 West	23	F
17	Well	3 South	4 West	27	F
18	Well	3 South	4 West	28	TDS
19	Well	4 South	4 West	3	NO3
20	Well	4 South	4 West	4	NO3, TDS
21	Well	4 South	4 West	10	F
22	Well	4 South	4 West	21	F, TDS
23	Well	4 South	4 West	22	F
24	Well	4 South	4 West	28	F
25	Well	4 South	4 West	32	NO3
26	Well	4 South	6 West	28	F
27	Well	4 South	6 West	36	F
28	Well	5 South	4 West	3	NO3
29	Well	5 South	4 West	3	F
30	Well	5 South	4 West	4	F
31	Well	5 South	4 West	9	F
32	Well	5 South	4 West	10	F
33	Well	5 South	4 West	10	F
34	Well	5 South	4 West	16	F
35	Well	5 South	4 West	16	F
36	Well	5 South	4 West	17	F
37	Well	5 South	4 West	18	F
38	Well	5 South	4 West	21	F
39	Well	5 South	4 West	21	F
40	Well	5 South	4 West	29	F
41	Well	5 South	4 West	29	F
42	Well	5 South	4 West	29	F
43	Well	5 South	4 West	31	F
44	Well	5 South	4 West	31	F
45	Well	5 South	4 West	31	F
46	Well	5 South	4 West	31	As, F, Hg
47	Well	5 South	4 West	31	F
48	Well	5 South	5 West	18	TDS
49	Well	5 South	5 West	18	F

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin (Cont)[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
50	Well	5 South	5 West	19	F
51	Well	5 South	5 West	20	F
52	Well	5 South	5 West	21	F
53	Well	5 South	5 West	22	F
54	Well	5 South	5 West	22	F
55	Well	5 South	5 West	23	F
56	Well	5 South	5 West	24	F
57	Well	5 South	5 West	24	F
58	Well	5 South	5 West	36	F
59	Well	5 South	6 West	3	F
60	Well	5 South	6 West	11	F
61	Well	5 South	6 West	11	F
62	Well	5 South	6 West	16	TDS
63	Well	5 South	6 West	31	F, As
64	Well	5 South	6 West	31	F
65	Well	5 South	6 West	34	F, TDS
66	Well	5 South	7 West	26	F
67	Well	5 South	7 West	35	F
68	Well	5 South	7 West	35	F
69	Well	5 South	7 West	36	F
70	Well	5 South	7 West	36	F
71	Well	5 South	7 West	36	F
72	Well	6 South	3 West	18	As, F
73	Well	6 South	3 West	19	F
74	Well	6 South	4 West	20	F
75	Well	6 South	4 West	20	As, F
76	Well	6 South	4 West	20	F
77	Well	6 South	5 West	2	F
78	Well	6 South	5 West	2	F
79	Well	6 South	5 West	2	F
80	Well	6 South	5 West	2	As, F
81	Well	6 South	5 West	2	F
82	Well	6 South	5 West	2	F
83	Well	6 South	5 West	3	F
84	Well	6 South	5 West	3	F
85	Well	6 South	5 West	3	F
86	Well	6 South	5 West	3	F
87	Well	6 South	5 West	4	As, F
88	Well	6 South	5 West	4	As, F
89	Well	6 South	5 West	4	F
90	Well	6 South	5 West	5	F
91	Well	6 South	5 West	6	F, NO3, TDS
92	Well	6 South	5 West	8	As, F
93	Well	6 South	5 West	25	As, F
94	Well	6 South	6 West	4	F
95	Well	6 South	6 West	4	F
96	Well	6 South	6 West	6	F
97	Well	6 South	6 West	10	F, Se
98	Well	6 South	6 West	11	F

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin (Cont)[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
99	Well	6 South	6 West	33	As, F
100	Well	6 South	7 West	2	F
101	Well	6 South	7 West	2	F
102	Well	6 South	7 West	11	F
103	Well	6 South	7 West	11	As, F
104	Well	6 South	7 West	11	F
105	Well	6 South	7 West	11	F
106	Well	6 South	7 West	12	F
107	Well	7 South	6 West	4	As, F
108	Well	7 South	6 West	4	As
109	Well	7 South	6 West	4	As, F
110	Well	7 South	6 West	4	F
111	Well	7 South	6 West	4	F
112	Well	7 South	6 West	5	F
113	Well	7 South	6 West	5	F
114	Well	7 South	6 West	8	As, F
115	Well	7 South	6 West	8	As, F
116	Well	7 South	6 West	9	As, F
117	Well	7 South	6 West	9	As, F
118	Well	7 South	6 West	9	As
119	Well	7 South	6 West	9	F
120	Well	7 South	6 West	9	F
121	Well	7 South	6 West	9	F
122	Well	7 South	6 West	9	As, F

Source: Compilation of databases from ADWR & others

B. Lakes and Streams

Map Key	Site Type	Site Name	Length of Impaired Stream Reach (in miles)	Area of Impaired Lake (in acres)	Designated Use Standard[3]	Parameter(s) Exceeding Use Standard[2]
a	Stream	Gila River (Gillespie Dam to Rainbow Wash)	5	NA	FC	Organics
b	Stream	Gila River (Rainbow Wash to Sand Tank)	17	NA	FC	Organics
c	Stream	Gila River (Sand Tank to Painted Rock Reservoir)	19	NA	FC	Organics
d	Lake	Painted Rock Reservoir	NA	100	FC	Organics

Source: ADEQ 2005d

Notes:

[1] Water quality samples collected between 1975 and 2001. Listed TDS exceedences indicate "mineralized water" that contains over 3000 milligrams per liter (mg/l) of TDS and would require special well construction procedures (A.A.C. R12-15-812(B)). The secondary drinking water standard for TDS is 500 mg/l.

[2] As = Arsenic
NO3 = Nitrate
F = Fluoride
Hg = Mercury
Organics = One or more of several volatile and semi-volatile organic compounds and pesticides
Se = Selenium
TDS = Total Dissolved Solids

[3] FC = Fish Consumption

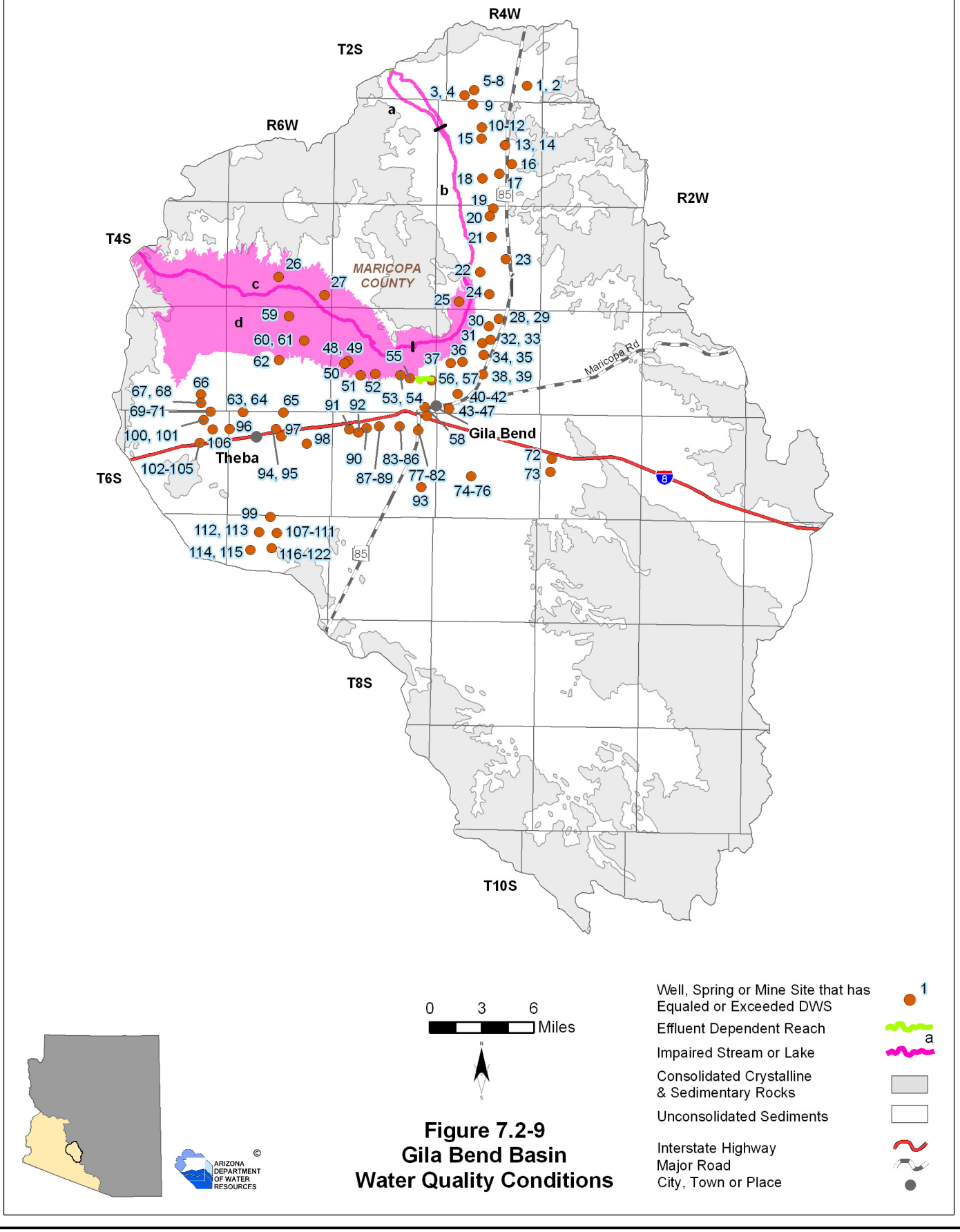


Figure 7.2-9
Gila Bend Basin
Water Quality Conditions

7.2.8 Cultural Water Demands in the Gila Bend Basin

Cultural water demand data including population, number of wells and the average well pumpage and surface water diversions by the municipal, industrial and agricultural sectors are shown in Table 7.2-8. Effluent generation including facility ownership, location, population served and not served, volume treated, disposal method and treatment level is shown in Table 7.2-9. Figure 7.2-10 shows the location of demand centers. A description of cultural water demand data sources and methods is found in Volume 1, Appendix A. More detailed information on cultural water demands is found in Section 7.0.7.

Cultural Water Demands

- Refer to Table 7.2-8 and Figure 7.2-10.
- Population in this basin decreased from 3,437 in 1980 to 4,256 in 2000.
- Most cultural water use is for irrigation in the northern portion of the basin.
- Agricultural groundwater demand increased 18% and surface water demand decreased 25% from 1991 to 2005.
- There was no reported industrial groundwater demand prior to 2003. In 2003 the Gila River Power Plant and the Citrus Valley Dairy began operation. The Painted Rock Dairy began operation in 2004. Total average water demand for the three uses was 4,700 AFA from 2003-2005.
- Municipal groundwater demand is small and increased 18% from 1991 to 2005.
- As of 2005 there were 146 registered wells with a pumping capacity of less than or equal to 35 gallons per minute and 391 wells with a pumping capacity of more than 35 gallons per minute.

Effluent Generation

- Refer to Table 7.2-9.
- There are four wastewater treatment facilities in this basin.
- Information on population served was available for three facilities and information on the volume of effluent generated was available for two facilities. These facilities serve almost 4,900 people, 3,400 of which are at the Lewis Prison, and generate almost 800 acre-feet of effluent per year.
- Effluent is discharged to evaporation ponds and a watercourse (overland flow) and is not reused.

Table 7.2-8 Cultural Water Demand in the Gila Bend Basin[1]

Year	Estimated and Projected Population	Number of Registered Water Supply Wells Drilled		Average Annual Demand (in acre-feet)						Data Source
				Well Pumpage			Surface-Water Diversions			
		Q ≤ 35 gpm	Q > 35 gpm	Municipal	Industrial	Agricultural	Municipal	Industrial	Agricultural	
1971		98[2]	307[2]	237,000			78,000			ADWR (1994a)
1972										
1973										
1974										
1975										
1976				274,000			102,000			
1977										
1978										
1979										
1980	3,437									
1981	3,402	8	18	245,000			117,000			
1982	3,367									
1983	3,332									
1984	3,297									
1985	3,262									
1986	3,227	6	16	179,000			99,000			
1987	3,192									
1988	3,157									
1989	3,122									
1990	3,087									
1991	3,204	3	17	700	NR	237,000	NR	NR	71,500	USGS (2007) ADWR (2008b)
1992	3,321									
1993	3,438									
1994	3,555									
1995	3,672									
1996	3,789	8	16	700	NR	244,000	NR	NR	68,500	
1997	3,905									
1998	4,022									
1999	4,139									
2000	4,256									
2001	4,688	23	27	800	4,700[3]	289,000	NR	NR	54,000	
2002	5,119									
2003	5,551									
2004	5,983									
2005	6,415									
2010	8,573									
2020	10,268									
2030	15,392									
WELL TOTALS:		**146**	**391**							

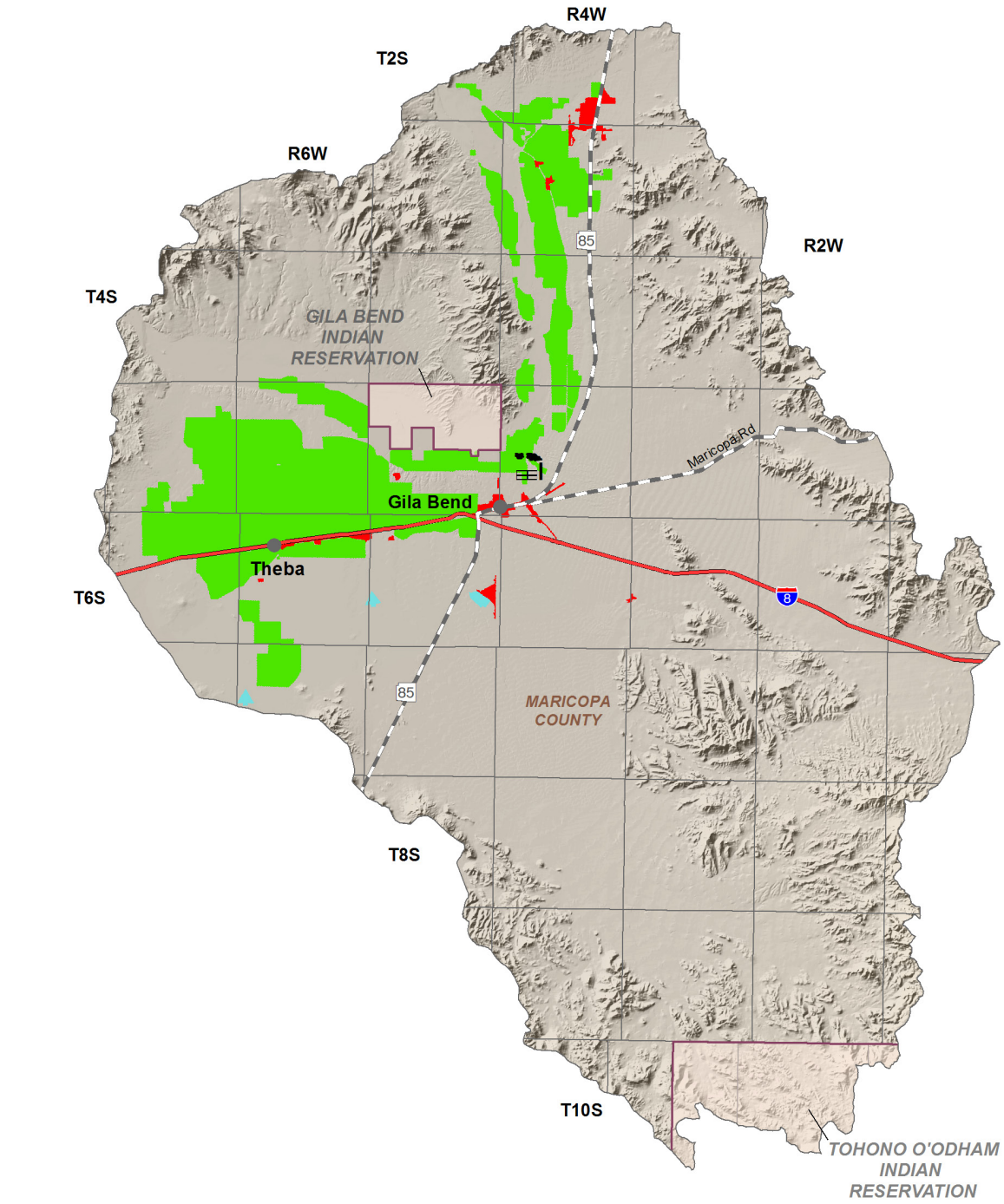
[1] Does not include effluent or evaporation losses from stockponds and reservoirs.
[2] Includes all wells through 1980.
[3] Water use shown is for the Gila River Power Plant (4,600 acre-feet) and the Citrus Valley Dairy (100 acre-feet) that opened in 2003 and the Painted Rock Dairy that opened 2004 (60 acre-feet).
NR - Not reported

Table 7.2-9 Effluent Generation in the Gila Bend Basin

Facility Name	Ownership	City/Location Served	Population Served	Volume Treated/Generated (acre-feet/year)	Disposal Method								Current Treatment Level	Population Not Served	Year of Record
					Water-course	Evaporation Pond	Irrigation	Golf Course/Turf/ Landscape	Wildlife Area	Discharged to Another Facility	Infiltration Basins	Other (Overland Flow)			
Auxiliary Field	US Air Force	Airfield	70	NA											
Gila Bend WWTP	Municipal	Gila Bend	1,440	392								X	Adv. Trt.I	600	2003
Lewis WWTP	Arizona Department of Corrections	Prison	3,400	403		X							Adv.Tr.I	NA	2004
Panda Gila River Project	Private	Power plant	Industrial	NA		X							NA		
Total			**4,910**	**795**											

Source: Compilation of databases from ADWR & others

Notes:
Year of Record is for the volume of effluent treated/generated
NA: Data not currently available to ADWR
WWTP: Waste Water Treatment Plant
Adv. Trt. I: Advanced Treatment Level I



Primary Data Source: USGS National Gap Analysis Program, 2004

0 3 6
Miles

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Figure 7.2-10
Gila Bend Basin
Cultural Water Demand

Demand Centers

- Agriculture
- M&I - High Intensity
- M&I - Low Intensity
- Indian Reservation
- Indian Reservation Boundary
- Power Plant
- Interstate Highway
- Major Road
- City, Town or Place

7.2.9 Water Adequacy Determinations in the Gila Bend Basin

Water adequacy determination information including the subdivision name, location, number of lots, adequacy determination, reason for an inadequacy determination, date of determination and subdivision water provider are shown in Table 7.2-10. Figure 7.2-11 shows the general locations of subdivisions (to the section level) keyed to the Table. A description of the Water Adequacy Program is found in Volume 1, Appendix C. Adequacy determination data sources and methods are found in Volume 1, Appendix A.

- All subdivisions receiving an adequacy determination are in Maricopa County. Six water adequacy determinations for 222 lots have been made in this basin through December 2008. Forty-three lots, or 18%, were determined to be adequate.
- Reasons for a determination of inadequacy included water quality and because the applicant chose not to submit necessary information and/or available hydrologic data were insufficient to make a determination.
- There are five analysis of Adequate Water Supply applicants for a total of 37,577 lots.

Table 7.2-10 Adequacy Determinations in the Gila Bend Basin[1]

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No.[2]	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination[3]	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
2	Current Place Subdivision, Unit 1	Maricopa	5 South	4 East	31	30	53-300552	Inadequate	A1	10/23/1998	Town of Gila Bend
3	Dos Lagos, Lots 1 through 64, Tracts A through N	Maricopa	4 South	4 East	3	64	53-700383	Inadequate	A1	7/27/2007	Town of Gila Bend
5	Gila Bend Estates	Maricopa	5 South	5 East	36	35	53-400726	Inadequate	A1,C	7/10/2002	Town of Gila Bend
8	Palo Verde Heights Unit I	Maricopa	5 South	4 East	31	24	53-400094	Adequate		6/22/1999	Town of Gila Bend
10	Spring Mountain Ski Ranch	Maricopa	2 South	5 East	35	50	53-401600	Inadequate	A1	3/4/2005	Unformed HOA
11	Zuni Estates	Maricopa	5 South	5 East	36	19	53-501721	Adequate		12/1/1975	Town of Gila Bend

B. Analysis of Adequate Water Supply

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No.[2]	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section				
1	Belvedere	Maricopa	3 South	4 East	6	13,120	43-401992	7/7/2006	NA
4	Enterprise Ranch	Maricopa	2 South	5 East	28, 32, 34	8,393	43-500008	10/14/2008	Undetermined
			3 South	4 East	19, 30, 31				
			3 South	5 East	3, 11, 12, 13, 24, 25				
			4 South	4 East	6				
6	Insignia	Maricopa	2 South	5 East	36	2,091	43-500090	6/12/2007	Town of Buckeye
7	Ladera	Maricopa	2 South	4 East	28, 29, 31, 32, 33	5,864	43-500044	3/5/2008	NA
			3 South	4 East	5, 6				
9	Sonoran Trails	Maricopa	5 South	4 East	3, 10	8,109	43-700427	5/9/2008	NA
			4 South	4 East	9, 10, 15, 22, 27, 34				

Notes:

[1] Each determination of the adequacy of water supplies available to a subdivision is based on the information available to ADWR and the standards of review and policies in effect at the time the determination was made. In some cases, ADWR might make a different determination if a similar application were submitted today, based on the hydrologic data and other information currently available, as well as current rules and policies.

[2] Prior to February 1995, ADWR did not assign file numbers to applications for adequacy. Between 1995-2006 all applications for adequacy were given a file number with a 22 prefix. In 2006 a 53 prefix was assigned to all water adequacy reports and applications regardless of their issue date.

[3] A. Physical/Continuous
1) Insufficient Data (applicant chose not to submit necessary information, and/or available hydrologic data insufficient to make determination)
2) Insufficient Supply (existing water supply unreliable or physically unavailable; for groundwater, depth-to-water exceeds criteria)
3) Insufficient Infrastructure (distribution system is insufficient to meet demands or applicant proposed water hauling)

B. Legal (applicant failed to demonstrate a legal right to use the water or failed to demonstrate the provider's legal authority to serve the subdivision)
C. Water Quality
D. Unable to locate records

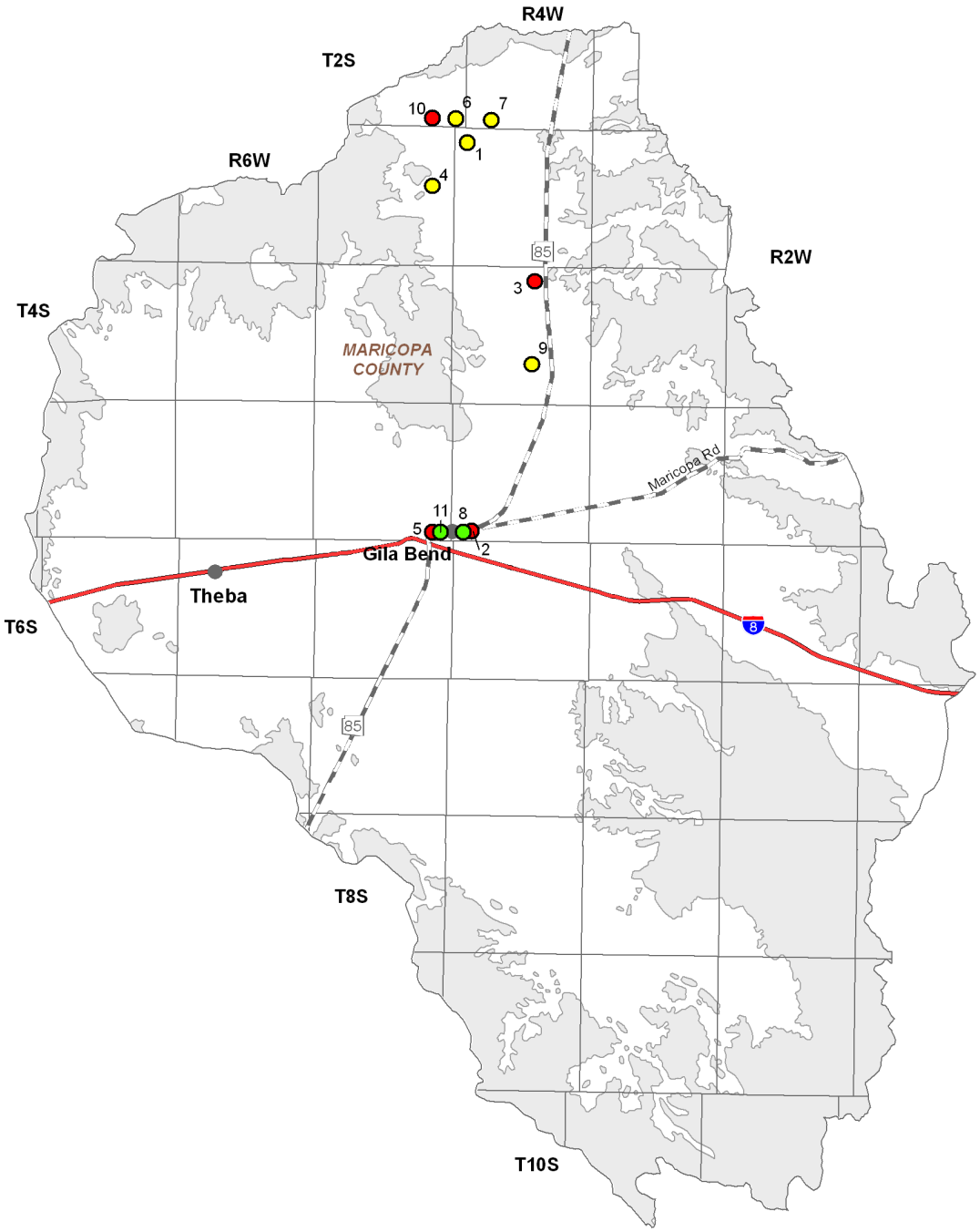

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Figure 7.2-11
Gila Bend Basin
Adequacy Determinations

Adequacy Determinations

- Adequate
- Inadequate
- Analysis of Adequate Water Supply
- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments
- Interstate Highway
- Major Road
- City, Town or Place

Gila Bend Basin
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