Section Eight—Water Resources Element

8.1 Introduction

Yuma County is located in one of the most arid regions of the United States. The most populated portions of the county receive on average less than three inches of rain annually. Despite this, Yuma County is home to over 200,000 people and a $3 billion agricultural sector operating on over 195,000 acres and is one of the most productive and important in the nation. Maintaining adequate water resources and access to them is fundamental to the continuing viability and prosperity of Yuma County.

Recognizing the importance of adequate water resources Arizona Revised Statutes §11-804(B)(3) mandates that a county's comprehensive plan address:

- The known legally and physically available surface water, groundwater and effluent supplies
- The demand for water that will result from future growth projected in the county plan, added to existing uses
- An analysis of how the demand for water that will result from future growth projected in the comprehensive plan will be served by the water supplies

The Water Resources Element of the Yuma County 2020 Comprehensive Plan will address these issues. This element is comprised of six Sections:

- Surface Water
- Groundwater
- Community Water Systems
- Water Adequacy
- Water Resources Policies and Priorities
- Water Resources Actions
-

The surface water section examines the surface water resources that are available in Yuma County. The Colorado River is by far the most important water resource and the only surface water resource of note in Yuma County. 72% of total county residents and more than half of residents in the unincorporated portions have their drinking water originate from the Colorado River. The agricultural sector upon which the area's economy is built is almost exclusively irrigated with water coming from the Colorado River. The U.S. Bureau of Reclamation is the agency charged with managing the Colorado River and how water coming from it may be used. The Water Resources element details who, where and how Colorado River water can be used. If future growth occurs in the apportioned locations, existing entitlements to Colorado River water should be able to support future growth in Yuma County for the foreseeable future.

The community water system section details the community water systems that exist in Yuma County, where they obtain their water from, what population they serve and the issues facing them. The U.S. Environmental Protection Agency (EPA) defines a community water system as a public water system that serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents. In Yuma County there are 33 community water systems, eight publicly owned and 25 privately owned. The EPA estimates

that combined these systems serve approximately 181,000 people, which represents appximately 89% of the estimated population of Yuma County.

The water adequacy section details the state and county policies that are designed to ensure that all newly platted subdivisions have an adequate supply of safe drinking water. This section also lists all the platted subdivisions within unincorporated Yuma County that the Arizona Department of Water Resources determined to have an inadequate supply of water.

The water resources polices and priorities section contains the policy positions and priorities of Yuma County regarding water resources within unincorporated Yuma County. The water policies and priorities contained within the Yuma County 2020 Comprehensive Plan are derived from comments and feedback from residents from across the county, comments from stakeholders, and from the requirements of Arizona Revised Statutes §11-804(B)(3). All official actions taken by Yuma County regarding water resources should be in harmony with these policies and priorities. Further, when other agencies request Yuma County's comment or recommendation on any water related policy or project, Yuma County's response will reflect as much as possible these policies and priorities. Yuma County will support the applications of grants, projects and policy changes that will further advance these polices and priorities.

The water resources actions section contains the specific actions that Yuma County will take to advance the adopted water resources polices and priorities.

Colorado River

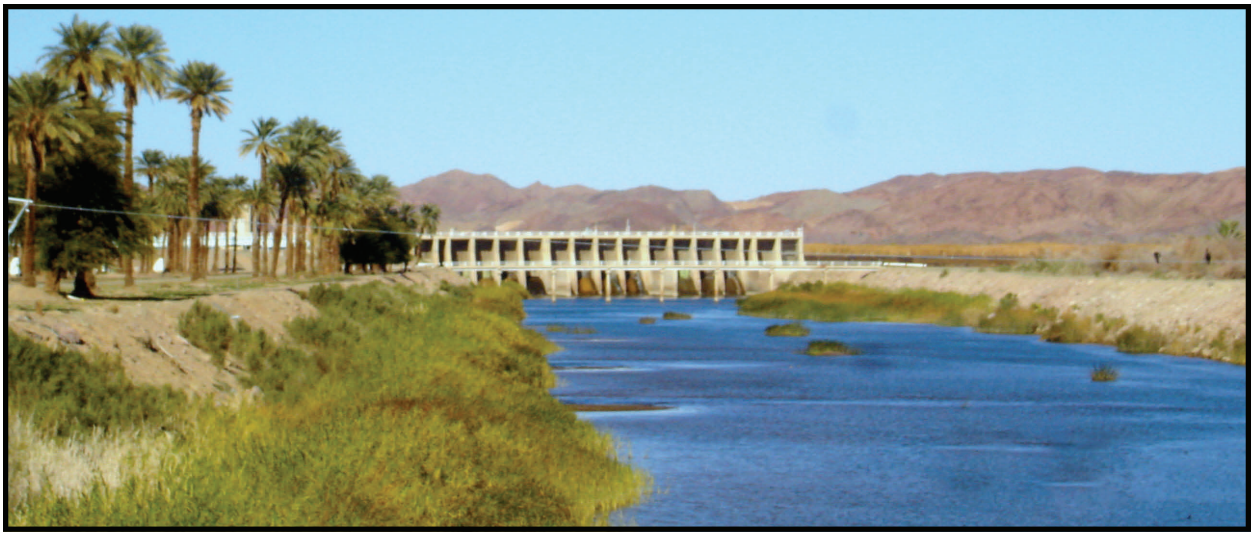
8.2 Surface Waters

The Colorado River is the greatest asset that Yuma County possesses. For the six irrigation districts and various other entities that also have Colorado River water allocations, the cumulative allocation for Yuma County is over 923,000 acre feet per year. Yuma County was one of the first areas to begin using Colorado River water and for this reason Yuma County's entitlements are among the most senior, and therefore, the most secure of all those along the river.

Nearly all Colorado River water used in Yuma County is diverted at Imperial Dam into a network of approximately 226 miles of canals. These canals are operated by six irrigation and drainage districts. In addition to their primary function of providing irrigation, water for municipal and industrial use is supplied to a number of municipalities and private water systems through this system of canals.

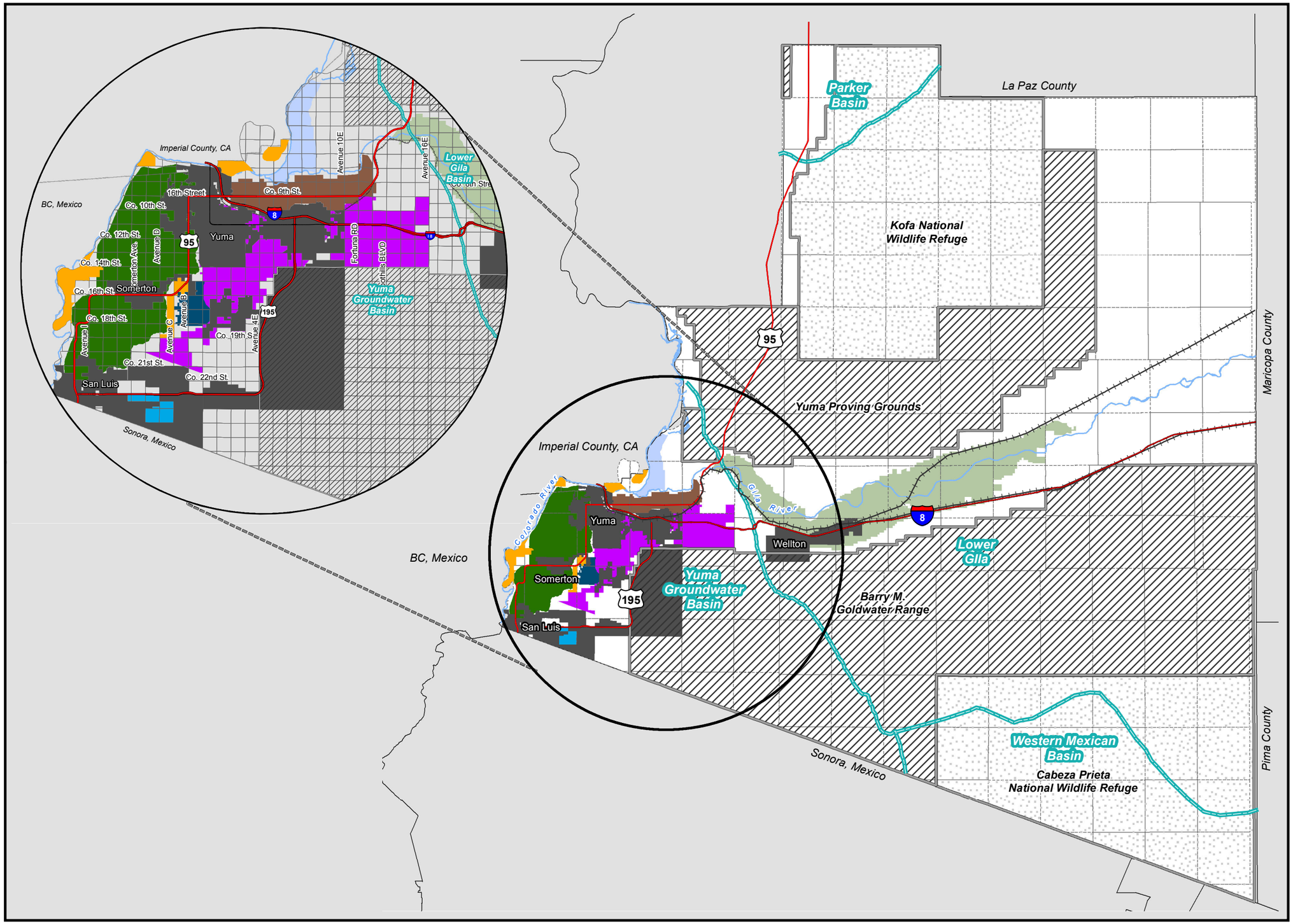
The Gila River enters Yuma County from the east and flows westward until it joins with the Colorado River in the vicinity of the City of Yuma. Prior to the completion of Gillespie and Painted Rock Dams in the first half of the twentieth century, the Gila River was a perennial stream within Yuma County. It is now an ephemeral stream. Water only flows in response to the discharge of agricultural drainage, a heavy precipitation event or if water is released from Painted Rock Dam. Depending on these events, flow in the Gila River can range from non-existent to quite extensive.

There are a great number of washes, both named and unnamed, in Yuma County. These are ephemeral streams that only have running water in them after a significant rain event. Their contribution to the available surface water resources in Yuma County is negligible. The potential hazard posed by washes is not negligible; heavy rains can flash flood within them and pose a risk to life and property.



Imperial Dam

Water Resources Elements - Surface Waters



YUMA COUNTY ARIZONA

- Groundwater Basing Boundary
- Indian Reservations
- Military Boundary
- Incorporated Areas
- National Wildlife Refuge
- Hillander "C"
- North Gila Irrigation District
- Unit B Irrigation District
- Wellton-Mohawk Irrigation And Drainage District
- Yuma County Water Users Association
- Yuma Irrigation District
- Yuma Mesa Irrigation And Drainage District

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division & ADWR

Date: June, 2011

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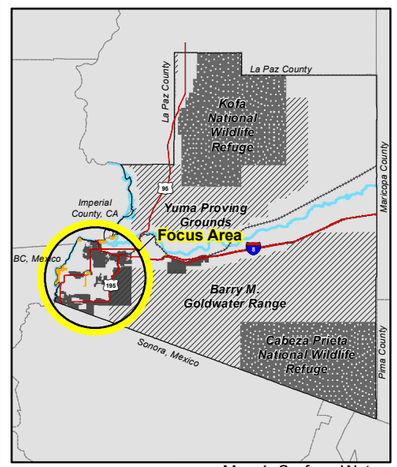


Map 1: Surface Water

Colorado River

How it is used and who can use water from the Colorado River is governed by what is known as the "Law of the River." The Law of the River is a collection of compacts, federal laws, court decisions and decrees, contracts and regulatory guidelines that determine how and who can use Colorado River water. Because Yuma County is so dependent on Colorado River water, an understanding of the Law of the River and how it relates to Yuma County is key to understanding water resource allocation and distribution in Yuma County.

The most important function of the Law of the River is that it portions out water from the river to specific entities and then assigns a priority to these entitlements based on when they were initially established. Entitlements are contracts between the holder and the Secretary of the Interior acting through the Bureau of Reclamation. All combined the entitlement holders in Yuma County hold an entitlement of 923,091 acre feet per year. Yuma County entitlements tend to be high in priority, with 99% being a first, second or third priority entitlement. The bulk of entitlements held in Arizona outside of Yuma County are classified as fourth priority or lower. Were a water shortage to become so severe that not all Colorado River entitlements would be able to be filled, any potential shortage would be borne by the lowest priority entitlements. With continued sound stewardship water resources should be both sufficient and secure for decades to come.

In 2009, the Bureau of Reclamation reported that combined consumptive use of 649,754 acre feet, meaning that water users in Yuma County used approximately 70% of the 923,091 acre feet per year of Colorado River water that they were entitled to use. For both physical and legal reasons, the acreage that is irrigated by Colorado River water is unlikely to expand in the future. Unless there is a shift to agriculture practices and crops that consume a great deal more water than what currently exists, the largest user of Colorado River water in Yuma County, the agricultural sector, is unlikely to use significantly more water in the future. Potentially much of the unused entitlements in Yuma County could be used to support non-agricultural development.

Approximately 87.4% of entitlements in Yuma County are held by five irrigation and drainage districts. These districts were set up to make productive use out of the river water that was made deliverable by the Bureau of Reclamation's completion of the Yuma and Gila Projects. The Yuma and Gila Projects were federal projects in the first half of the twentieth century that built the dams, canals, pumping plants and drains that makes up the irrigation infrastructure of Yuma County. The primary function of these districts is to provide water for agricultural uses. Each entitlement that is held by an irrigation district generally sets aside a portion of water for municipal and industrial use; Table 1 on page 8 lists the portions of the irrigation districts' entitlements that are set aside for municipal and industrial purposes.

The municipal and industrial portion of an irrigation district's entitlement may only be used within that district's boundaries and at the discretion of that district's governing board. Usually municipal and industrial water is treated and distributed by a community water system which can be privately or publically owned. Community water systems either have their own entitlement to Colorado River water such as the City of Yuma, or they purchase a portion of entitlement holder's municipal and industrial allocation. Far West Water and Sewer, which supplies water to approximately 30,000 people in the Foothills area purchases approximately 5,000 acre feet of river water a year from the Yuma Mesa Irrigation and Drainage District. Six community water systems obtain their water by purchasing it from an irrigation district.

Municipal and industrial (M&I) entitlements are what support non-agricultural uses of water. Between M&I entitlements held by the irrigation districts, municipalities and other entities such as Marine Corps Air Station Yuma and YPG, there is a total of 100,824 acre feet per year of Colorado River water that is entitled to be used for municipal and industrial use in Yuma County. In 2009 Bureau of Reclamation records show that of this allocation of 100,824 acre feet, there was a consumptive use of 24,100 acre feet of water for municipal and industrial uses. This means that only approximately 24% of water entitled to be used for municipal and industrial in Yuma County was used in 2009 (see Table 2 on page 7). The overall M&I entitlement in Yuma County should be sufficient to accommodate growth for decades to come. However, there is no overall M&I entitlement for Yuma County. Almost every M&I entitlement has a specific geographic boundary in which the water can be used and there are large portions of Yuma County that are not within the boundaries of an entity that holds an M&I entitlement to Colorado River water. Therefore, in order for the existing M&I entitlements to be able support all future growth, this growth must occur in the areas that have the necessary water rights to support it.

Municipal and Industrial Entitlements	
Entitlement Holder	**Acre Feet**
City of Yuma	50,000
Yuma County Water Users' Assoc.	14,701
Wellton-Mohawk Irrig. & Drain. Dist.	12,500
Yuma Mesa Irrig. & Drain Dist.	10,000
Yuma Irrigation District	5,000
Department of Navy, MCAS	3,000
North Gila Valley Irrigation District	2,500
Yuma Proving Ground	1,129
City of Somerton	750
Bureau of Reclamation	490
Desert Lawn Memorial Park Assoc.	360
Desert Lawn Memorial Park	200
City of Yuma (cemetery)	60
Fisher's Landing Water & Sewer	53
Kammann, Inc.	48
City of Yuma (Smucker Park)	33
Total	**100,824**

Table 1: Yuma County Municipal & Industrial Entitlements[1]

The City of Yuma has set up agreements with the holders of various of irrigation water entitlements to convert agricultural use entitlements to municipal and industrial entitlements as agricultural land develops. The primary participant in this type of transfer is the Yuma County Water User's Association. The City of Yuma and the Yuma County Water Users' Association have agreed on a water rights conversion ratio of 5.83 acre feet per year for each acre of land that transitioned from agriculture to another type of land use. The City of Yuma currently holds water conversions of 19,000 acre feet a year in addition to its 50,000 acre-feet a year entitlement to Colorado River water.[2]

The other factor that must be considered when contemplating the location of future growth is the infrastructure needed to deliver water from the Colorado River to any water treatment plant. Currently nearly all water treatment plants that make use of Colorado River water in Yuma County do not directly withdraw water from the river, but rather through the system of irrigational canals. These canals were constructed to support agricultural uses, and therefore agricultural uses take priority when it comes to the finite quantity of water that can be delivered through these canals. Even if an existing M&I entitlement is sufficient to serve an area, this is no guarantee that there is sufficient capacity within existing canals to deliver water to a treatment plant.

1 U.S. Bureau of Reclamation.
2 Public Services Element Draft City of Yuma 2012 General Plan

Entity	Entitlement Priority - In Acre Feet per Year					2009 Consumptive Use in A.F.
	1st	2nd & 3rd	4th	5th or 6th	Total	
Wellton-Mohawk Irrigation and Drainage District		278,000			***278,000***	262,227
Yuma County Water Users' Association	254,200				***254,200***	225,181
Yuma Mesa Irrigation and Drainage District		141,519			***141,519***	71,510
Yuma Irrigation District		67,278			***67,278***	36,648
North Gila Valley Irrigation District	24,500	41,203			***65,703***	12,224
City of Yuma	1,478	48,522			***50,000***	15,407
Imperial National Wildlife Refuge		28,000			***28,000***	912
Cocopah Indian Reservation	8,821		2,026		***10,847***	4,039
Gila Monster Farms, Inc.	780	6,285	1,435	656	***9,156***	4,518
Yuma Auxiliary Project (Unit B)	6,800				***6,800***	13,467
Others		905	2,403		***3,308***	NA
MCAS Yuma		3,000			***3,000***	1,578
APS - Yucca Power Plant				1,500	***1,500***	330
Yuma Proving Ground		1,129			***1,129***	873
University of Arizona Extension		1,088			***1,088***	597
City of Somerton			750		***750***	0
Desert Lawn Memorial Park		200	360		***560***	90
Yuma Union High School		200			***200***	113
Fisher's Landing Water and Sewer Works			53		***53***	40
Total	***296,579***	***617,329***	***7,027***	***2,156***	***923,091***	***649,754***

Table 2: Colorado River Entitlements and 2009 Consumptive Use[2]

[2] U.S. Bureau of Reclamation.

8.3 Groundwater

The overwhelming majority of Yuma County and all of its inhabited areas are contained either in the Yuma or Lower Gila Groundwater Basins. The Lower Gila Basin encompasses most of the County east of the Gila Mountains. According to the Arizona Department of Water Resources, well yields in this basin are generally greater than 1,000 gallons per minute, and the natural recharge rate for the entire basin is estimated to be from 9,000 to 88,000 acre feet a year. The Yuma Basin comprises most of the County west of the Gila Mountains. Well yields in this basin are generally greater than 2,000 gallons per minute, and the natural recharge rate for the entire basin is estimated at 213,000 acre feet a year.[3]

Depending on the location of a well there are a number of potential issues regarding groundwater quality that could potentially cause a well to produce water that is not up to drinking water standards without additional treatment. In eastern Yuma County the main issue is excessive amounts of fluoride and/or arsenic from natural occurring mineral sources. In the Wellton-Mohawk Valley the maximum limit for total dissolved solids is often exceeded due to the salts carried into the water table from irrigation water. Some wells west of the Gila Mountains have exceeded the maxim allowed amount of volatile and semi-volatile organic compounds which likely come from both urban and agricultural uses. Map 2 shows the locations of wells where the Arizona Department of Water Resources (ADWR) has recorded an exceedance of drinking water standards for at least one contaminate.

Historically the availability of groundwater has not been an impediment to development in Yuma County. Most development and agriculture in Yuma County makes use of surface water and not groundwater. Between 1973 and 2008, nineteen subdivisions were platted in unincorporated Yuma County despite the ADWR determining that they had an inadequate water supply. Nor has the ADWR designated any of Yuma County as an active management area in which groundwater rights are quantified and regulated. ADWR defines active management areas as areas with heavy reliance on mined groundwater, i.e. groundwater which is not naturally replenished once withdrawn.

The rules for well placement in Yuma County are largely written by the Arizona Department of Water Resources and enforced by the Yuma County Environmental Programs Division. There are two specifically defined locations in Yuma County where the Bureau of Reclamation has created additional regulations and restrictions on how groundwater can be used.

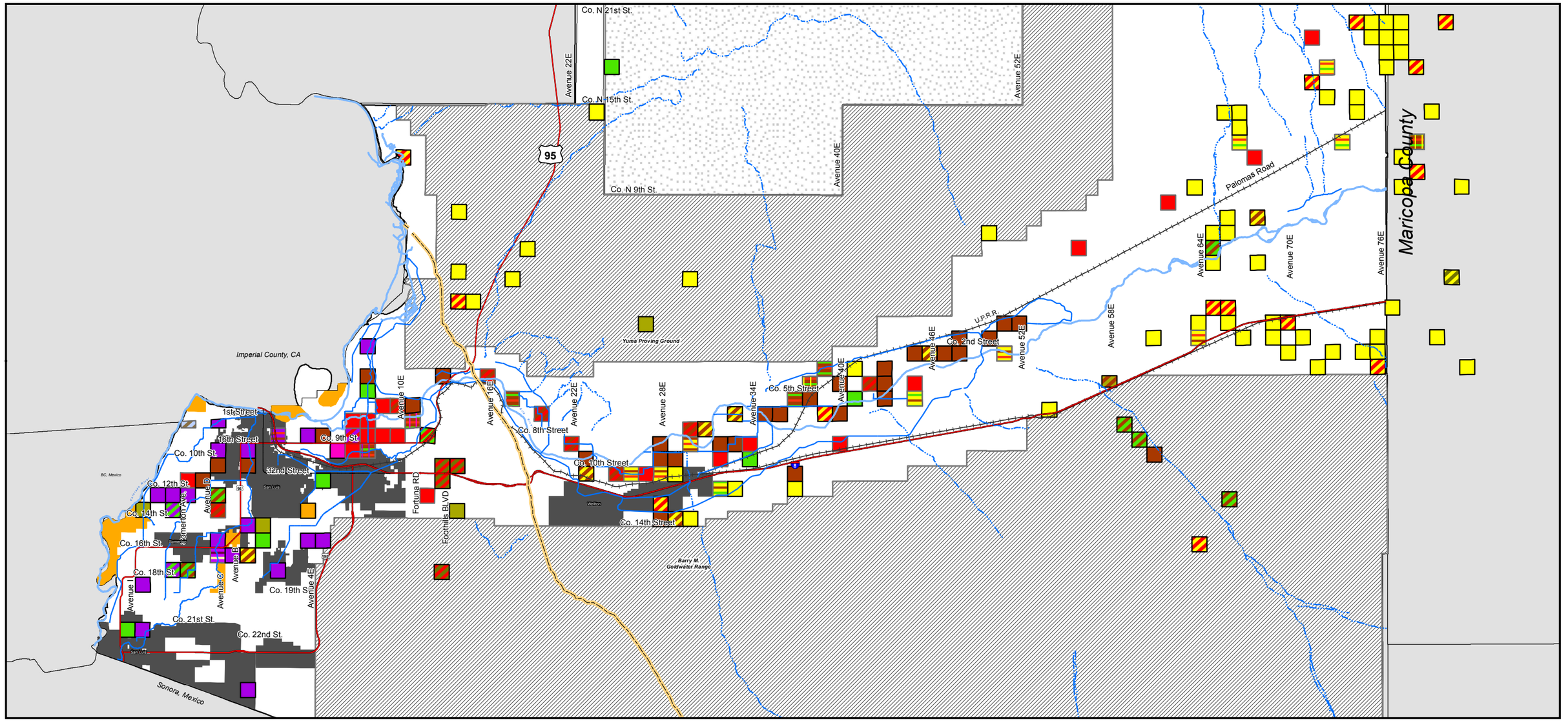
The ADWR classifies all wells within Yuma County as either exempt or non-exempt. Regulations differ depending on the type of well. An exempt well has a maximum pump capacity of 35 gallons per minute. Typical uses include non-irrigation purposes, non-commercial irrigation of less than two acres of land and watering stock. Most exempt wells are used for residences and are more than adequate for household use.

A Notice of Intention to Drill form (NOI) must be filed with the Arizona Department of Water Resources for all wells drilled in Yuma County. If the well is intended for non-domestic purposes, as defined in Title 45-454, or it will be used for domestic purposes and the size of the property upon which the well will be constructed exceeds five acres the NOI shall be filed with the Director of Water Resources.

[3.] Arizona Department of Water Resources. "Arizona Water Atlas, Volume 7, Lower Colorado River Planning Area." November 2009

If the well is intended for domestic purposes, as defined in Title 45-454, and the size of the property upon which the well will be constructed is less than 5 acres, the NOI and site plan must be submitted to the Yuma County Environmental Programs Division to ensure compliance with well placement and septic tank requirements. State law requires a 100 foot separation between a well and any septic tank or sewer system and that a parcel containing both a well and an onsite sewage treatment system is at least one acre in size.

Water Resources Element - Groundwater Quality



YUMA COUNTY ARIZONA

- Arsenic (As)
- Fluoride (Fl)
- TDS (Total Dissolved Solids)
- Volatile, Semi Volatile Compounds (Org)
- Nitrate (NO3)
- Lead (Pb)
- Cadmium (Cd)

- As, F
- As, F
- As, NO3
- As, Pb
- As, TDS
- As, Org
- F, TDS

- F, TDS
- F, Pb
- TDS, Pb
- NO3, TDS
- NO3, Org
- Be, Cd
- As, F, TDS

- As, F, NO3
- As, TDS, Org
- As, NO3, TDS
- F, NO3, TDS
- Org, Sb, Be
- As, F, NO3, TDS
- As, F, NO3, TDS

- As, NO3, TDS, Org
- AS, NO3, TDS, Thallium
- As, Beryllium, F, Pb, NO3, TDS
- Groundwater Basin Boundary
- Major Washes
- Major Canals
- Rivers

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: July, 2011

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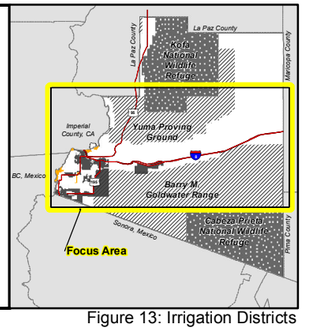


Figure 13: Irrigation Districts

8.3.a Depth to Groundwater

Depth to groundwater is an important issue in many parts of Yuma County. The water table in the Yuma, Gila and Wellton-Mohawk Valleys is naturally high due to the influence of local rivers. Map 3 and 4 highlight the areas in which high groundwater is a concern. The river valleys are where the best farmland is located and as a result a large amount of irrigation water is used in these areas which causes an already high water table to rise further. Without the active management of groundwater levels there would be areas in which groundwater would breach the surface. Even with active groundwater elements there are areas in Yuma County where during certain times of the year the water table comes within a few feet of the surface.

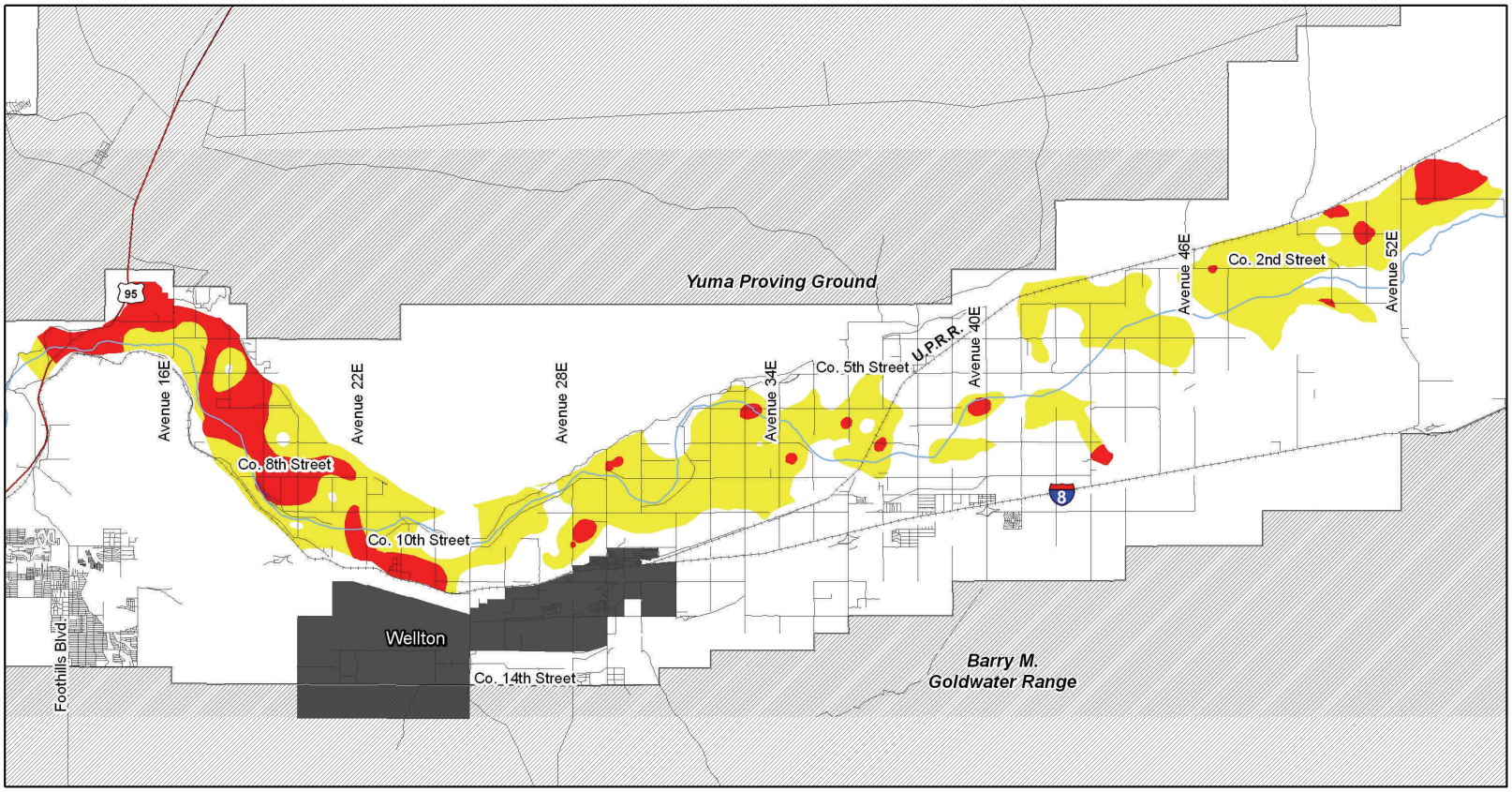
West of the Gila Mountains groundwater levels are managed through the Bureau of Reclamation's Yuma Area Water Management System. This system is comprised of 97 groundwater pumping facilities, 57 observation wells and 13 drainage canals. In the Wellton-Mohawk Valley this task is performed by the Wellton-Mohawk Irrigation and Drainage District. These systems of pumps and drains are used to extract and to discharge excess groundwater through a network of drainage canals in order to prevent damage to buildings, foundations, crops, roads and septic systems.

Because depth to groundwater is such an important issue in the Yuma, Gila and Wellton-Mohawk Valleys , the Yuma area Office of the Bureau of Reclamation closely tracks groundwater levels in these areas. Using data from drainage and observation wells, the Bureau of Reclamation publishes monthly maps showing the depth to groundwater in the Yuma, Gila and Wellton-Mohawk Valleys. These maps can be found on the webpage of the Yuma Area Office of the Bureau of Reclamation, http://www.usbr.gov/lc/yuma/programs/YAWMS/GROUNDWATER_maps.cfm

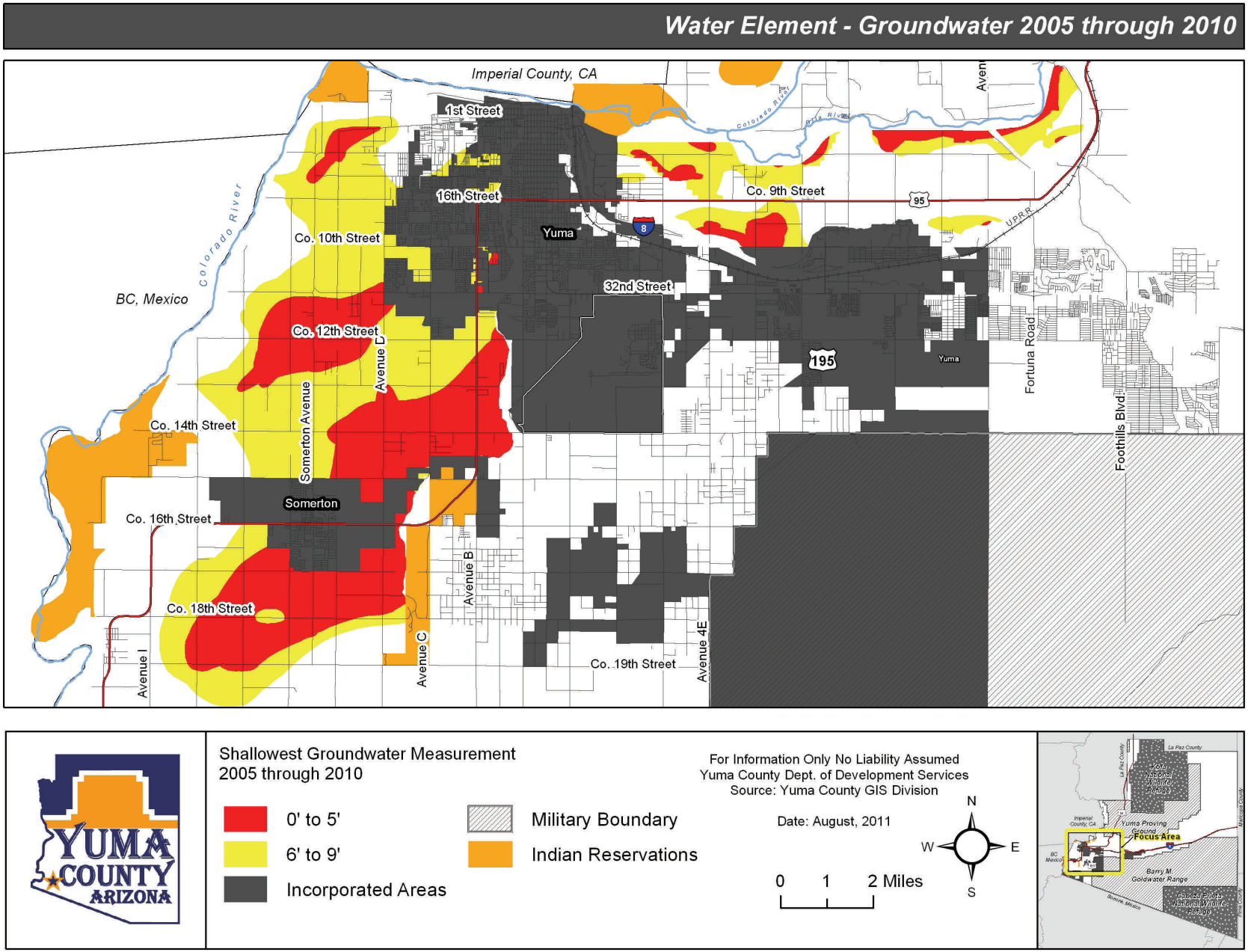
The maps on the following two pages is a composite of the Bureau of Reclamation's monthly depth to groundwater maps. Depth to groundwater in the valleys can vary greatly month to month largely driven by seasonal patterns in irrigation. Each month's depth to groundwater map is unique. Because of this a full understanding of groundwater cannot be gained by examining a single month's groundwater map. The maps depict the areas with a depth to groundwater of 0 feet to 5 feet and areas with a depth to groundwater of 6 feet to 9 feet measured between 2009 and 2011. Map 4 depicts the highest measured groundwater level for a given point between 2005 and 2010, thus mapping all areas where some time over the past five years groundwater levels were recorded at least for one month to be a level that could potentially be problematic.

Drainage Well Discharging into a Drain

Water Element - Groundwater 2009 through 2010



Map 3: Depth to Groundwater 2009 through 2010

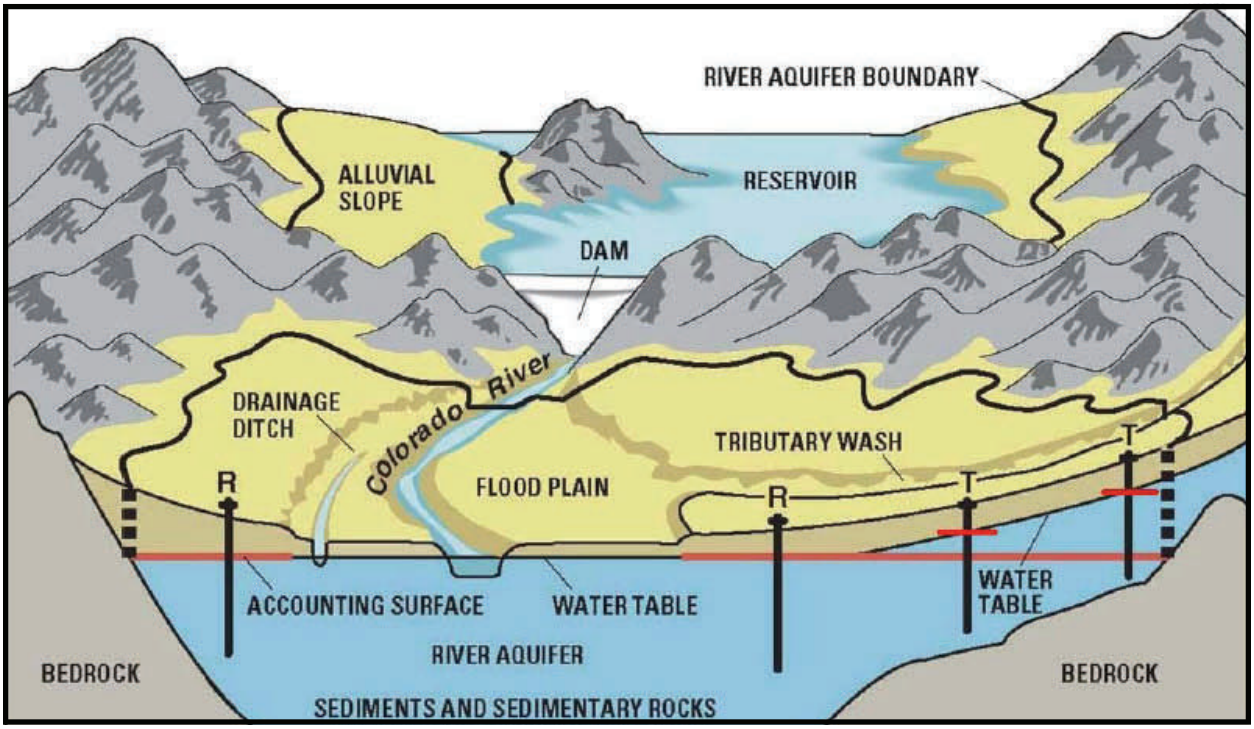


Map 4: Depth to Groundwater 2005 through 2010

8.3.b Colorado River Aquifer

In some areas located near the Colorado River, water pumped from a well is replaced by water from the Colorado River. In many cases the owners of these wells do not hold entitlements to Colorado River water. The Bureau of Reclamation estimates that in the lower Colorado River basin wells pumping Colorado River water without an entitlement consume 9,000 to 15,000 acre feet of water a year. In order to ensure the long-term sustainability of the lower Colorado River and to protect the water rights of Colorado River water entitlement holders, the Bureau of Reclamation has developed a river aquifer/accounting surface methodology to identify areas in which wells are pumping Colorado River water. The river aquifer is divided into two classifications: the floodplain where all water being pumped is presumed to be Colorado River and the accounting surface where wells are capable of withdrawing Colorado River water. Wells in the accounting surface are assumed to be withdrawing river water if their static water elevation is at or below the accounting surface elevation.[6]

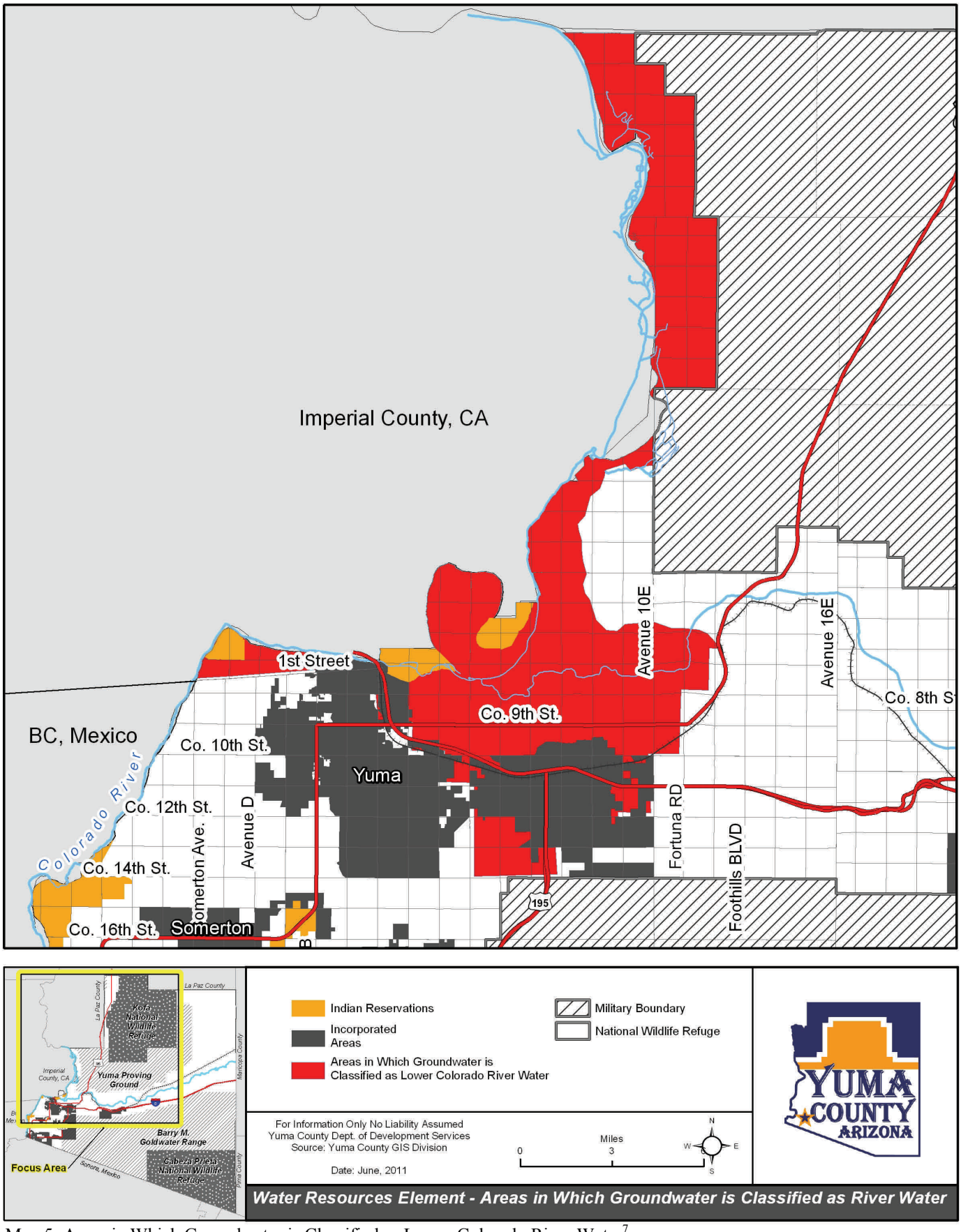
In much of southern Yuma County, groundwater flows underground across the southern international boundary (where the Colorado River crosses completely into Mexico, just west of San Luis) or under the Colorado River south of the northern international border (the point where the river first starts to form the international boundary). This ground water cannot be used to satisfy delivery obligations to Mexico under the Mexican Treaty. Therefore wells in this area are exempt from restrictions on pumping Colorado River water. Map 4 shows the areas where the pumping of groundwater is restricted due to it's classification as Colorado River water.



Schematic diagram showing the river aquifer and accounting surface (red line) of the lower Colorado River. Wells labeled "R" have a static water-level elevation equal to or below the accounting surface and are presumed to yield water that will be replaced by water from the river. Wells labeled "T" have a static water-level elevation above the accounting surface and therefore presumed to not be pumping river water. (Modified from Wilson and Owen-Joyce, 1994)[6]

[6] Thayer, Ruth. "Regulating the Use of Colorado River Water Without an Entitlement." U.S. Bureau Reclamation.

A.R.S. §45-596.01, which takes effect as soon as the Bureau of Reclamation finalizes its rules regarding pumping groundwater from the Colorado River aquifer, is intended to implement these restrictions on pumping Colorado River water. It requires a person who files a notice of intention to drill a well that will pump Colorado River water to include proof that they have the legal right to use Colorado River water with either an entitlement to use river water or a written agreement with an entity such as an irrigation district to use a portion of their entitlement. Map 5 shows the areas in Yuma County where this applies. A.R.S. §45-596.01 does not apply if the proposed well has a maximum capacity of less than thirty-five gallons per minute and will be used for the supply, service and activities of households and private residences, including the application of water to less than two acres of land to produce plants or parts of plants for sale or human consumption or for use as feed for livestock, range livestock or poultry.



Map 5: Areas in Which Groundwater is Classified as Lower Colorado River Water[7]

[7]43 CFR Part 415. Regulating the Use of Lower Colorado River Water Without an Entitlement; Proposed Rule

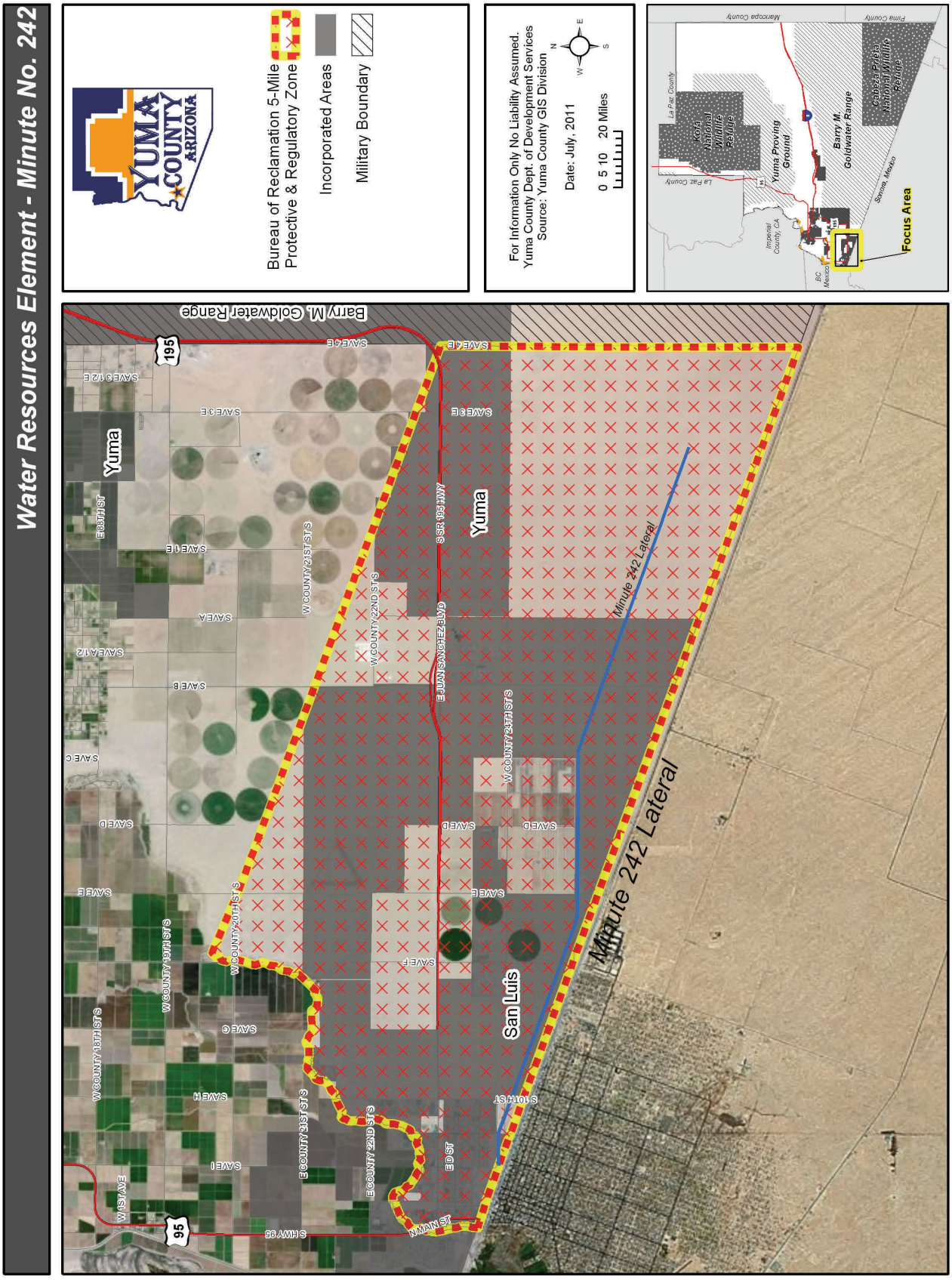
8.3.c Minute No. 242

The Mexican Water Treaty of 1944 guaranteed an annual volume of Colorado River waters to Mexico of 1,500,000 acre-feet (1,850,234,000 cubic meters). Minute No. 242 (Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River) is an agreement signed between the United States and Mexico in 1973 which required the approximately 1,360,000 acre-feet delivered to Mexico upstream of Morelos Dam have an average salinity of no more than 115 p.p.m. $\pm$ 30 p.p.m. U.S. count (121 p.p.m. $\pm$ 30 p.p.m. Mexican count) over the annual average salinity of Colorado River waters which arrive at Imperial Dam. Additionally, it guarantees Mexico the delivery of 140,000 cubic feet of water where the Colorado River crosses entirely into Mexico just west of San Luis. Minute No. 242 also limits the quantity of water allowed to be pumped within five miles of the Arizona-Sonora boundary to 160,000 acre feet annually. A similar restriction exists on the Mexican side of the border.

To meet the obligations of Minute No. 242, the Bureau of Reclamation (BoR) established the Five Mile Protective and Regulatory Zone (see Map 6) and Protective and Regulatory Pumping Unit. The protective and regulatory zone was established to ensure that no more groundwater than is allowed under Minute No. 242 is pumped from the area. To this end, the Bureau of Reclamation acquired 23,500 acres of land in this area, representing the majority of land in the Five Mile Protective and Regulatory Zone. These actions limit any potential development in the area.

In order to take advantage of irrigation drainage water flowing under the Yuma Mesa and to ensure that the required deliveries of water are made to Mexico, the Bureau of Reclamation constructed the 242 Well Field. The 242 Well Field is a series of 21 wells located near the international border that pump approximately 125,000 acre feet of groundwater into the 242 lateral for delivery to Mexico every year.[8]

[8] U.S. Bureau of Reclamation



Map 6: Bureau of Reclamation 5-Mile Protective & Regulatory Zone

8.4 Community Water Systems

The U.S. Environmental Protection Agency (EPA) defines a community water system as *a public water system that serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents.* In Yuma County there are 33 community water systems (see Table 4 on page 23); eight publicly owned and 25 privately owned. The EPA estimates that combined these systems serve approximately 181,000 people, which represents approximately 89% of the estimated population of Yuma County. The remaining 11% obtain their drinking water from private wells or from water systems too small to be classified as a community water system. Nine community water systems which are either primarily or only supplied with surface water, serve approximately 146,000 people, about 72% of the estimated total population of Yuma County.

Of the 33 community water systems, 25 of them are small, serving populations of less than 1,000; of these 20 serve a population smaller than 500. Most of these serve a single entity such as a recreational vehicle park or a single subdivision. Smaller community water systems, often the only feasible way of providing drinking water to a particular development, are the cause of some the most challenging issues regarding drinking water in unincorporated Yuma County. Because they have such a small customer base, many of these smaller community water systems have difficulty obtaining the capital needed to make improvements that are needed to maintain and improve reliability and water quality.

The reliability and quality of water coming from various small community water systems, particularly those relying on groundwater, was identified as a key issue by members of the public during the process that gathered the information used to draft the Yuma County 2020 Comprehensive Plan. Typically the types of improvements needed to address these issues can only be financed through a combination of grants and low-interest loans from the Arizona Water Infrastructure Finance Authority, an entity set up by the State of Arizona to help address these types of issues. The difficulty of funding improvements to small community water systems is the reason that creation of new small community water systems should be avoided, if it all possible.

A Small Community Water System in Unincorporated Yuma County

System	Source	2009 Acre-Feet Consumptive Use	Population Served
Yuma, City of	Surface Water	18,818	103,264
Far West Water Co.	YMIDD & Groundwater	YMIDD-5,168.55 Pumped-799.46	32,425
San Luis, City of	Groundwater	3,531.00	15,000
Somerton, City of	Groundwater	1,412.20	11,242
USMC-Air Station-Main	Surface Water	772.7	6,234
AZ. Dept of Corrections-Yuma	Groundwater	No Data	2,850
Wellton, Town of	WMIDD	314	2,025
US Army YPG - Main	Groundwater & Surface Water	673 - Surface Water	1,500
Sierra Pacific Mobile	Groundwater	8	816
Orange Grove Water Co.	Groundwater	101.94	800
Gadsden Water Company	Groundwater	14	756
Hidden Shores RV	Surface Water	43	512
Tierra Mesa Estates Water	Groundwater	172	468
Fishers Landing Inc	Surface Water & Groundwater	3.71	402
El Prado Water Company	Groundwater	35.35	400
Orange Grove Elementary School	Groundwater	No Data	400
Antelope Union High School District	WMIDD	No Data	380
Valley Vista Water Co.	Groundwater	62	300
Mohawk Utility Co.	WMIDD	WMIDD-40.56 Pumped 3.76	250

Table 4: Community Water Systems in Yuma County (Continued on Next Page) [9]

[9] Data obtained from the Arizona Department of Environmental Quality and the Arizona Corporation Commission

System	Source	2009 Acre-Feet Consumptive Use	Population Served
Tacna Water Co.	WMIDD	50	240
Laguna MHP	Groundwater	No Data	235
Green Acres Water Co.	Groundwater	41.32	210
Antelope Water Co.	WMIDD	54.31	200
Mohawk Valley School District	WMIDD	No Data	200
Dateland Elementary School	Groundwater	No Data	200
Shepard Water Co.	Groundwater	42.08	200
Dateland Public Service	Groundwater	41.57	125
Sun Leisure Estates Utility Co.	Groundwater	14	116
Sun-Set Mobile Trailer	Groundwater	1	100
River Ranch RV Park	Groundwater	No Data	100
G & L Mobile Park	Groundwater	102	90
Lucky Park Del Sol	Groundwater	No Data	90
Jones Co-op Water	Groundwater	9	84
Arizona West MH	Groundwater	No Data	66
Lemon Tree Trailer Park	Groundwater	11.4	60
Rancheros Bonitos	Groundwater	No Data	60
Dateland Water L.L.C.	Groundwater	3.31	40
Wellton-Mohawk Irrigation and Drainage District	WMIDD	No Data	36

Table 4: Community Water Systems in Yuma County [10]

[10] Data obtained from the Arizona Department of Environmental Quality and the Arizona Corporation Commission

8.5 Water Adequacy

The Arizona Department of Water Resource (ADWR) Adequate Water Supply program was created in 1973 as a consumer protection program. As a result of this legislation developers of subdivisions are required to obtain a determination from ADWR concerning the quantity and quality of water available before the Arizona Department of Real Estate will allow any lot sales. If the application for a Water Adequacy Report successfully demonstrates that water of sufficient quality will be physically, legally and continuously available for the next 100 years, then the Arizona Department of Water Resources will determine the water supply to be adequate. The exact requirements for determination of adequacy can be found in Title 12, Chapter 15, Article 7 of the Arizona Administrative Code. If the water supply is determined to be inadequate, the developer may still sell lots, but the inadequate determination must be disclosed to potential buyers in the public report approved by Arizona Department of Real Estate and in all promotional materials. If a provider with a Designation of Adequate Water Supply will serve the proposed subdivision, then the developer only has to provide a written commitment of service from the designated provider.[11]

In 2007 the legislature passed Senate Bill 1575 which, among other things, provides clear authority for cities, towns and counties to adopt an ordinance requiring new subdivisions to obtain a determination of an adequate 100-year water supply from the Arizona Department of Water Resources in order to obtain final plat approval from the local platting authority. On July 7, 2008 the Yuma County Board of Supervisors made use of this newly granted authority and added Section 4.31—Water Adequacy to the Yuma County Subdivision Regulations. This section requires as of August 10, 2008 that all subdivisions being platted in Yuma County obtain a determination of water adequacy from the Arizona Department of Water Resources prior to a final plat being issued. This requirement applies to all of Yuma County and not just the unincorporated portions of the County.[11]

Between 1973, when the Adequate Water Supply program was started, and August of 2008, a total of 19 subdivisions that were platted in unincorporated Yuma County were given a determination of inadequate water supply by the Arizona Department of Water Resources (see Table 6 on page 26). The most common reason for a finding of inadequacy was insufficient data meaning that the applicant chose not to submit necessary information or the available hydrologic data was insufficient to make a determination. Seven subdivisions were found to have an inadequate supply of water because the source of water identified did not meet drinking water quality standards, and the applicant failed to demonstrate provisions to bring this water up to standards.

Nearly all subdivisions that were determined to have inadequate water supply were platted as dry lot subdivisions, which means that individual homeowners are responsible for drilling their own wells and for the quality of water produced by these wells.

[11] Arizona Department of Water Resources.

Subdivision Name	Location			No. of Lots	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination	Date	Water Provider at Time of Application
	Township	Range	Section					
Arletta Estates	9 South	19 West	14	8	Inadequate	C	02/05/75	Dry Lot Subdivision
Caballo Farms	6 South	15 West	31	60	Inadequate	C	05/19/75	Dry Lot Subdivision
Crystal Sands	7 South	13 West	12, 13	15	Inadequate	C	07/01/74	Dry Lot Subdivision
New Tacna Townsite	8 South	17 West	25	10	Inadequate	C	01/15/87	Tacna Water Company
Orange Grove Ranch Estates	9 South	18 West	3	122	Inadequate	C	01/15/75	Dry Lot Subdivision
Rio Salado Ranches 1 & 2	6 South	11 West	24, 25	116	Inadequate	D	03/14/74	Dry Lot Subdivision
4E Industrial Park	9 South	23 West	13	15	Inadequate	A	09/26/2007	Dry Lot Subdivision
Blaisdell	8 South	21 West	21	10	Inadequate	C	02/26/1975	Dry Lot Subdivision
Calli Maya Development	9 South	22 West	22	10	Inadequate	A	09/26/2007	Dry Lot Subdivision
Citrus Business Park	9 South	23 West	13	7	Inadequate	A	08/28/2006	Dry Lot Subdivision
Citrus Business Park Unit 2	9 South	23 West	13	27	Inadequate	A	06/09/2008	Dry Lot Subdivision
Desert Foothills Estates #7	9 South	21 West	10	61	Inadequate	C	09/28/1994	Far West Water Company
Heritage Park	9 South	22 West	18	39	Inadequate	A	01/17/2007	Dry Lot Subdivision
Premier Storage Condominiums	9 South	23 West	12	519	Inadequate	A	10/18/2007	Dry Lot Subdivision
Rancho Bonitos Co-op Park	9 South	22 West	30	121	Inadequate	B	02/15/1987	Ranchos Bonitos Water Co.
Sandy Ranch Subdivision	9 South	22 West	18	34	Inadequate	A	09/27/2007	Dry Lot Subdivision
Sierra Sands, Phase 2	9 South	22 West	31	8	Inadequate	A	09/14/2007	Dry Lot Subdivision
Tuscan Ranch	9 South	23 West	36	36	Inadequate	A	01/29/2007	Dry Lot Subdivision
Yuma Vineyards	9 South	23 West	36	9	Inadequate	A	08/31/2006	Dry Lot Subdivision

Table 5: Subdivisions in Unincorporated Yuma County for which ADWR has Determined the Water Supply to be Inadequate[12]

Reason for Inadequacy Determination

A: Insufficient data (applicant chose not to submit necessary information, and/or available hydrologic data insufficient to make determination)

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: ADWR unable to locate records showing why an inadequacy determination was made

[12] Arizona Department of Water Resources. "Arizona Water Atlas, Volume 7, Lower Colorado River Planning Area." November 2009

8.6 Water Resources Policies and Priorities

WRP.1: No new development or policy should degrade the water resources of existing water users and development.

WRP.2: Maintaining Yuma County's existing allocations of Colorado River water is a top priority.

WRP.3: Yuma County's existing entitlement to Colorado River water must be maintained.

WRP.4: All Yuma County residents should have access to high quality and reliably accessible drinking water.

WRP.5: It is preferable for new residential developments to be served with water obtained from existing municipal and industrial portions of Colorado River water entitlements.

WRP.6: Improvements to community water systems to improve the quality and taste of drinking water and to improve the reliability of systems should be constructed.

WRP.7: Land use adjacent to and in the immediate vicinity of major canals that supply irrigation and drinking water should not imperil the quality of water in these canals.

WRP.8: Small community water systems that rely on groundwater are the least desired way to supply drinking water; new systems should not be constructed and existing ones should be linked up with larger systems whenever it feasible.

8.7 Water Resources Actions

WRA.1: Yuma County will continue to prohibit the platting of any new subdivision that has not first obtained a determination of an adequate water supply from the Arizona Department of Water Resources or obtained written commitment of water service from a city, town or private water company that has been designated by the Arizona Department of Water Resources as having an adequate supply of water.

WRA.2: Yuma County will work to continue to identify community water systems that need capital improvements to improve the quality of water that they deliver, and will then work to get these needed projects funded through programs such as the Water Infrastructure Finance Authority's Drinking Water State Revolving fund or any other applicable program.