3. Description of Plan Area

3.1 GSP Plan Area

The NASb encompasses about 342,000 acres in Sutter, Placer, and Sacramento counties bounded by the American, Bear, Feather, and Sacramento rivers. The Sierra Nevada foothills form the eastern boundary of the Subbasin. **Figure 3-1** shows the plan area. The eastern portion of the Subbasin is characterized by low rolling dissected uplands, while the western part is a nearly flat flood basin for the Bear, Feather, Sacramento, and American rivers. Between the rivers are several small tributaries that have low elevation and small watersheds. Most of the small tributaries drain to the Natomas Cross Canal, East Side Canal, and the Natomas East Main Drain Canal, which convey runoff to the Feather and Sacramento rivers. Some of the tributaries are used by irrigation and RDs to convey water to their customers. Several miles of agricultural drains are used by the RDs to control flooding and are also used to recapture excess applied water for reuse.

Water uses in the Subbasin include agricultural, municipal, industrial, domestic, and native vegetation and aquatic species. Some water purveyors rely exclusively on either groundwater or surface water, but most rely on a combination of surface water and groundwater.

Urban areas dominate in Sacramento County and the southeastern portion of Placer County, while the rest of the Subbasin is predominately agriculture and undeveloped land. Permanent crops dominate the western, eastern, and northern edges of the Subbasin and along the rivers, while rice and other non-permanent crops dominate the central and western portions of the Subbasin.

3.2 Adjudicated Areas

The Subbasin is not adjudicated, nor are any of the surrounding subbasins.

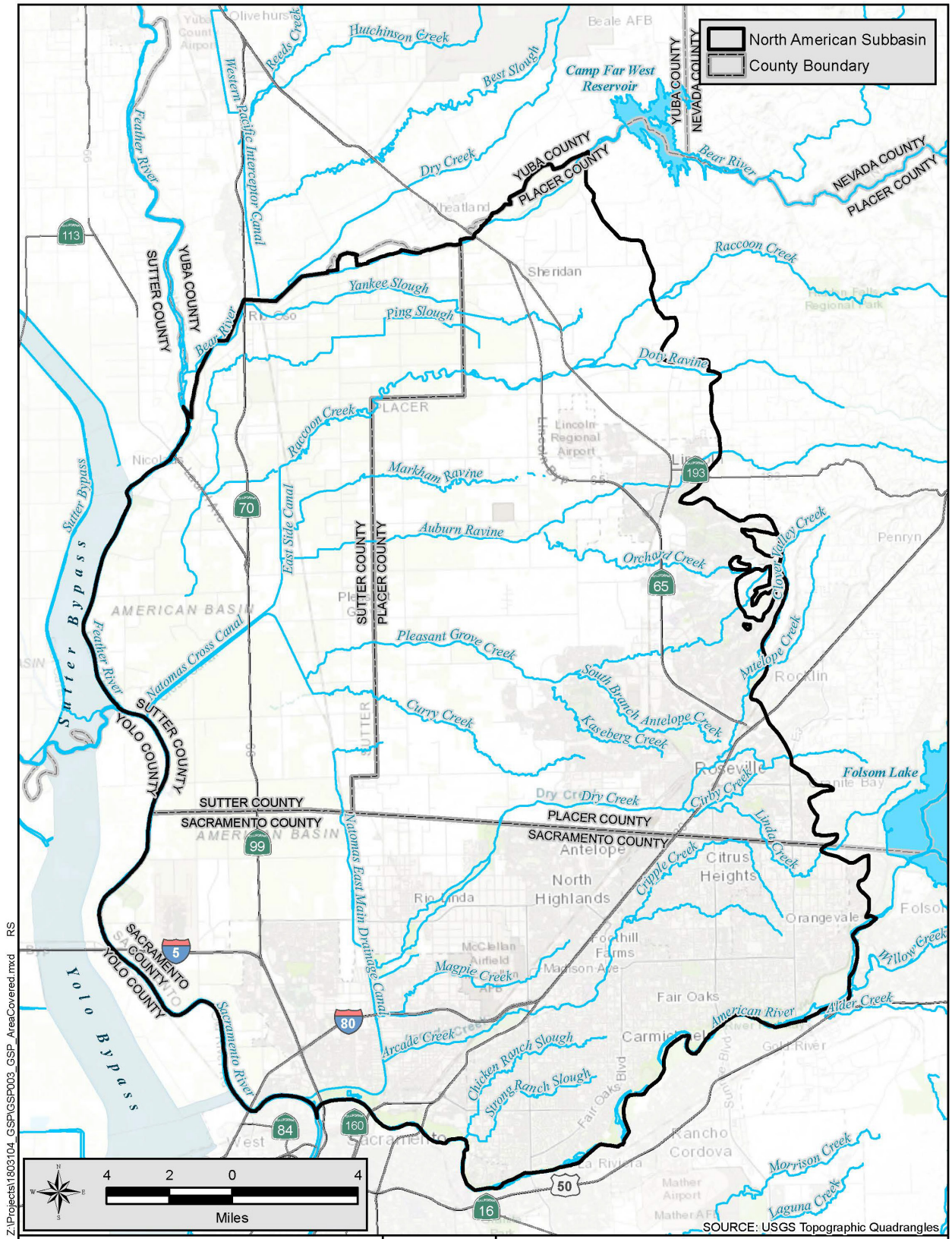

Figure 3-1. Area Covered by GSP

3.3 Jurisdictional Areas

Within the NASb, there are federal, state, county, and tribal agencies with land use jurisdictional responsibilities. Within each county, there are cities with land-use authorities and water agencies that serve water within the Subbasin. Irrigation districts are also present that provide surface water for agriculture. Within many of the irrigation districts and cities are RDs that are responsible for managing and maintaining the levees, freshwater channels, or sloughs, canals, pumps, and other flood protection structures in the area. The following sections describe the jurisdictional areas and agencies within the Subbasin. **Figures 3-2 through 3-4** show these jurisdictional areas.

3.3.1 Federal

The United States (U.S.) Army Corps of Engineers has jurisdictional authorities on all navigable waterways in the Subbasin. The U.S. Bureau of Reclamation (Bureau of Reclamation) contracts to deliver Central Valley Project and settlement agreement surface water through diversions from the Sacramento and American rivers.

The federal government (Air Force) retroceded jurisdiction for all portions of the former McClellan Air Force Base during post-closure of the base. This means that the U.S. Government no longer has "federal legislative jurisdiction" over any portion of the former base, i.e., the U.S. Government does not make or enforce laws/regulations for/on this land area any longer. The Air Force Real Property Agency still owns some of the parcels overlying contaminated areas, but will ultimately transfer those properties as cleanup is achieved.

The federal government also owns a small parcel (less than 1 acre) that is managed by Beale Air Force Base west of the city of Lincoln.

Figure 3-2 shows the federal lands in the Subbasin where the federal government may voluntarily agree to participate in administration of a GSP. Federal government officials have been invited to participate in the development of this GSP.

3.3.2 State of California

The California State Department of Transportation has authority for lands occupied by freeways and highways and maintenance yards. The State Department of Parks and Recreation has authority over the Folsom State Recreational Area, which extends along a portion of the American River west of Folsom Dam. The California State Lands Commission has authority over the Natomas Basin Conservancy area, located in the western portion of Sutter and Sacramento counties. The state also has authority over some small specific conservation land and preserves. DWR has jurisdictional authority for maintaining State Plan of Flood Control levees along the Sacramento and Feather rivers. **Figure 3-2** shows the state-owned lands in the

Subbasin where SGMA does not apply, but the state government officials have been invited to assist in the development of this GSP.

3.3.3 California Native American Tribes

United Auburn Indian Community has jurisdiction over land in Placer County southeast of the city of Lincoln and northeast of the town of Sheridan, within the Subbasin. Similar to the federal government, any federally recognized Indian tribe may voluntarily agree to participate in administration of a GSP.

Tribal community members have been invited to participate in the development of this GSP and were sent public outreach information about SGMA and GSP development. **Figure 3-2** shows the tribal lands in the Subbasin.

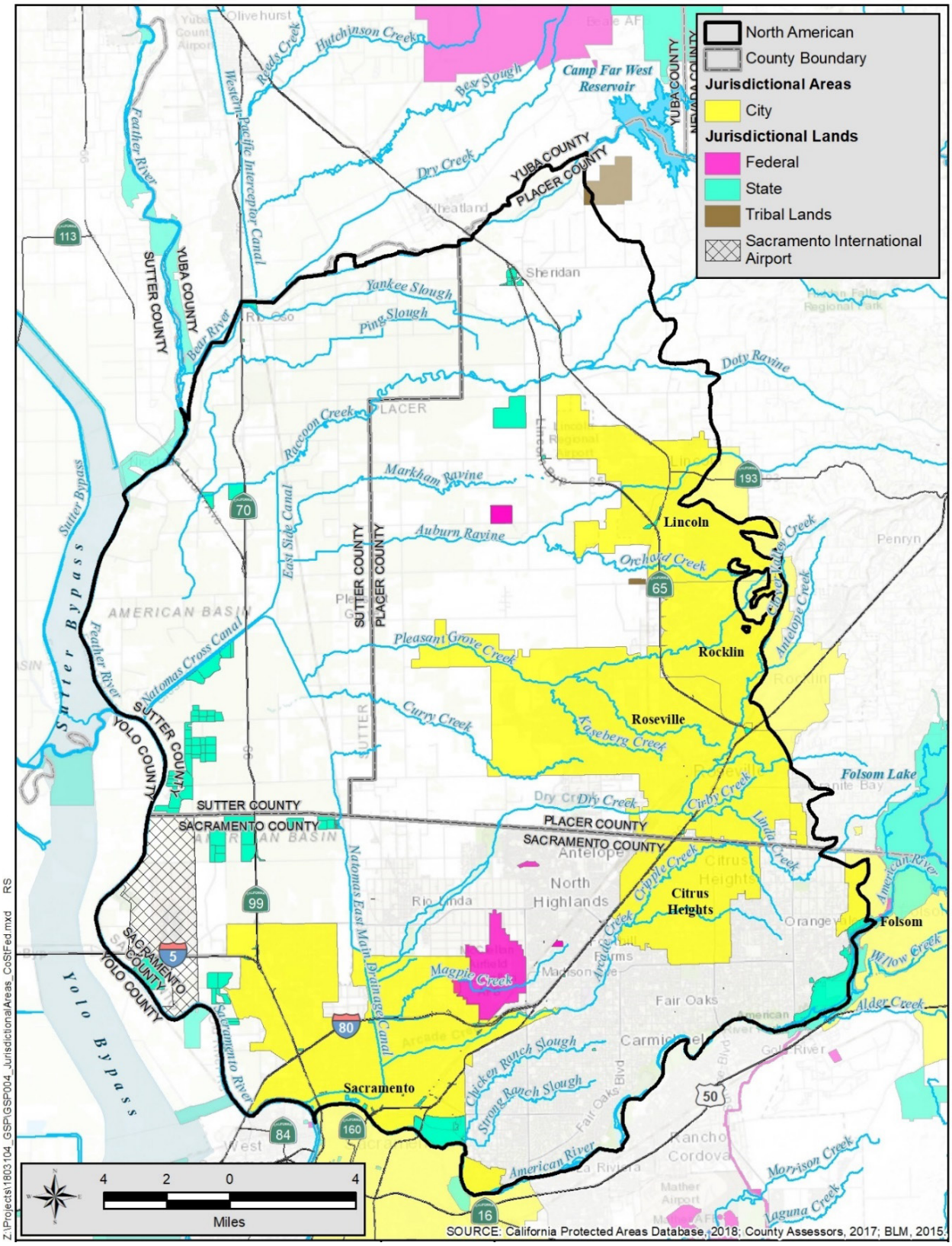

Figure 3-2. City, County, State, and Federal Jurisdictional Areas and Lands.

3.3.4 County

Placer, Sacramento, and Sutter counties each cover about one-third of the NASb. **Figure 3-2** shows the county boundaries. Each of the counties has a general planning and land use authorities. Sacramento County also has land-use management authority along the American River Parkway and along Dry Creek and lands associated with Sacramento International Airport.

3.3.5 City

There are six incorporated cities within the NASb (**Figure 3-3**), including Citrus Heights, Folsom (just a small portion located within the NASb), Lincoln, Rocklin, Roseville, and Sacramento. Each of the cities has land use management and planning authority granted through the state of California, which is derivative of the city or county general police power. This power allows cities and counties to establish land use and zoning laws that govern development.

3.3.6 Water Agencies

The following water agencies, water districts, city/county water departments and irrigation districts (classified as community water systems) are located within the Subbasin and provide potable water to residents (DWR, 2019). **Figure 3-3** shows the location of the water entities. Some are public entities, while others are private water companies. Their water supplies are derived from surface and groundwater or a combination of both.

- California American Water
- Carmichael Water District
- Citrus Heights Water District
- City of Folsom
- City of Lincoln
- City of Roseville
- City of Sacramento
- County of Sacramento
- Del Paso Manor Water District
- Fair Oaks Water District
- Golden State Water Company
- Orange Vale Water Company
- Rio Linda/Elverta Community Water District
- Sacramento Suburban Water District
- Sacramento County Water Agency
- San Juan Water District
- Placer County Water Agency
- Nevada Irrigation District
- Placer County (Area of Sheridan)

San Juan Water District (SJWD) is also a water wholesaler and provides treated surface water to Fair Oaks Water District, Orange Vale Water Company, and Citrus Heights Water District. SJWD also has interties to provide water to California American Water and the city of Roseville and a small portion of the city of Folsom (north of the American River) and periodically to another 171,000 customers in the Sacramento Suburban Water District.

Figure 3-3 also shows the relationship of disadvantaged and severely disadvantaged communities (DAC and SDAC) to the water agencies. Most DACs in Sacramento County and in the southern portion of Placer County are provided drinking water by water agencies. Some

portions of northwest Placer County do not have water service provided by water agencies and would rely on domestic wells.

3.3.7 Small Community Water Systems

There are multiple small community water and non-community non-transient water systems, in the Subbasin, that are overseen by the counties and the state. Their water supplies are from groundwater. **Figure 3-3** shows the location of some of these small community water systems and also their relationship to DACs and SDACs.

Water System Name
American River College
Antelope Springs
Brown's Elementary School
Building Trades Association
Burton and Kathryn Lauppe
California State Fair
Caltrans (Elkhorn I-5 Rest Area)
Csp Labs & Micro Paradox
E. L. H. Sutter Properties
East Nicolaus Joint Union High
East Nicolaus MWC
Edwin A. and Marjorie E. Willey
Eleven Oaks Mobile Home
Grant Union High School
Holt Of California
Huppe Moore Landscape
I B E W Training Center
Imperial Manor Mobile Home
Javed and Amna Siddiqui
Lincoln High School Farm
Marcum Illinois Elementary School
McClellan Mobile Home Park
National American Corp. Lp-Lak

Water System Name
Natomas Basin Conservancy
Odysseus Farms Partnership
On The Y
Pape Machinery
Pleasant Grove Elementry School
Rio Oso
Rio Ramaza CSD
River Oaks Golf Club
Rosecrest Mutual
Sacramento County
Sacramento County (Boat Launch)
Sacramento County (Discovery Park)
Sacramento County International Airport
Stafford Meat Company
Sysco Food Services of Sacramento
Teal Bend Golf Course
Trowbridge
Valley Hi Country Club
Verona Marina Launch & R.V.
Verona Village River Resort
Virgin Sturgeon
William S. Cummings

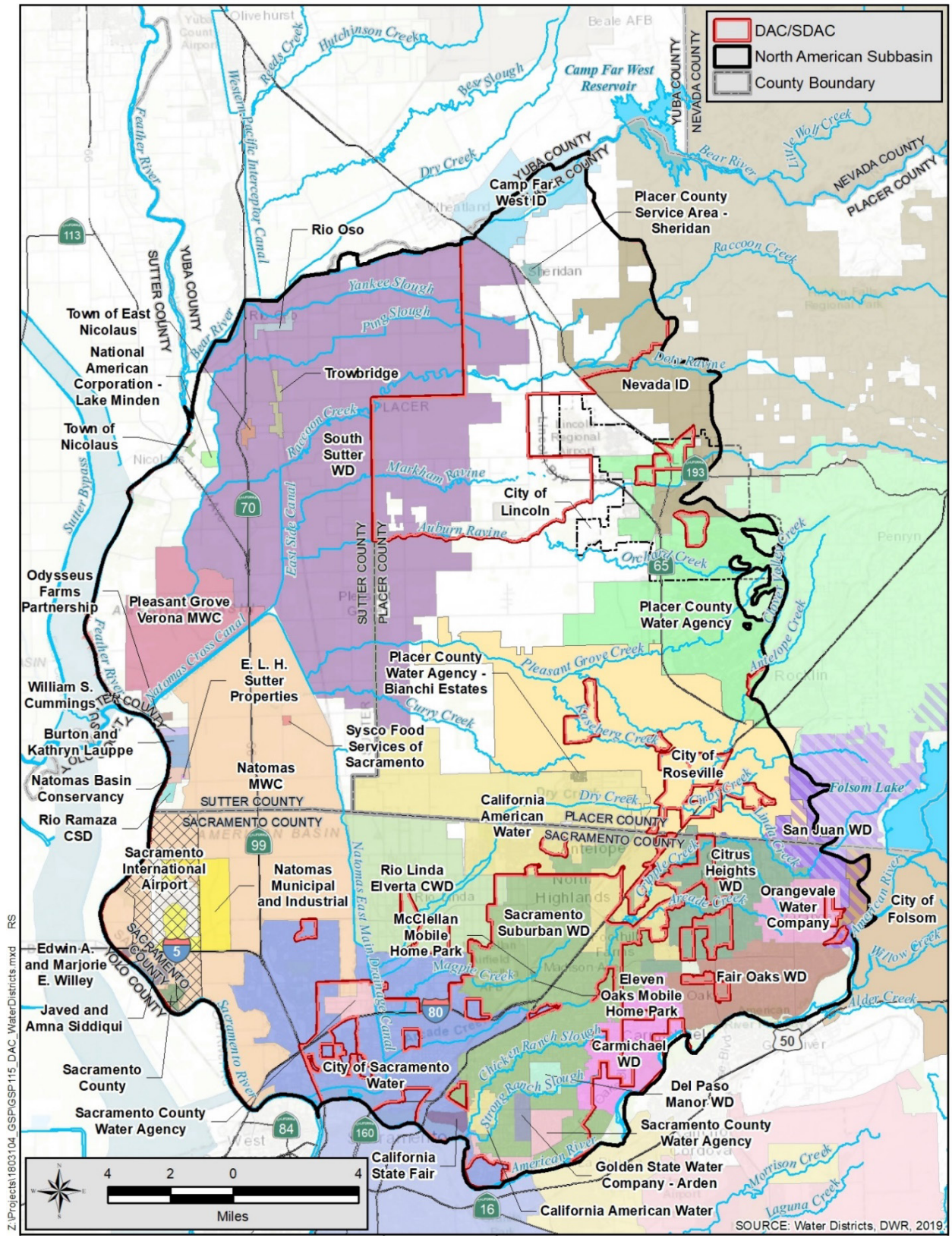

Figure 3-3. Water Districts and Systems Areas

3.3.8 Agricultural Water Providers

The Sutter County area of the NASb is almost entirely agricultural, Placer County is about 60 percent agricultural, and Sacramento County is about 20 percent agricultural. Surface water is supplied to agriculture by:

- Camp Far West Irrigation District
- Natomas Mutual Water Company
- Nevada Irrigation District
- Pleasant Grove-Verona Mutual Water Company
- South Sutter Water District

The water companies typically only supply a portion of the water supplies for agricultural use. The unmet demand is provided by privately owned wells.

3.3.9 Reclamation Districts

RDs are a form of special-purpose districts in the United States that are responsible for reclaiming and/or maintaining land for agricultural, residential, commercial, or industrial use that is threatened by permanent or temporary flooding. Within the NASb are RD 1000 along the Sacramento River and RD 1001 along the Bear, Feather and Sacramento rivers. Along the Bear River, RD 817 and RD 2103 have small areas within the NASb. Some of the RD areas overlie other water and irrigation district areas. **Figure 3-4** shows the RDs in the NASb.

3.4 Land Use Designations

In 2014, the NASb was roughly about 40 percent urban, 30 percent farmland, and less than 1 percent riparian vegetation (Land IQ, 2017). About 30 percent of the land was not classified. The total acres by each significant land use category and crops are summarized in **Table 3-1**. **Figure 3-5** shows the 2014 land use in the Subbasin.

Most of the urban development is in Sacramento County and the southeastern portion of Placer County. The population is projected to increase by about 200,000 people by 2030 (DWR, 2019), with an increase in urban development extending the urban areas to the north and west. **Figure 3-6** shows the locations of approved urban development areas in the Subbasin as identified from Placer, Sacramento, and Sutter counties, and each city's General Plans.

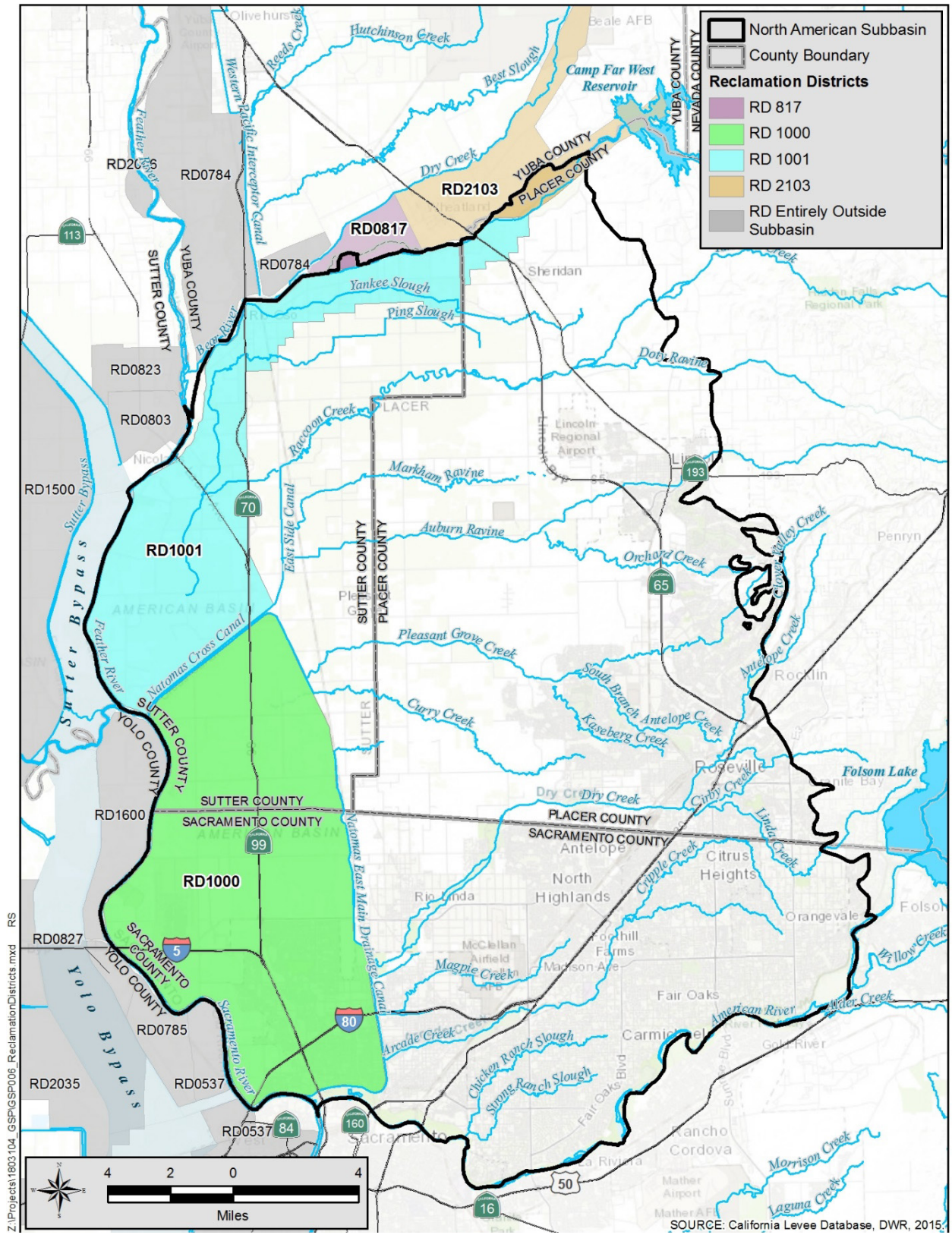

Figure 3-4. Reclamation Districts Jurisdictional Areas

Table 3-1. Land Use Summary

Land Use	Acres	Percent
Urban	**131,504**	**38.39%**
Urban	131,504	38.39%
Agriculture	**115,446**	**33.71%**
Citrus and Subtropical	99	0.03%
Deciduous Fruits and Nuts	11,529	3.37%
Field Crops	2,867	0.84%
Grain and Hay Crops	2,242	0.65%
Idle	30,083	8.78%
Pasture	11,331	3.31%
Rice	56,316	16.44%
Truck Nursery and Berry Crops	660	0.19%
Vineyard	45	0.01%
Young Perennial	275	0.08%
Managed Wetlands	**1,745**	**0.51%**
Riparian Vegetation	1,745	0.51%
Not Classified	**93,821**	**27.39%**
No Data	93,821	27.39%
Total	**342,516**	**100%**

Source: Land IQ, 2014

The Subbasin is a significant producer of pears, prunes, rice, tomatoes for processing, walnuts, peaches, beans, row crops, corn, and grapes. Agriculture uses about 50 percent of its acreage for growing rice and 10 percent for permanent crops, including orchards and vineyards. About 10 percent of the total farmland acreage is idle.

Urban development is projected to continue to increase, which will decrease agricultural lands. This has the potential to shift surface water use on permeable land to groundwater use on non-permeable ground thus, having a negative impact on the groundwater basin. **Figure 3-6** shows the locations of future urban development areas in the Subbasin as identified in Placer, Sacramento, and Sutter counties General and Specific Plans and their proposed water sources. Planned development areas will likely use groundwater as their initial sources of supply and ultimately plan to use both surface water and groundwater as their source of supply.

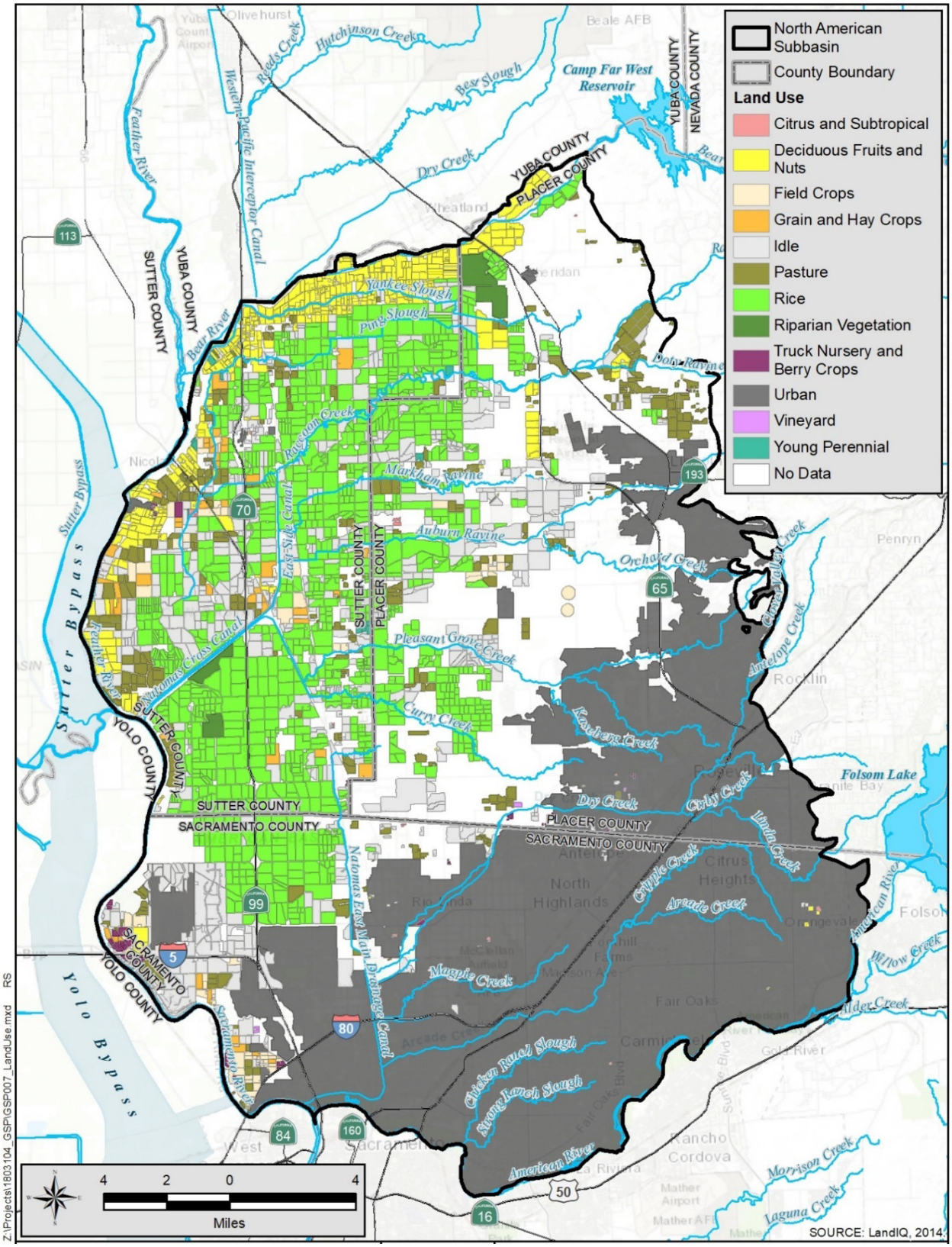

Figure 3-5. Existing Land Use Designations

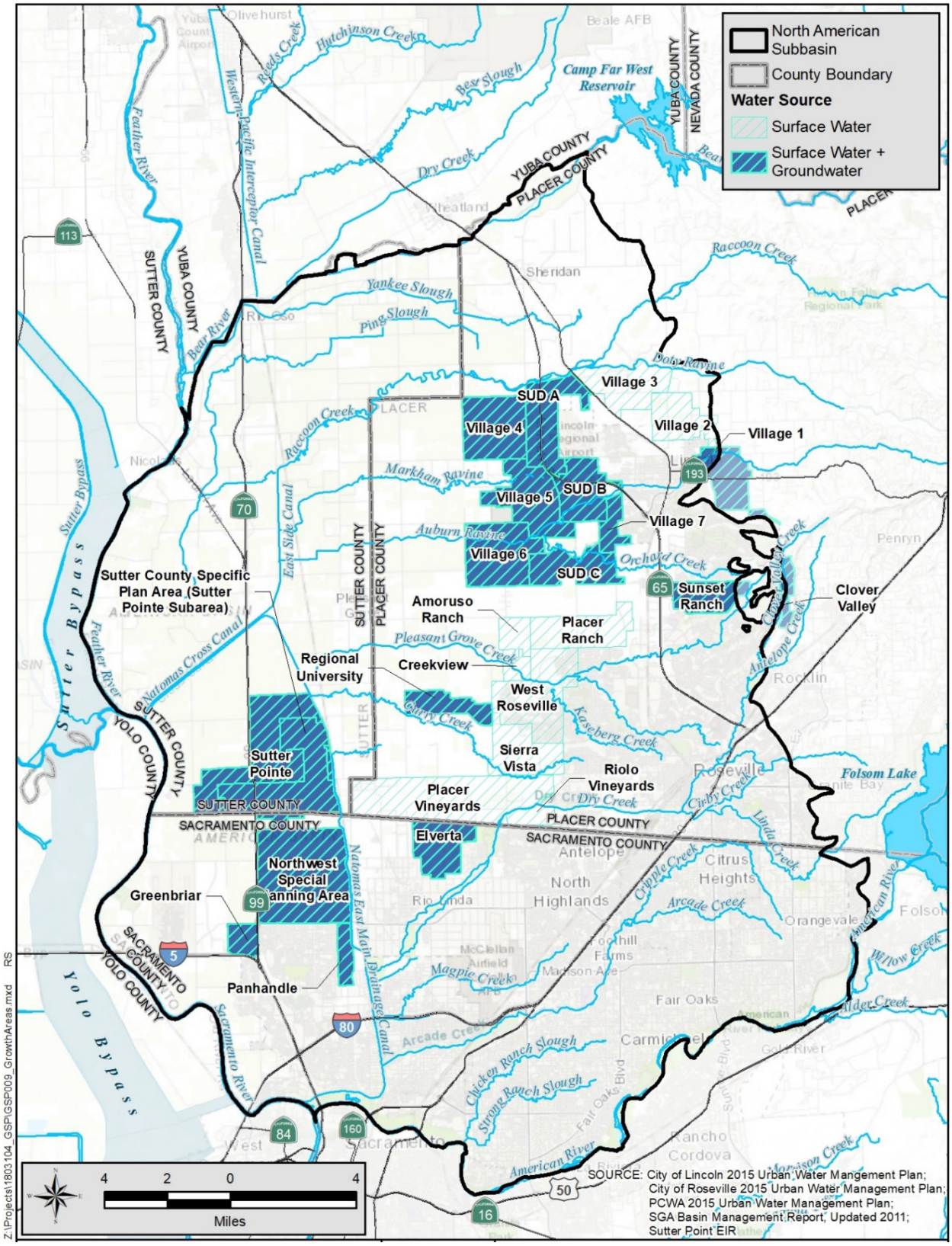

Figure 3-6. Planned Development Areas and Planned Water Source Types

3.5 Habitat Preserves and Easements

The counties in the NASb have each prepared conservation and habitat plans to assess current preserves and easements and provide goals and plans for the next 50 years to continue to increase these areas (Placer County Conservation Plan 2020, Natomas Basin Habitat Conservation Plan 2003). The Placer County Conservation Plan was jointly developed by the County of Placer, the City of Lincoln, the Placer County Water Agency and the South Placer Transportation Authority. The Natomas Basin Habitat Conservation Plan was jointly developed by Sutter and Sacramento counties along with other parties. Currently, the NASb has about 16,900 acres of habitat conservation preserves and easements. **Figure 3-7** shows the locations of existing reserves, preserves, and easements. Some of the preserves do not have water supplies and rely on precipitation while others have access to surface water and groundwater.

Riparian vegetation typically occurs along the fringes of the rivers, canals, and tributaries. Natural marsh habitats are generally present near the Feather and Sacramento rivers in the area, generally known as the Natomas Basin. Key natural marsh areas include Pritchard Lake north of Sacramento International Airport and the area adjacent to Natomas Mutual Water Company's Elkhorn Pumping Plant, which also contains riparian habitat. Other natural marsh areas are scattered in approximately five small areas throughout unincorporated Sacramento County. In unincorporated western Placer County, some fresh emergent marsh habitats are created by irrigation runoff and many of the wetland habitats are fed by leakage or runoff from irrigation canals or irrigated pastures. Riparian habitat occurs on the American and Bear River corridors and along Raccoon Creek, lower Auburn Ravine, and lower Dry Creek. Other habitat types include scattered pasture, idle, and ruderal lands, and include about 290 acres of grassland habitat adjacent to Natomas East Main Drainage Canal.

3.6 Disadvantaged Communities

Disadvantaged and severely disadvantaged communities are present in the Subbasin (DWR, 2018). **Figure 3-8** show their locations. Most are located within Placer and Sacramento Counties. Those within Sacramento County are located within urban areas, while those in Placer County are located in rural areas.

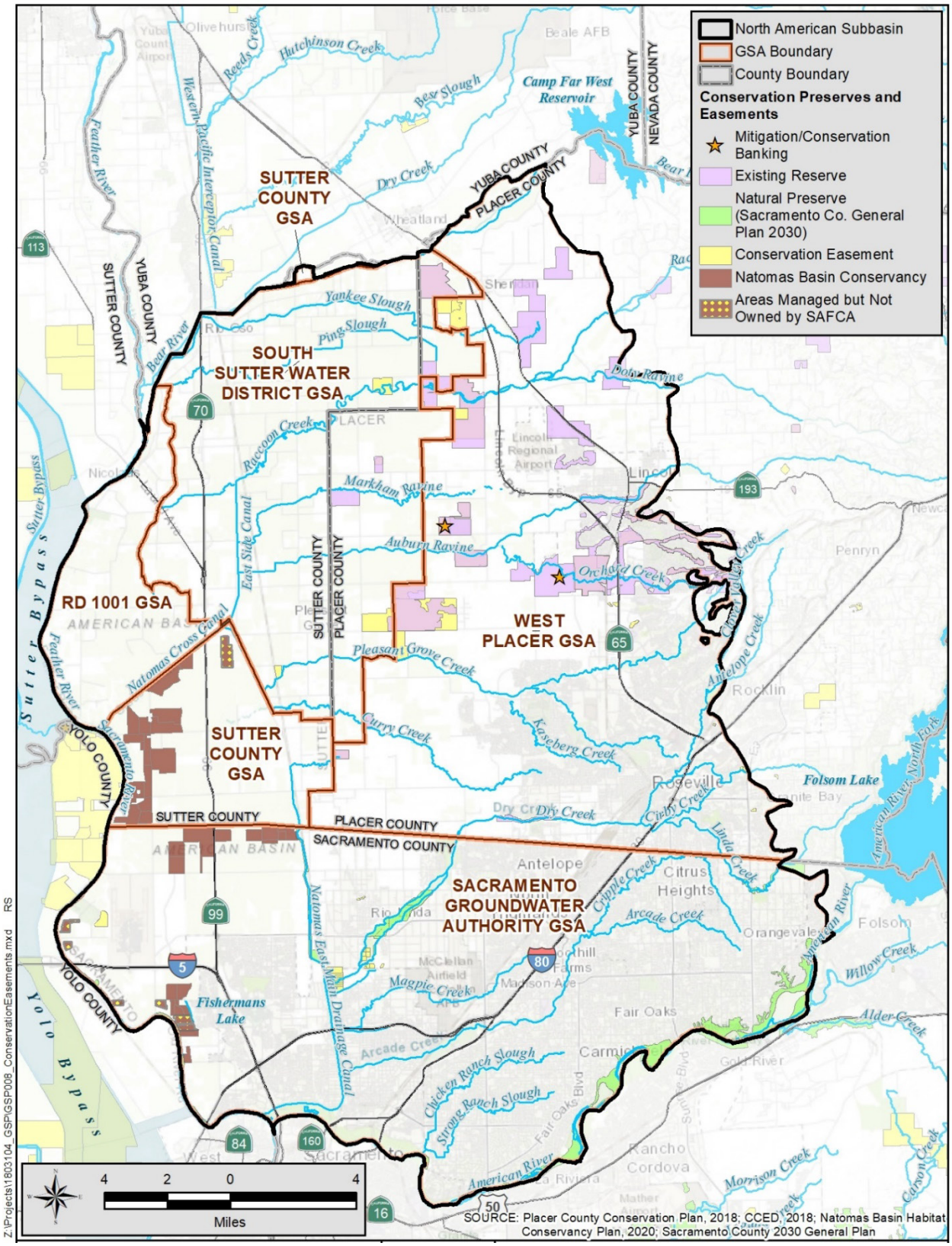

Figure 3-7. Habitat Conservation Preserves and Easements

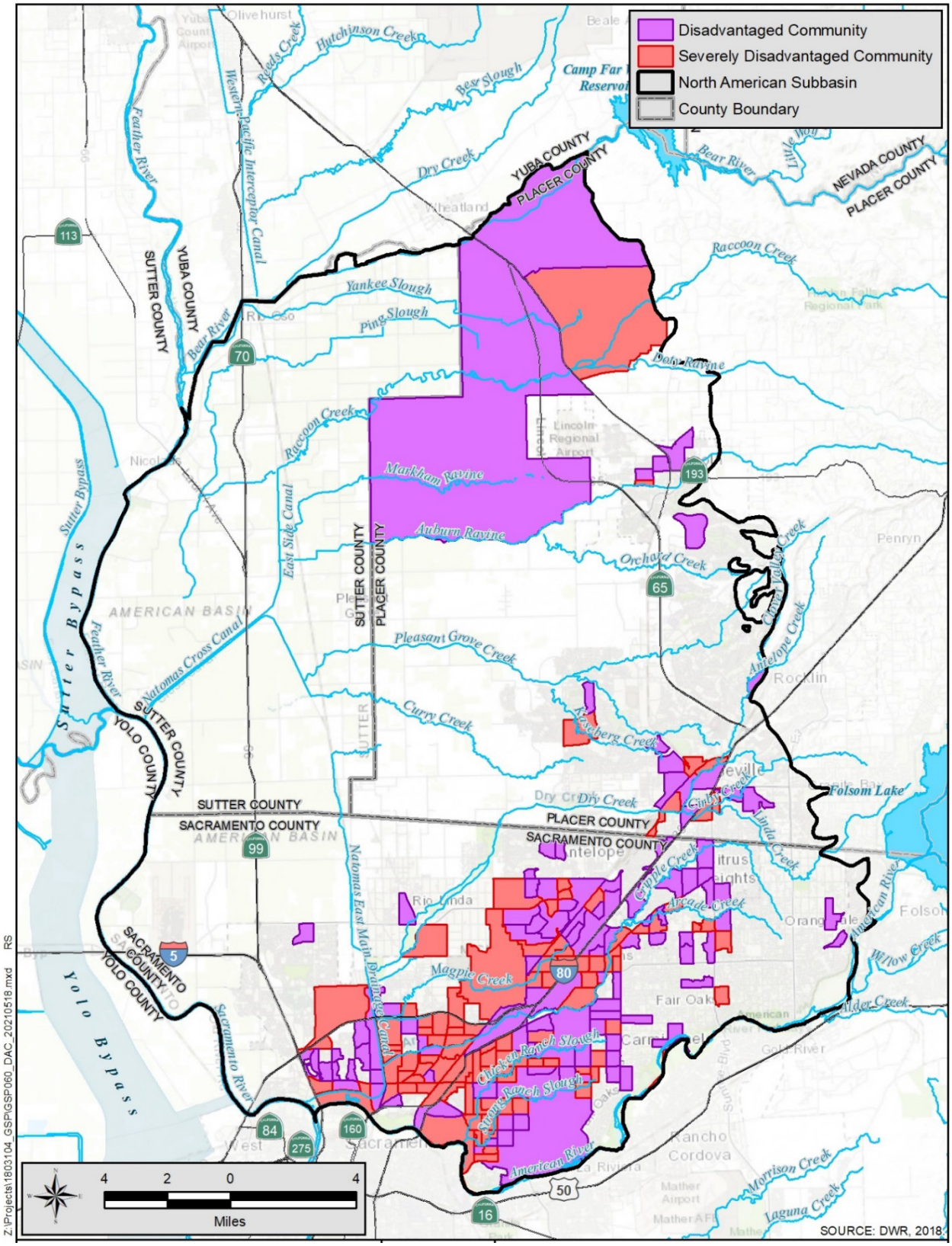

Figure 3-8. Disadvantaged and Severely Disadvantaged Communities

3.7 Water Use Sectors

Water use sectors in the Subbasin are urban (industrial included in this category), domestic, agriculture, environmental (native habitat, managed wetlands, and conservation areas) and groundwater remediation sites. **Figure 3-9** shows the water use sectors in the Subbasin, except for domestic users. Some of the water use sector areas may change with time as urbanization continues (*refer to* **Figure 3-6**).

Environmental cleanup is in progress in the Subbasin and some sites pump and treat groundwater to remove contaminants. Some of the water is used for municipal purposes while at other facilities the treated water is discharged to surface water.

3.7.1 Urban

Land in the southern and eastern portions of the Subbasin is primarily urban and is served by groundwater and surface water, for the most part by multiple agencies, as shown on **Figure 3-9**. This widespread urban development initially used groundwater, and by the 1960s, a significant groundwater depression had developed in the Sacramento County portion of the Subbasin. By the 1980s, urban water supplies were augmented by surface water. In 1993, the Water Forum (*see* Section 3.9.2 for details) began a collaborative process among stakeholders to develop a regional approach to ensuring a reliable water supply for the Sacramento region, including work to develop conjunctive use projects in the area, which expanded the option to use surface water. Currently, only the communities of Rio Linda, Arden, and Del Paso Manor rely solely on groundwater. **Figure 3-9** shows the water sources for urban areas.

3.7.2 Domestic

Domestic wells are used to supply groundwater to households in both urban and rural areas. They are scattered through the Subbasin.

3.7.3 Agriculture

Land in the northern and western portions of the Subbasin are predominately agriculture. A significant amount of surface water irrigates pastures, orchards, rice fields, and farms. Farmers in the Subbasin receive surface water from federal and local projects. Many also pump groundwater to augment their surface water supplies. During the dry year of 2014, surface water deliveries fell, causing farmers to rely more heavily on groundwater. Water districts, companies and irrigation districts manage surface water and encourage surface water use and basin recharge during wet years and groundwater use during dry years. **Figure 3-9** shows the availability of water sources for these agricultural areas.

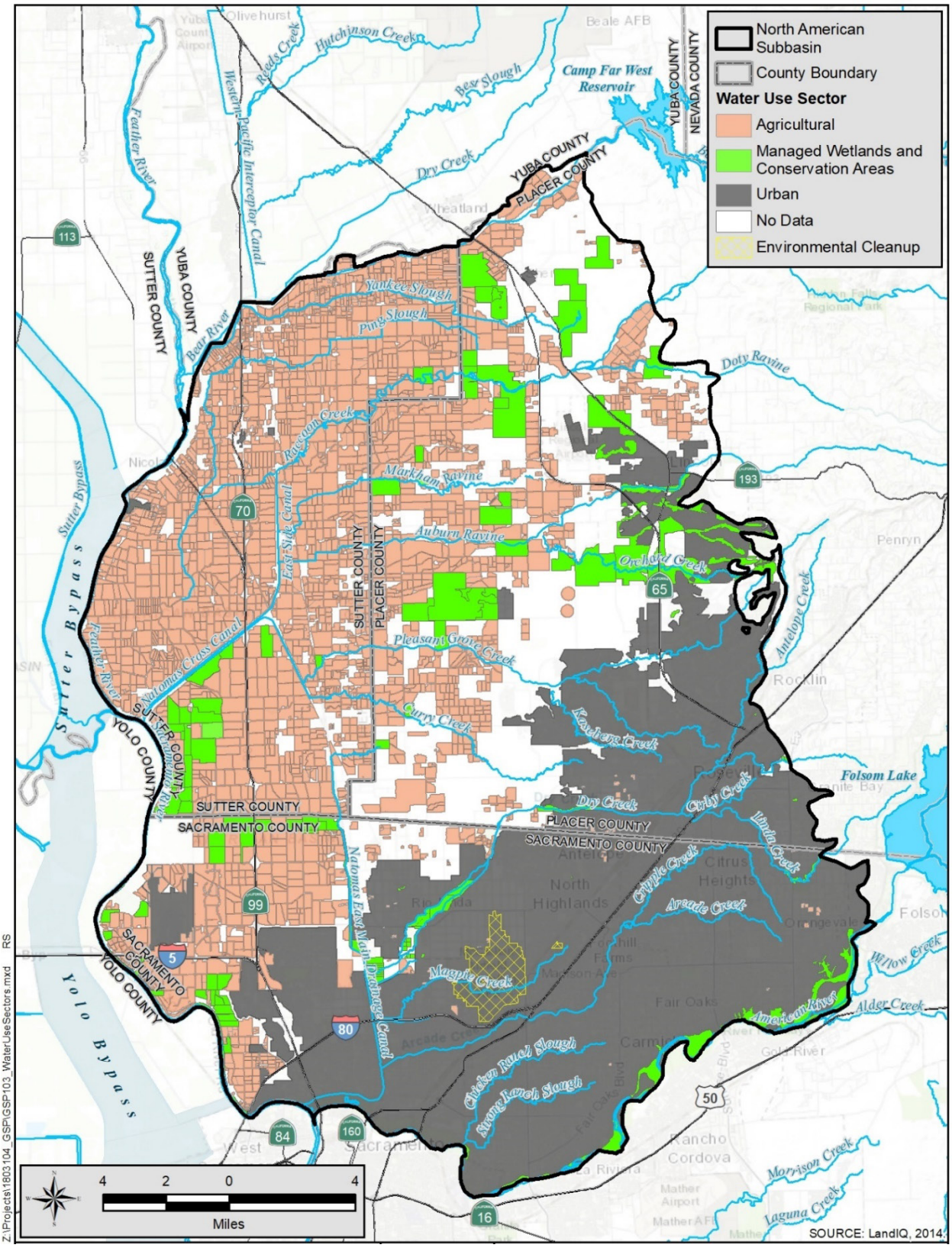

Figure 3-9. Water Use Sectors

3.7.4 Environmental

Rivers and streams in the Subbasin support more than 40 species of native and nonnative fish, including naturally spawning fall-run Chinook salmon, steelhead, and American shad. Several of these species are of primary management concern because of their declining numbers or their importance to recreational/commercial fisheries. Auburn Ravine in Placer County is also a habitat area for Chinook salmon and steelhead. The banks of the many rivers and streams within the Subbasin provide riparian habitat, both scrub and forest consisting of cottonwood, valley oak, and willow, with occasional white alder, box elder, and Oregon ash. Emergent marsh habitat is found in still or slow-moving shallow water located on the edges of the rivers and on the banks of open water areas. These areas constitute about three percent of the total NASb area. **Figure 3-10** shows vegetation and wetlands (NCCAG, 2018). Groundwater pumped and used to support some of the habitat preserves in Sutter and Sacramento counties is shown on **Figure 3-7**.

3.7.5 Groundwater Remediation

The federal government is in the process of remediating groundwater contamination beneath and near the former McClellan Air Force Base. Some of the cleanup involves pumping, treating, and discharging the treated groundwater to surface water. Pumping of the groundwater for cleanup of contaminants is relatively small, on the order of about 2,000 AFY and is expected to continue for about 30 to 200 years.

Aerojet also is performing groundwater remediation and is pumping wells north of the American River, in the vicinity of Fair Oaks and Carmichael and extracts about 3,000 AFY.

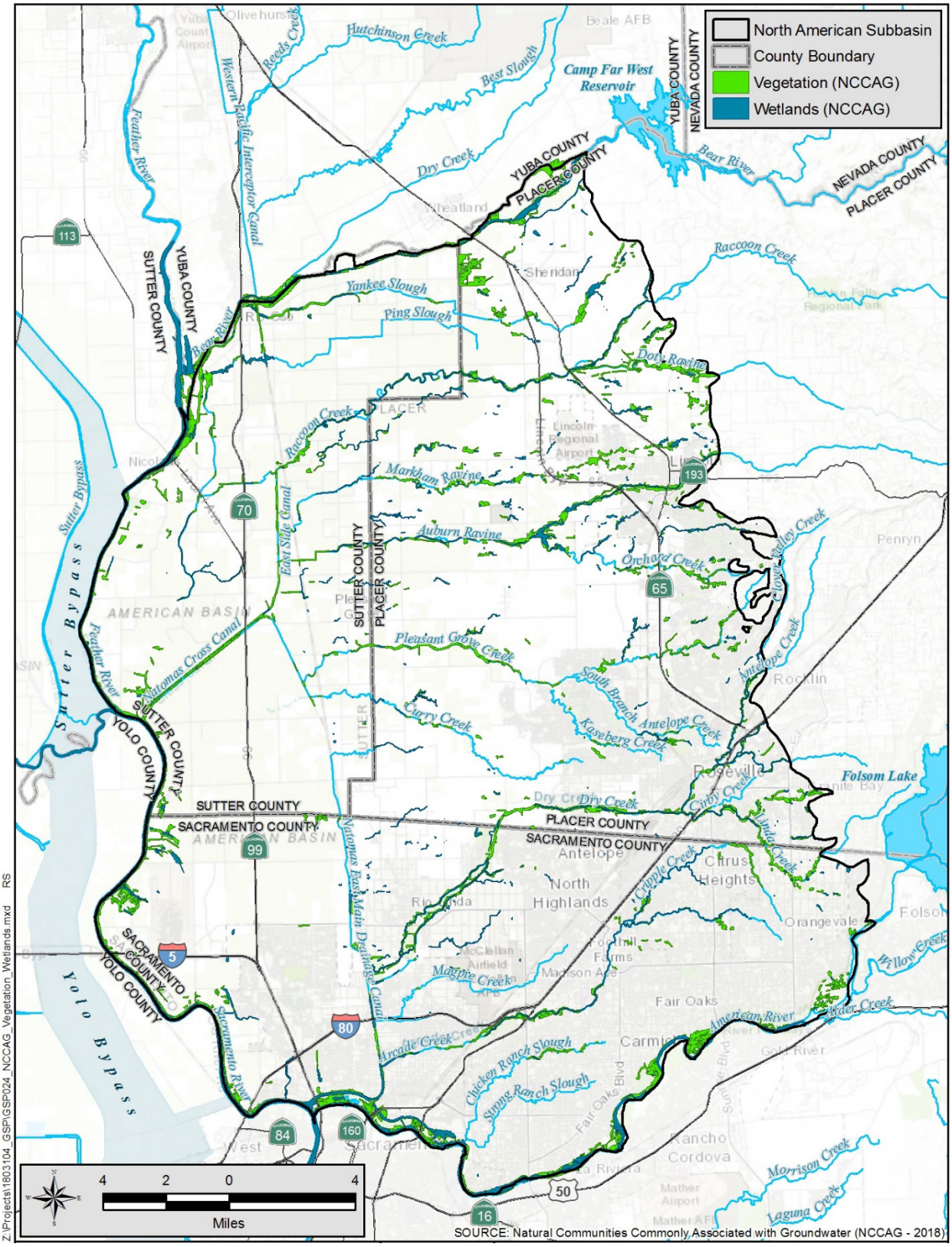

Figure 3-10. Natural Communities Commonly Associated with Groundwater

3.8 Water Source Types

In general, water agencies in the NASb meet water demands with a mixture of surface water and groundwater. Groundwater is used to supply about 40 percent of the water needs in the Subbasin, with about 60 percent being surface water (DWR, 2019). Both the cities of Roseville and Lincoln are using recycled water and are planning to increase this use. Irrigation and RDs also reuse runoff from agricultural fields.

Water source types in the Subbasin are groundwater and surface water, with limited recycled water (treated wastewater) use at this time. Excess applied water to agricultural lands is reused by the irrigation and RDs. **Figure 3-11** shows the areas and water supply source types in the Subbasin. Due to the limited recycled water use and the extensive water reuse in the Subbasin, areas with these sources are not shown on **Figure 3-11** but are described in the following text. Most urban areas in Placer County, other than for the city of Lincoln, utilize surface water for their primary needs and only use groundwater during emergency, drought or other conditions. In Sacramento, most urban areas conjunctively use groundwater during dry periods and use surface water when abundant. **Figure 3-11** shows where groundwater is the sole source of water in the Subbasin. Some of the water source type areas shown on **Figure 3-11** may change as areas are developed as shown (*refer to* **Figure 3-6**). Most of the agricultural areas have groundwater and surface water sources and, therefore, can conjunctively use these resources to manage groundwater in those areas.

3.8.1 Groundwater

There are about 13,600 wells in the Subbasin, of which about 3,800 are production wells and include domestic, agricultural, and municipal water supply wells (DWR WCR, 2019). Wells were classified by DWR as production wells if the well casing was greater than or equal to 4 inches, and the total depth was greater than or equal to 22 feet. Most of the production wells in the Subbasin are domestic wells, which may be classified as de-minimis extractors that pump less than 2 AFY. **Table 3-2** summarizes the types of well categories.

Table 3-2. Well Type Summary

Well Type	Count	Percent
Production - Domestic	2,563	19%
Production - Agriculture	847	6%
Production - Municipal	372	3%
Production Well Total	**3,782**	**28%**
Monitoring	2,558	19%
Remediation	809	6%
Other/Abandoned/Unknown	6,471	48%
TOTAL	**13,620**	**100%**

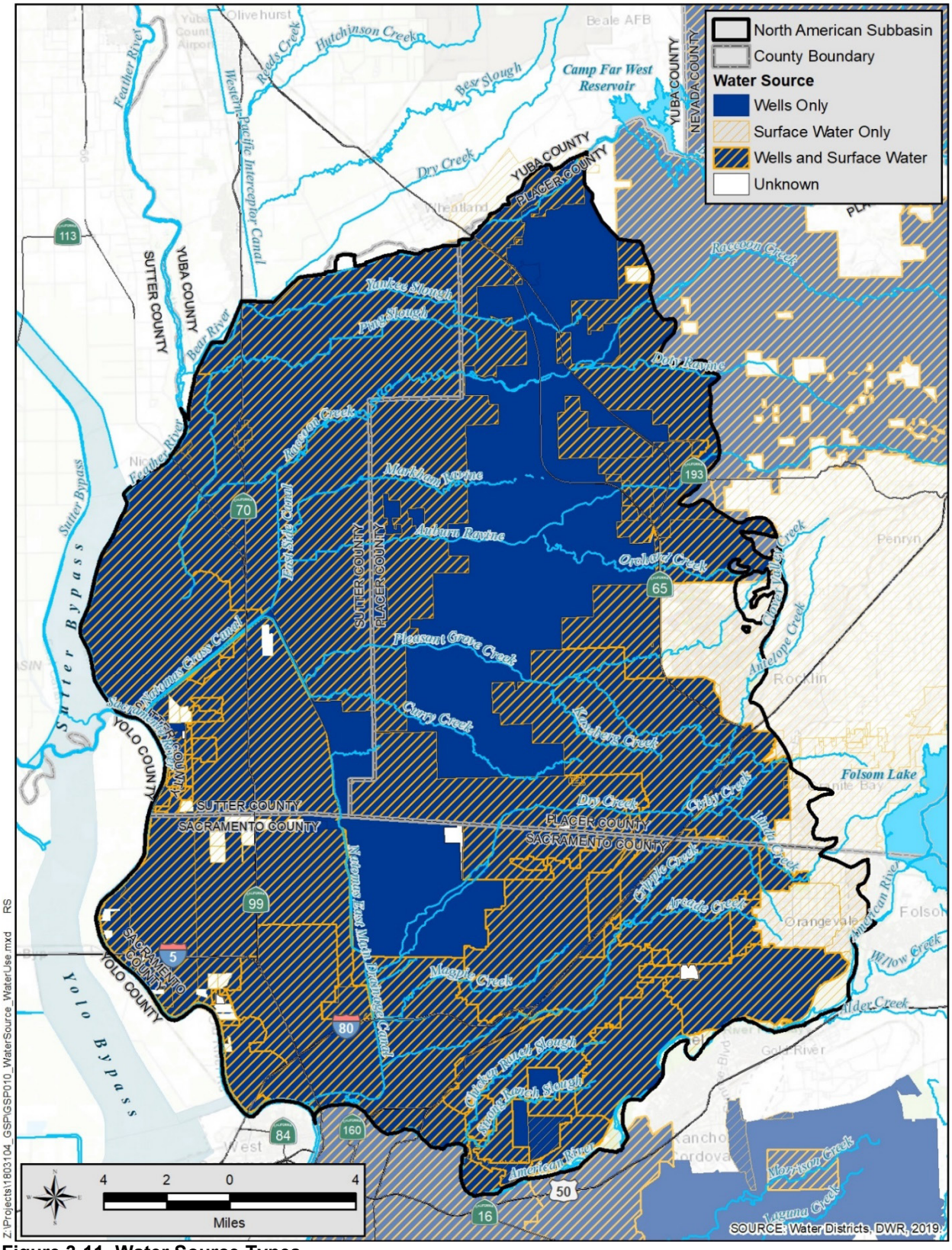

Figure 3-11. Water Source Types

3.8.2 Surface Water Sources

The SGA area of the NASb derives most of its surface water from the American and Sacramento rivers. The eastern two-thirds of the SGA region lies within the lower American watershed, and surface water served to that area typically comes from the American River. Four agencies within the SGA boundaries identified in **Table 3-3** have water rights on the American River—Carmichael Water District, City of Folsom, City of Sacramento, and San Juan Water District (SGA, 2014).

Within the SGA GSA, Natomas Mutual Water Company (NMWC) has been using mostly surface water for many years, pursuant to riparian claims and water rights dating back to 1916 on the Sacramento River. In 1964, NMWC executed a settlement agreement with the Bureau of Reclamation to accommodate the development and operation of the Central Valley Project. The settlement agreement provided a supplemental supply (Project Water: previously stored water from Shasta Reservoir) during times determined by the parties that the water rights were deficient. The senior water rights of NMWC and the security of the settlement contract have provided for a secure surface water supply for agricultural use which incidentally provides recharge to the groundwater basin. Water is diverted from the Sacramento River system at four points within the NASb: two diversions from Natomas Cross Canal, and two from the Sacramento River near the Sutter-Sacramento county line and near Elkhorn Road. About 75 percent of the water demand in the service area is met with surface water while groundwater makes up the remaining portion of the demand.

Within RD 1001 GSA, Pleasant Grove-Verona Mutual Water Company has a similar settlement agreement as NMWC identified above except the quantities are less and the specific details of the water rights are slightly different. Surface water is diverted from the Sacramento River through the Natomas Cross Canal.

South Sutter Water District (SSWD) holds post-1914 appropriative water rights to store up to 102,100 AFY of water in the Camp Far West Reservoir located approximately six miles east-northeast of the city of Wheatland (*refer to* **Figure 3-3**), as well as direct diversion rights for the diversion and use of water from the Bear River and other small streams transecting the District. Pursuant to an agreement between Camp Far West Irrigation District (CFWID) and SSWD during the construction and enlargement of the reservoir, CFWID is entitled to the first 13,000 AF released from the reservoir each year to satisfy its senior water rights along the Bear River. CFWID also holds direct diversion water right licenses for small streams transecting the district service area. SSWD only provides surface water to agricultural users to meet about one-third of water demand, with the remaining two-thirds being met from private groundwater wells.

In addition to its rights and licenses on the Bear River and small streams, SSWD receives supplemental sources of surface water from Nevada Irrigation District (NID) via releases to Auburn Ravine except during the driest years. The amount of water received from NID ranges

from zero to 20,000 AFY. The principal raw water delivery outside of the NID has been to SSWD.

Surface water is brought into the Placer County portion of the NASb by the city of Roseville, NID, Placer County Water Agency (PCWA), and San Juan Water District. The city of Roseville and San Juan Water District divert water from the American River from Folsom reservoir. PCWA's surface water supply sources consist of water purchased from PG&E from the Yuba and Bear rivers, Middle Fork Project water from the upper American River, and Central Valley Project water from the American River (Brown & Caldwell 2006). NID's primary source of supply is local surface water derived principally from the Yuba River, Bear River, and Deer Creek watersheds that are diverted and stored under the NID's pre-1914 and post-1914 appropriative water rights. The water rights allow for a diversion of up to 450,000 AFY. NID has an extensive system of small storage reservoirs. Through PCWA water rights and an agreement with the city of Roseville, the city treats surface water and delivers potable water to the California American Water service area in Placer County. The city of Lincoln purchases treated surface water from PCWA. PCWA also treats NID surface water to potable standards for delivery to NID areas within the city of Lincoln.

There are other small diverters of surface water with riparian water rights in the NASb. No attempt was made to identify and locate their diversion for this GSP from the SWRCB databases.

3.8.3 Recycled Water

Wastewater from urban areas and new developments will be treated at one of six wastewater treatment plants (WWTPs). **Figure 3-12** shows the location of the WWTPs. Five of the WWTPs are in the NASb, while one, the Sacramento Regional WWTP, is located outside of the Subbasin, in the South American Subbasin, as shown on **Figure 3-12**. The Sacramento Regional treatment plant receives water from the SGA area as well as other areas in Sacramento County. Interior urban water use, which originated from both groundwater and surface water supplies, is exported outside of the Subbasin to the Sacramento Regional WWTP.

Treated wastewater from the five WWTPs in the Subbasin is reused for irrigation of beltways, golf courses, and some agriculture along with some water features at golf courses. In 2016, about 23,000 AF of wastewater was treated by the cities of Lincoln and Roseville, of which about 3,600 AF was reused. Excess treated water, about 6,000 AF, was discharged into Dry and Pleasant Grove Creeks and Auburn Ravine (GEI SBR, 2018). The city of Roseville's Dry Creek WWTP is required to release an average of 10,000 AF for environmental purposes. The Urban Water Management Plans for the cities of Lincoln and Roseville detail reuse of the water currently being discharged to the creeks, other than flows that are committed for environmental purposes. Placer County operates the Sheridan WWTP, which does not discharge to nearby creeks but uses the water for irrigation of pasture. Wastewater from the Auburn area, which is outside of the Subbasin, is treated and then discharged to Auburn Ravine and enters the Subbasin near the city of Lincoln. Water from the northern portions of Auburn are sent to the city of

Lincoln's WWTP and is discharged to Auburn Ravine via Orchard Creek. In 2016, about 1,300 AF was discharged and potentially entered the Subbasin from Auburn.

Table 3-3. Water Supply Sources

Individual Agencies by GSA	Groundwater	Surface Water					
		American River		Sacramento River		Bear River	
		Water Rights	Contracts and Agreements	Water Rights	Contracts and Agreements	Water Rights	Contracts and Agreements
SGA GSA							
Carmichael WD	x	x					
City of Folsom		x	x				
City of Sacramento North	x	x		x			
California American Water - Arden Area	x						
Del Paso Manor Water District	x		x				
Sacramento Suburban WD - Town & Country	x		x				
Golden State Water Company - Arden Town	x						
SCWA - Arden Park Vista	x						
Portion of Natomas MWC	x(1)			x	x		
Sacramento Suburban Water District – North Service Area	x		x				
California American Water - Antelope and Lincoln Oaks	x						
Rio Linda/Elverta Community Water District	x						
Sacramento International Airport	x			x	x		
SCWA - Northgate	x						
Citrus Heights Water District	x		x				
Fair Oaks Water District	x		x				
Orange Vale Water Company	x		x				
SJWD - Sacramento County		x	x				
WP GSA							
Placer County (Sheridan)	x	x					
City of Roseville	x		x				
Placer County Water Agency	x	x	x	x			
SJWD - Placer County Retail Area			x				
Nevada Irrigation District	x		x			x	x
Camp Far West Irrigation District						x	x
SSWD GSA							
SSWD	x(1)					x	x
RD1001 GSA							
Pleasant Grove-Verona Mutual Water Company	x(1)			x	x		
Sutter County GSA							
Portion of Natomas MWC	x(1)			x	x		

(1) Groundwater is used by landowners within company boundaries but is pumped from privately owned wells.
x = Existing available water supply

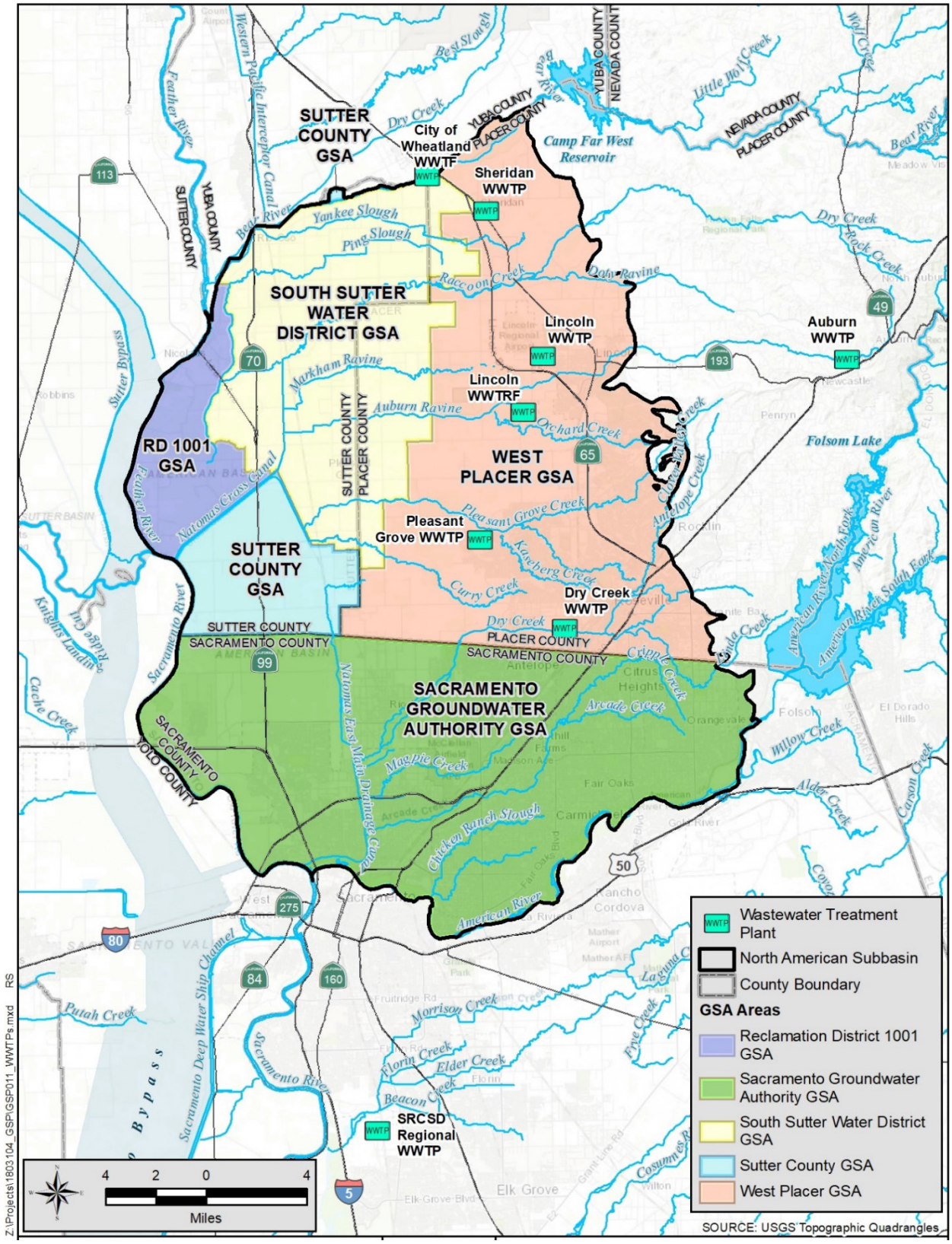

Figure 3-12. Wastewater Treatment Plants

3.8.4 Water Reuse

Excess applied surface water from agricultural fields either percolates into the soils or is returned to drains where it is recaptured by the RDs in the Subbasin. Shallow groundwater may also discharge to these drains, but only in areas where the groundwater surface is near the ground surface. In SSWD and RDs 1001 and 1000, excess applied surface water from agricultural fields is recaptured by drains and returned to the conveyance system to meet further water demands downstream.

Natomas Mutual Water Company has developed a complex closed system of unlined canals, laterals, drains, and lift pumps that circulate surface water around the service area. This system allows water users to take water from the system at any time during the irrigation season. The system also captures all return flow and recirculates it into the system for use by others. During a normal irrigation season, no agricultural drainage water returns to the Sacramento River until after October 15 each year.

3.9 Density of Wells

Groundwater in the Subbasin is used for municipal, industrial, irrigation, domestic, stock watering, frost protection, and other purposes. **Table 3-2** provides a summary of the number of wells by general type in the Subbasin. It should be noted that the number of wells is based on well logs filed and contained within DWR's Water Well Drillers Reports and may not reflect the actual number of active wells. Some wells contained in DWR files may have been destroyed, mis-located, mis-classified, constructed into granites beneath the Subbasin and are very old and may no longer be active.

Figures 3-13 through 3-15 show the density of domestic wells, as refined by GSP efforts, and production (agricultural and industrial) and municipal wells (from DWR database) per square mile. Outlines of DACs and SDACs are also shown on the domestic and municipal well density figures. They show that within northern Placer County these communities likely use domestic wells. There are many sections where disadvantage communities are designated but no domestic or municipal wells are present. **Appendix B** provides a description of the methods used to refine density and minimum depths of the domestic well database along with new figures illustrating the density and top of well screens.

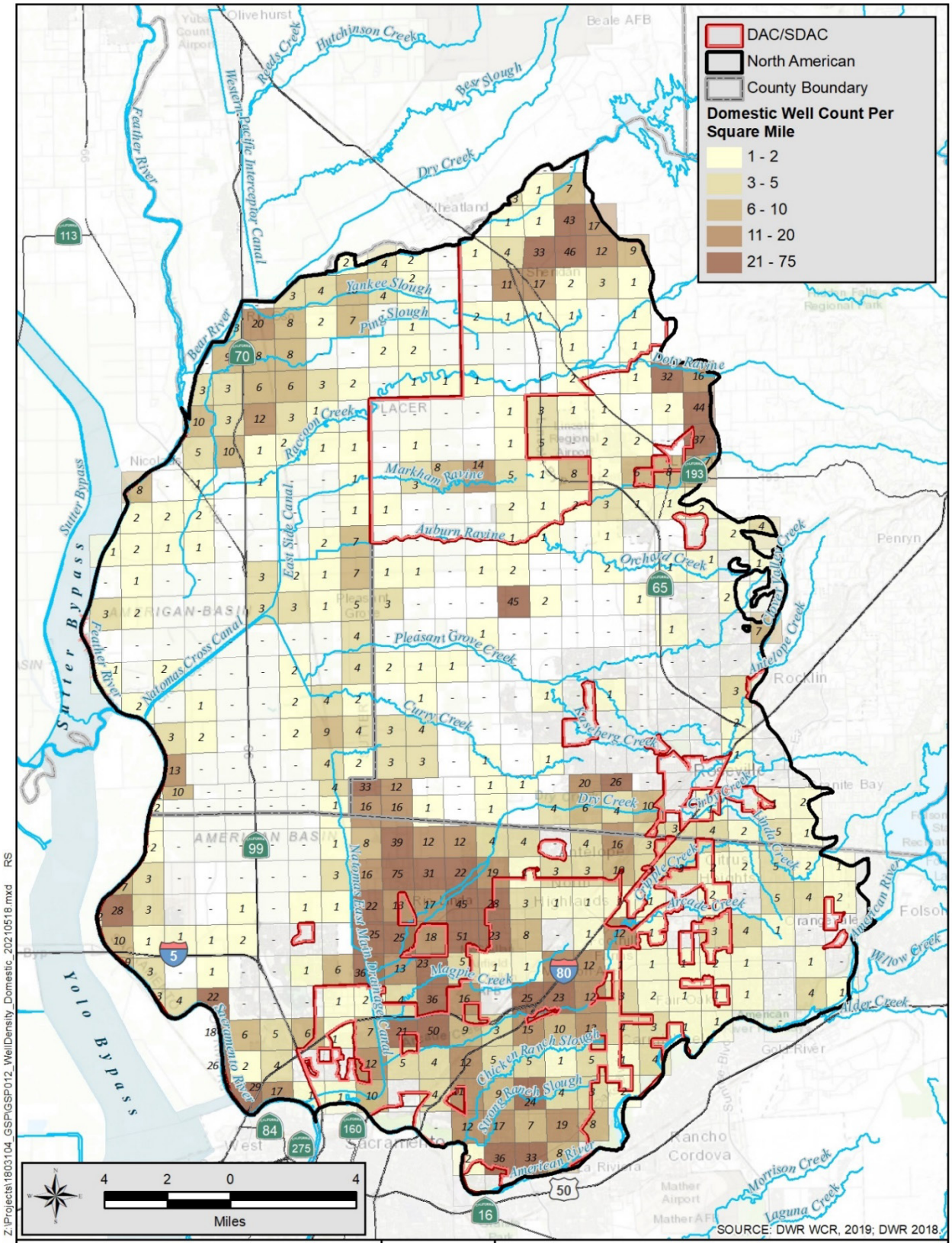

Figure 3-13. Density of Domestic Wells Per Square Mile

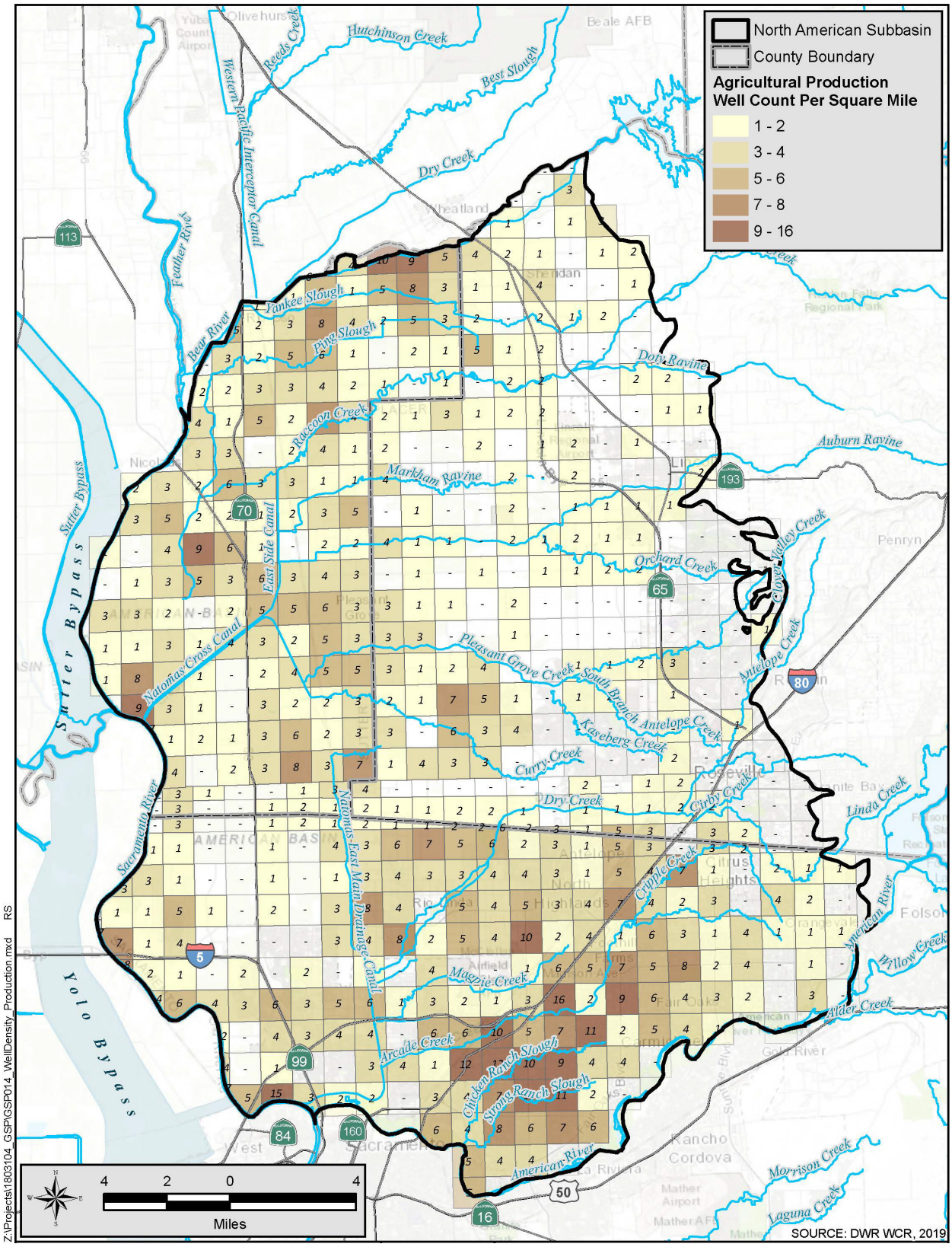

Figure 3-14. Density of Production Wells Per Square Mile

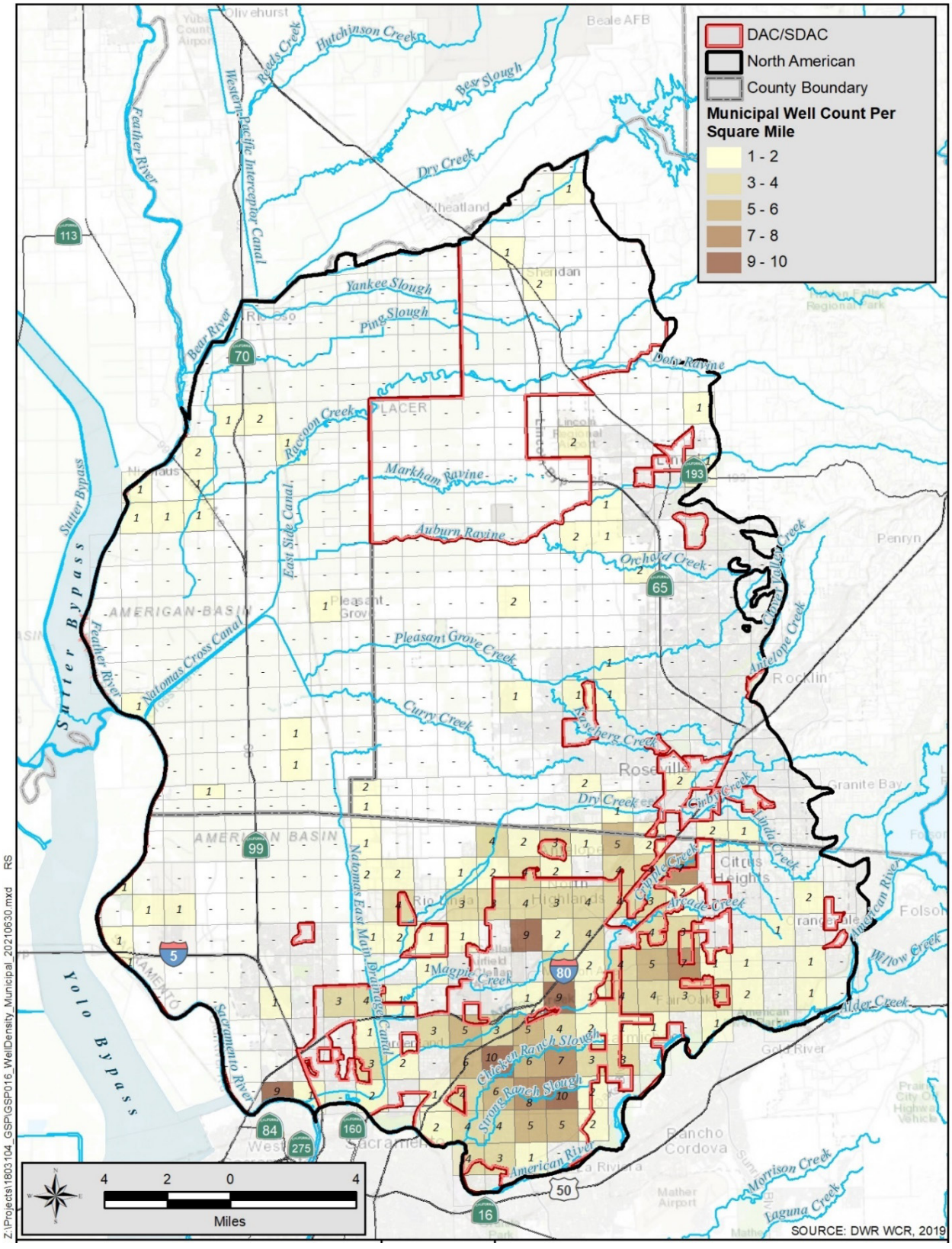

Figure 3-15. Density of Municipal Wells Per Square Mile

3.10 Existing Water Resources Management Plans

The Subbasin has many water resources management plans that cover activities that induces additional complexity to managing water resources. The following subsections provide a summary of other existing plans that the GSAs considered in the development of this GSP to manage groundwater resources in the Subbasin.

3.10.1 Groundwater Management Plans

In 1992, the California State Legislature enacted Assembly Bill (AB) 3030, and in 2002 the Legislature enacted Senate Bill (SB)1938. SB 1938 required adoption of a groundwater management plan as a prerequisite to obtaining funding assistance for groundwater projects from funds administered by DWR. These two pieces of legislation were incorporated into the California Water Code, Section 10753, to encourage local public agencies/water purveyors to voluntarily adopt formal plans to manage groundwater resources within their jurisdictions. **Table 3-4** provides a list of these groundwater management plans that separately covered the entire NASb. These existing groundwater management plans will be replaced with this GSP. Natomas Mutual Water Company has also prepared a groundwater management plan for its service area.

Table 3-4. Groundwater Management Plans

Groundwater Management Plan	AB3030	SB1938
SGA GMP 2014	x	x
Sutter County GMP 2012	x	x
WPC GMP 2007	x	x
SSWD GMP 2009	x	x

3.10.2 Water Forum Agreement

Representatives of water suppliers, local governments, citizens groups, environmental organizations, and businesses began the Water Forum in 1993 with the goal of developing a plan to ensure reliable long-term water supplies while protecting the lower American River. Following more than six years of analysis, professionally facilitated discussion, and negotiations, 40 diverse stakeholder groups signed the Sacramento Water Forum Agreement (WFA) in April 2000 (Water Education Foundation, 2002). An Environmental Impact Report for the WFA was completed in October 1999. The WFA included the following co-equal objectives:

- Provide a reliable and safe water supply for the region's economic health and planned development through the year 2030
- Preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River

To achieve its objectives, WFA signatories approved an integrated package of seven elements:

- Increased surface water diversions
- Actions to meet customer needs while reducing diversion impacts in drier years
- Support for improved pattern of fishery flow releases from Folsom Reservoir
- Lower American River habitat management
- Water conservation
- Groundwater management
- Water Forum Successor Effort

The Water Forum effort continues today, with many successes and some ongoing challenges to meeting its objectives. Most importantly, a majority of the signatory stakeholder groups are still focused on supporting and achieving the WFA's objectives more than 20 years after its execution. While each of the elements of the WFA is critical to achieving its co-equal objectives, the groundwater management element is most relevant to local groundwater management efforts and to this GSP. The groundwater management element provides a framework for protecting and using groundwater in a sustainable manner. The WFA is currently being updated and will reflect the enactment of SGMA and implementation requirements of this GSP.

3.10.3 American River Basin Integrated Regional Water Management Plan

The greater Sacramento area has been involved in integrated water planning and implementation for two decades. In 2001, water suppliers in the Sacramento area formed the Regional Water Authority (RWA) as a joint powers authority to help implement elements of the Water Forum Agreement. RWA developed the first American River Basin Integrated Regional Water Management Plan (IRWMP) in 2006, with updates in 2013 and 2018. The IRWMP area includes SGA and West Placer GSAs.

Integrated Regional Water Management is an effective way to address complex water resources challenges and is driven by stakeholders that identify major water and related resource management issues and their proposed solutions. It maximizes economic and societal benefits in an equitable manner while maintaining the ecosystem critical to water resource sustainability.

The IRWMP identifies specific projects and implementation programs and agreements between different affected agencies to identify projects to put conjunctive use in place. The intended purpose of the IRWMP is to provide and encourage regional opportunities for water resources planning and project development.

3.10.4 North Sacramento Valley Integrated Regional Water Management Plan

The North Sacramento Valley IRWMP covers a large planning area and includes the Sutter County portion of the NASb and RD 1001, Sutter County, and portions of the SSWD GSA areas.

The IRWMP also includes specific projects and implementation programs and agreements between different affected agencies to identify projects to put conjunctive use in place.

3.10.5 Urban Water Management Plans

The Urban Water Management Planning (UWMP) Act was developed in response to the state's water shortages, droughts, and other factors. Every urban water supplier that provides over 3,000 AF of water annually or serves more than 3,000 service connections is required to submit a UWMP. UWMP requirements include updating water shortage contingency plans (WSCP), extended drought risk assessments, and energy intensity reporting. Required elements of an UWMP include a report on the progress that urban water suppliers are making in meeting their water use efficiency targets, current and projected water demands, current and projected water sources, water management actions to improve supply reliability, and an evaluation of the sufficiency of supplies to meet the forecasted demands under both normal and drought conditions. Entities within the NASb with UWMPs include:

California American Water	Nevada Irrigation District
Carmichael Water District	Orangevale Water Company
Citrus Heights Water District	Placer County Water Agency
City of Folsom	Rio Linda/Elverta Community Water District
City of Lincoln	Sacramento County Water Agency
City of Roseville	Sacramento Suburban Water District
City of Sacramento	San Juan Water District
Fair Oaks Water District	

Within UWMPs, the WSCPs are an important temporary demand management tool. WSCPs have required water shortage stages that allow local agencies to call for temporary demand reductions during periods of constrained supply. These reductions are an important management action to adapt to dry conditions.

3.10.6 Urban Water Use Efficiency Program

The RWA has managed a Regional Water Efficiency Program (WEP) since 2002. The WEP has 19 urban water suppliers participating throughout the greater Sacramento region, with 14 of those agencies being in the NASb. The Program's primary focus is a regional public and education program with the goal of assisting urban water suppliers with informing customers on how to use water more efficiently. Program activities include a public facing educational website (https://bewatersmart.info/), development of an annual public outreach campaign, radio, television, online and social media advertising, and a public service announcement-focused video contest for students. In 2021, the U.S. Environmental Protection Agency (EPA) honored the RWA WEP with the national 2021 WaterSense® Partner of the Year Award for its

dedication to helping consumers and businesses save water, even with the challenges presented by the COVID-19 pandemic in 2020. This is the second WaterSense award for the Program (awarded WaterSense® Excellence in Education and Outreach Award in 2016).

In addition to public outreach and education, the WEP has been successful in securing grants to assist water suppliers in issuing rebates for water saving devices (e.g., toilets, showerheads, irrigation controllers). Since 2003, the program has secured nearly $14.7 million from highly competitive grant programs. In 2020, the WEP received $2.4 million in grant funding from Proposition 1 (The Water Quality, Supply, and Infrastructure Improvement Act of 2014) for several new multi-year programs and incentives focused on customer rebates and system water loss recovery and efficient irrigation practices and equipment.

As a result of the WEP's efforts over the last 20 years, the region's water use has remained steady even though the population grew 37 percent from 1.5 million to 2.1 million people. Additionally, every supplier in the region has successfully met and exceeded (by an average of 20%) the Water Conservation Act of 2009 (SB X7-7) requirements to increase water use efficiency by 20 percent by the year 2020. Looking forward, new water conservation regulations resulting from the passage of Senate Bill 606 and Assembly Bill 1668 (2018) are currently under development with implementation starting in 2023. These new regulations have a statute-defined goal of producing more savings than SB X7-7 and incorporate water efficiency standards for residential indoor use, residential outdoor use, commercial, industrial, and institutional landscape use and supplier system water loss.

3.10.7 Agricultural Water Management Plans

The Water Conservation Act of 2009 (SB X7-7) requires agricultural water suppliers serving more than 25,000 irrigated acres (excluding recycled water deliveries) to adopt and submit to DWR an Agricultural Water Management Plan (AWMP). These plans must include reports on the implementation status of specific Efficient Water Management Practices that were required under SB X7-7.

Required components of the plans include:

- Annual water budget
- Identification of water management objectives to improve system efficiency
- Quantification of water use efficiency with all water uses being accounted for including; crop water use, agronomic use, environmental use, and recoverable surface flows
- A Drought Plan for periods of limited water supplies that describes actions for drought preparedness

Districts within the NASb which have adopted AWMPs are:

- SSWD
- Natomas Mutual Water Company
- Nevada Irrigation District

3.10.8 Salt/Nutrient Management Plan

In February 2009, the SWRCB adopted Resolution No. 2009-011, which established a statewide Recycled Water Policy. Central to this Policy was the requirement that local water and wastewater entities, together with local salt- and nutrient-contributing stakeholders, develop a Salt and Nutrient Management Plan for specified groundwater basins and subbasins in California. The plans include management strategies, plans for stormwater and recycled water use, a monitoring program, and an antidegradation analysis. In response, the Sacramento Valley Water Quality Coalition was formed to perform studies and to represent growers in the Sacramento Valley, including the NASb. The Coalition developed a Groundwater Quality Assessment Report (CH2MHill, 2016) and a Comprehensive Groundwater Quality Management Plan. The Groundwater Quality Management Plan presents a baseline picture of groundwater quality, establishes a framework under which salt and nutrient issues can be managed, and streamlines the permitting process of new recycled water projects while meeting water quality objectives and protecting beneficial uses. This plan excluded areas where rice is grown.

The California Rice Commission also prepared a Groundwater Quality Assessment Report (CH2MHill, 2013). Rice is primarily grown in eight Sacramento Valley counties (Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Yolo, and Yuba). Rice lands overlie eleven subbasins in the Sacramento Valley Groundwater Basin, including the NASb. The California Rice Commission has issued rice-specific Waste Discharge Requirements (WDR), which requires groundwater trend monitoring and reporting at representative wells (one well is sampled in the NASb). Rice acreage has been identified as having a low vulnerability for nitrates.

3.10.9 Water Quality Control Plan for the Sacramento River Basin

The Central Valley Regional Water Quality Control Board (CVRWQCB) prepared a Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan). The objective of the Basin Plan is to show how the quality of the surface water and groundwater in the Sacramento Region should be managed to provide the highest water quality reasonably possible. Water uses and water benefits vary depending upon the location in the basins. Water quality is an important factor in determining use and benefit. For example, drinking water must be of higher quality than the water used to irrigate pastures. Both are legitimate uses, but the quality requirements for irrigation are different from those for domestic use. The Basin Plan recognizes such variations.

The Basin Plan lists beneficial users, describes the water quality, which must be maintained to allow those uses, and contains an implementation plan, SWRCB, and CVRWQCB plans and policies to protect water quality, and statewide surveillance and monitoring as well as regional surveillance and monitoring programs.

Present and potential beneficial uses for inland waters in the basins are surface water and groundwater as municipal (water for community, military, or individual water supplies); agricultural; groundwater recharge; recreational water contact and non-contact; sport fishing; warm freshwater habitat; wildlife habitat; rare, threatened, or endangered species; and, spawning, reproduction, and/or early development of fish.

Water Quality Objectives for both groundwater (drinking water and irrigation) and surface water are provided.

3.11 Existing Water Resources Monitoring Programs

Existing management and monitoring plans in the NASb are described below. Some of the programs will be incorporated into the GSP monitoring network or were used to develop this GSP.

3.11.1 Groundwater Level Monitoring Programs and Networks

Historical groundwater level data measurements were made by DWR, SGA, local water districts, and the United States Geological Survey (USGS).

Groundwater level monitoring is being performed by designated monitoring entities in the NASb as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) program. This network of groundwater level monitoring wells provides data that is the foundation for many groundwater management decisions. Designated monitoring entities include: SGA, Placer County, City of Roseville, SSWD, and Sutter County. DWR also continues to monitor groundwater levels in the Subbasin. The CASGEM groundwater level monitoring network and others are shown on **Figure 3-16**.

Appendix C provides the monitoring well construction details. Many of the wells are dedicated nested monitoring wells (small diameter wells that are screened opposite individual aquifers). The NASb GSAs rely upon these dedicated monitoring wells to assess the groundwater conditions in the basin since these wells are not affected by local pumping, as are the voluntary wells that are commonly active pumping wells. SSWD, RD 1001, and the Sutter County GSAs use more voluntary wells than dedicated monitoring wells.

Groundwater level monitoring is also performed as part of DWR and the Bureau of Reclamation's Water Transfer Program, which allows for three categories of transfers: 1) groundwater substitution, 2) cropland idling and crop shifting, and 3) reservoir storage releases. Groundwater substitution transfers make surface water available for transfer by reducing surface water diversions and replacing that water with groundwater pumping. The monitoring of groundwater levels is required as part of the transfer agreement. The monitoring networks developed for the water transfers include the groundwater production wells participating in the transfer and additional monitoring wells to assess the effects of the transfer. The monitoring

frequency varies from weekly to monthly. Monitoring begins just prior to the start of water transfer pumping and continues until groundwater levels have recovered to their seasonal highs the following spring.

The USGS monitors thousands of wells across the nation. The extensive water data, which includes manual measurements of depth to groundwater in wells throughout California, are stored in the National Water Information System (NWIS) online database (https://waterdata.usgs.gov/nwis). The database stores historical observations of active and discontinued sites in addition to current conditions with measurements transmitted hourly.

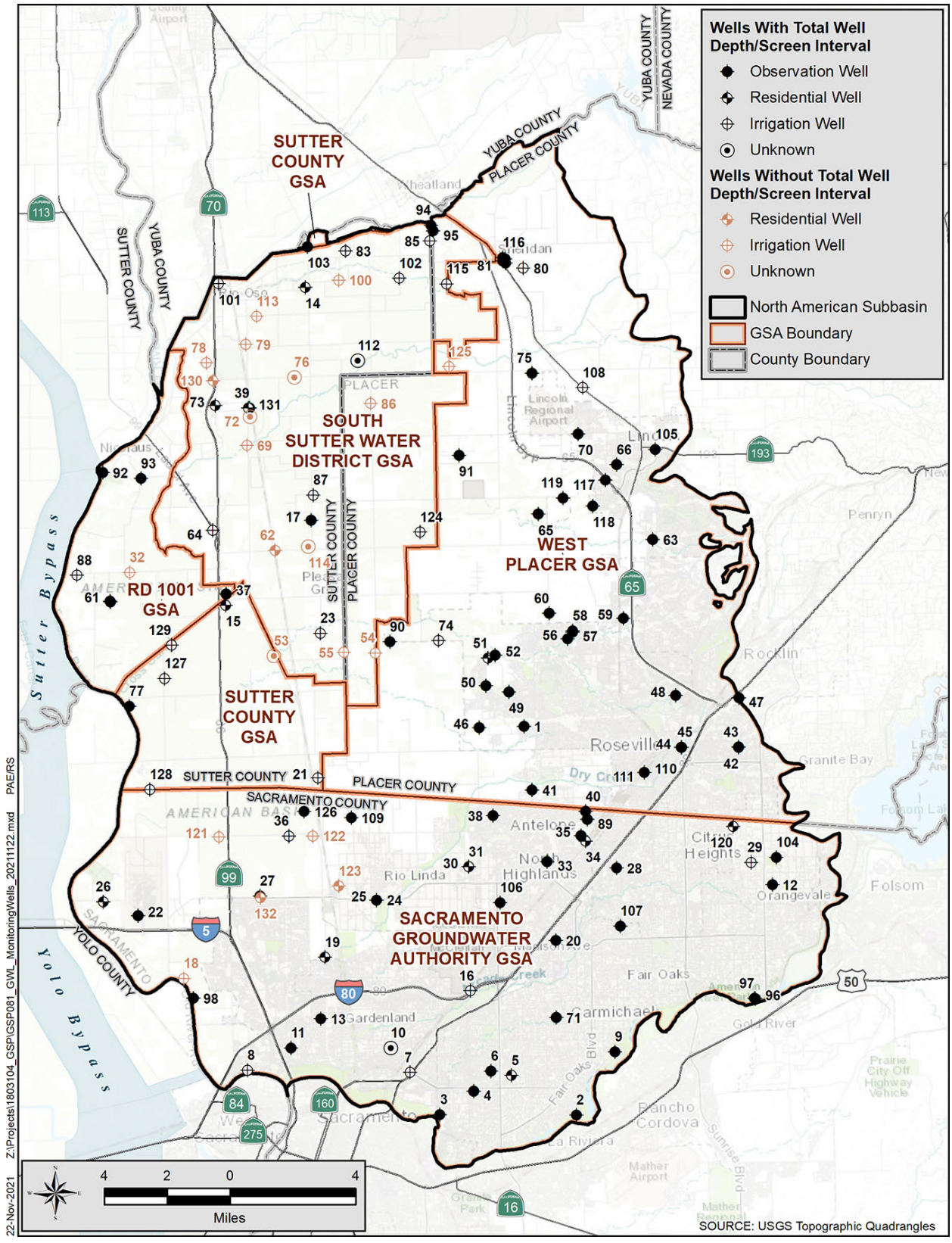

Figure 3-16. Groundwater Level Monitoring Network

Groundwater level measurements at these wells are taken approximately once per quarter. The USGS actively monitors 10 well sites within the NASb.

3.11.2 Groundwater Quality Monitoring Programs and Network

Groundwater quality is monitored under several different programs and by different agencies, as described below:

- Municipal and community water purveyors collect water quality samples on a routine basis for compliance monitoring and reporting to the SWRCB's Division of Drinking Water.
- The USGS collects water quality data under the Groundwater Ambient Monitoring and Assessment (GAMA) and National Water Quality Assessment programs.
- The Irrigated Lands Regulatory Program (ILRP) required the development of a Salt Nutrient Management Plan and, more recently, the development of a Groundwater Trend Monitoring Work Plan to identify wells for sampling and a groundwater quality monitoring protocol. Only one well has been designated in the Subbasin.
- West Placer selectively monitors 16 dedicated monitoring wells on an annual basis to assess water quality trends in wells that are approaching or have exceeded the maximum contaminant levels (MCLs) and for select water quality constituents with pending MCLs.

Figure 3-17 shows the locations of the water quality monitoring wells used for the programs described above.

In addition to these monitoring programs, there are multiple sites groundwater quality samples are collected and analyzed as part of investigation or compliance monitoring programs through the Central Valley Regional Water Quality Control Board.

The SWRCB, under the California's Safe and Affordable Fund for Equity and Resilience (SAFER) Program is evaluating on an annual basis water quality and risks to domestic wells and state small water systems. An aquifer risk map has been developed with the intent to help prioritize areas where domestic wells and state small water systems may be accessing groundwater that does not meet primary drinking water standards (maximum contaminant level or MCL). The combined risk layer combines the water quality risk ranking with the domestic well and state small system density of an area to calculate the overall risk to domestic well and state small systems. By combining these two data elements, areas with a relatively high density of reported domestic wells or state small water systems, and a high relative risk to water quality, are assigned the highest combined risk. The risk map will be used by SWRCB staff to help prioritize areas for available SAFER funding. Water quality results for the past 20 years from each well were analyzed. Of the 43 small community water systems within the NASb, only seven water systems were considered to be potentially at risk.

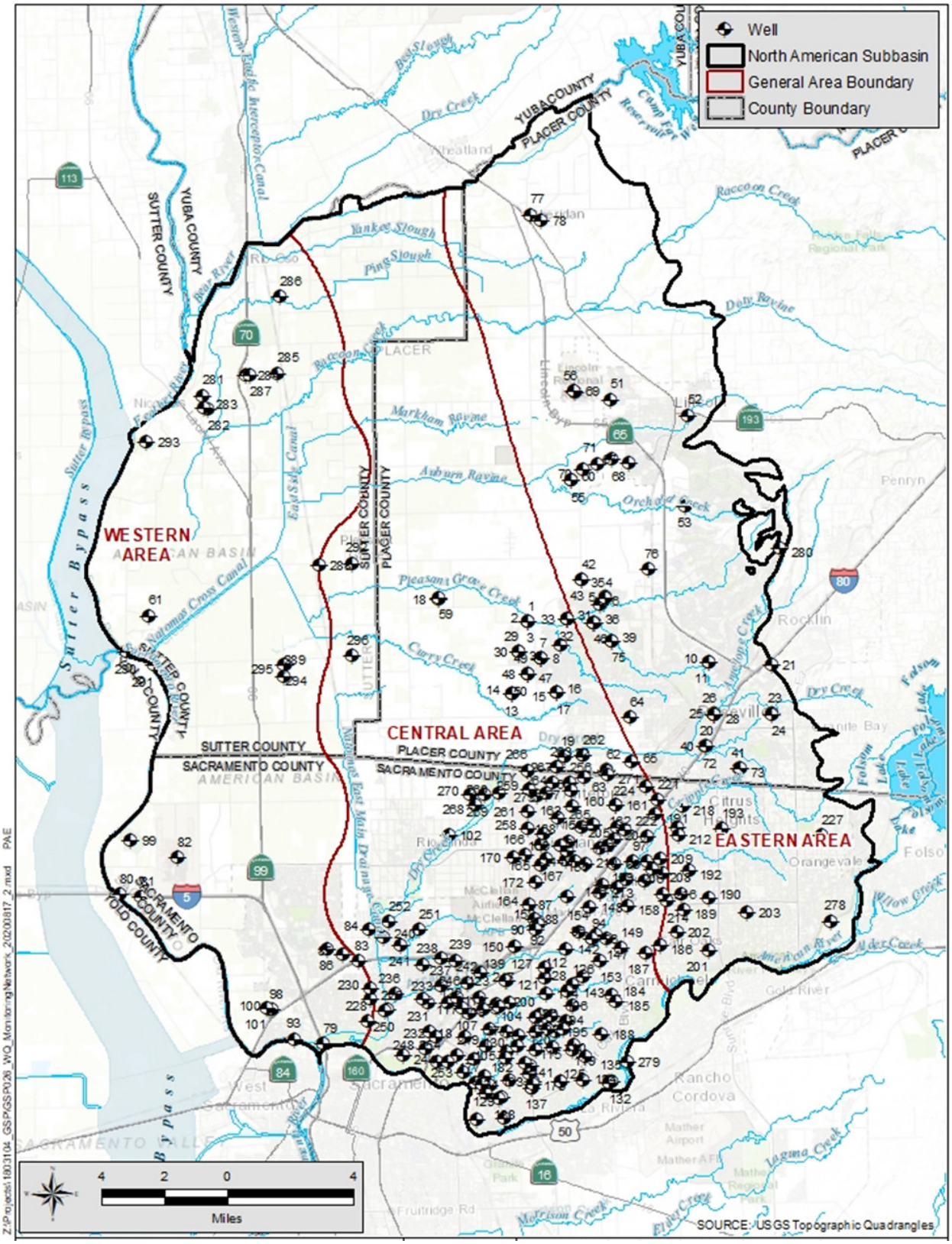

Figure 3-17. Groundwater Quality Monitoring Network

3.11.3 Surface Water Monitoring Networks

DWR, USGS, Placer County, and Sacramento County maintain surface water gages along the rivers, creeks, and sloughs in the NASb with publicly available data online. Depending on the station, they may measure only the level of water (stage) or the discharge. **Figure 3-18** shows the location of these gages. Note that the figure only shows a subset of the gages monitored by Sacramento County. This GSP uses the data collected by these agencies from some of these gages.

Surface water diversions into the Subbasin are also monitored by SSWD, NMWC, Pleasant Grove-Verona Mutual Water Company, Nevada Irrigation District, and Placer County Water Agency, cities of Sacramento and Roseville, San Juan Water District, and Carmichael Water District.

3.11.4 Precipitation Monitoring Network

Precipitation is measured at 29 stations located in the NASb, although many of the stations do not have a long period of record. **Figure 3-17** shows the location of these stations. This GSP uses the data collected by various agencies that maintain and report the data.

The closest station to the NASb with a long period of record, dating back into the 1880s, is the Sacramento 5ESE station, which is just south of the Subbasin but is likely representative due to its geographic location. The average precipitation, using the state climatologist definition of a recent representative period of years, water year 1988-89 through 2008-09 is 18.65 inches, at this location. **Figure 3-19** shows the precipitation by water year (October 1–September 30 of any given year).

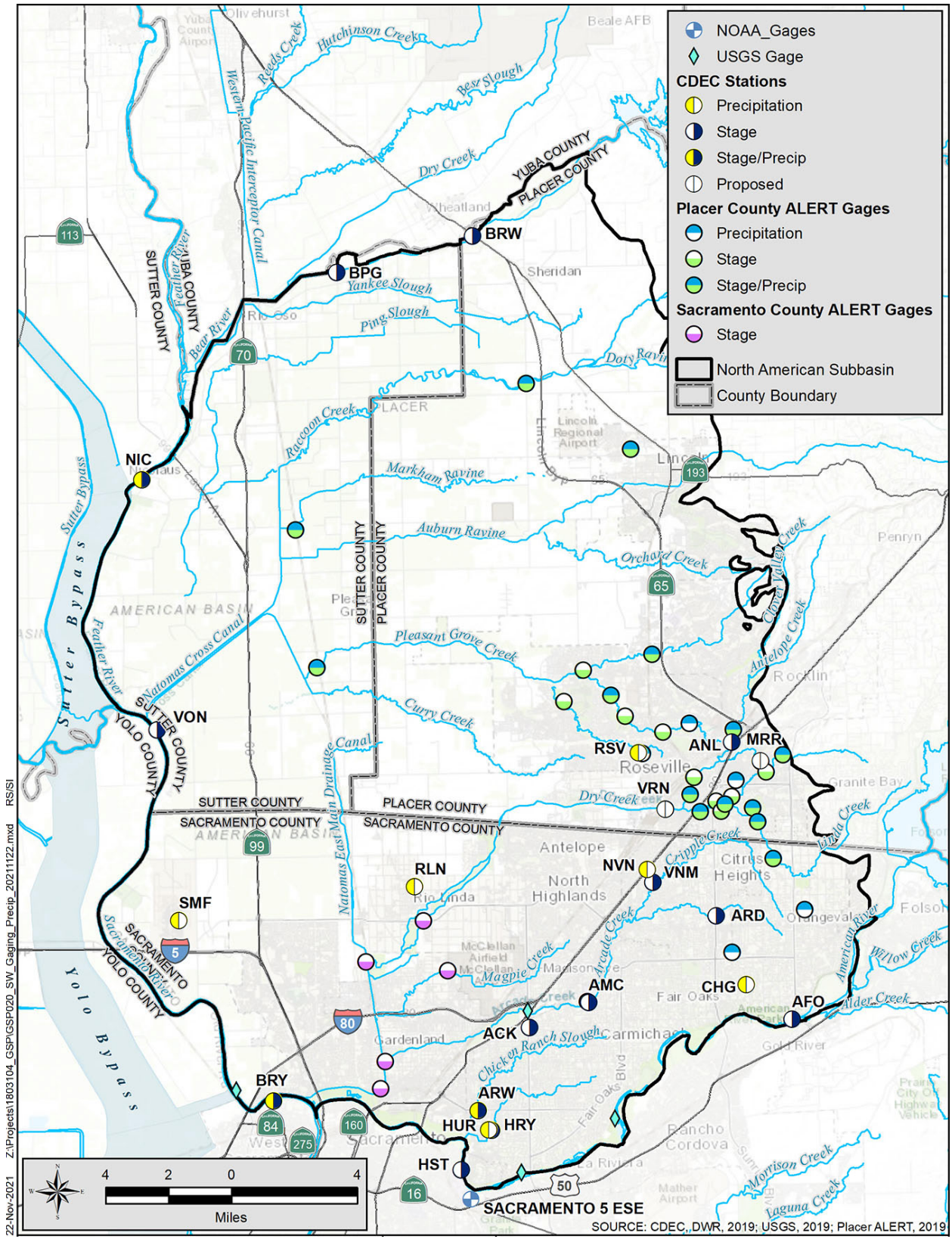

Figure 3-18. River Gages and Precipitation Stations

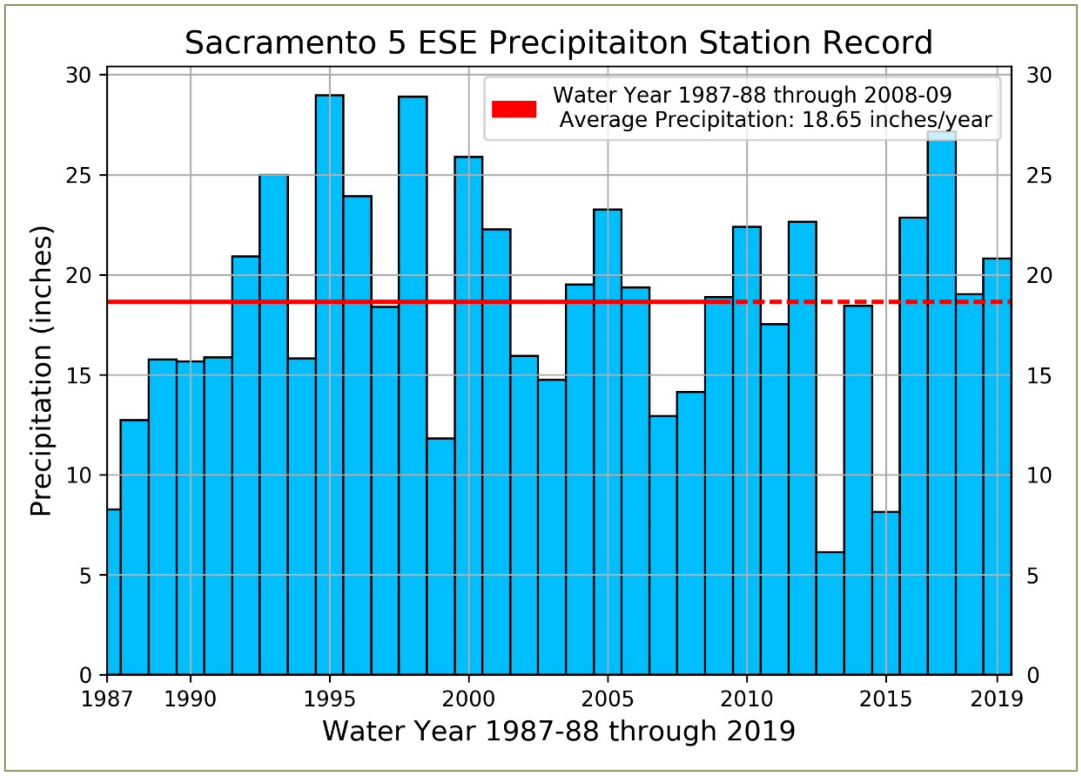

Figure 3-19. Water Year Precipitation

3.11.5 Subsidence Monitoring Network

DWR established a Sacramento Valley-wide benchmark network in 2008 and then resurveyed the benchmarks in 2017 to assess if and where subsidence occurred (DWR, 2018). DWR plans to resurvey this benchmark network about every 5 years or as funding is appropriated.

DWR constructed and monitors for subsidence at the Sutter extensometer (SUT Ext), located near the western edge of the Subbasin, near the Natomas Cross Canal at Highway 99 as shown on **Figure 3-20**. A nearby monitoring well SUT-P (11N04E04N005M) provides groundwater levels to assess if subsidence is related to changes in groundwater levels.

This GSP relies on data from these benchmarks and the extensometer and plans to incorporate them as part of the monitoring network for the NASb, as measured or coordinated by DWR. **Figure 3-20** shows the location of these benchmarks and the extensometer.

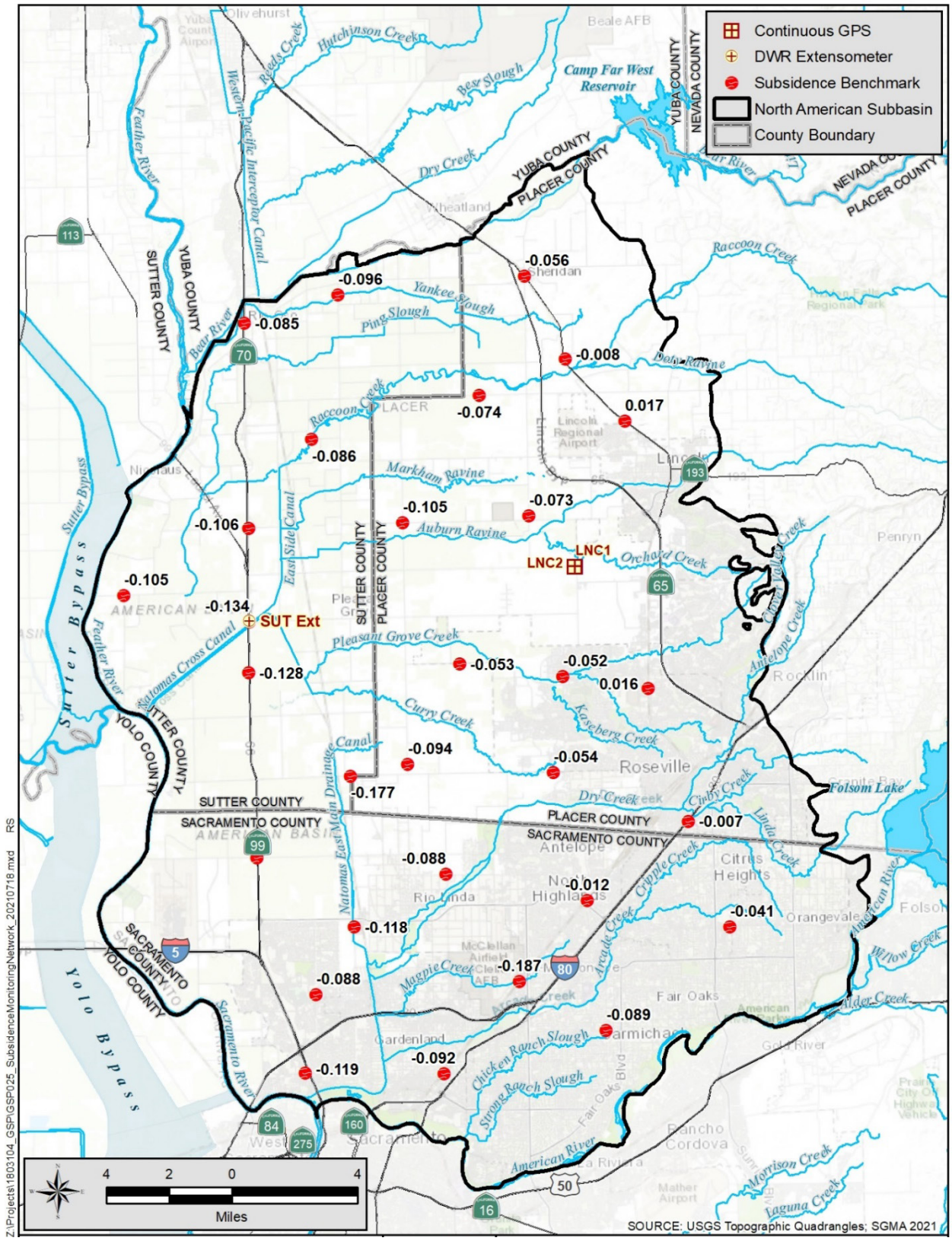

Figure 3-20. Subsidence Monitoring Network

3.12 Limits to Operational Flexibility

None of the existing water resources management or monitoring programs are expected to limit operational flexibility in the basin. Rather, they are seen as complementary to groundwater sustainability. They promote integrated management of water resources, water demand management, and water quality management. These are all fundamental to groundwater sustainability.

3.13 Conjunctive Use Programs

Conjunctive use is the planned, coordinated use of groundwater and surface water to optimize available water supplies. Surface water is used when it is available, and groundwater is used when surface water supplies are reduced or not available. The aquifer is utilized as a storage reservoir that can be recharged from precipitation, subsurface inflow, applied surface water, or injection wells. This stored water is then available when needed.

In 1993, the Water Forum began a process to develop a plan to ensure a reliable water supply for the Sacramento region, including work to develop conjunctive use projects in the area. This resulted in the formation of SGA in 1998. SGA focused the effort started by earlier agencies to manage groundwater in the Sacramento County portion of the NASb. Since the 1990s, SGA and its member agencies have managed groundwater and implemented conjunctive use projects, thereby reversing the decline of groundwater levels in the North Basin.

Currently, public water supplier agencies in the NASb meet water demands with a mixture of a little more than half surface water and a little less than half groundwater. To the extent practicable, the agencies maximize the use of surface water in wet years to maximize the amount of groundwater stored in the basin. The SGA and Regional Water Authority (with member agencies in the NASb and also in the South American and Consumes subbasins and surrounding watersheds) are committed to expanded conjunctive use operations and are investigating a variety of ways to recharge water into the available storage space in the NASb. Most of the recharge occurring through current conjunctive use is from in-lieu recharge (i.e., this is recharge that occurs naturally from rivers, streams, and surface percolation by simply reducing groundwater extractions).

The SGA has developed a Water Accounting Framework (WAF) that has been used by SGA member agencies in the Sacramento County portion of the Subbasin to ensure a safe and sustainable water supply for the greater Sacramento region by encouraging water purveyors to “bank” water in the basin, when available, for use during dry periods. This includes the establishment of a WAF that supports groundwater banking programs by setting forth rules for operating a model groundwater bank and monitoring the basin to ensure its sustainability as the program is implemented. Since 2012, SGA has maintained an accounting of groundwater “deposits” and “withdrawals” associated with implementing their conjunctive use program.

Well ahead of any formal conjunctive use programs, SSWD was formed for the purpose of providing surface water supplies to offset the decline of groundwater levels. The first year of operation of Camp Far West Reservoir and associated facilities was 1964. The operation of these facilities was successful in reversing the decline of groundwater levels such that by 1970 the potential of drainage problems were identified if greater quantities of groundwater were not put to use.

Although not a formal program, water and irrigation districts and mutual water companies that provide surface water for agricultural use in the NASb also provide conjunctive use by increasing their deliveries of surface water during times of surplus, thereby reducing the amount of groundwater pumped by private well owners.

In addition to the active conjunctive use programs described above, Sacramento County has an existing General Plan Conservation Element, Policy C-01 that states to "Support conjunctive use water supply for development." This will help ensure that conjunctive use continues in developing areas of the County.

3.14 Land Use Plans

Land use management and planning authority is granted through the state of California and is derivative of a city's or county's general police power. This power allows cities and counties to establish land use and zoning laws that govern development. Agencies with land use authority in the NASb are the cities of Citrus Heights, Folsom, Lincoln, Rocklin, Roseville, and Sacramento along with counties of Placer, Sacramento, and Sutter. The cities of Roseville and Sacramento are considered charter cities, which provides them with additional constitutional freedoms to govern municipal affairs even if a conflict with state law exists.

General Plans and UWMPs have been developed by the cities of Citrus Heights, Folsom, Lincoln, Roseville, and Sacramento along with Sutter, Placer, and Sacramento counties. Their planning horizons (out to 2030 or 2035) include the anticipated planned growth in the region.

Water purveyors also have a voice in land use planning, but not necessarily an authority. Because they provide water supply, any new development is required to prove adequate water supply will be made available to serve the project and, therefore, may affect land use. Proof of adequate water supplies is required under SB 610 and SB 221, which are intended to assist water suppliers, cities, and counties with integrating water and land use planning. SB 221 prohibits a city or county from approving a residential subdivision of more than 500 units unless there is written verification that sufficient water supply for 20 years is, or will be, available. SB 610 requires retail water agencies with responsibility under prescribed circumstances to prepare water supply assessments for the purpose of predicting and ensuring long-term (20-year) water supply reliability for those projects that are subject to the California Environmental Quality Act (CEQA).

It should be noted that California American Water and Golden State Water Company, although not public water agencies, have similar authority to the public water agencies for the determination of adequate water supplies for new developments.

Water supplies for new developments (*refer to* **Figure 3-6**) will be a mixture of surface water and groundwater. Placer County, Policy 4.C.2, requires for approval that new urban and suburban developments should rely on public water systems using surface water supply. In Placer County, the development near and south of Pleasant Grove Creek will be provided with surface water. Those in the Lincoln area will be a mixture of surface water and groundwater. The early phases of the Sutter Pointe development in Sutter County will rely on groundwater and ultimate planned combination of groundwater and surface water to meet the needs of the community. Surface water would be obtained from NMWC. Planned development areas within Sacramento County will likely use groundwater as their initial sources of supply and ultimately plan to use both surface water and groundwater as their source of supply.

3.15 GSP Implementation Effects on Land Use

The General Plans in the Subbasin provide guidelines to facilitate anticipated growth within the sustainable capacity of existing resources. Successful land use planning promotes sustainable water supply and use within the region. Due to the complementary nature of the General Plans and the GSP, the goals and policies in the General Plans support the ability of the GSAs to achieve sustainability.

Implementation of the GSP, including changes in groundwater management, may influence the type of land use and location of future development. The result will depend on the level of changes set forth by the GSP such as enacted programs, plans, and policies. While General Plan implementation may result in land use changes and changes in water consumption, minimal change in water demand is expected from GSP implementation. The potential for future management actions, which could impact water supplies and development, is discussed in **Section 9 – Projects and Management Actions**.

Most of the land within the Subbasin is currently developed to some use, and conversion from agricultural uses to urban uses is not anticipated to increase water demand. However, conversion from agriculture to urban use may have an effect on water source, depending on the location in the Subbasin, and may shift supply from groundwater to surface water.

3.16 GSP Implementation Effects on Water Supply

The water budgets for the Subbasin show that it is currently within balance and that projected conditions with climate change results in only a slight imbalance. One project is planned that can bring the water budget into balance and within its sustainable yield. The GSAs have also six long-term Supplemental Projects, as discussed in **Section 9 – Projects and Management**

Actions, that are in process of being developed that should groundwater level measurements indicate there is an imbalance the GSAs can easily rectify any short fall. Therefore, with these conditions this GSP does not intend to curtail groundwater use.

3.16.1 Urban Water Supply

The reliability of urban suppliers is expected to improve with implementation of this GSP through expansion of their conjunctive use programs (*see* **Section 9 – Projects and Management Actions**). These conjunctive use programs benefit the entire Subbasin.

3.16.2 Agricultural Water Supply

Agriculture uses about 50 percent groundwater to grow crops (*see* **Section 6 – Water Budgets)**. Conversion of fallow land and rice lands to orchards were included in the modeling assumptions for the projected future with climate change. The model is showing that even with these changes groundwater sustainability indicators will not be adversely affected. Therefore, implementation of this GSP is not expected to affect agricultural water supply.

3.16.3 Domestic Water Supply

Groundwater levels are expected to remain near their current levels (*see* **Section 8 – Sustainable Management Criteria**) and, therefore, no domestic wells are projected to go dry. Because agriculture and municipal wells are typically deeper than domestic wells, implementation of this GSP is not expected to affect these water supplies.

3.16.4 Environmental Water Supply

Groundwater dependent ecosystems are predominately located near the rivers which will continue to maintain shallow groundwater levels (*see* **Section 8 – Sustainable Management Criteria**). Groundwater levels are expected to remain near their current levels and, therefore, groundwater supply to potential groundwater dependent ecosystems is not expected to be lowered or reduced during implementation of this GSP. During drought periods groundwater levels are expected to decrease, which will mimic the natural cycle of wet and dry periods.

Surface water depletion may increase from the Sacramento River with construction of an already approved development (Sutter Pointe). However, the increase in surface water depletion will be offset by the reduction of surface water diversions as the land is converted from agriculture to urban.

3.17 Well Permitting

DWR has responsibility for developing standards for wells for the protection of water quality under California Water Code Section 231. All counties and cities and water agencies, where

appropriate, were required to adopt a well ordinance that meets or exceeds DWR's Water Resources Bulletin 74-81, "Water Standards: State of California" and Bulletin 74-90. Four agencies have well-permitting authority in the NASb for both new and replacement wells and well destruction.

- The **Placer County Water Well Construction Ordinance** provides the minimum requirements for construction, repair, and destruction of water wells, cathodic protection wells, and monitoring wells. Whoever wishes to drill a well within the county's boundaries, except for those within the city of Roseville, must first obtain a County Environmental Health permit. Placer County administers the well permitting program for the entire county, except for lands within the city of Roseville. Any wells planned within the city of Lincoln must first be approved by the city prior to the issuance of a County Environmental Health permit.

- **Roseville's Environmental Utilities Engineering Division** is the permitting agency for wells located within Roseville's city limits. To permit a well in Roseville, a Well Construction Application and Permit Form must be filed with the Environmental Utilities Department.

- The **Sacramento County Environmental Management Department (SCEMD)** approves permit applications for a new well or to deepen, reconstruct, recondition, or destroy a well. Any well that is constructed in Sacramento County must have a permit from the Environmental Management Department prior to the start of construction unless it is specifically exempted in the Sacramento County Code. The conditions and process for obtaining well permits are governed under Sacramento County Code, Title 6, Chapter 6.28.

    - Section 6.28.025 defined a "prohibition area" as that portion of the unincorporated territory of the county bounded on the east and south by the former McClellan Air Force Base, on the south by Sacramento city limits, on the west by Dry Creek Road, and on the north by I Street. No permits shall be issued for, and no person shall dig or drill a new water well within the prohibition area.

    - The permit requires that any applicant shall contact the CVRWQCB to assess the potential for groundwater contamination in the vicinity of the well and can require special sanitary seal requirements to prevent the spread of contaminants.

    - SCEMD also, when required, requests copies of CEQA documentation prior to the approval of the permits.

- **Sutter County Environmental Health Division (SCEHD)** is the well-permitting agency for Sutter County. One permit application is used for a new well or to deepen, reconstruct, recondition, or destroy a well. The permit application requires a site plan showing the location of the well and the accessor's parcel number. The design and construction of the well shall be in conformance with the California Department of Water Resources Bulletin

74-81, “Water Standards: State of California” as outlined in the County of Sutter Department of Public Works Improvement Standards (2005, rev. 2010).

All of the permitting agencies have requirements for wellhead protection including minimum well heights, well seals and concrete pads to surround the well and to promote drainage away for the wells.

None of the well permitting agencies coordinates with county or city land developers. There are no setbacks or special investigation requirements for construction of supply wells near the rivers or tributaries.

3.18 Land Use Plans Outside of the NASb

During coordination with the Yuba, Sutter, and Yolo subbasins, representative GSAs disclosed that there were no planned developments or land use changes near our common boundaries that would affect the NASb’s ability to maintain sustainable groundwater management to our north and west. To the south, the NASb has closely coordinated on development of a groundwater model with the South American Subbasin. While there are planned changes in land use and conjunctive management practices to our south, modeling indicates that these changes would not affect our ability to maintain sustainable groundwater management. This modeling is documented in **Section 9.2.1 - Project #1 - Regional Conjunctive Use Expansion** of this GSP.

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