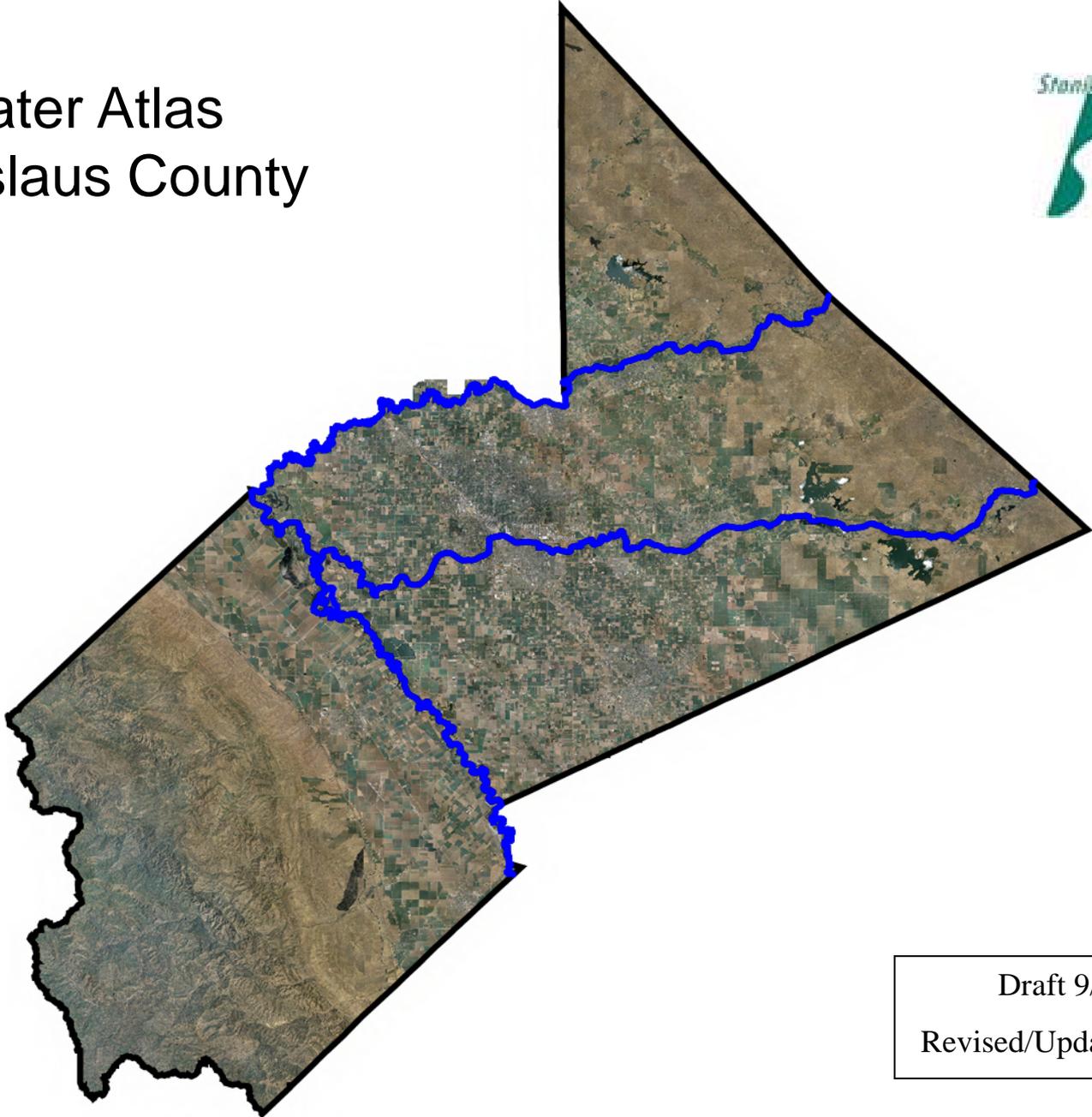




Water Atlas Stanislaus County



Draft 9/2007
Revised/Updated 3/2008

What is the Water Atlas?

Purpose

- The purpose of the Water Atlas for Stanislaus County is to provide an overall view of water supply and usage in the county via drawings, charts, and spreadsheets based on data from local and state water agencies.

Includes

- References and/or copies of laws, regulations, and agreements dealing with water supply and usage in Stanislaus County.
- Reports prepared by and for water agencies in the state and county.
- Annual water supply and usage data collected by the various water agencies in the county, most of which is reported to various state agencies.
- Groundwater contours prepared annually covering the entire county.

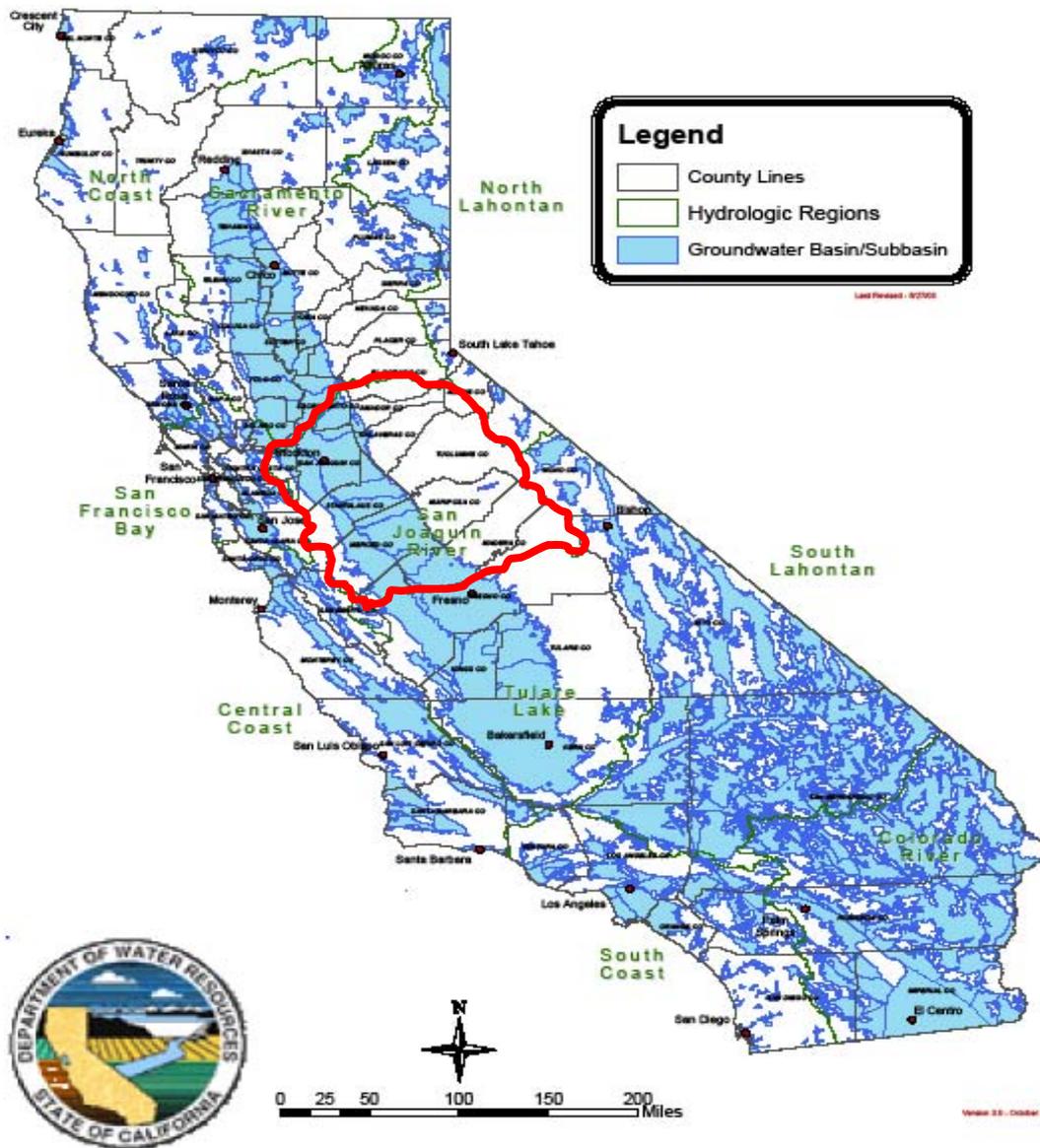
Benefits

- Provides a single location for access to a variety of data dealing with water supply and usage in the county.
- All persons interested in water supply and usage would have the same basic data to work with when discussing water issues.
- As new reports and data develop, they would be added to the water atlas, keeping the water atlas current and useful.
- It would be a useful tool for discussing the water supply and usage issues with various groups around the county.

California Hydrologic Regions and Groundwater Basin/Subbasin

- Department of Water Resources of the State of California has divided the state into ten hydrologic regions and each region has been further divided into subbasins.
- Stanislaus County includes all or a portion of four subbasins.

Groundwater Basins in California



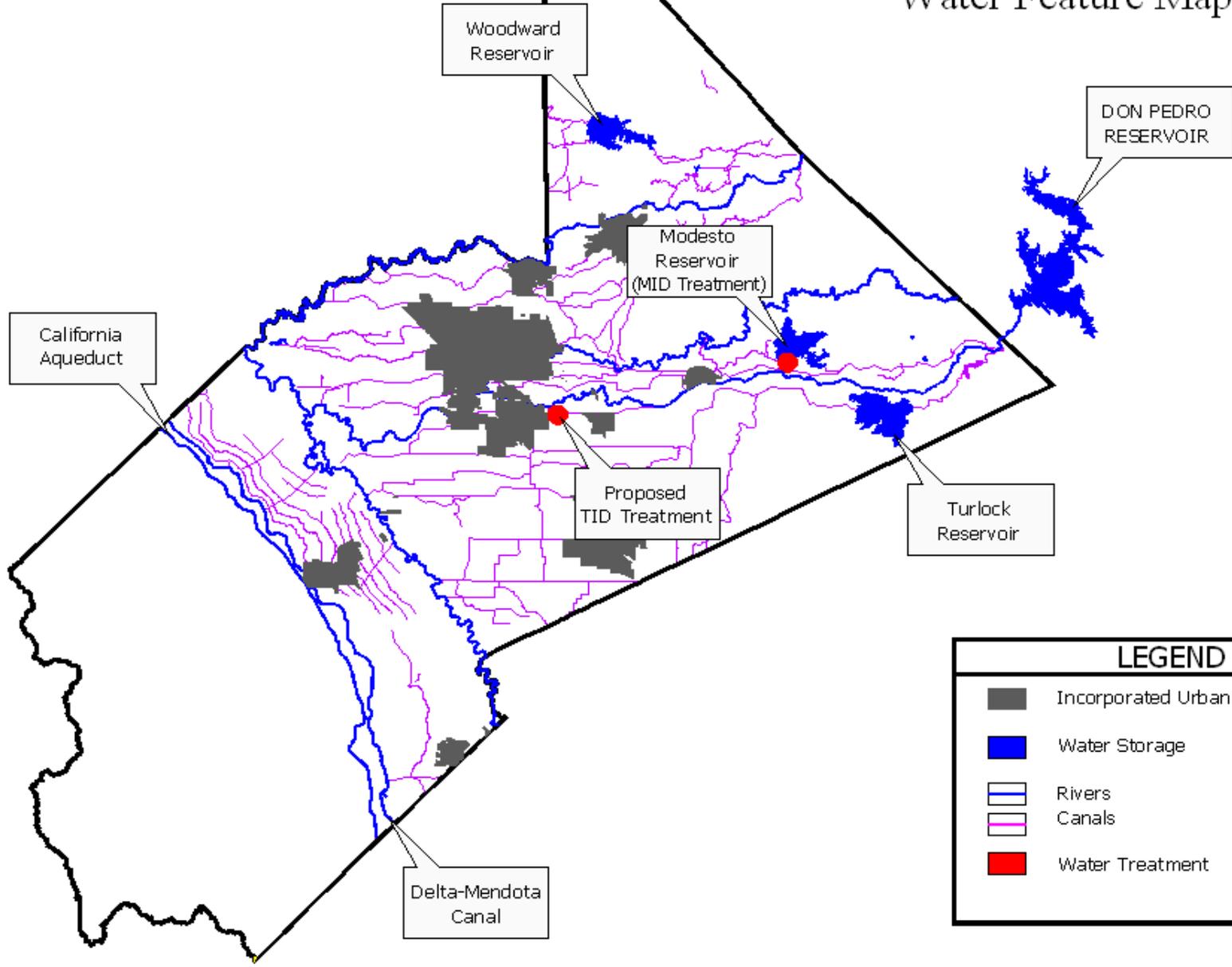
San Joaquin Hydrologic Region/Groundwater Subbasins



Water Features and Water Suppliers Serving Stanislaus County

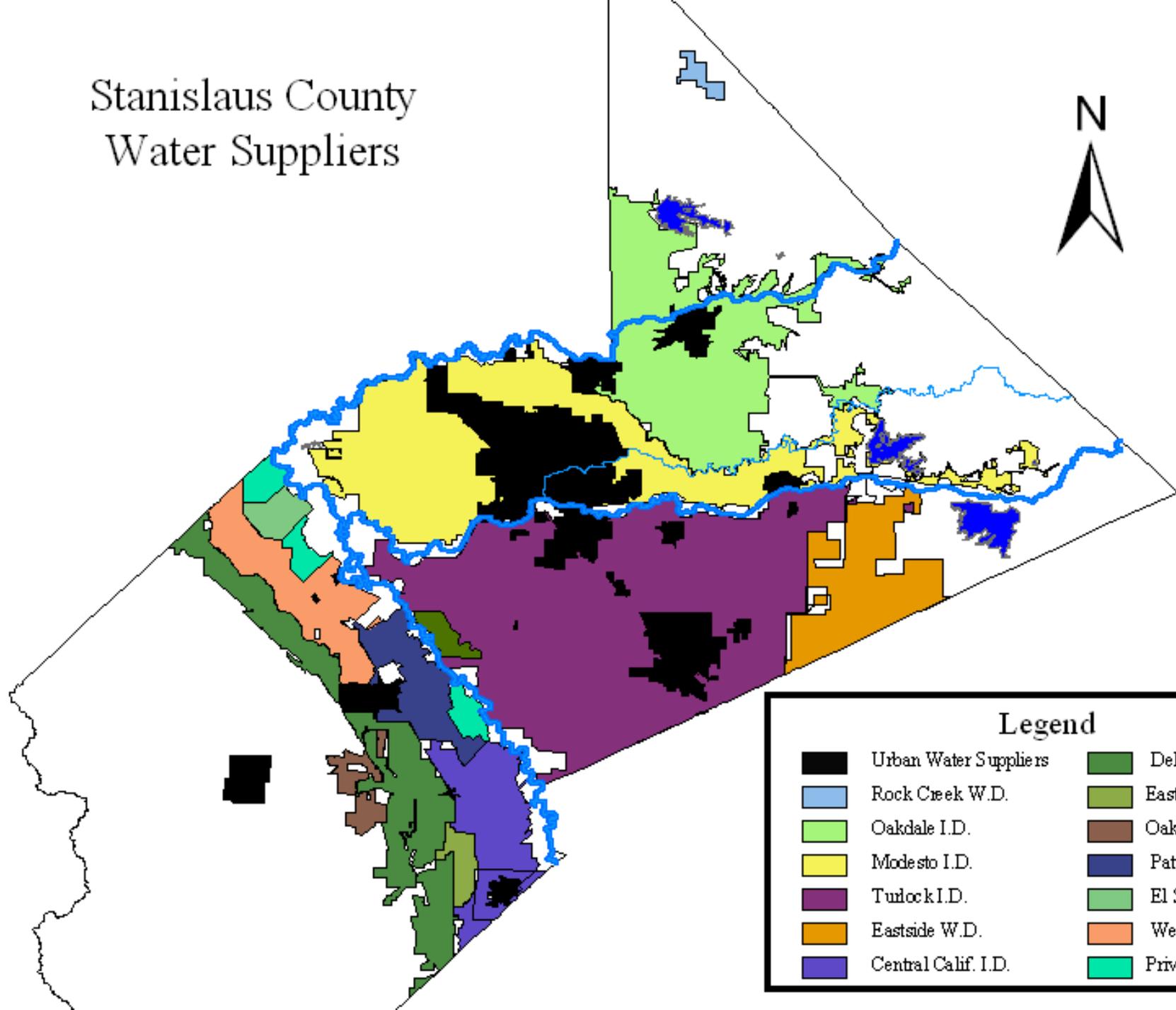
STANISLAUS COUNTY

Water Feature Map



LEGEND	
	Incorporated Urbanized Area
	Water Storage
	Rivers
	Canals
	Water Treatment

Stanislaus County Water Suppliers



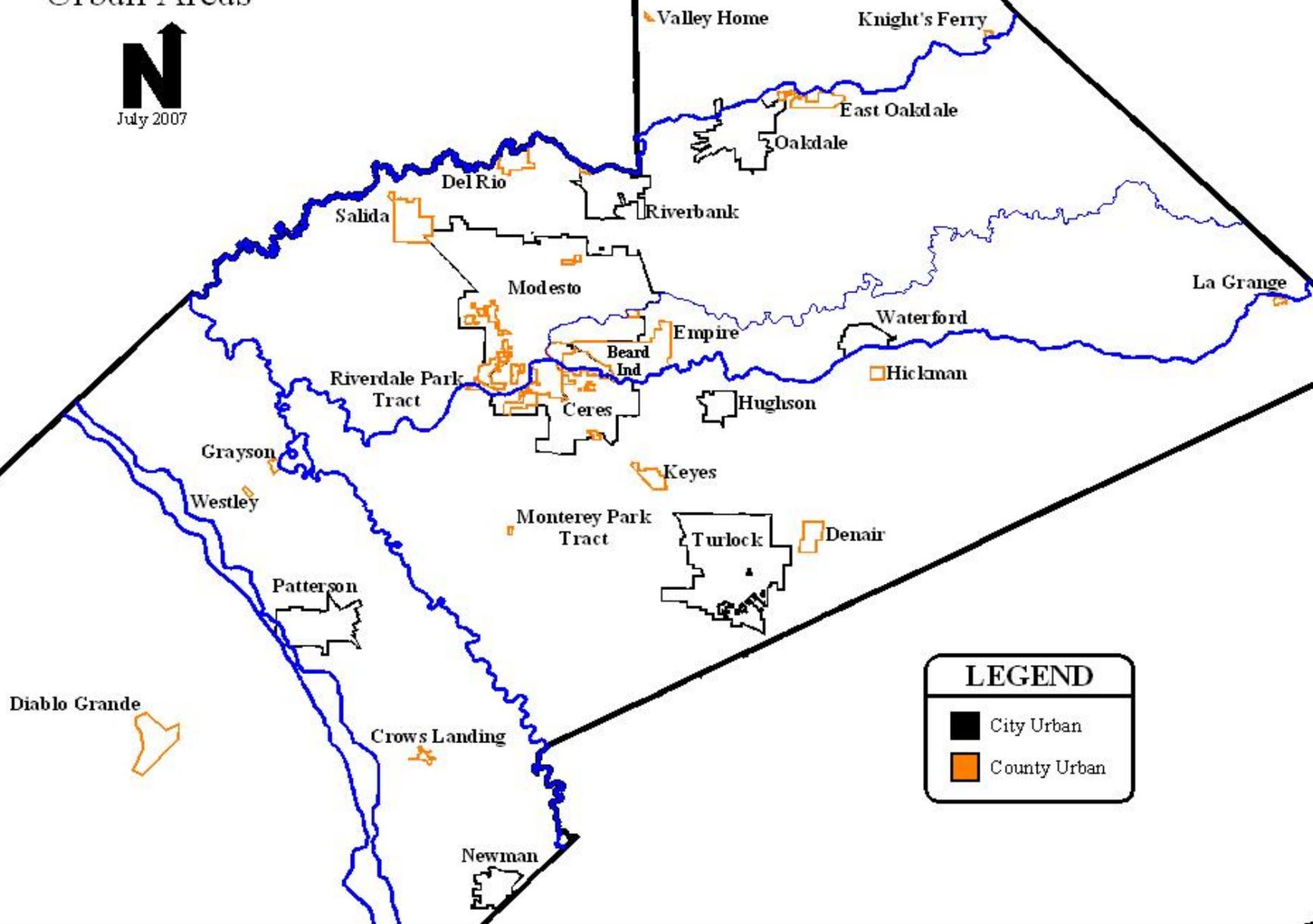
Black square	Urban Water Suppliers	Green square	Del Puerto W.D.
Light blue square	Rock Creek W.D.	Light green square	Eastin W.D.
Light green square	Oakdale I.D.	Brown square	Oak Flat W.D.
Yellow square	Modesto I.D.	Dark blue square	Patterson I.D.
Purple square	Turlock I.D.	Light green square	El Solys W.D.
Orange square	Eastside W.D.	Light orange square	West Stanislaus I.D.
Dark purple square	Central Calif. I.D.	Teal square	Private W.D.

Stanislaus County

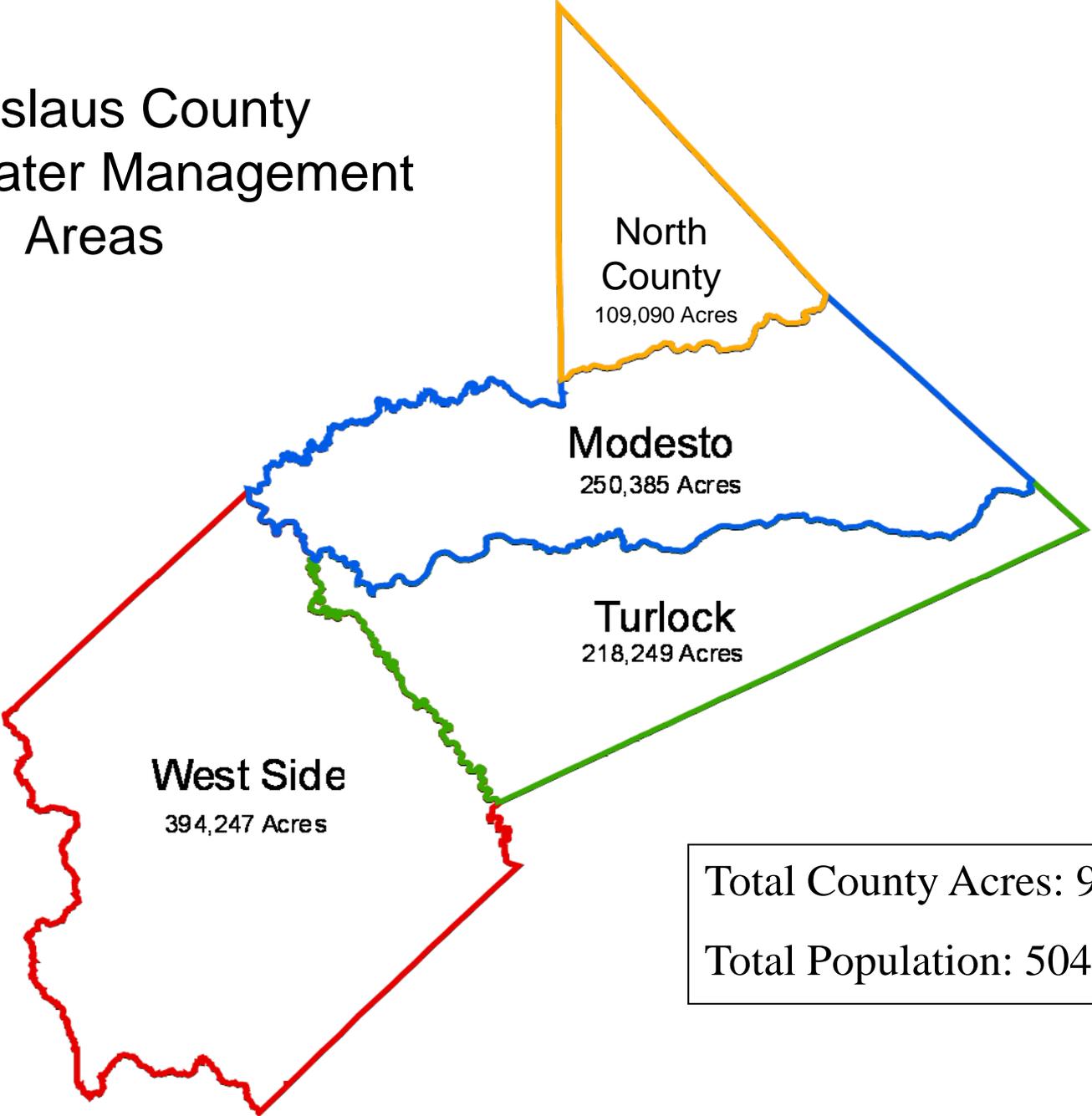
Urban Areas



July 2007



Stanislaus County Groundwater Management Areas



Total County Acres: 971,971

Total Population: 504,478

Stanislaus County Water Suppliers

North County Area

- Knights Ferry CSD
- Oakdale Irrigation District
- Rock Creek Water District

Turlock Area

- City of Ceres
- City of Hughson
- City of Turlock
- Turlock Irrigation District
- Eastside Water District
- Monterey Park Tract CSD
- Riverdale Park Tract CSD
- Keyes CSD
- Denair CSD

Modesto Area

- City of Oakdale
- Oakdale Irrigation District
- City of Riverbank
- City of Waterford
- City of Modesto
- Modesto Irrigation District

Westside Area

- City of Patterson
- City of Newman
- Del Puerto Water District
- Westley CSD
- Patterson Irrigation District
- Oak Flat Water District
- Western Hills Water District
- Crows Landing CSD
- West Stanislaus Irrigation District
- Eastin Water District
- Central California Irrigation District
- El Solyo Water District

Name	Central California Irrigation District		Crows Landing CSD		Denair CSD	
Duties	Distribute water for irrigation purposes		Distribute water for residential & commercial purposes		Provision of the following services: water, sewage collection & treatment, & street lighting	
Meetings	2nd & 4th Wed. of each month at 9:30am District Office, 1335 West I St, Los Banos		3rd Wed. of each month at 7:30 @ Crows Landing Fire Station, 22012 G St, Crows Landing		3rd Tues. of each month at 6:30pm District Office, 3850 N Gratton Rd, Denair	
Contact Name	Gregg Rice		Allen Sanguinetti		Pamela J Owens	
Address	PO Box 1231		PO Box 537		PO Box 217	
City/Zip	Los Banos	95635	Crows Landing	95313	Denair	95316
Phone/Fax	826-1421	826-3184	837-4676	837-0208	634-4986	634-9805
E-Mail	ccidrice@sbcglobal.net					
Member/Exp.	Kirk Jensen	12/2/2005	Rachel Hicks	12/4/2009	Tommy Joseph McDonald	12/7/2007
Member/Exp.	Ann Wieser	12/7/2007	Lance Perry	12/4/2009	Holman King	12/4/2009
Member/Exp.	John Fawcett	12/7/2007	Allen Sanguinetti	12/7/2007	Donald George Smith, Jr	12/4/2009
Member/Exp.	James O'Banion	12/2/2005	Levern Berberia	12/4/2009	J Stanley Gustafson	12/7/2007
Member/Exp.	Ara Lee Spain	12/7/2007	Mercy Mora	12/7/2007	Ronald C Allen	12/7/2007

Name	Eastin Water District		Eastside Water District		El Solyo Water District	
Duties	Provision of irrigation water (when it becomes available from CCID)		Provision of irrigation water		Distribution of irrigation water	
Meetings	TBA when they have water to distribute & start having meetings		2nd Thurs. of each month at 10:00am TID District Office, 333 E Canal Dr, Turlock		1st Tues. of the month in Feb & Oct at 9:30am District Office, 542 Center Rd, Vernalis	
Contact Name	Jim Jasper		Larry Carter, Secretary		Anthea Hansen	
Address	3500 Shiells Rd		PO Box 280		542 Center Rd, PO Box 46	
City/Zip	Newman	95360	Denair	95316	Patterson	95363
Phone/Fax	862-9600		874-2210	541-3191	602-2513	
E-Mail			ewd@ibmj.com			
Member/Exp.	Jim Jasper	TBA	Ward N Burroughs	12/7/2007	Steve McManis	12/4/2009
Member/Exp.	Skip Cerutti	TBA	James G Crecilius	12/4/2009	James Lopes	12/4/2009
Member/Exp.	Gary Mall	TBA	Timothy Johnson	12/4/2009	Edward Bettencourt	12/7/2007
Member/Exp.			David H Long	12/4/2009	Richard Pires	12/7/2007
Member/Exp.			Al Rossini	12/7/2007	Shane Donlon	12/7/2007

Name	Keyes CSD		Knights Ferry CSD		New Del Puerto Canyon Water District	
Duties	Provide street lighting, water for domestic & commercial use-sanitation (sewage disposal)		Water treatment & distribution		Administration and distribution of irrigation water	
Meetings	4th Tues. of each month at 6:00pm District Office, 5601 7th St, Keyes		1st Wed. of each month at 6:30pm Knights Ferry Resort, Main St, Knights Ferry		3rd Wed. of each month at 8:30 am 17840 Ward Ave., Patterson	
Contact Name	Rosemary Winter		Shirley Jensen, Secretary		William Harrison	
Address	PO Box 699		PO Box 860		PO Box 1596	
City/Zip	Keyes	95328	Oakdale	95361	Patterson	95363
Phone/Fax	668-8341	668-8396	848-3213		892-4470	892-4469
E-Mail	kcsdsec@bigvalley.net		SHIRLEY95361@peoplepc.com		wharrison@delpuertowd.org	
Member/Exp.	Henry Benavides	12/4/2009	Eric Ulrich	12/7/2007	Bill Koster/Tom Dompe	12/4/2009
Member/Exp.	Davie Landers, Jr	12/4/2009	Glenda Maisel (Langum)	12/7/2007	Eugene Ivan Bays	12/7/2007
Member/Exp.	Frances Phillips	12/7/2007	Benny Cassinetti	12/7/2007	Peter Lucich	12/4/2009
Member/Exp.	Johnathon Parker	12/4/2009	Fredrick Dolling	12/4/2009	Fred Vogal/James Jasper	12/7/2007
Member/Exp.	Curtis R Snell	12/7/2007	Gregg Haskell	12/4/2009	Carl Perez	12/7/2007

Name	Modesto Irrigation District		Monterey Park Tract CSD		Patterson Irrigation District	
Duties	Distribute water for irrigation purposes & provide electricity & domestic water		Provide domestic water to residents		Provision of domestic water service	
Meetings	2nd Tues. of each month at 9:00am MID Board Room, 1231 11th St, Modesto		4th Mon. of each month at 7:00pm Monterey Park Tract Youth Center on Foy Ave		1st Sun of month (2nd if holiday) @ Church of the Firstborn, Riverdale/Greenlawn corner, Modesto	
Contact Name	Vickie Ehler, Secretary		David McNeir		Herbert Davis	
Address	PO Box 4060		PO Box 1301		PO Box 580343	
City/Zip	Modesto	95352	Ceres	95307	Modesto	95358
Phone/Fax	526-7360	526-7358	541-1563		573-3076	
E-Mail	Vickiee@MID.org					
Member/Exp.	Cecil O Hensley	12/7/2007	Sebastian Jones	12/7/2007	Donald Davis	12/4/2009
Member/Exp.	Mike Serpa	12/4/2009	Shirley Martinez	12/4/2009	Dixielee Swatman	12/7/2007
Member/Exp.	Tom VanGroningen	12/4/2009	Darrel Lewis Simpson	12/2/2005	Kelland Murphy	12/7/2007
Member/Exp.	Paul Warda	12/4/2009	David J McNeir	12/7/2007	Mario Jimenez	12/4/2009
Member/Exp.	John E Kidd	12/7/2007	Grady Lee Jordan, Sr	12/4/2009	Herbert Davis	12/7/2007

Name	Oak Flat Water District		Oakdale Irrigation District		West Stanislaus Irrigation District	
Duties	Contract & deliver water supplies from State water project		Distribute water for irrigation purposes & provide domestic water to Oakdale Rural Water Dist #1 & #2		Distribute water for irrigation purposes	
Meetings	3rd Wed. of each month at 2pm District Office, 600 N. 2nd St, Ste 3, Patterson		1st & 3rd Thurs. of each month at 9:00am District Office, 1205 East F St, Oakdale		2nd Tues. of each month at 2:00pm District Office, 116 "E" St, Westley	
Contact Name	William Harrison		Office of the General Mgr, Secretary		Ronald Roos Secretary	
Address	PO Box 1596		1205 East F St		PO Box 37	
City/Zip	Patterson	95363	Oakdale	95361	Westley	95387
Phone/Fax	892-4470	892-4469	847-0341 ext. 207	847-3468	894-3091	894-3383
E-Mail	wdhgm@evansinet.com		dwillhelm@oakdaleirrigation.com		wsid@inreach.com	
Member/Exp.	Steven Arnaudo	12/4/2009	Frank Clark	12/7/2007	Bobby Yamamoto	12/4/2009
Member/Exp.	Fred E Beltran, Sr	12/4/2009	Tony Taro	12/4/2009	Gregory Petz	12/5/2007
Member/Exp.	John E Beltran	12/7/2007	Steven Webb	12/4/2009	David Goubert	12/4/2009
Member/Exp.	Fred Vogel	12/7/2007	Louis Brichetto	12/7/2007	Ken Bays	12/4/2009
Member/Exp.	Bill Fleisig	12/7/2007	Jack Alpers	12/4/2009	Lee Deldon	12/5/2007

Name	Riverdale Park Tract CSD		Rock Creek Water District		Sand Creek Flood Control District	
Duties	Provision of domestic water service		Administration & distribution of irrigation water, & operation of hydroelectric plant		Maintenance of flood control facilities within District Boundaries	
Meetings	1st Sun of month (2nd if holiday) @ Church of the Firstborn, Riverdale/Greenlawn corner, Modesto		2nd Mon. of each month at 4:00pm @ Allison Fahey Residence, 22949 Milton Rd, Farmington		3rd Wed. of Sept, Dec, Mar, June, times vary TID conference room, 333 E. Canal Dr, Turlock	
Contact Name	Herbert Davis		C. Bruce Orvis		Terry Pulido	
Address	PO Box 580343		9601 State Rte 4		PO Box 523	
City/Zip	Modesto	95358	Farmington	95230	Denair	95316
Phone/Fax	573-3076		899-2460	899-2461	874-1866	874-2024
E-Mail			orvisranch@juno.com			
Member/Exp.	Donald Davis	12/4/2009	C Bruce Orvis	12/7/2007	Ray Gene Veldhuis	12/4/2009
Member/Exp.	Dixielee Swatman	12/7/2007	Karlyn Rhodes Echols	12/4/2009	Dan Terwilliger	12/7/2007
Member/Exp.	Kelland Murphy	12/7/2007	Anita Moran-Slickton	12/4/2009	Mark Hodges	12/4/2009
Member/Exp.	Mario Jimenez	12/4/2009	Roy J Orlando	12/7/2007	Roy A Johnson	12/7/2007
Member/Exp.	Herbert Davis	12/7/2007	Allison S Fahey	12/4/2009	James Crecelius	12/7/2007

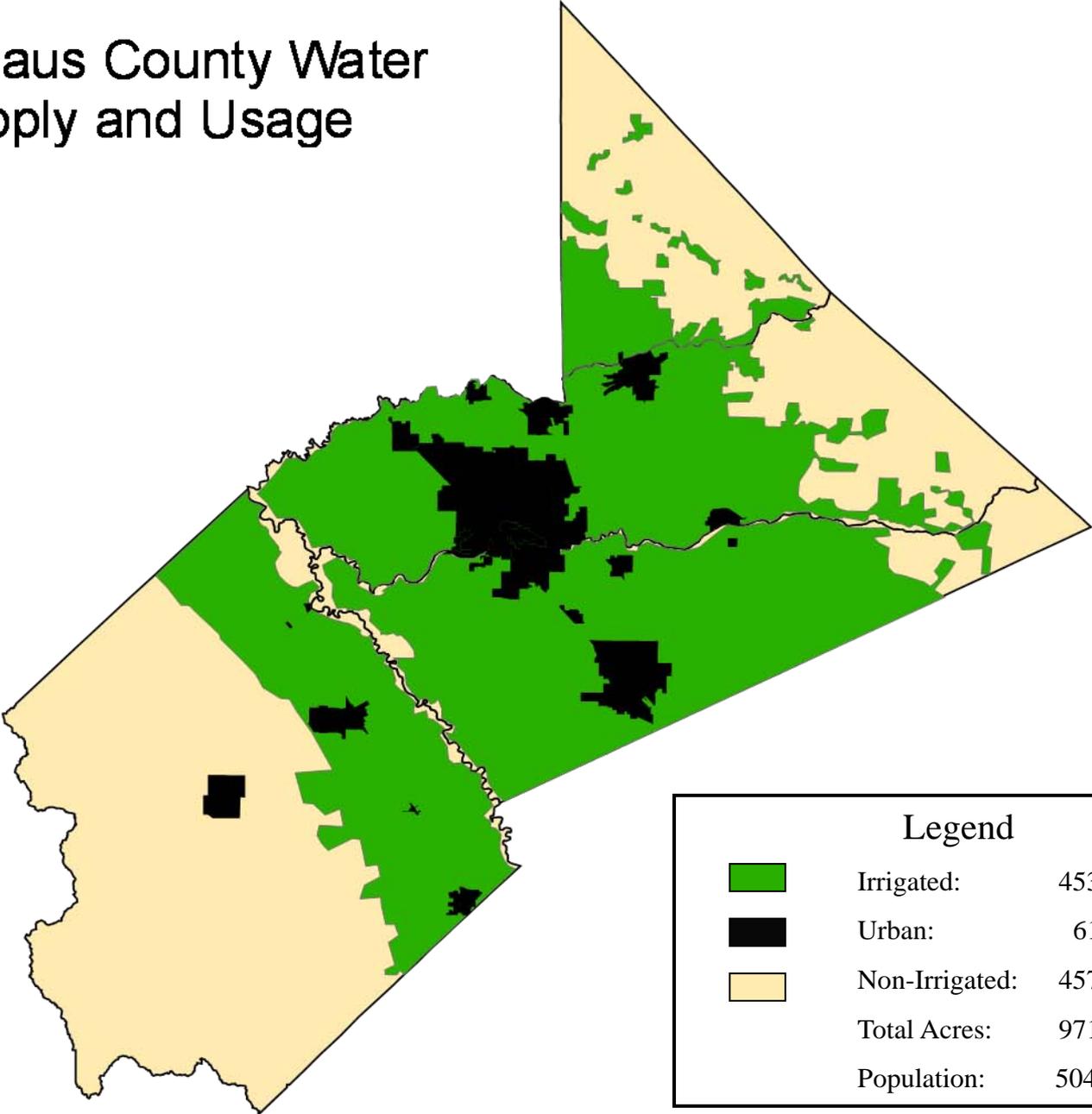
Name	Turlock Irrigation District		Western Hills Water District		Westley CSD	
Duties	Distribute water for irrigation purposes & generate & distribute electrical retail power		Administration & distribution of irrigation water		Collection & treatment of sewage, provisions of street lighting, & water distribution	
Meetings	Every Tues. at 9:00am District Office Boardroom, 333 E Canal Dr, Tlk		n/a		2nd Wed. of each month at 7:00pm Westley Fire Station	
Contact Name	Steven Boyd		David O Romano, PE (Leslie)		Coleen Sanguinetti	
Address	PO Box 949		1020 Tenth St, 5th Floor, Ste 310		PO Box 26 / PO Box 61	
City/Zip	Turlock	95381	Modesto	95354	Crows Landing / Westley	95313 / 95387
Phone/Fax	883-8364	656-2143	521-9521		892-7953	892-7953
E-Mail	seb@tid.org				coleen@gvni.com	
Member/Exp.	Phillip N Short	12/7/2007	Webb Shaffer	12/4/2009	Donald A Little	12/4/2009
Member/Exp.	Charles A Fernandes	12/4/2009	Dwain Sanders	12/7/2007	Ida Tucker	12/4/2009
Member/Exp.	Michael Berryhill, Sr	12/4/2009	Keith Schneider	12/7/2007	Don Grischoff	12/7/2007
Member/Exp.	Michael V Crowell	12/7/2007	Vacant		Tony Bravo, Jr	12/7/2007
Member/Exp.	Randy Fiorini	12/4/2009	Stan Duck	12/7/2007	Vacant	

9 Incorporated City Public Water Systems' Contact Info

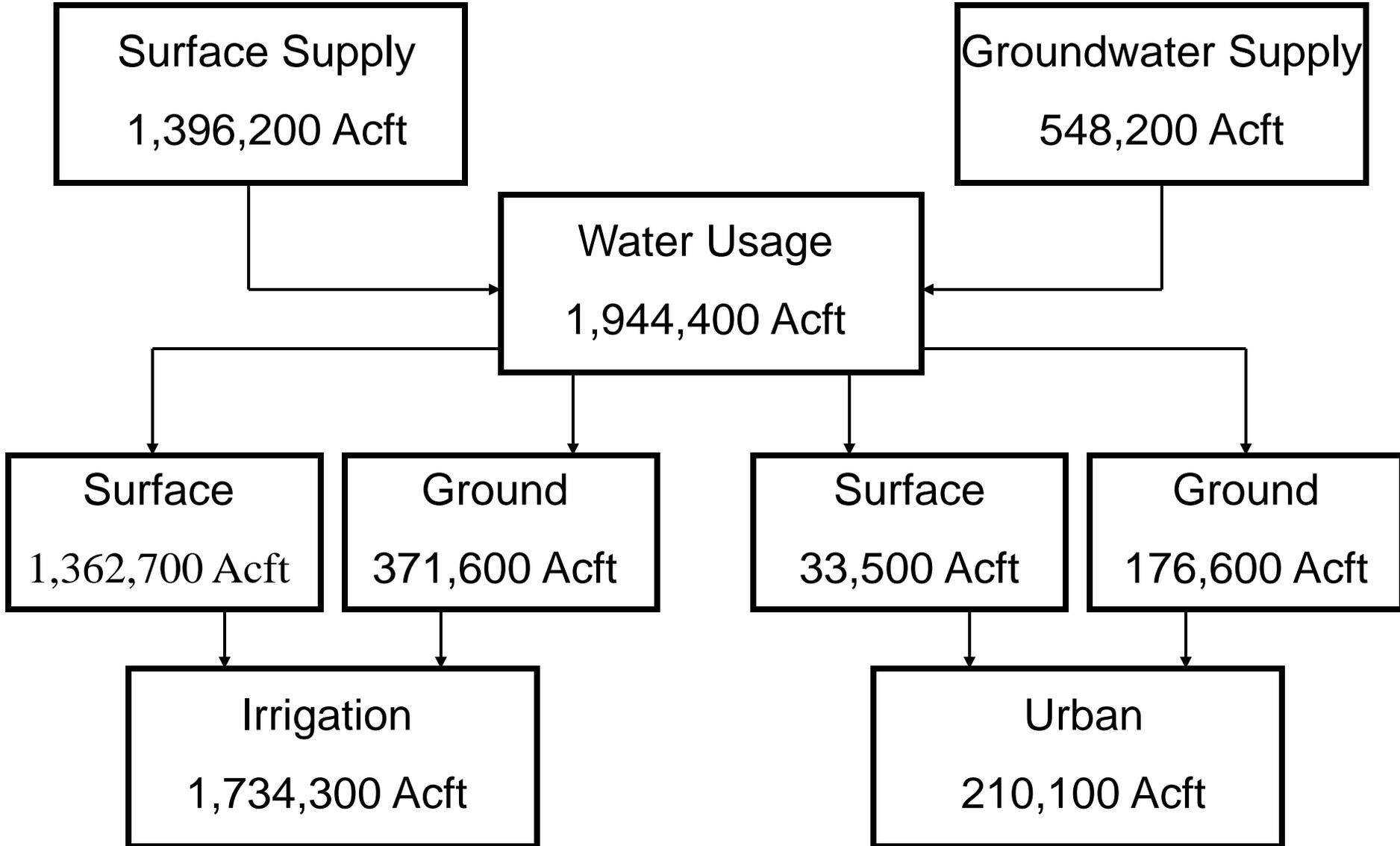
Name	Ceres		Hughson		Modesto	
Contact Name	Joe Hostien, Director of Public Works		David Chase, Director of Public Works		Alan La Garbo, Superintendent Operations	
Contact Name	Steve Wilson, Director of Municipal Utilities					
Address	2220 Magnolia		PO Box 9		PO Box 642	
Zip	95307		95326		95353	
Phone/Fax	538-5789	538-5759	883-4054	883-2638	342-2245	577-4983
Name	Newman		Oakdale		Patterson	
Contact Name	Ernie Garza, Director of Public Works		John Word, Director of Public Works		Ignacio Lopez, Director of Public Works	
Contact Name						
Address	PO Box 787		455 S. Fifth Ave		PO Box 667	
Zip	95360		95361		95363	
Phone/Fax	862-4448	862-3199	845-3600	848-4344	892-2041	892-6119
Name	Riverbank		Turlock		Waterford	
Contact Name	Kathleen Cleek, Assistant Director of Public Works		Dan Madden, Director of Public Works		Chuck Deschenes, City Administrator	
Contact Name					Matt Erickson, Director of Public Works	
Address	2901 High St		156 S. Broadway, Ste. 270		PO Box 199	
Zip	95367		95380		95386	
Phone/Fax	860-2178	869-1841	668-5590	668-5695	874-2328	874-9656

Stanislaus County Water Supply and Usage

Stanislaus County Water Supply and Usage



Estimated Water Usage Stanislaus County



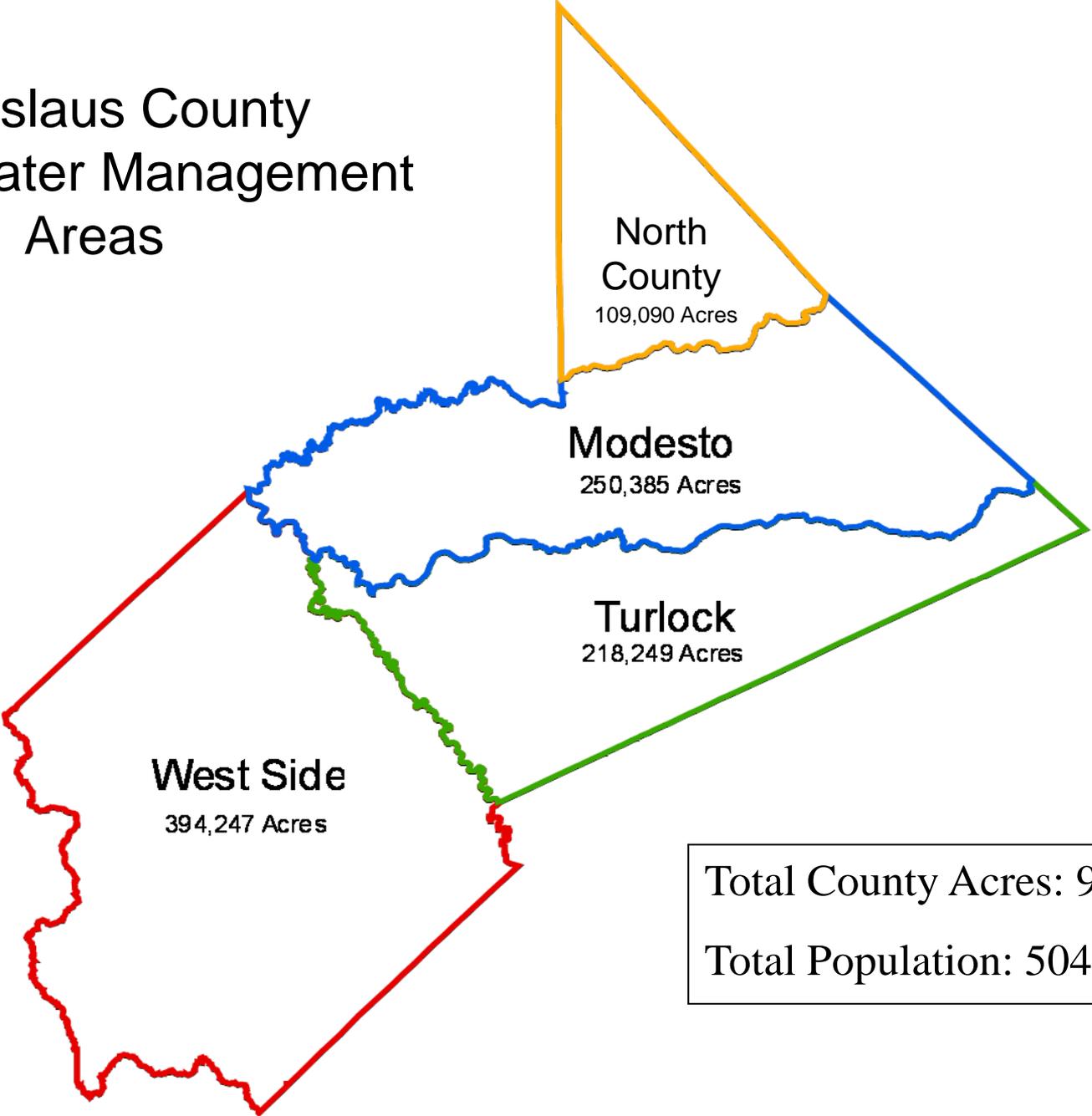
Stanislaus County

Name	Population 2000	Population 2005	Estimated Water Usage Acft/year
Total Urban	373,321	425,506	183,558
Total Rural	73,676	78,972	26,537
Total Population	446,997	504,478	
Total Water Usage			210,095

Note: Water Usage based on 3 Acre-feet per acre for urban areas and 300 GPD per Capital for Rural Population

Stanislaus County Water Supply and Usage
by
Groundwater Management Area

Stanislaus County Groundwater Management Areas



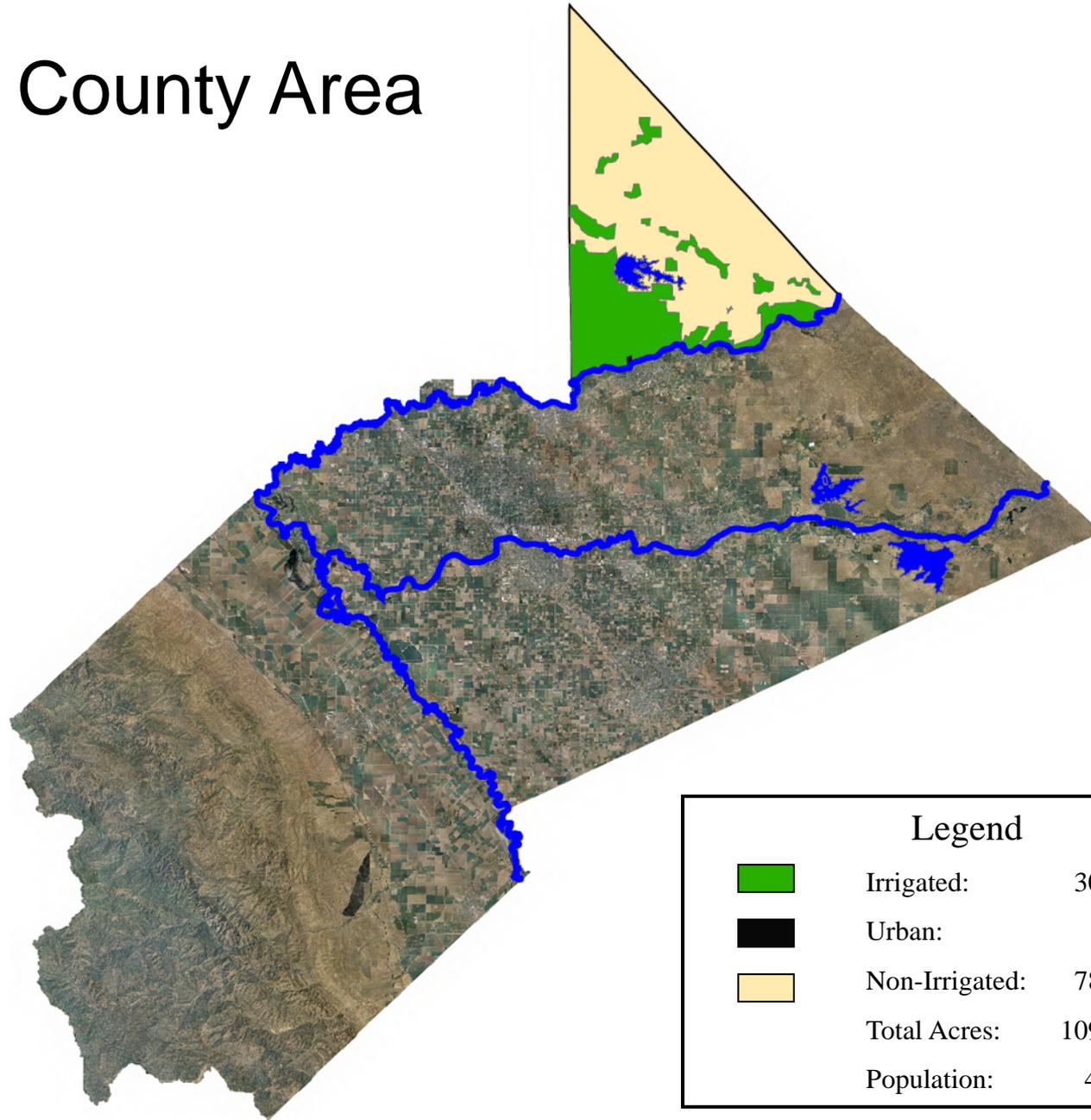
Total County Acres: 971,971

Total Population: 504,478

STANISLAUS COUNTY LAND USE / POPULATION - YEAR 2005

AREA	IRRIGATED		URBAN		NON-IRRIGATED		TOTAL		POPULATION	
	acres	%	acres	%	acres	%	acres	%		%
NORTH COUNTY	30,093	6.6	933	1.5	78,064	17.1	109,090	11.2	4,577	0.9
MODESTO	140,466	31.0	37,956	62.0	71,963	15.7	250,385	25.8	299,065	59.3
TURLOCK	171,634	37.9	17,273	28.2	29,342	6.4	218,249	22.5	167,350	33.2
WESTSIDE	111,024	24.5	5,024	8.2	278,199	60.8	394,247	40.6	33,486	6.6
TOTALS	453,217	100	61,186	100	457,568	100	971,971	100	504,478	100
NOTES										
Areas based on county 2006 aerial										
Population estimates from California Department of Finance										

North County Area

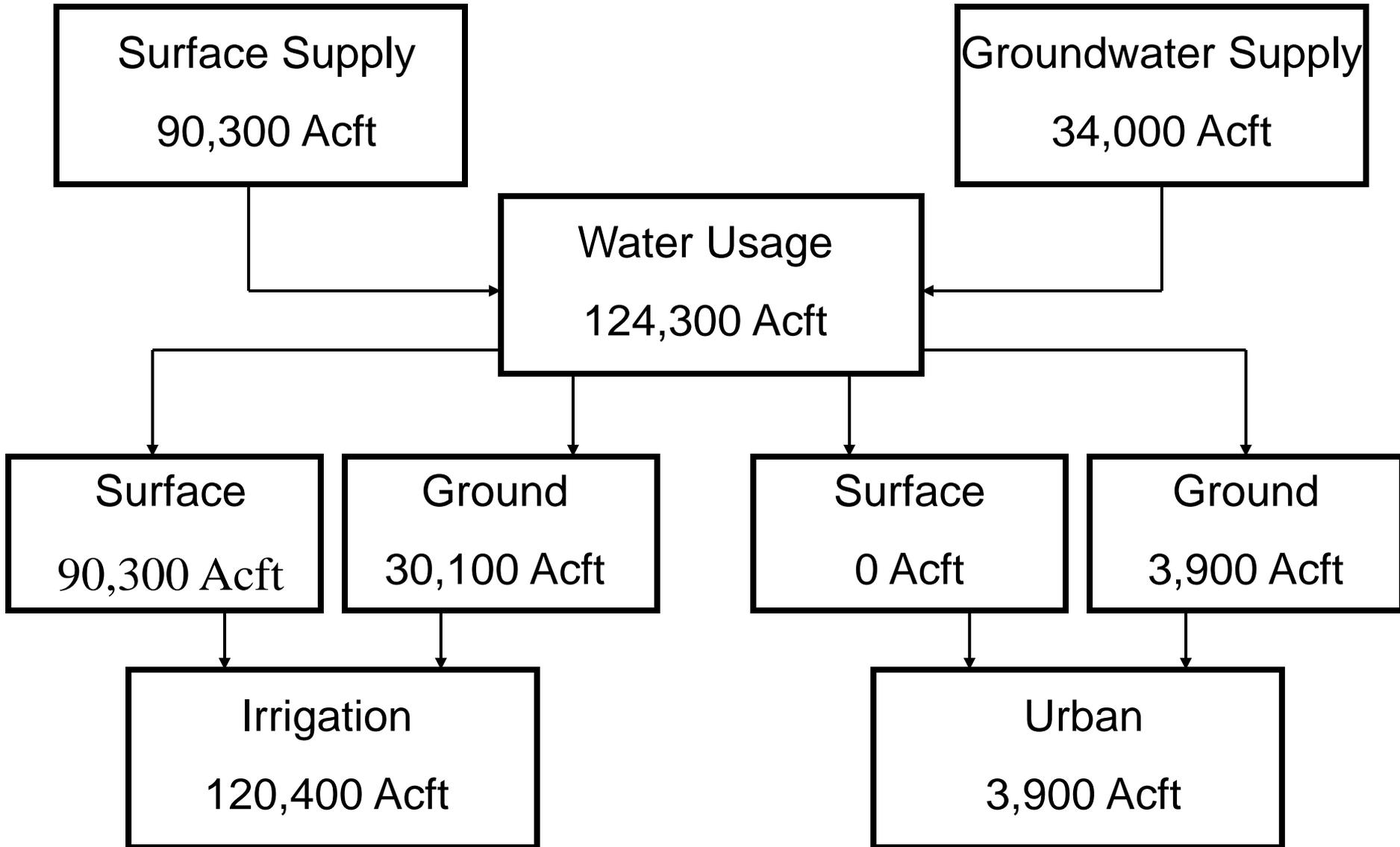


North County Area

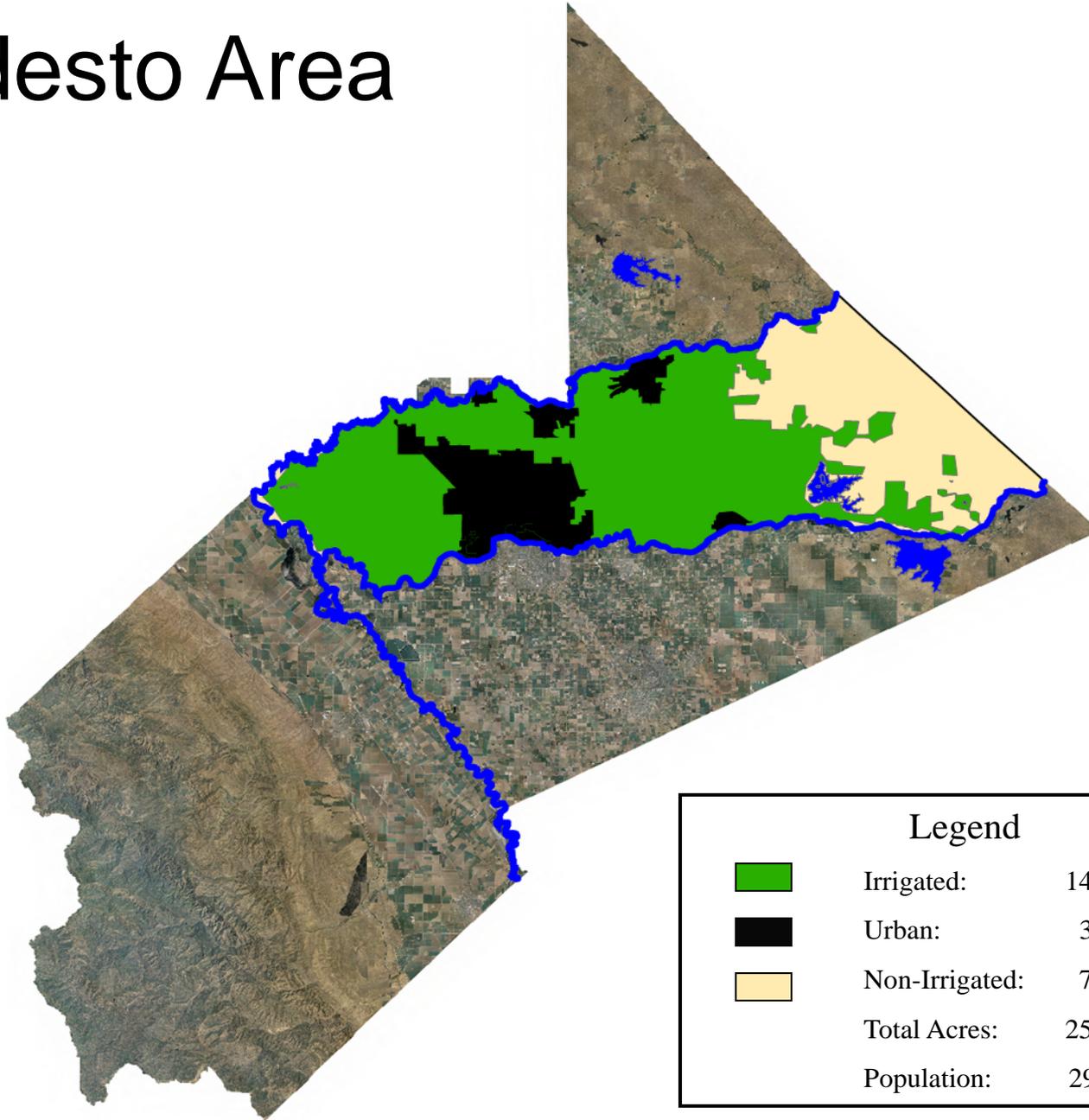
Name	Population 2000	Population 2005	Acres	Estimated Water Usage Acft/year
East Oakdale North	914	980	916	2,748
Valley Home	174	186	17	51
Total Urban	1,088	1,166	933	2,799
Total Rural	3,183	3,411		1,146
Total North County Area	4,271	4,577		3,945

Note: Water Usage based on 3 Acre-feet per acre for urban areas and 300 GPD per Capital for Rural Population

Estimated Water Usage North County Area



Modesto Area

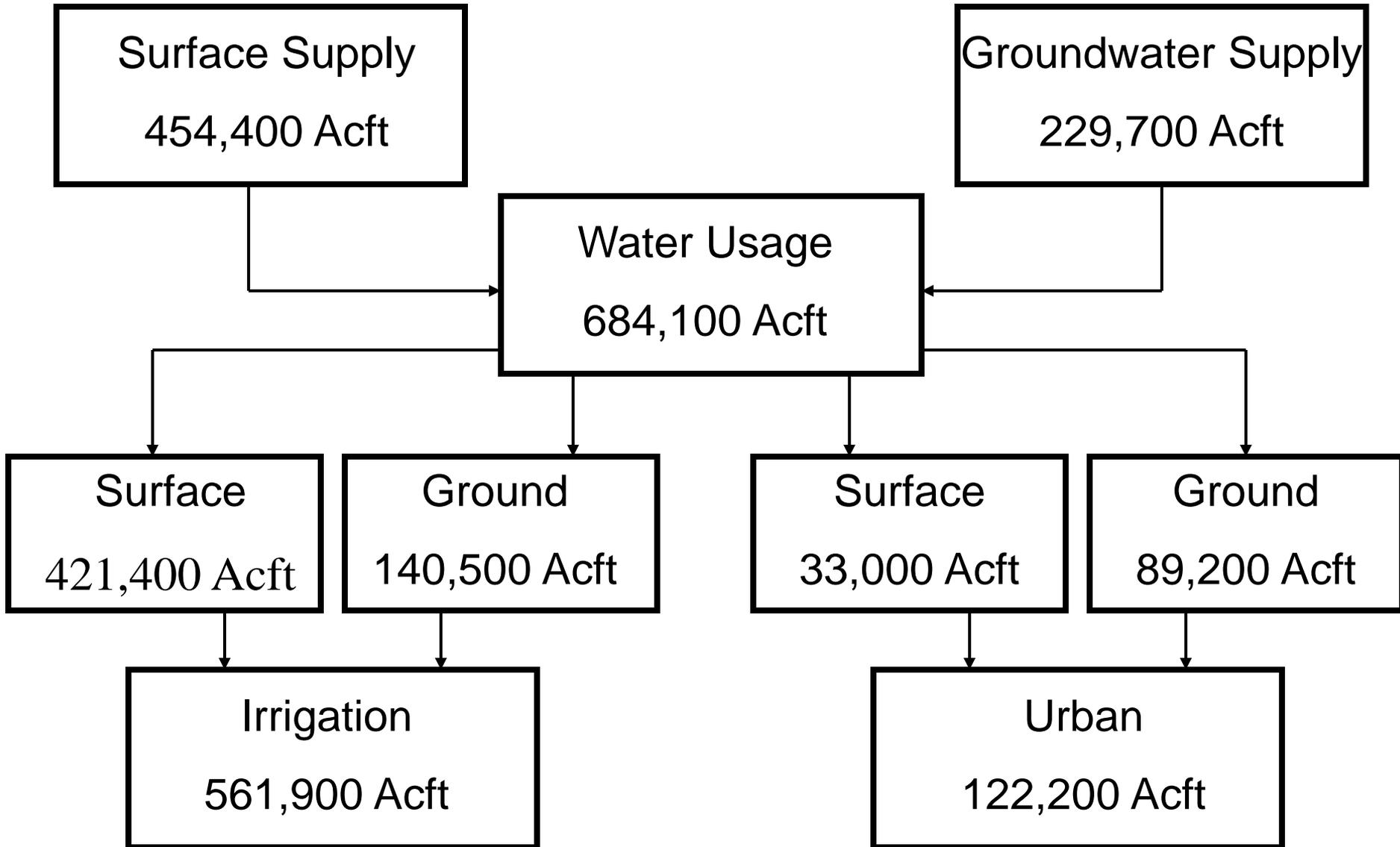


Modesto Area

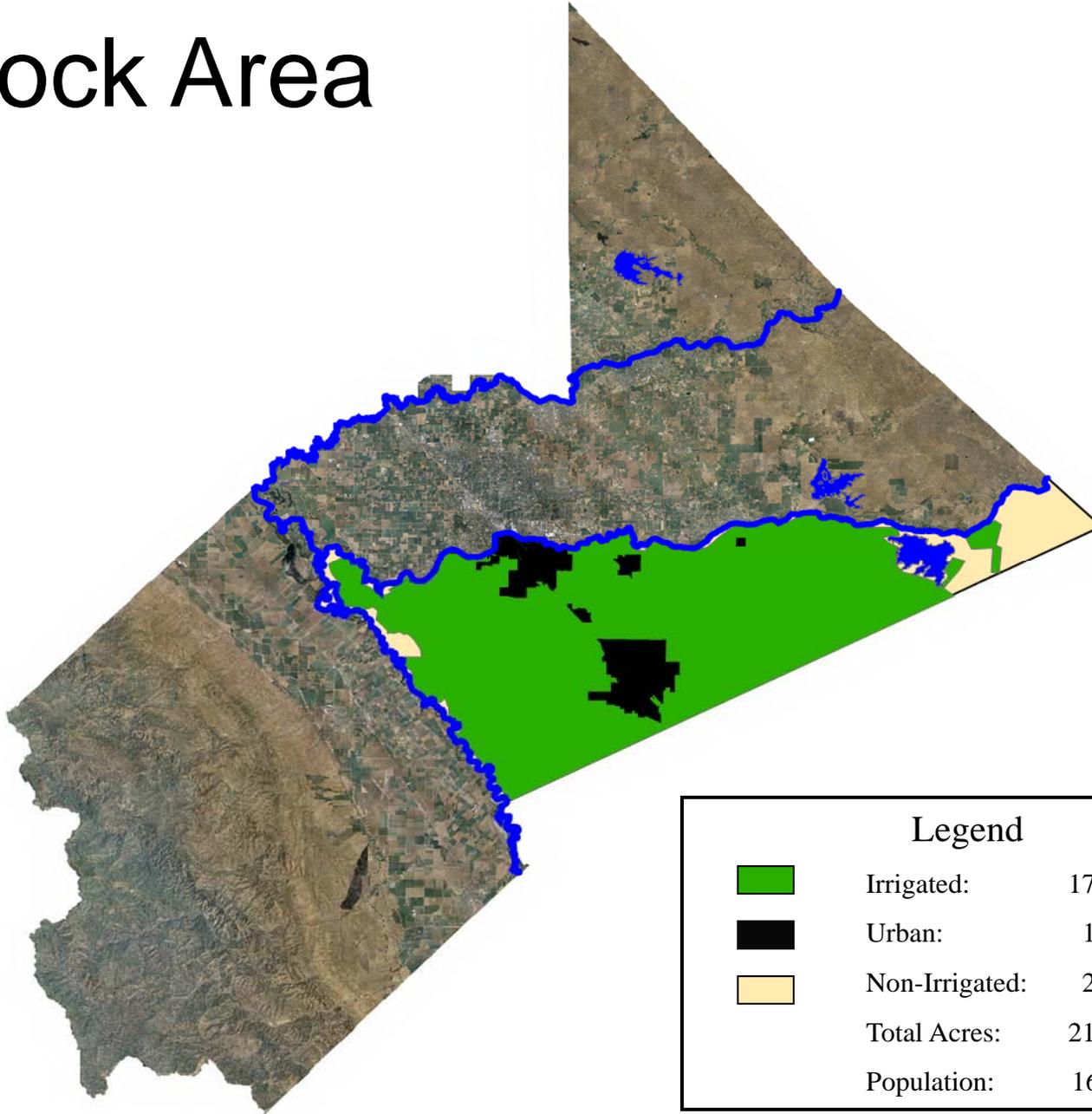
Name	Population 2000	Population 2005	Acres	Estimated Water Usage Acft/year
Modesto	188,856	207,634	22731	68,193
Oakdale	15,503	17,438	3739	11,217
Riverbank	15,826	19,986	2630	7,890
Waterford	6,924	7,898	1085	3,255
Beard Industrial	0	0	3431	10,293
Del Rio	1,168	1,252	736	2,208
East Oakdale South	1,828	1,959	1680	5,040
Empire	3,903	4,184	392	1,176
Knights Ferry	500	536	98	294
Salida	12,560	13,463	1434	4,302
Total Urban	247,068	274,350	37956	113,868
Total Rural	22,763	24,715		8,305
Total Modesto Area	269,831	299,065		122,173

Note: Water Usage based on 3 Acre-feet per acre for urban areas and 300 GPD per Capital for Rural Population

Estimated Water Usage Modesto Area



Turlock Area



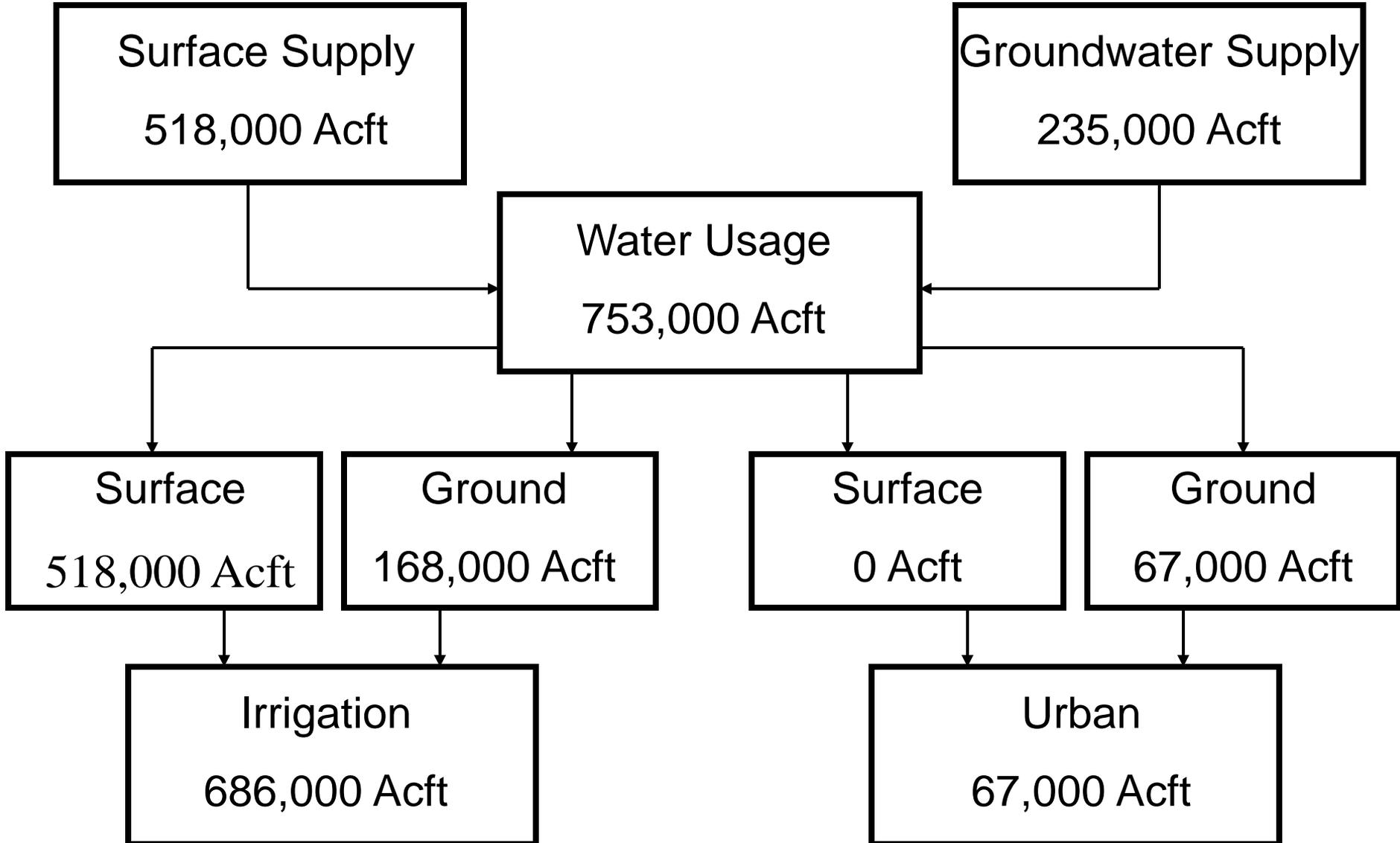
Legend		
	Irrigated:	171,634 Acres
	Urban:	17,273 Acres
	Non-Irrigated:	29,342 Acres
	Total Acres:	218,249 Acres
	Population:	167,350

Turlock Area

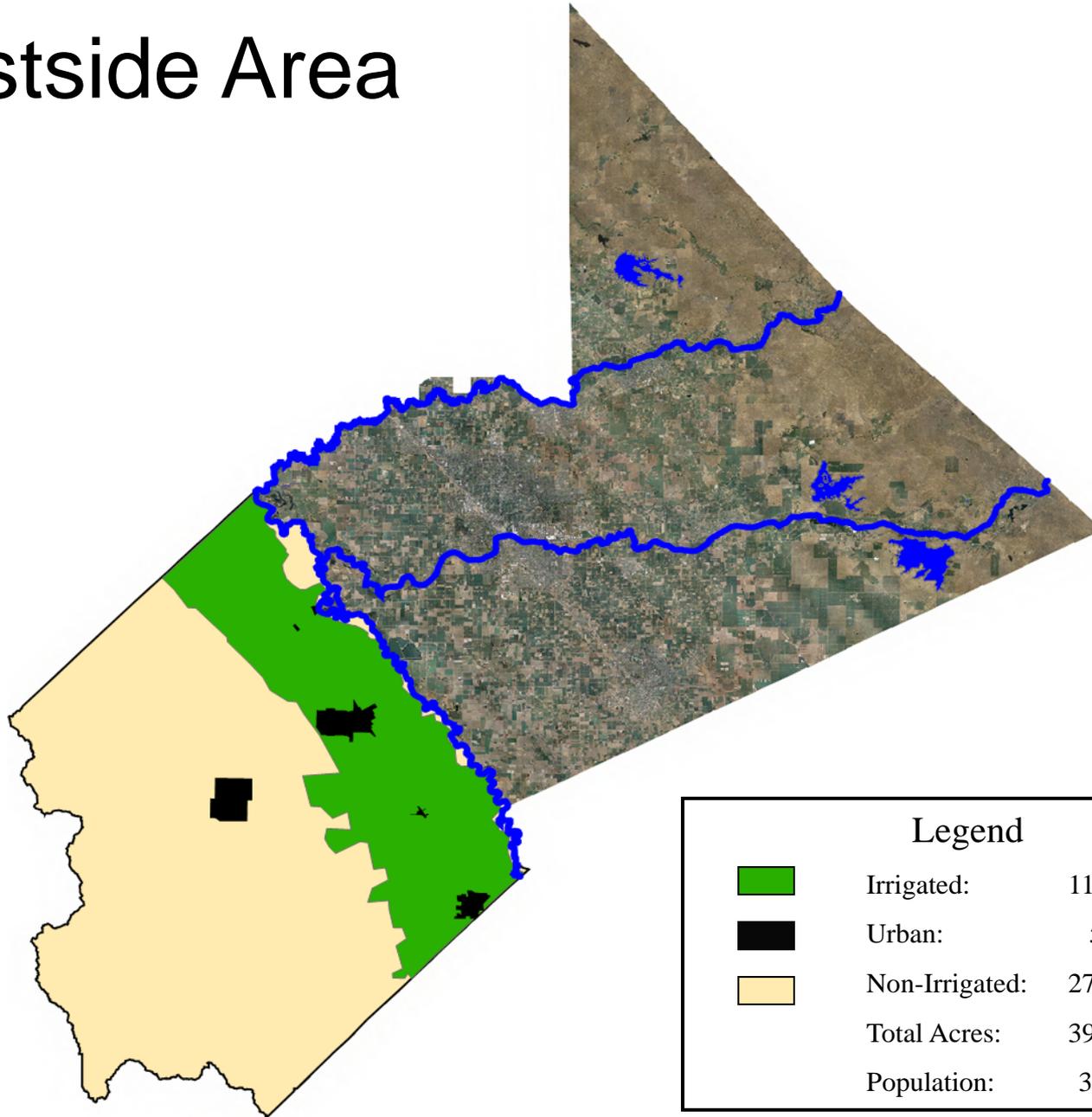
Name	Population 2000	Population 2005	Acres	Estimated Water Usage Acft/year
Ceres	34,609	38,813	4999	14,997
Hughson	3,980	5,941	939	2,817
Turlock	55,810	67,010	9622	28,866
Denair	3,446	3,694	1026	3,078
Hickman	457	490	167	501
Keyes	4,575	4,904	434	1,302
La Grange	500	536	86	258
Total Urban	103,377	121,388	17273	51,819
Total Rural	43,504	45,962		15,445
Total Turlock Area	146,881	167,350		67,264

Note: Water Usage based on 3 Acre-feet per acre for urban areas and 300 GPD per Capital for Rural Population

Estimated Water Usage Turlock Area



Westside Area

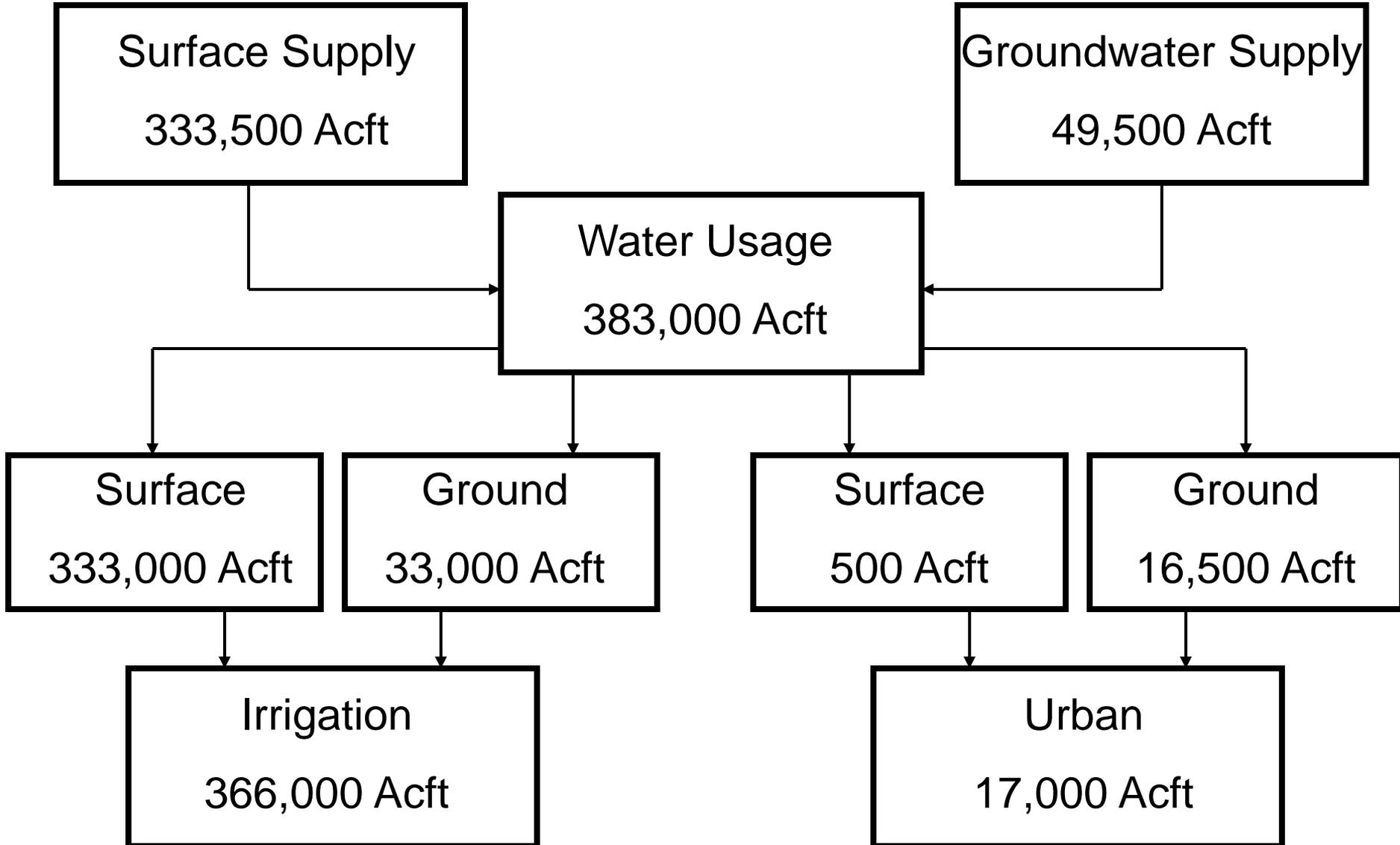


Westside Area

Name	Population 2000	Population 2005	Acres	Estimated Water Usage Acft/year
Newman	7,093	9,133	1322	3,966
Patterson	11,606	16,157	3054	9,162
Crows Landing	298	320	119	357
Diablo Grande	967	1,037	329	987
Grayson	1,077	1,154	95	285
Westley	747	801	105	315
Total Urban	21,788	28,602	5024	15,072
Total Rural	4,226	4,884		1,641
Total Westside Area	26,014	33,486		16,713

Note: Water Usage based on 3 Acre-feet per acre for urban areas and 300 GPD per Capital for Rural Population

Estimated Water Usage Westside Area



Stanislaus County Groundwater Management

Stanislaus County Groundwater Management

Stanislaus and Tuolumne
Rivers Groundwater Basin
Association

No Organized Groundwater
Management Program

North
County

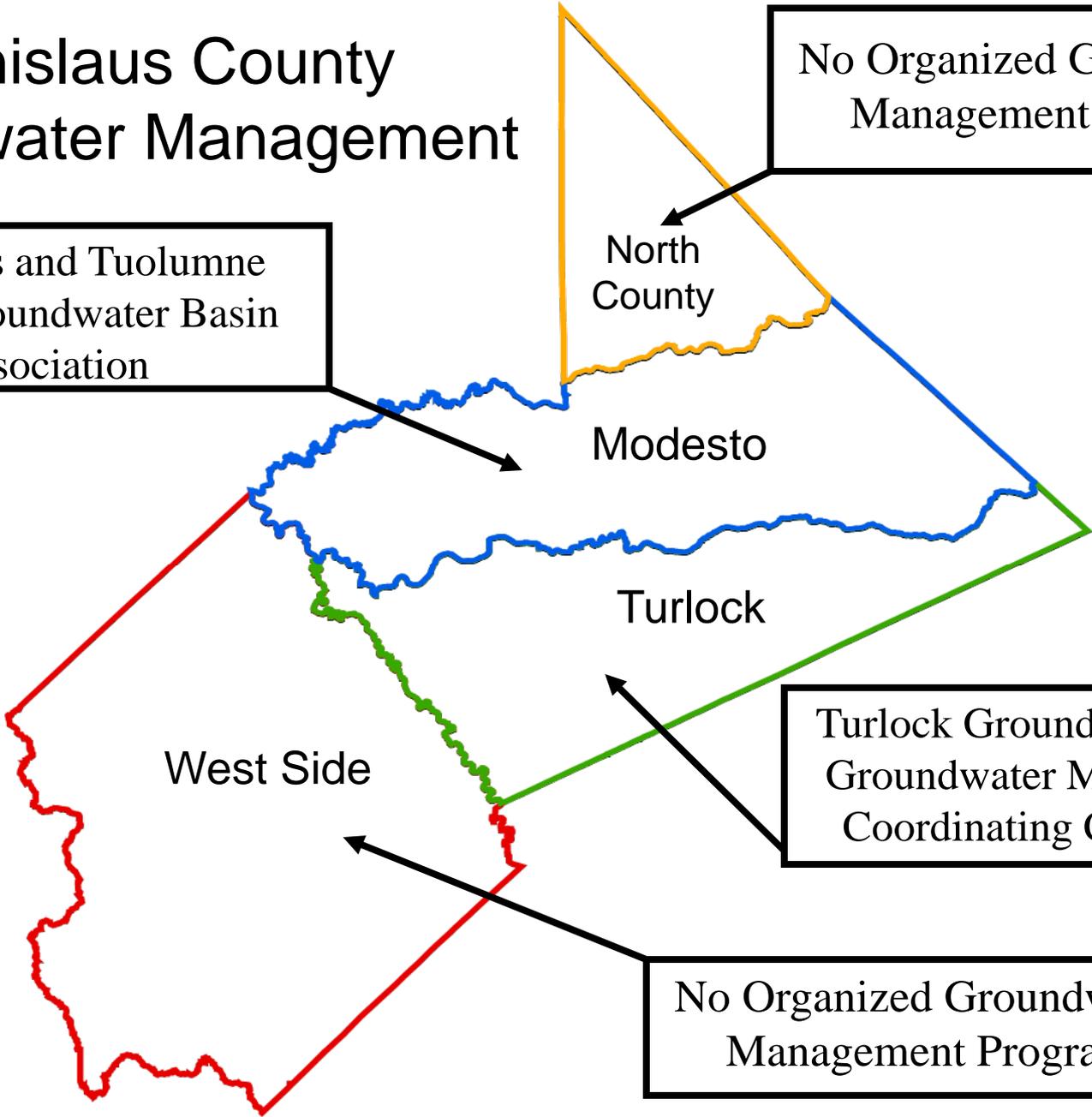
Modesto

Turlock

Turlock Groundwater Basin
Groundwater Management
Coordinating Committee

West Side

No Organized Groundwater
Management Program



Conceptual Understanding of Ground-Water Systems

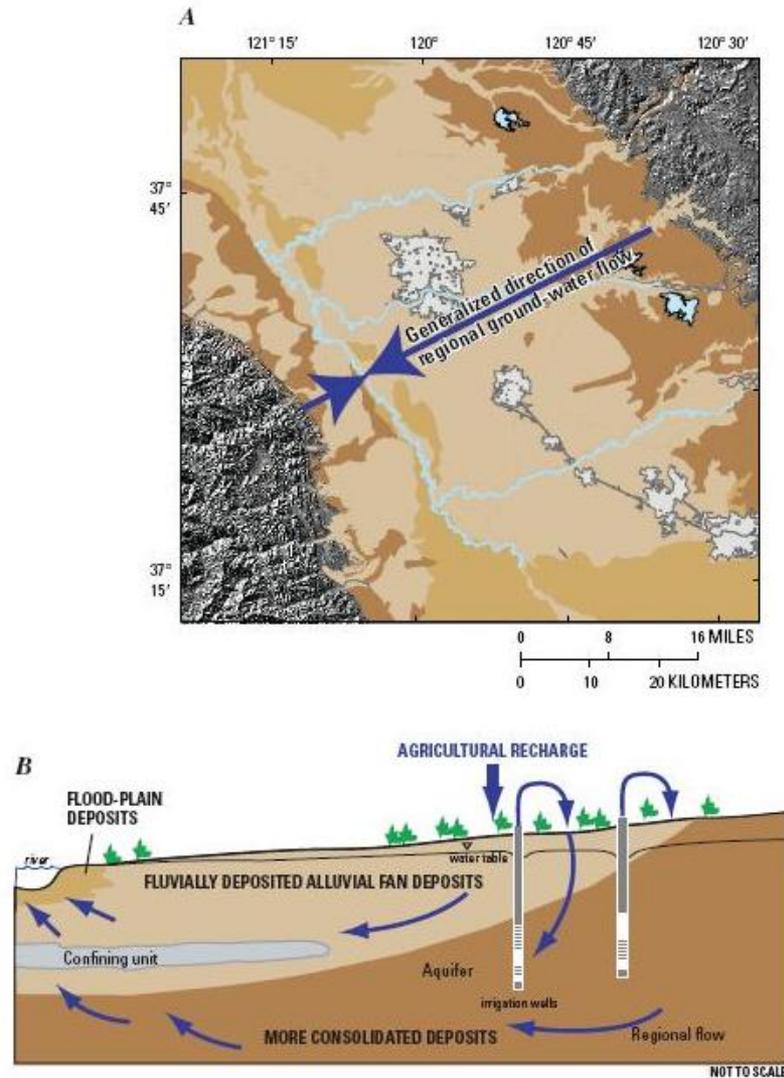
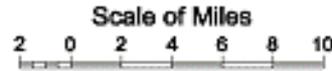


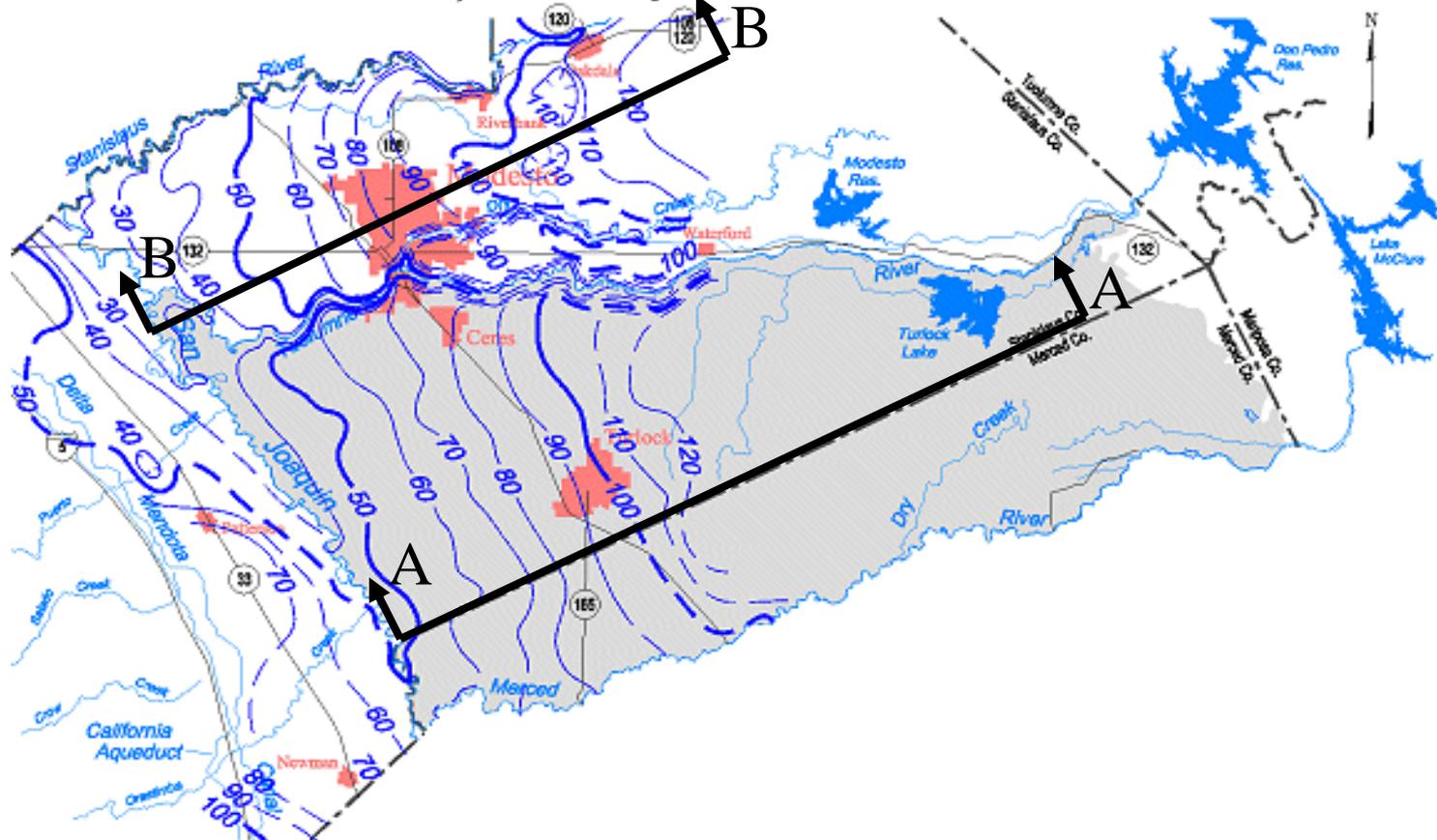
Figure 7. Conceptual diagram of (A) regional lateral ground-water flow and (B) vertical flow influenced by agricultural practices and natural discharge zones. Modified from Burow and others (2004).

Stanislaus County Groundwater

Spring 1958, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.

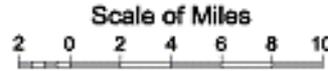


Contours are dashed where inferred. Contour interval is 10 feet.

http://www.sjd.water.ca.gov/groundwater/basin_maps/index.cfm

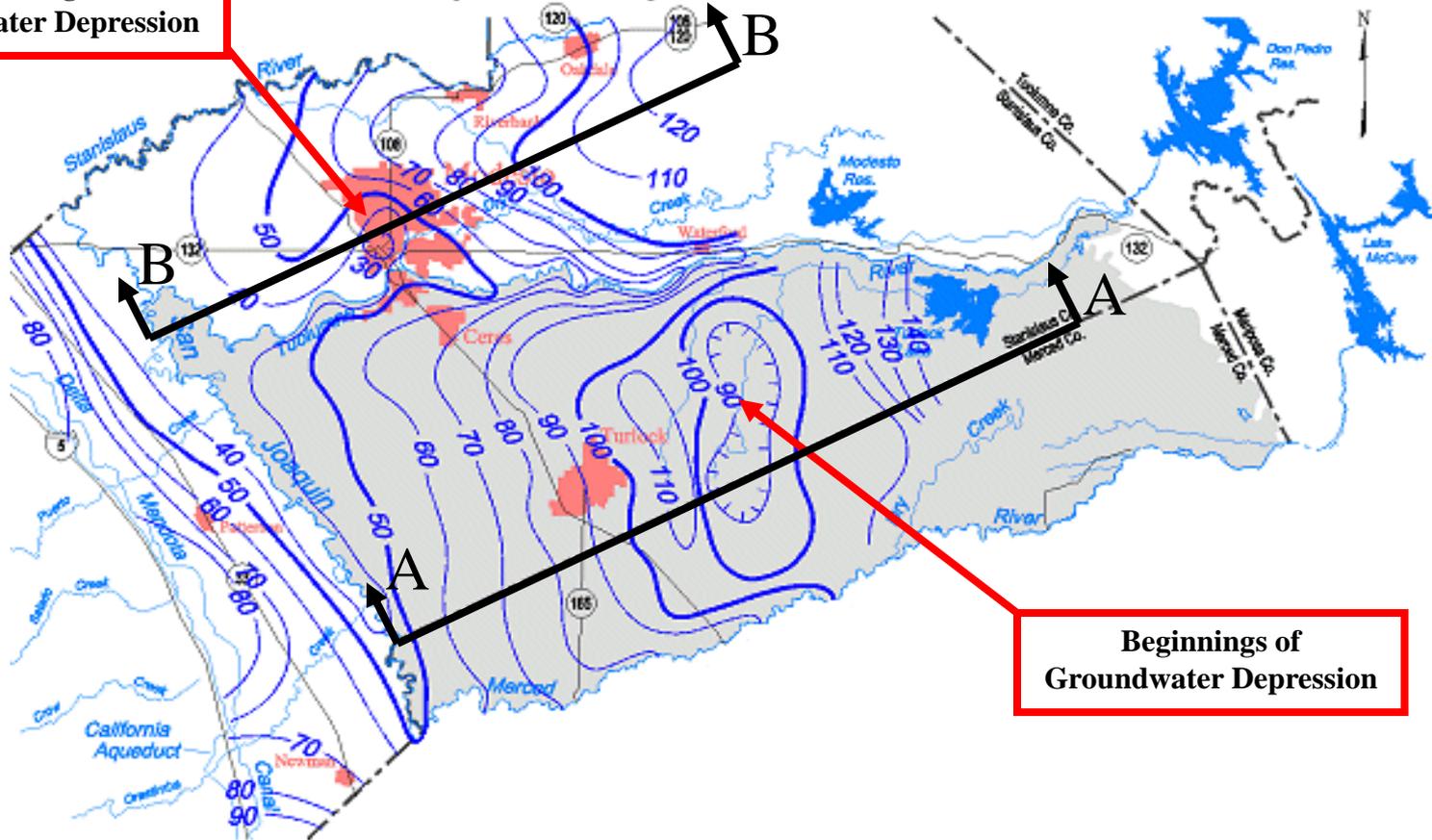
Stanislaus County Groundwater

Spring 1976, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.

Beginnings of Groundwater Depression



Beginnings of Groundwater Depression

Contours are dashed where inferred. Contour interval is 10 feet.

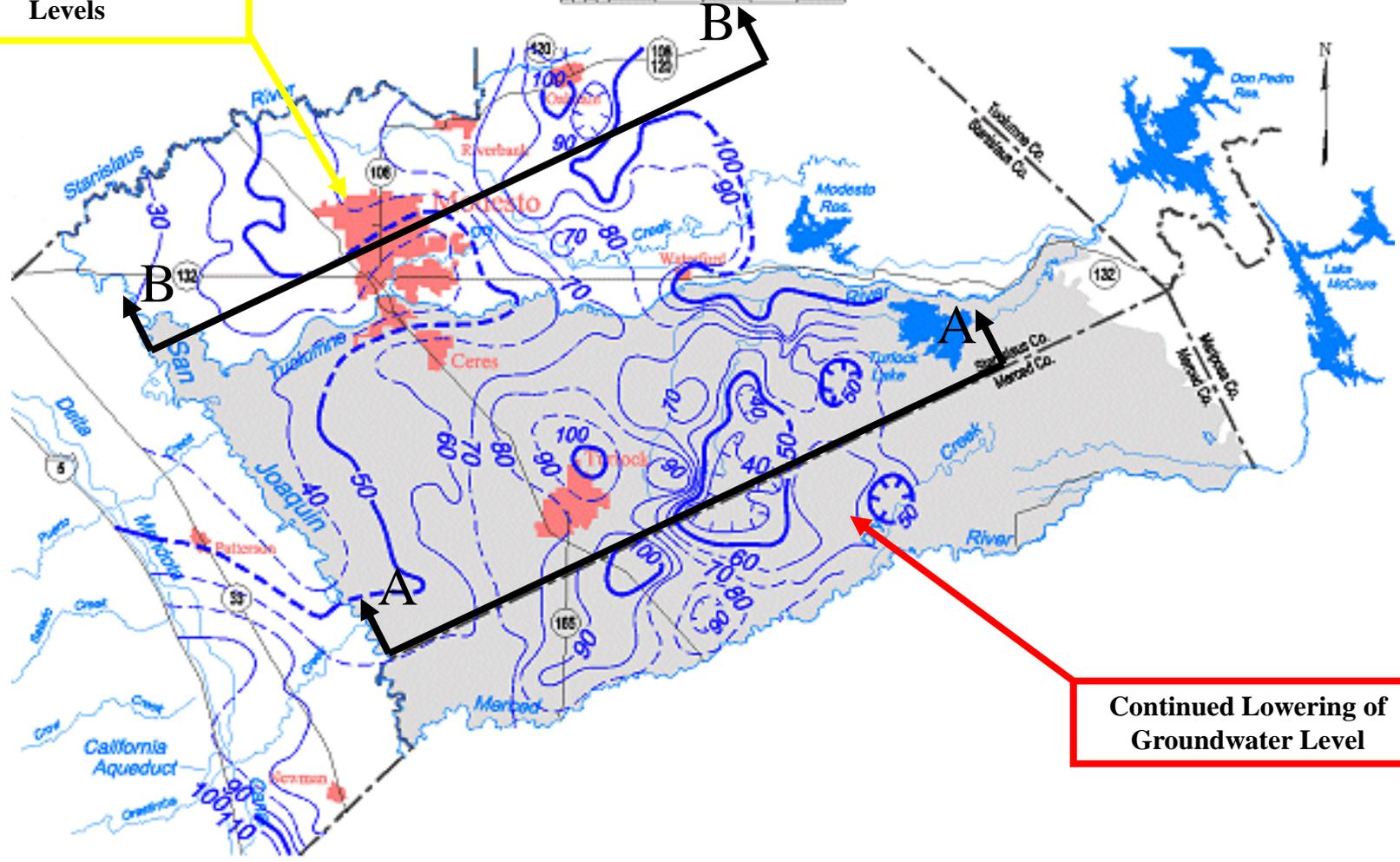
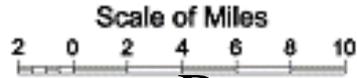
http://www.sjd.water.ca.gov/groundwater/basin_maps/index.cfm

Stanislaus County Groundwater

Spring 2006, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



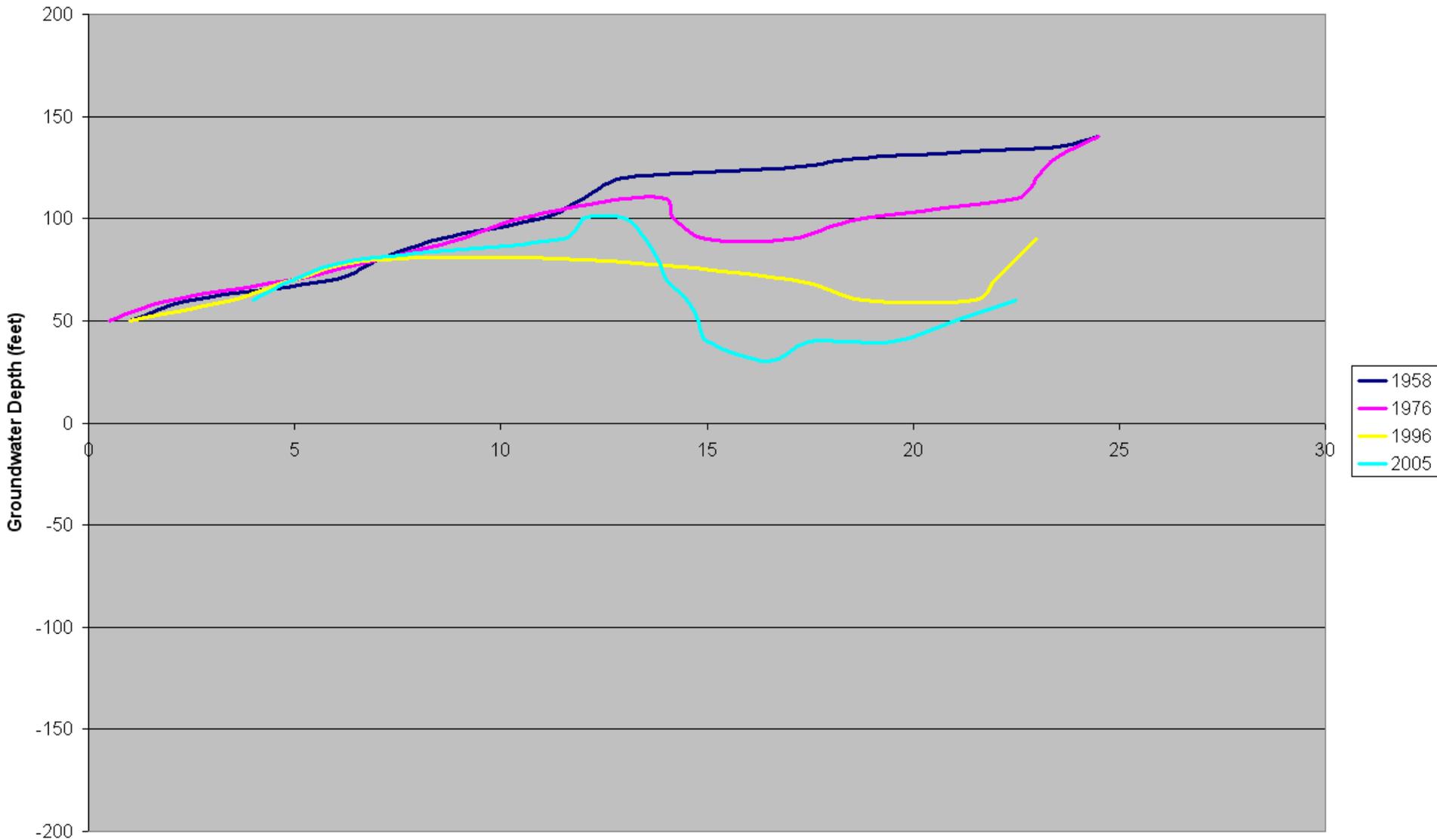
Recovery of Groundwater Levels



Continued Lowering of Groundwater Level

Contours are dashed where inferred. Contour interval is 10 feet.
http://www.sjd.water.ca.gov/groundwater/basin_maps/index.cfm

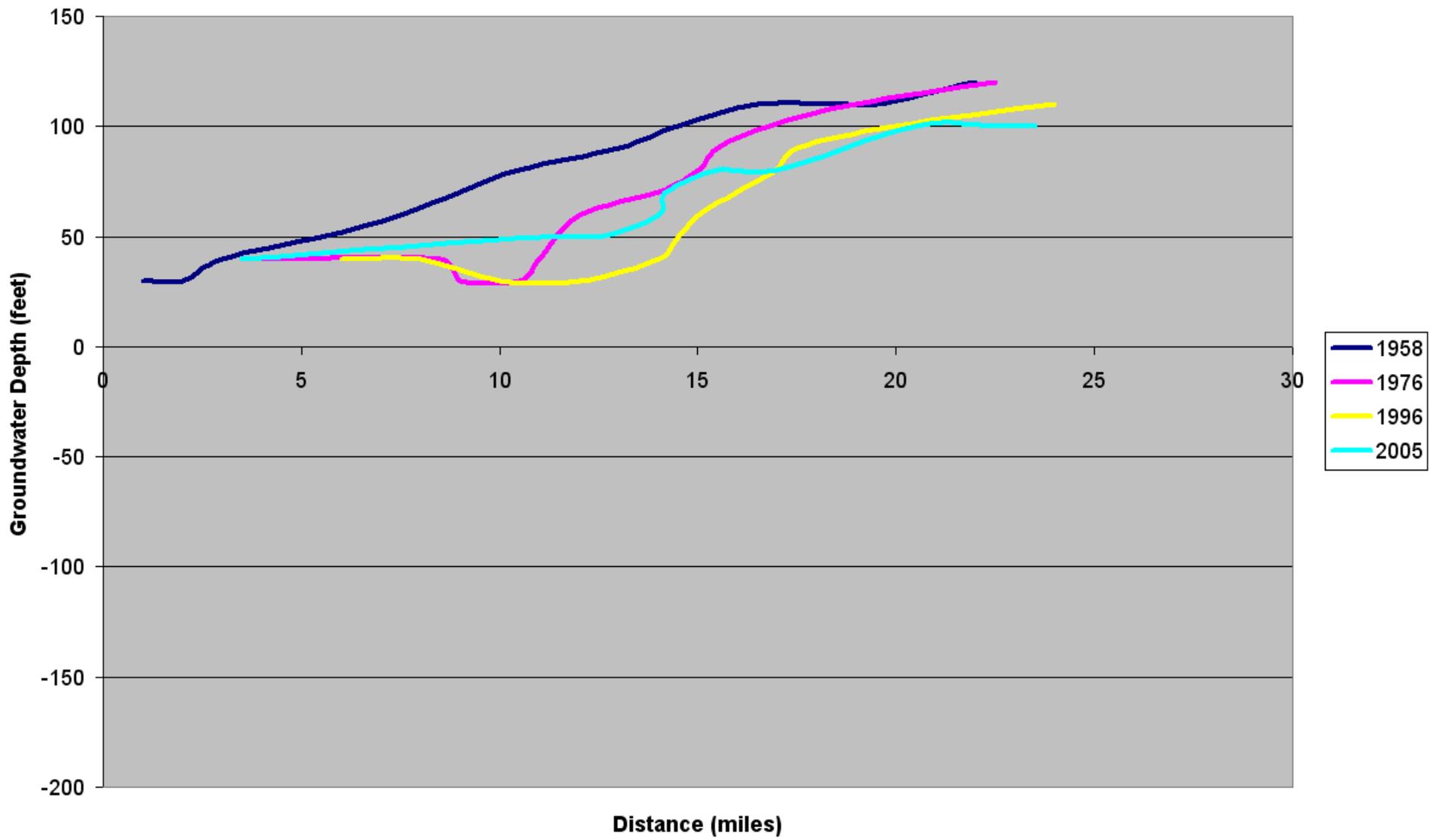
Turlock Area Groundwater Levels Section A



Distance (miles)

Cone of Depression in 2005 represents an estimated volume of 42,000 Acft.

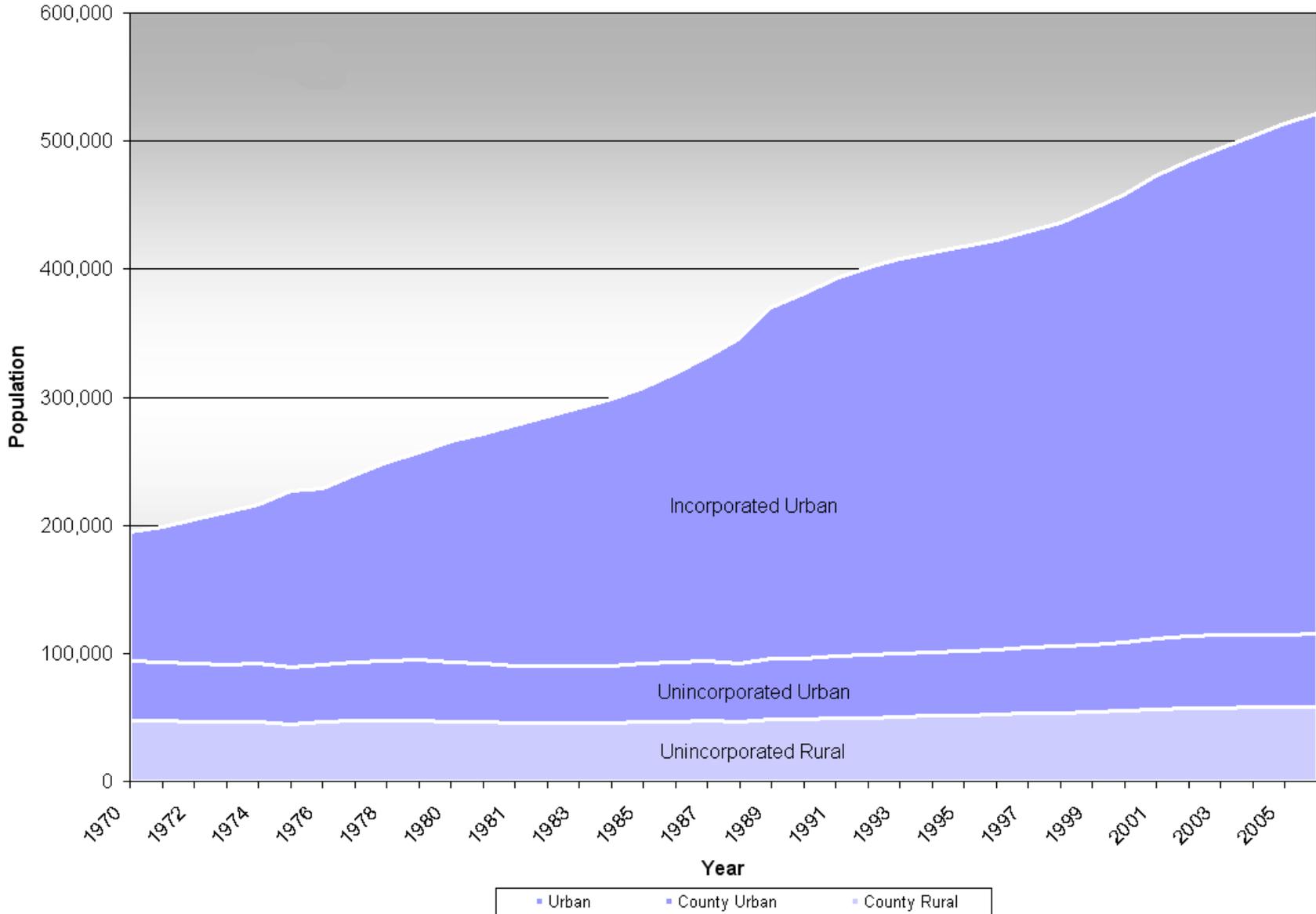
Modesto Area Groundwater Levels Section B



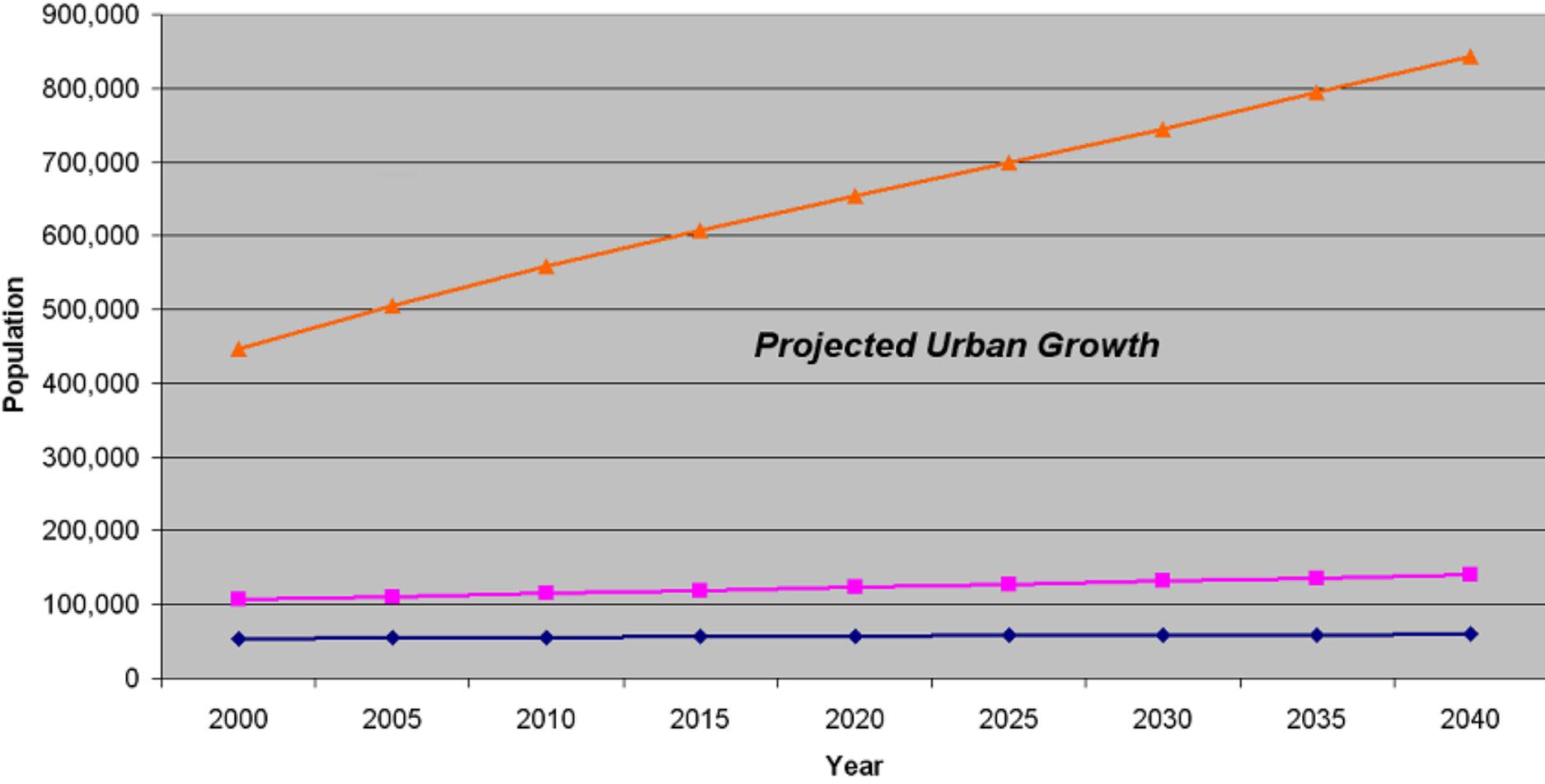
Impact of Urban Growth
on
Land Use and Water Supply

Stanislaus County Population Distribution

1970-2007



Urban Growth Projection Year (2000-2040)



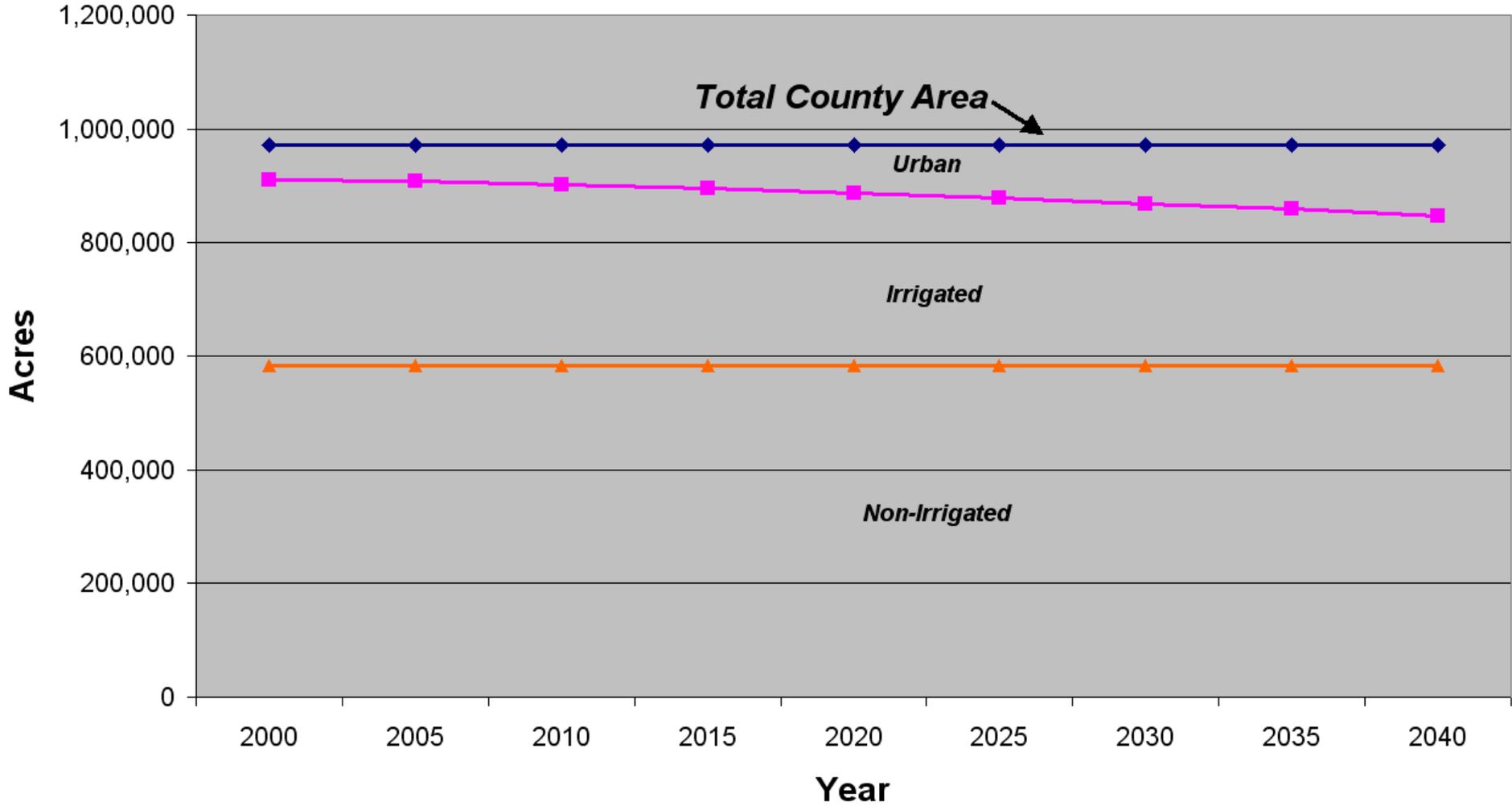
◆ County Rural ■ County Urban/Rural ▲ Total County

Stanislaus County Population Distribution

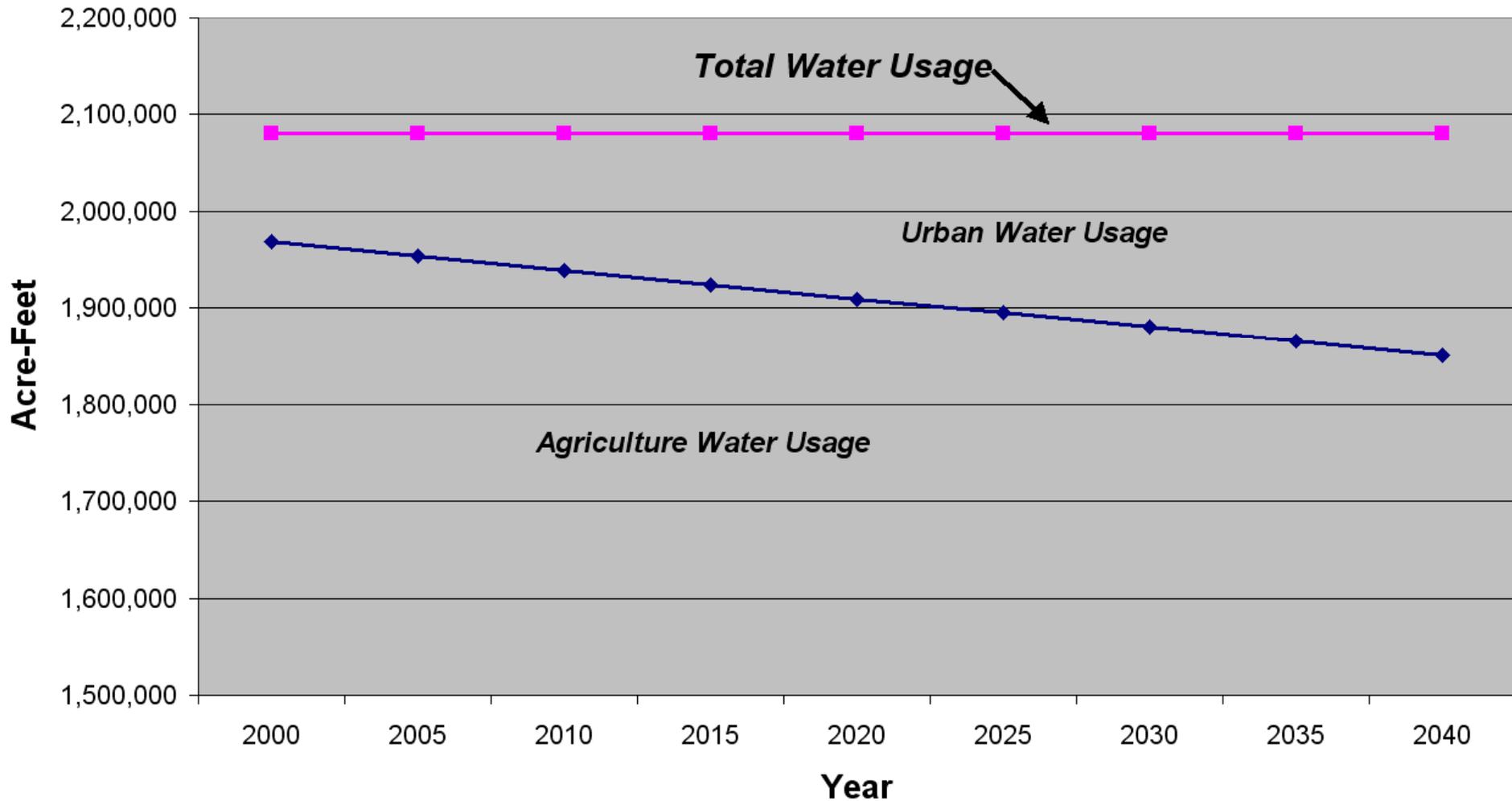
City	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Ceres	6,029	9,550	13,281	17,250	26,413	31,400	34,609	38,813	43,012	46,658	50,305	53,796	57,287	61,093	64,898
Hughson	0	2,480	2,943	3,020	3,259	3,690	3,980	5,941	6,584	7,142	7,700	8,234	8,769	9,351	9,934
Modesto	61,712	82,400	106,963	128,200	164,746	177,800	188,856	207,634	230,095	249,602	269,109	287,786	306,463	326,821	347,179
Newman	2,505	2,590	2,785	3,410	4,158	6,050	7,093	9,133	10,121	10,979	11,837	12,659	13,480	14,376	15,271
Oakdale	6,594	7,450	8,474	9,825	11,978	14,250	15,503	17,438	19,324	20,963	22,601	24,170	25,738	27,448	29,158
Patterson	3,147	4,040	3,908	4,690	8,626	9,750	11,606	16,157	17,905	19,423	20,941	22,394	23,847	25,432	27,016
Riverbank	3,949	4,540	5,695	6,475	8,591	13,250	15,826	19,986	22,148	24,026	25,903	27,701	29,499	31,458	33,418
Turlock	13,992	18,000	26,287	32,050	42,224	49,700	55,810	67,010	74,259	80,554	86,850	92,878	98,905	105,475	112,045
Waterford	2,243	2,250	2,683	3,200	4,771	6,350	6,924	7,898	8,752	9,494	10,236	10,947	11,657	12,432	13,206
Incorporated	100,171	137,700	173,019	208,100	274,776	312,200	340,207	390,010	432,200	468,841	505,482	540,564	575,647	613,886	652,124
Unincorporated	94,345	88,900	92,881	90,300	95,756	100,800	106,790	114,468	126,851	137,605	148,359	158,656	168,952	180,175	191,399
Total Population	194,516	226,600	265,900	298,400	370,532	413,000	446,997	504,478	559,051	606,446	653,841	699,220	744,599	794,061	843,523

Note: Population from California State Department of Finance

Land Use Projection (2000-2040)



Water Usage Projection (2000-2040)

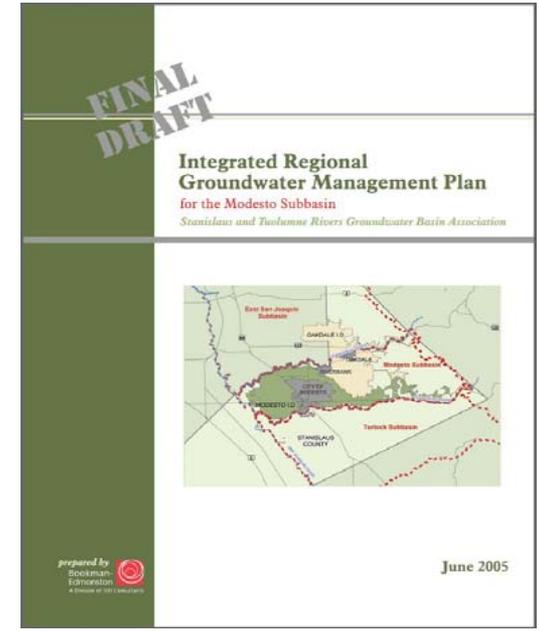
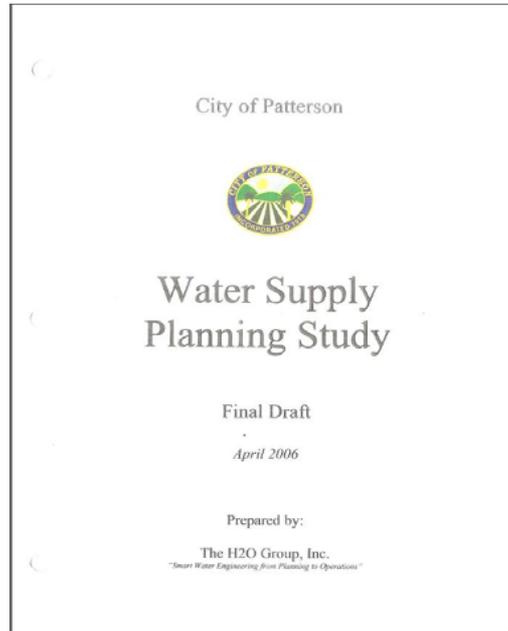
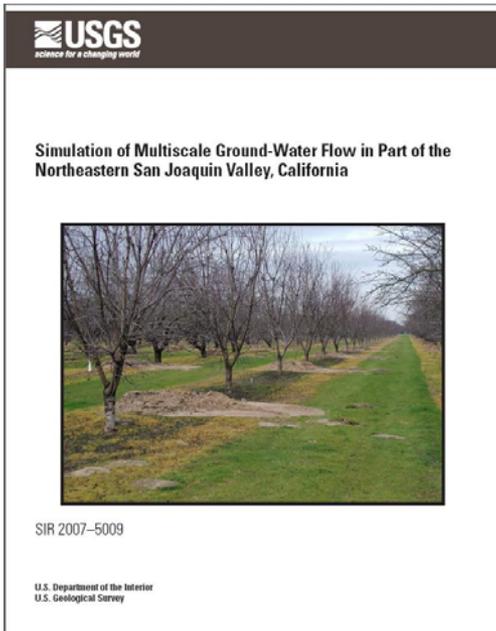
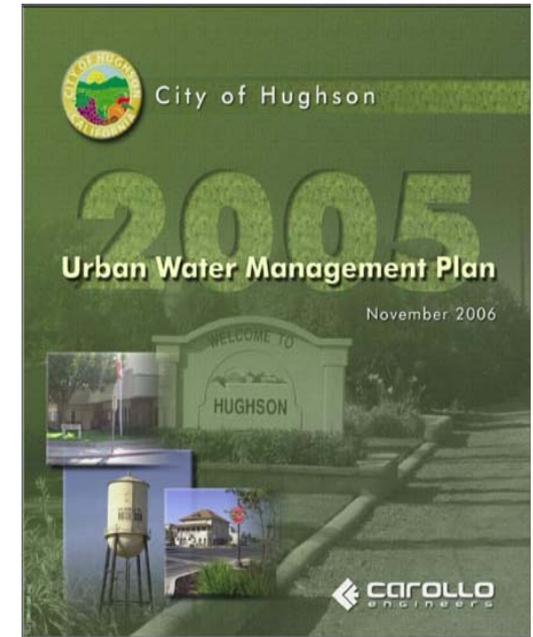
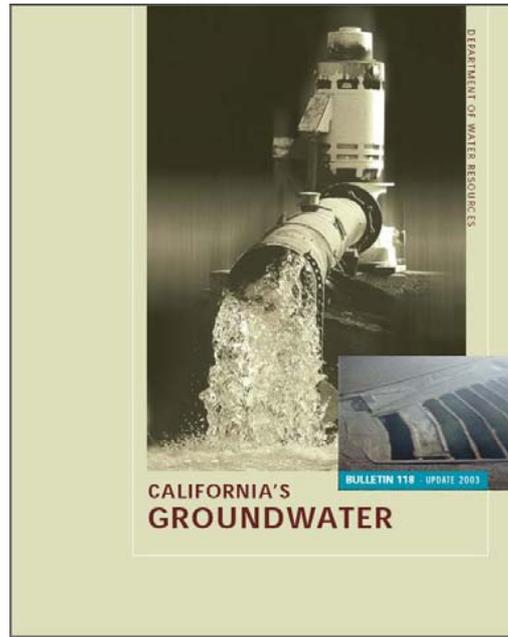
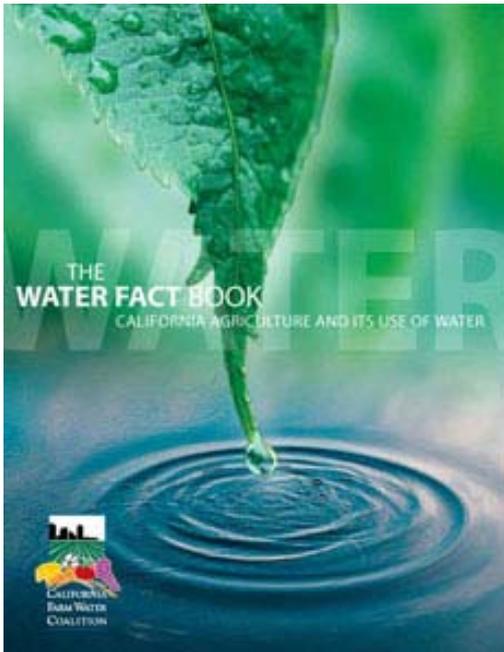


General Observations/Comments

1. Surface water supply is well monitored and managed by the irrigation districts.
2. Groundwater supply is monitored in the Modesto and Turlock management areas.
3. Groundwater in the North County and Westside management areas lack any organized oversight.
4. The water budget for the Stanislaus County area appears to be in reasonable balance.
5. There are localized issues with groundwater quality and elevations, which need to be watched and addressed.

6. Urban growth will continue in the irrigated areas of the county where public water and sewage systems exist.
7. Groundwater quality monitoring needs to be strengthened in conjunction with groundwater elevation data.
8. There is insufficient data to determine the impact of urbanization on agricultural groundwater recharge (irrigation).
9. State funding has been made available through bonds and grants (State Proposition 50 & 84) to study water needs and fund water projects.

Sampling of Available Reports





City of Modesto / Modesto Irrigation District

Joint Urban Water Management Plan 2005 Update

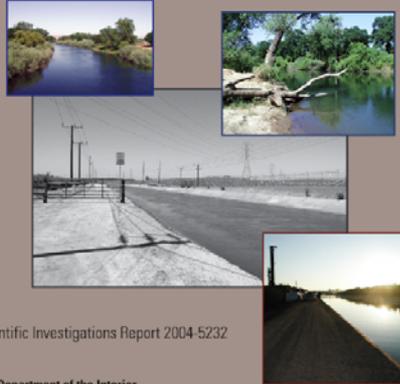
May 2007

Final Report



In cooperation with the Modesto Irrigation District

Hydrogeologic Characterization of the Modesto Area, San Joaquin Valley, California



Scientific Investigations Report 2004-5232

U.S. Department of the Interior
U.S. Geological Survey

City of Patterson
Water System



URBAN WATER MANAGEMENT PLAN 2005 UPDATE

City of Patterson:
Cleve Morris,
City Manager

Michael H. Willett,
Public Works Director

Sonia Delgado,
Conservation Coordinator

The H2O Group:
Curt D. Abbey, P.E.,
Project Engineer

Prepared in coordination with:



Final
December, 2006



Well Field Optimization Project Final Report – May 2007



Stanislaus and
Tuolumne Rivers
Groundwater Basin
Association



Report Prepared By:
CEI Consultants,
Rockman-Eldredson Division
Project No: 054030

Stanislaus County Agricultural Crop Report 2006



San Joaquin River Hydrologic Region
San Joaquin Valley Groundwater Basin

California's Groundwater
Bulletin 118

San Joaquin Valley Groundwater Basin

Turlock Subbasin

- Groundwater Basin Number: 5-22-03
- County: Stanislaus, Merced
- Surface Area: 347,000 acres (542 square miles)

Basin Boundaries and Hydrology

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Francisco and Tehachaps Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Turlock Subbasin lies between the Tuolumne and Merced Rivers and is bounded on the west by the San Joaquin River and on the east by crystalline basement rock of the Sierra Nevada foothills. The northern, western, and southern boundaries are shared with the Modesto, Delta-Mendota, and Merced Groundwater Subbasins, respectively. The subbasin includes lands in the Turlock Irrigation District, the Ballico-Corcoran Water District, the Eastside Water District, and a small portion of Merced I.D. Average annual precipitation is estimated as 15 to 18 inches, increasing eastward, with 15 inches in the Sierra foothills.

Hydrogeologic Information

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide. It is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the axes of rivers, lakes, floodplains, and marshes that mark the current and historic axes of surface drainage in the San Joaquin Valley.

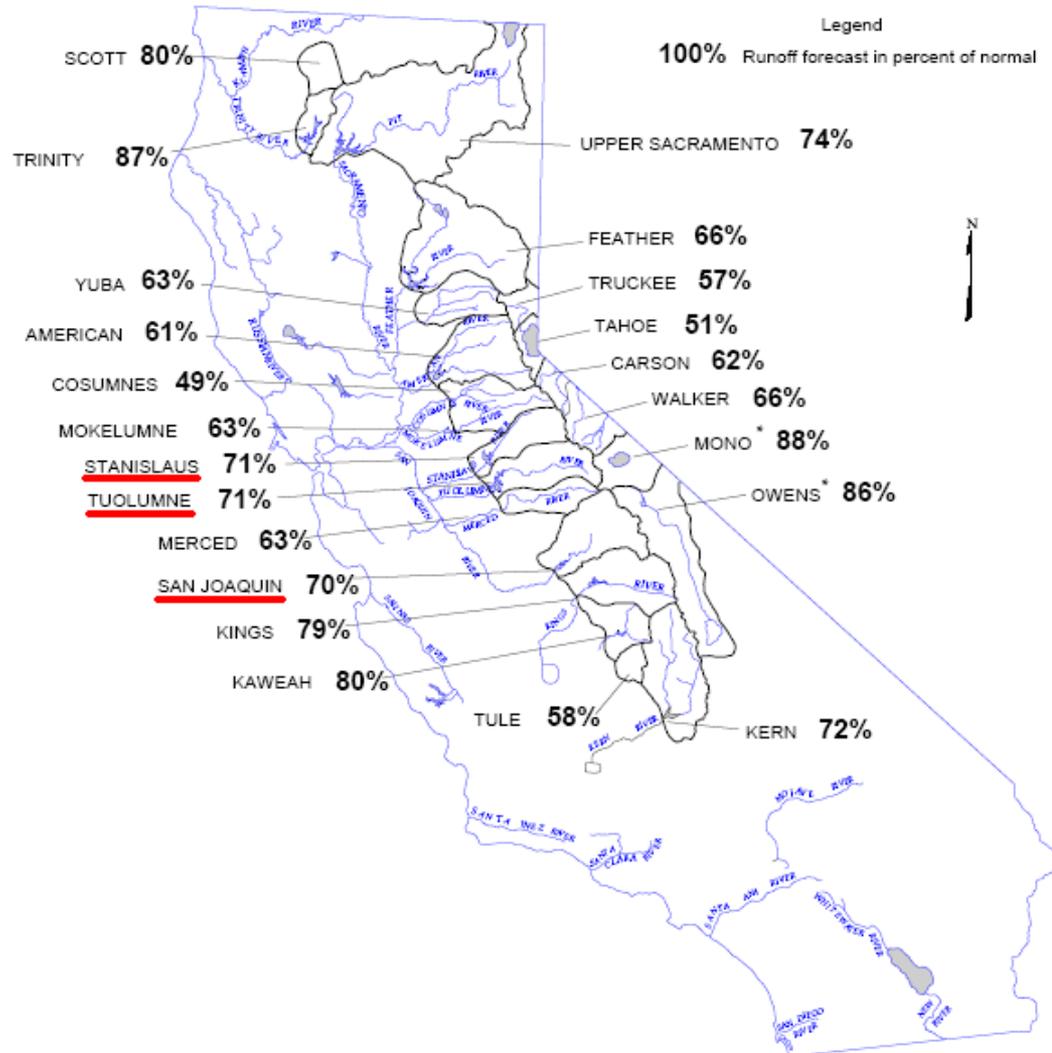
Water Bearing Formations

The primary hydrogeologic units in the Turlock Subbasin include both consolidated and unconsolidated sedimentary deposits. The consolidated deposits include the Inza Formation of Miocene age, the Valley Springs Formation of Eocene age, and the Melatne Formation, which was deposited during the Miocene to Pliocene Epochs. The consolidated deposits lie in the eastern portion of the subbasin and generally yield small quantities of water to wells except for the Melatne Formation, which is an important aquifer. The Melatne Formation is composed of up to 800 feet of sandstone, breccia, conglomerate, buff siltstone and claystone (Page 1973).

Water Conditions in California

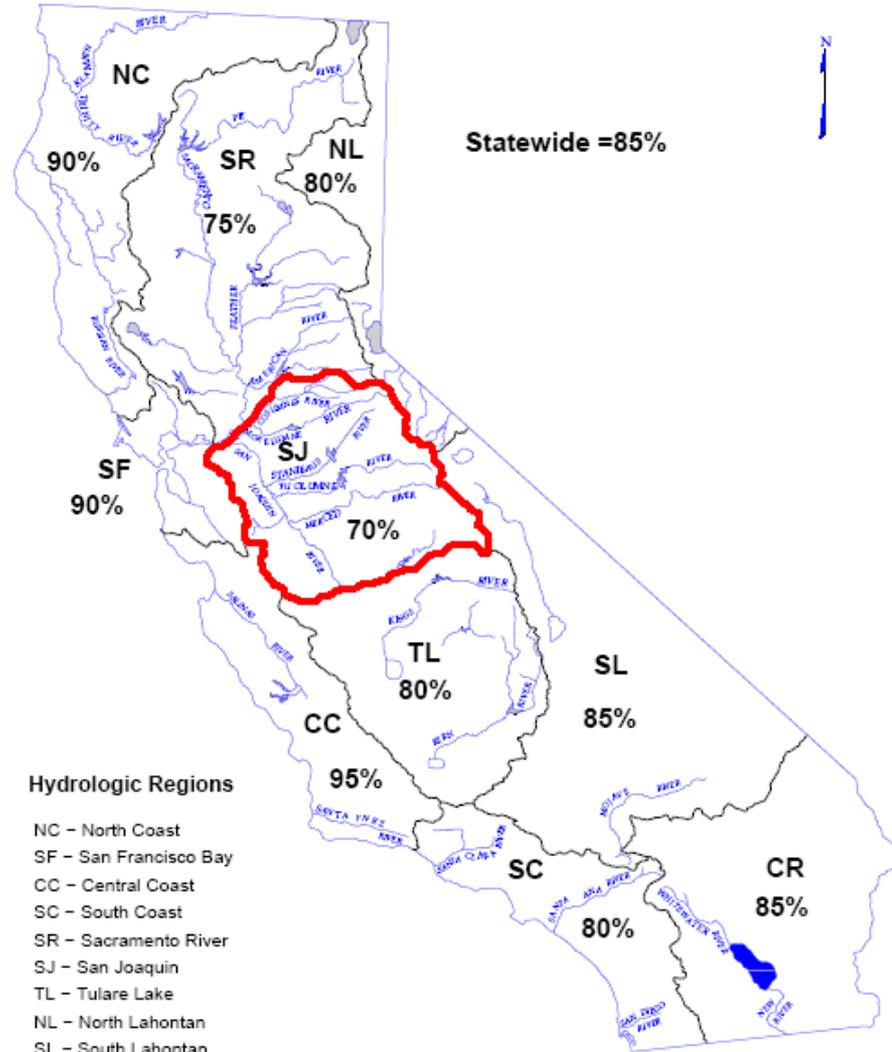
May 1, 2008

**DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
FORECAST OF APRIL - JULY
UNIMPAIRED SNOWMELT RUNOFF
May 1, 2008**



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
SEASONAL PRECIPITATION
 IN PERCENT OF AVERAGE TO DATE
 October 1, 2007 through April 30, 2008



WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30