Monitoring and Reporting Program Plan

East San Joaquin Water Quality Coalition

August 25, 2008

Prepared by MLJ-LLC

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LIST OF ACRONYMS

BU	Beneficial Uses
cm	Centimeter
cfs	Cubic Feet Per Second
COC	Chain of Custody
CVRWQCB	Central Valley Regional Water Quality Control Board
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane-+
DO	Dissolved Oxygen
DPR	(California) Department of Pesticide Regulation
DWR	Department of Water Resources
ESJWQC	East San Joaquin Water Quality Coalition
EPA	Environmental Protection Agency
^{o}F	Degrees Farenheit
K_{oc}	Organic Carbon Partioning Coefficient
kg	Kilogram
L	Liter
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg	Milligram
mL	Milliliter
MLJ-LLC	Michael L. Johnson, LLC.
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MUN	Municipal and Domestic Supply Beneficial Use

NA	Not Applicable
ND	Not Detected
ng	Nanogram
NRCS	Natural Resource and Conservation Service
NTU	Nephelometric Turbidity Unit
OP	Organophosphate
PCA	Pesticide Control Advisor
pH	Power of Hydrogen (measure of acidity)
PR	Percent Recovery
PUR	Pesticide Use Reports
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SJR	San Joaquin River
SOP	Standard Operating Procedure
SWAMP	Surface Water Ambient Monitoring Program
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TID	Turlock Irrigation District
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
µg	Microgram
µmhos	Micromhos
USEPA	United States Environmental Protection Agency
WQTL	Water Quality Trigger Limit

INTRODUCTION

The East San Joaquin Water Quality Coalition (hereafter referred to as the Coalition or ESJWQC) Monitoring and Reporting Program Plan (MRPP) has been prepared according to the Monitoring and Reporting Program Order No. R5-2008-0005 (MRP) for Coalition Groups under the Amended Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands Resolution No. R5-2006-0053. Together with the ESJWQC Management Plan, the MRPP is a work plan for all aspects of the monitoring and reporting program including environmental monitoring, outreach, reporting and tracking progress in reducing the amount of waste discharged that affects the quality of the waters within the ESJWQC as part of the Irrigated Lands Regulatory Program (ILRP).

The ESJWQC was formed in 2003 as a group of agricultural interests and growers to represent all "dischargers from irrigated lands" with the potential to discharge to waters of the State, who own or operate irrigated lands east of the San Joaquin River within Madera, Merced, Stanislaus, Tuolumne and Mariposa Counties and portions of Calaveras County. The business rules of the ESJWQC, including the ESJWQC Board of Directors responsibilities and a draft membership policy (to be implemented in the 2009-2010 irrigation season), are included in Attachment I. This report contains a description of watershed characteristics within the Coalition area and provides data and information describing the area's hydrology and drainage patterns, land use and crop data. A large portion of this document describes the monitoring program including the monitoring plan, sampling sites, sampling methods, quality assurance and information on each of the site subwatersheds. Pesticide use in each of the site subwatersheds that are or will be monitored is included in this MRPP as well as management practices available to prevent water quality degradation as a result of agricultural discharge. A discussion on management practices, programs and applicable management projects used to reduce or eliminate agricultural discharge of pesticides into receiving water bodies concludes this MRPP. Table 1 lists the MRP requirements as listed under the Conditional Waiver in association with the sections of this MRPP.

This MRPP includes the Coalition's strategy to addresses the five Program questions listed in the Regional Board MRP (Table 1). In addition, the Coalition is working to identify critical gaps in knowledge on a site subwatershed basis through the use of the Coalition's Management Plan. The MRPP creates a framework for which the Coalition can assess water quality impairments due to agricultural discharge and methods by which to ensure and/or improve current water quality conditions.

Table 1. Location of descriptions to address MRP requirements in the ESJWQC MRPP.

MRPP Section	MRP Requirement #	Requirements
1. Introduction	NA	Not a required section.
2. Description of Coalition Area	2,5	**(2)** Geography, topography, hydrology, land use including crop type(s) and other characteristics relevant to the monitoring; **(5)** Provide designated beneficial uses of each of the Coalition water bodies.
3. Monitoring Strategy	1	**(1)** Description of Assessment Monitoring, Core Monitoring and Special Project Monitoring.
4. Monitoring Sites	3,6	**(3)** Including GIS coordinates (Albers Projection, NAD83, and units in meters) and rationale for selection of each site. Rationale should be based on 'representativeness' of the location for dischargers from irrigated agriculture within the Coalition Group's boundaries; **(6)** Detailed map(s) of the Coalition Group's area showing irrigated lands, identifying crop type(s), monitoring sites, main water bodies, tributaries, canals, channels, and drainages. Maps or discussion shall provide details that show which fields are represented by each monitoring site within the Coalition Group's boundaries.
5. Water and Sediment Quality Monitoring Plan	12,17	**(12)** Monitoring periods, including description and frequencies of monitoring events and justification for deviations from the MRP Order requirements; **(17)** Parameters to be monitored including minimum and site specific requirements.
6. Monitoring Protocol	18,19,13,14,15,16	**(18)** Reference to the Coalition Group Quality Assurance Project Plan (QAPP) consistent with the requirements described in Attachment C of the MRP Order; **(19)** Documentation of monitoring protocols including sample collection methods and Laboratory Quality Assurance manual; **(13)** Information (either qualitative or quantitative, depending on the needs of the monitoring design process) about sources of bias and variability that could affect the validity of a monitoring design and/or the reliability of monitoring data; **(14)** Definition of desired levels of spatial and temporal resolution; **(15)** Definition of acceptable levels of uncertainty; **(16)** Description of data analysis methods to be used to evaluate data from each monitoring program component.
7. Reporting Plan	NA	Not a required section.

MRPP Section	MRP Requirement #	Requirements
8. Water Quality Status	4,Q#1,Q#2,7,8	**(4)** Identification of known and potential water quality impairments and water quality limited water bodies; **(Q#1)** Are conditions in waters of the State that receive discharges of wastes from irrigated land within Coalition Group boundaries, as a result of activities within those boundaries, protective of beneficial uses (Identify represented, unrepresented and surrogate monitoring locations)? **(Q#2)** What is the magnitude and extent of water quality problems in waters of the State that receive agricultural drainage or are affected by other irrigated agriculture activities within the Coalition Group boundaries, as determined using monitoring information? **(7)** Relevant knowledge about the transport, fate, and effects of key pollutants, including best- and worst-case scenarios; **(8)** Relevant knowledge about the action of cumulative and indirect effects, and other factors that impact water quality.
9. Sources of Discharge	Q#3,9	**(Q#3)** What are the contributing sources(s) from irrigated agriculture to the water quality problems in waters of the State that receive agricultural drainage or are affected by other irrigated agriculture activities within Coalition Group boundaries? **(9)** Include a narrative discussion and summary tables of the information contained therein, including type of chemical (fungicide, herbicide, insecticide, and adjuvants), quantity applied, timing of applications, crops to which they were applied, and the geographic locations within the Coalition Group's boundaries in which each type was used.

MRPP Section	MRP Requirement #	Requirements
10. Agricultural Practices Summary	10,11,Q#4,Q#5	**(10)** Discussion of specific management practices in use and available programs to reduce or eliminate water quality impacts from irrigated agricultural discharges and locations where these occur. These practices might include tail water return systems, irrigation efficiency improvements, U.C. Cooperative Extension and NRCS grower outreach, etc. **(11)** Description of water management practices within the Coalition Group's boundaries and crop types in which they are used. Water management practices include, but are not limited to, water application for the purpose of hydrating crops, pre-planting irrigation, water application for the purpose of frost prevention, and water application to address salinity; **(Q#4)** What are the management practices that are being implemented to reduce the impacts of irrigated agriculture on waters of the State within the Coalition Group boundaries and where are they being applied? (reference management plans); **(Q#5)** Are water quality conditions in waters of the State within Coalition Group boundaries getting better or worse through implementation of management practices? Reference management plans.
11. Coalition Contact Information	20	**(20)** Coalition Group contact information.
***Signed Transmittal Letter**	21	**(21)** To be submitted with MRPP.

DESCRIPTION OF COALITION GROUP AREA

The ESJWQC area includes Stanislaus, Merced, Madera, Tuolumne, and Mariposa Counties and the portion of Calaveras County that drains into the Stanislaus River. The region that drains into the Coalition area is bordered by the crest of the Sierra Nevada on the east and the San Joaquin River on the west, the Stanislaus River on the north to the San Joaquin River on the south. The southern portion of the Coalition area has been expanded since the inception of the Coalition and now includes the area that was formerly the Root Creek Coalition area. Landholdings in the vicinity of the Lone Willow Slough drainage area (west of the Eastside Bypass) have joined the Westside Coalition.

The only surface water export from the Coalition area is northward via the San Joaquin River. This river drains watersheds on the east and west side of the San Joaquin Valley, though only east side watersheds are relevant with respect to the Coalition area. San Joaquin River water is eventually either exported to the San Francisco Bay through the Delta, or conveyed southward via the State Water Project and the Delta Mendota Canal. The Coalition area also includes within its boundaries portions of six irrigation districts: Oakdale Irrigation District, Merced Irrigation District, Turlock Irrigation District, Modesto Irrigation District, Chowchilla Irrigation District and Madera Irrigation District (Figure 1). In addition, there are numerous federal and state water districts, municipal water companies, and sanitation districts within the Coalition area. Water bodies may have both irrigation district and Coalition monitoring only when they convey both irrigation supply and agriculture return water. Irrigation districts in the Coalition region are covered by individual waivers and do not belong to the Coalition.

Apart from the San Joaquin River, there are five major rivers in the watershed: the Fresno River, Chowchilla River, Merced River, Tuolumne River and Stanislaus River. In addition, the Eastside Bypass is considered a major water body. These east side tributaries of the San Joaquin River drain the Sierra Nevada range from east to west. Typically, only the Stanislaus, Merced, and Tuolumne Rivers maintain flows during the summer months. Flows in the Chowchilla and Fresno Rivers are intermittent to nonexistent as the irrigation season progresses into the fall and remain dry unless major storm events produce sufficient precipitation in the immediate vicinity of the rivers. Intermediate sized water bodies in the Coalition area (e.g. Dry Creek, Duck Slough, and Highline Canal) originate either in the Sierra Nevada foothills or the Valley itself and are tributaries to the major rivers. The remaining water bodies are small in size (e.g. Silva Drain, Mustang Creek) and are primarily agricultural canals and ditches that convey water to one of the larger rivers or intermediate-sized creeks/sloughs.

Although exact acreage is difficult to estimate due to rapidly changing land use, the Coalition area contains approximately 1,186,889 acres that are considered irrigated agriculture (Table 2). For Stanislaus, Merced, Mariposa, Tuolumne, and Madera Counties, the Coalition used the Department of Water Resources (DWR) land use estimates for irrigated agriculture to

determine total acreage. However, DWR does not provide land use data for Calaveras County and therefore these data were acquired from the County Agricultural Commissioner's office.

Soils maps reveal a complicated mosaic of soil types in the Coalition region. Generally, the Coalition region has sandy, well-drained soils. Soil type and factors such as slope, soil saturation, rainfall/irrigation water amount, and drainage patterns determine runoff.

There is a tendency for increased runoff with increased slope, soil water saturation, and volume of water. These conditions arise primarily due to large amounts of rainfall and are more likely in the relatively greater sloped valley margins. During the winter, runoff is moved for flood control west through the myriad of creeks, rivers, and drains. However, many of the drainages in the southern portion of the Coalition region do not always carry runoff even during substantial rainfall events. In addition, water bodies throughout the Coalition region tend to be "flashy" in that water from runoff events moves through the systems very quickly leaving very little flow shortly after the storm ends. Runoff can also occur during the irrigation season if water entering the field is greater than the amount that can infiltrate into the soil. However, in portions of the Coalition region with sandy soils, there is no irrigation discharge. Drip and microspray irrigation also result in no discharge of irrigation water.

A complex system of conveyances for water transfer, use, and re-use is utilized for irrigation. If a sufficiently large amount of water is applied via flood irrigation, some water may return to the source after being used on the field. In some cases, the volume of water applied to a field for irrigation may represent not only what is needed by the vegetative crop, but also a greater quantity used either to push the water over the field, or as a method of reducing the negative effects of evapotranspiration and consequent accumulation of salts. The conveyance system is designed to allow downstream irrigators to reuse water that was previously used upstream.

Figure 1. Boundaries of federal, state and private irrigation and water districts within the Coalition area.

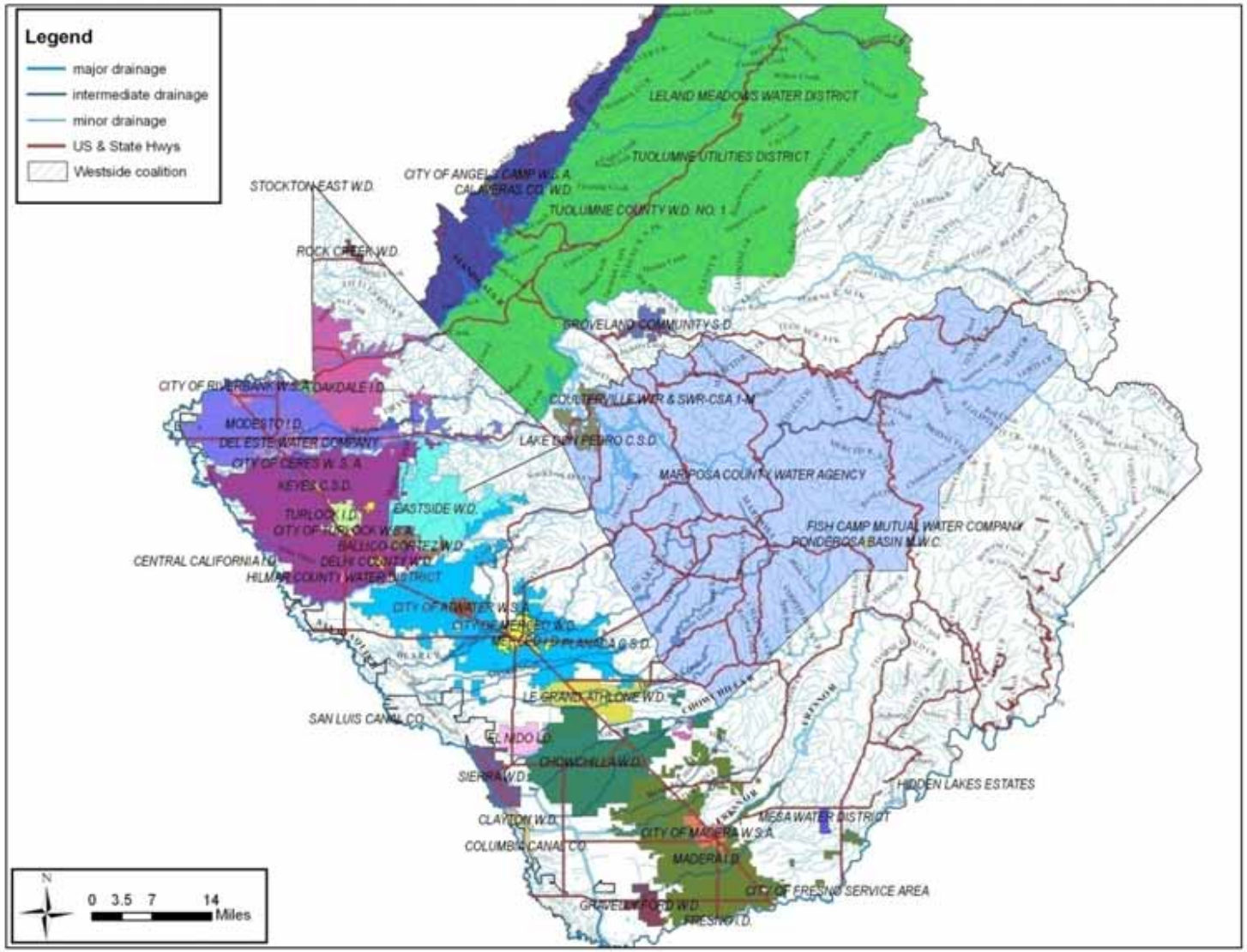


Table 2. Acreage of irrigated land in ESJWQC counties.

Acreage shown for Stanislaus, Merced, Madera, Tuolumne, Calaveras and Mariposa Counties**.** Data from 2001 California Department of Water Resources (http://www.landwateruse.water.ca.gov/annualdata/landuse/2001/landuselevels.cfm)

County	Irrigated Land Area (acres)
Calaveras	976
Madera	295,000
Mariposa	297
Merced	510,500
Stanislaus	378,700
Tuolumne	1,416
Total	***1,186,889***

The Coalition area has been divided into six zones to create a comprehensive monitoring program. These zones were designated based on hydrology, crop types, land use, soil types, and rain fall (Table 3). The zone names are based on the Core Monitoring location within that area and include: 1) Dry Creek @ Wellsford Zone, 2) Prairie Flower Drain @ Crows Landing Zone, 3) Highline Canal @ Hwy 99 Zone, 4) Merced River @ Santa Fe Zone, 5) Duck Slough @ Gurr Rd Zone, and 6) Cottonwood Creek @ Rd 20 Zone. The boundaries of each zone are provided in Figure 2. Crop pattern information was obtained from the California Department of Pesticide Regulation database which is current through 2004 (http://calpip.cdpr.ca.gov/cfdocs/calpip/prod/main.cfm). Information for river flow data was obtained from the United States Army Corps of Engineers (http://www.spk-wc.usace.army.mil/plots/plot_menu_ca.html) and temperature, rainfall and elevation data was obtained from Department of Water Resources (http://www.climate.water.ca.gov/climate_data/joaquin.cfm).

Figure 2. Zone boundaries (1-6) within the ESJWQC.

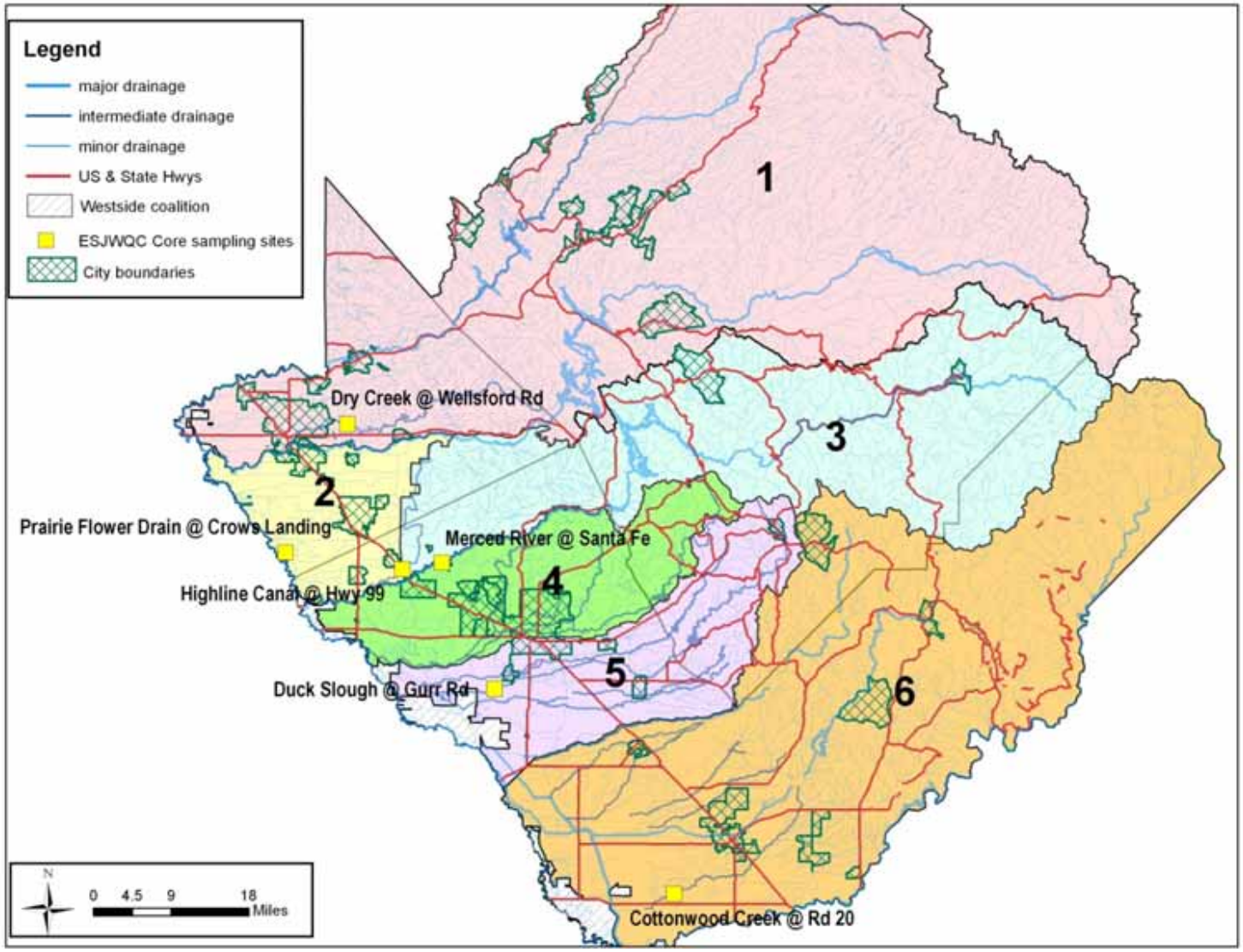


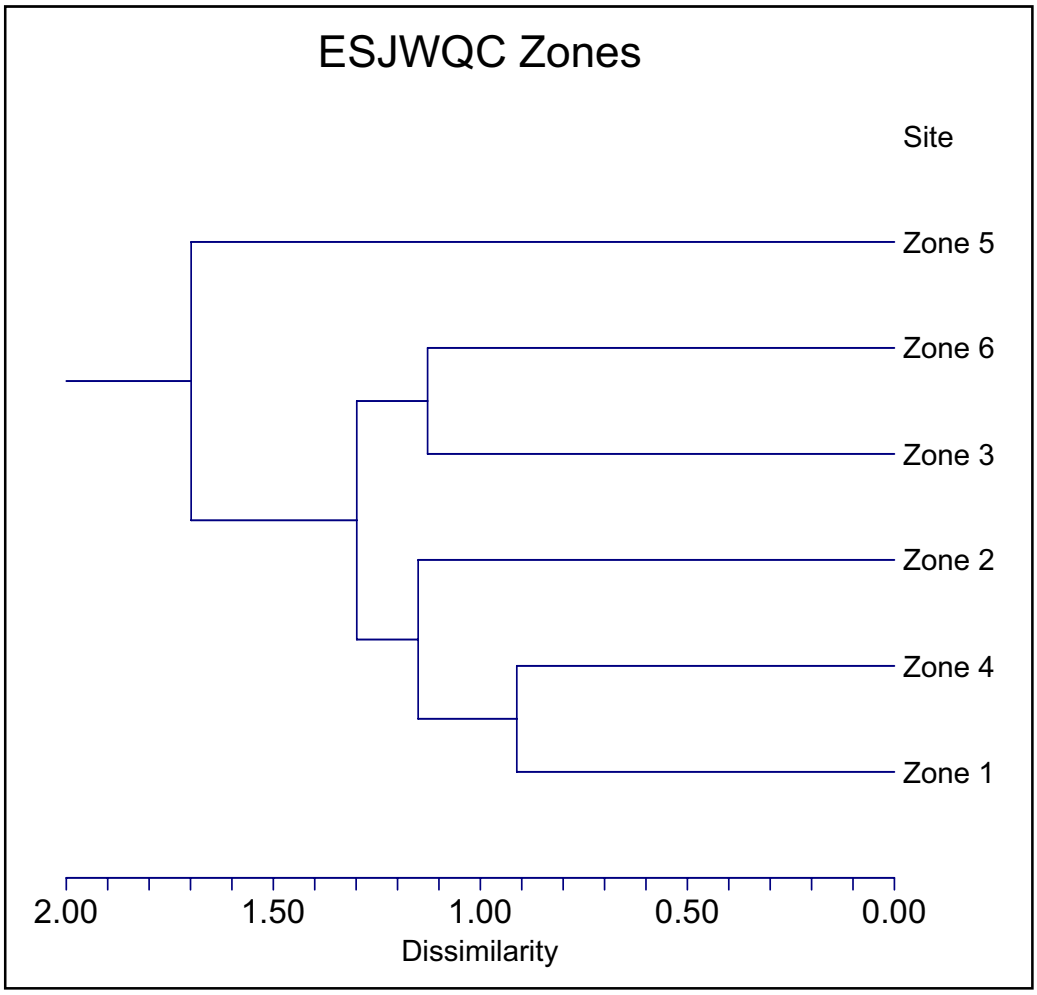
Table 3. Land use and soil percentages for ESJWQC zones.

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
	Dry Creek @ Wellsford Zone	Prairie Flower Drain @ Crows Landing Zone	Highline Canal @ Hwy 99 Zone	Merced River @ Santa Fe Zone	Duck Slough @ Gurr Rd Zone	Cottonwood Creek @ Rd 20 Zone
Total Acres	2,739,267.53	757,501.78	1,213,340.09	608,351.75	637,819.21	1,268,513.09
Irrigated Acres	134,306.48	164,632.91	88,616.45	121,746.40	142,686.29	335,069.21
Soil (average %):						
Sand	56.26	71.42	62.03	58.77	39.56	63.66
Silt	25.34	18.83	23.45	25.39	36.05	22.26
Clay	18.40	9.75	14.52	15.83	24.38	14.08
Land Use (% of irrigated acres):						
Deciduous Fruits/Nuts	39.21	37.83	60.73	37.55	18.82	31.63
Field Crops	16.27	22.73	15.84	22.25	32.85	15.29
Grains/Hay	0.89	0.81	1.57	3.87	5.54	4.28
Pasture	35.04	30.88	11.13	19.58	31.42	13.17
Vineyard	3.76	3.27	8.63	5.69	1.69	31.37
Dairies/Feedlots:						
% of total acres	0.34	1.59	0.20	0.80	0.66	0.53
Number of operations	1,903	2,302	273	473	460	1,725
Urban (% of total acres)	2.70	5.77	0.93	3.84	2.01	3.02
Depth to groundwater:						
Weighted average	49.18	30.12	138.17	46.43	68.52	119.98
% area of groundwater	5.7	71.9	7.1	39	43.3	25.1

A dendrogram was created to illustrate the dissimilarities of the zones. The dendrogram in Figure 3 was constructed using a hierarchical algorithm in which the two most similar zones are identified, in this case Zone 1 and Zone 4, and connected at the level of similarity/dissimilarity between the two. In this case the two zones are dissimilar at a level of approximately 0.9. The dissimilarity scale is a unitless measure that is an n-dimensional Euclidean distance. The variables for the two zones are averaged to form a new entity and the analysis is performed again with five zones. The next two most similar zones are identified; in this case Zone 3 and Zone 6, and they are connected at the appropriate level of dissimilarity. The variables are averaged to form a new entity and the process continues with four zones, then three zones, and finally two zones. Although there are no statistical tests for significance of the differences between clusters, it is generally accepted that if the clusters are dissimilar at a level of approximately 0.15, the clusters are distinct. In the analysis above, the zones are all dissimilar at a level that far exceeds 0.15 indicating that they are distinct from each other and each is relatively homogeneous within its boundaries. These results suggest that sites within each zone are representative of other sites within the same zone with respect to soils, land use, and depth to groundwater. Sites would not be representative of other sites outside of their respective zone.

Below is a description of each zone's land use, hydrology, precipitation, soil types and crop patterns.

Figure 3. Dendrogram of ESJWQC zones based on dissimilarity. See text for details on variables used to construct the dendrogram.



Dry Creek @ Wellsford Zone (Zone 1)

Climate and River Flows

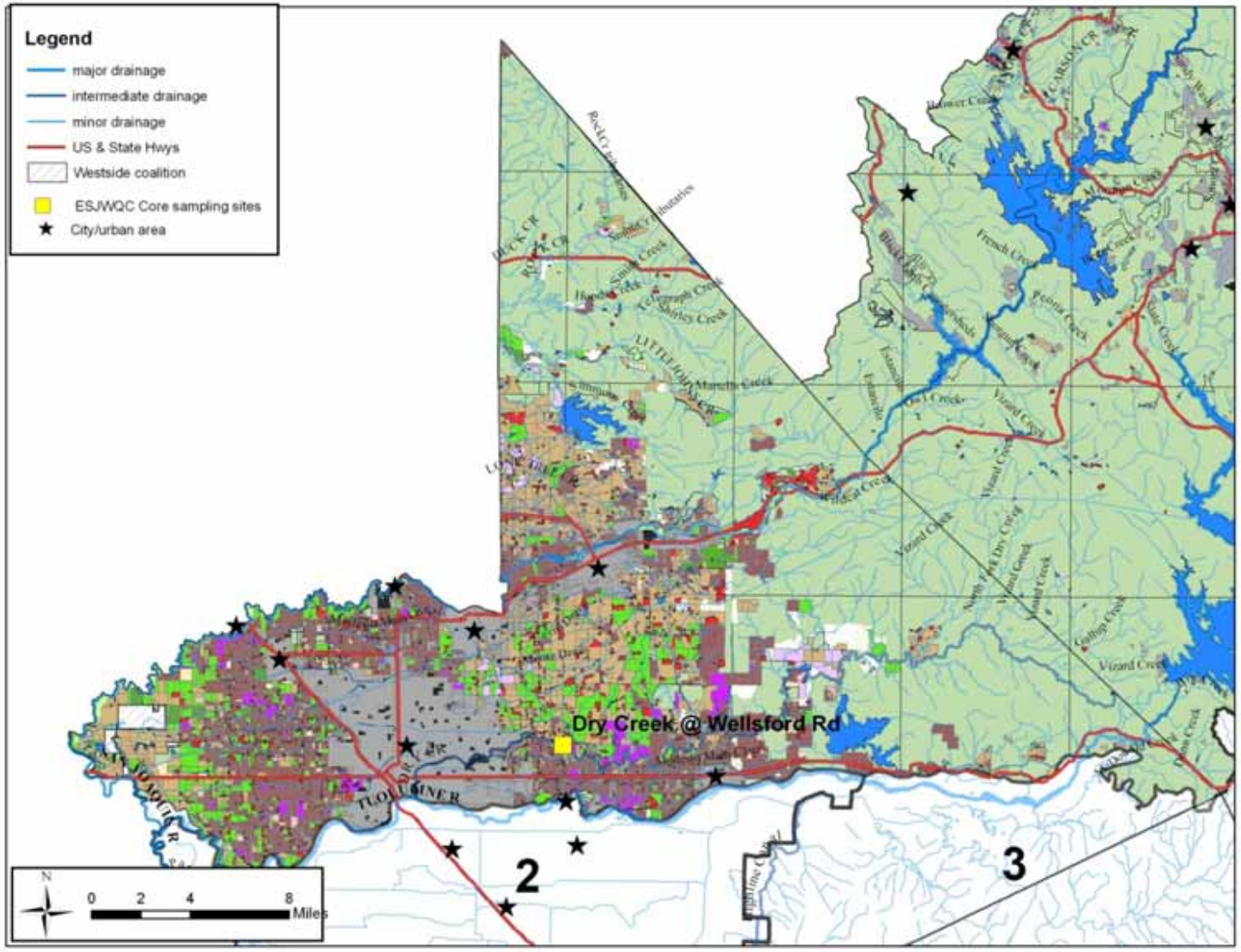
Dry Creek @ Wellsford Zone (Zone 1) contains the northern most portion of the ESJWQC and is bordered by the Stanislaus River to the north and the Tuolumne River to the south. This zone consists of low land around the city of Modesto and extends up to the end of irrigated agriculture in the foothills of the Sierra Nevada Mountains. The head waters of the Stanislaus and the Tuolumne rivers start high up in the Sierra Nevada Mountains in the east and drain into the San Joaquin River to the west. The winter temperature in the valley around Modesto averages between 32-65˚F throughout the year with infrequent freezing. The summer is warm with 90-100˚F highs and 60˚F lows. In the 3,000-4,000 foot level of the Sierra Nevada Mountains to the east of the Valley, the winter temperature is slightly cooler around 29-50˚F and freezing is more common. In this part of the zone the summer temperatures range from the low 90's in the day and down in the 50's during the night. Within the uppermost crests of the Sierras the summer temperature is only slightly cooler than areas at the 4000 foot level but the winter time temperatures are below freezing most of the time. Precipitation on the low valley floor is around 13 inches annually with most of the rain occurring from November through March. Most of the annual rainfall comes from one or more large rain events in January and February. Rainfall levels increase to the east of the zone as elevation increases with more than 30 inches occurring annually around 3800 feet and almost 50 inches at an elevation of 4,800 feet. This precipitation falls as snow in the upper elevation that melts in the spring, providing runoff for the rivers and streams. The Stanislaus River flows through along the northern border of this zone and supplies water from the Sierras to the Delta. New Melones Reservoir in the upper east part of the zone receives the highest flows from the Stanislaus River during the spring when the snow from the higher elevations melts in March through June creating flows up to 1,500-3,500 cfs. The outflows from the dam into the river are highest December through February (up to 2400 cfs during large storms) and stay constant the rest of the year at a 1,000 cfs. The flows from the Stanislaus are substantially greater than flows in rivers to the south. The Tuolumne River, which borders the southern edge of this zone, flows through Don Pedro Reservoir with the highest inflows during winter storms ranging from 6,000-15,000 cfs. Spring runoff provides the rest of the runoff in March through June with flows around 3,000 cfs. Outflows from Don Pedro are highest in March through June between 1,000-3,000 cfs, and around 1,000 cfs for the remainder of the year. Water is supplied to farmers through the Modesto Irrigation District, the Oakdale Irrigation District and in some areas irrigation supply is pumped from groundwater.

Soil Types and Land Use

A majority of the soils within the Dry Creek @ Wellsford Zone are sand (56%) mixed with silt (25%) and clay (18%). There is a mixture of vineyards and deciduous nuts and fruits within this zone with most of these crops on drip irrigation systems. There is an almost equal portion of irrigated pasture (35%) as deciduous fruits/nuts (39%) and a smaller portion of field crops (16%)

and grains/hay (1%). As of 2004, there are 1,903 dairies/feedlots comprising 0.34% of the total acreage in this zone (Table 3, Figure 4).

Figure 4. Land use for Dry Creek @ Wellsford Rd Zone (Zone 1). See Figure 10 for a land use legend.



Prairie Flower Drain @ Crows Landing Zone (Zone 2)

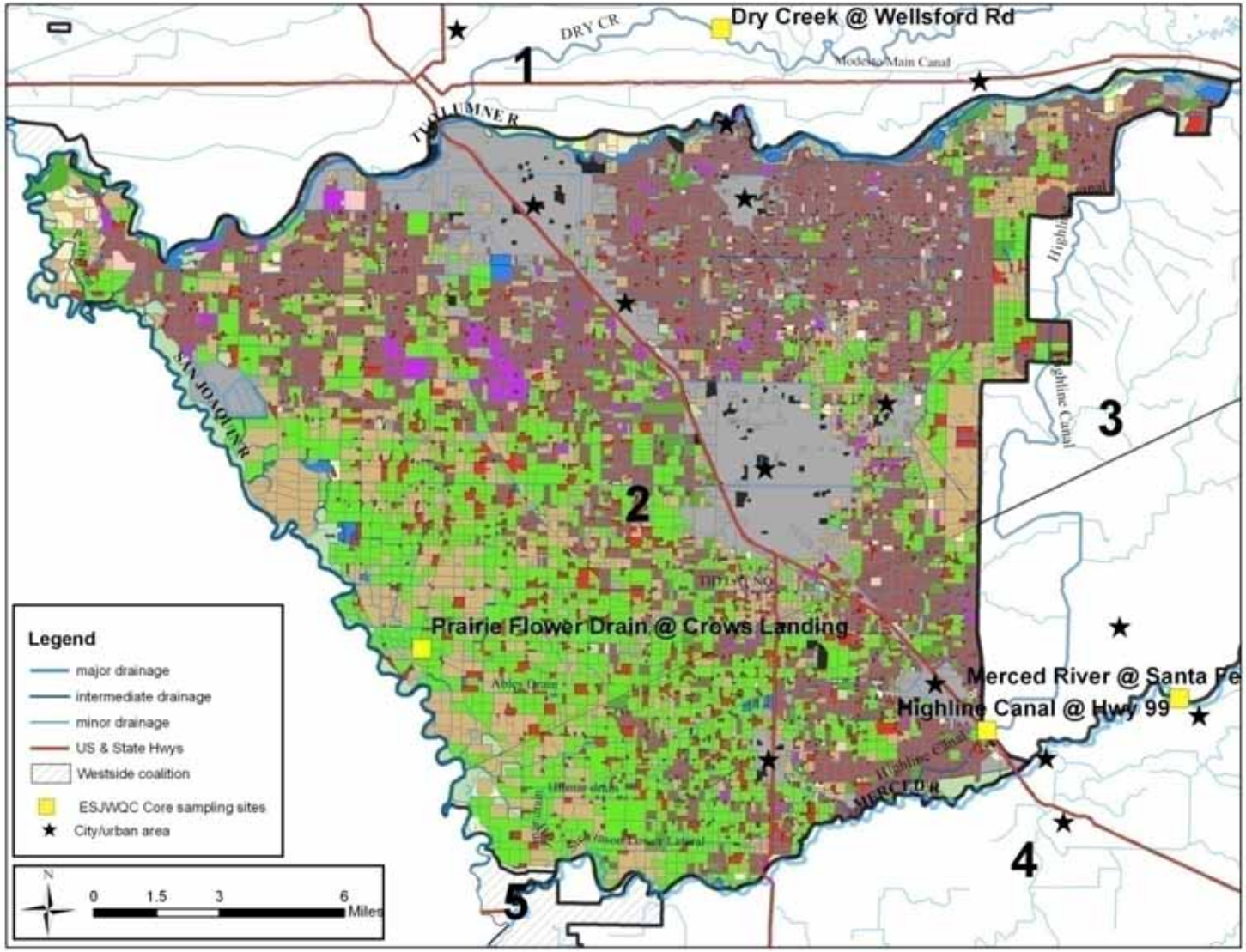
Climate and River Flows

Prairie Flower Drain @ Crows Landing Zone (Zone 2) is bordered by the San Joaquin River to the west, the Tuolumne River to the north and the Merced River to the south. The average rainfall for this zone is between 11-13 inches per season with most of this falling from November through March. The storm season usually consists of many small storms with one or two larger storm events providing the majority of the precipitation. The summers are warm and dry with less than a tenth of an inch of precipitation in June through August. The average winter temperature is 31˚-66˚F with occasional freezing possible. The summer temperature is much warmer with an average in the 90's and a few days going over 100°F and night time lows around 60˚F. The Tuolumne River flows out of Don Pedro Reservoir with highest flows occurring during the spring after major storm events in addition to snow melt in the Sierra Nevada Mountains. The water supplied to farmers in this area is primarily from the Turlock Irrigation District (TID) which obtains its water from La Grange Dam on the Tuolumne River where water is diverted to Turlock Lake and later released into the Main Canal. The Main Canal runs along the Tuolumne River then south along the city of Turlock and east into the San Joaquin River. Most of the delivery canals (laterals) within the TID convey water and do not receive agricultural runoff.

Soil Types and Land Use

Seventy-one percent of the soils within the Prairie Flower Drain @ Crows Landing Zone are sandy. Due to the large amount of sandy soils, this zone has a propensity to drain into a shallow aquifer resulting in reduced irrigated above ground run-off. During the late winter and early spring, the water table is close to the surface requiring pumping of ground water and discharge into the drains. Many surface water drains were originally constructed to intercept ground water and maintain the water table at a deeper level. This zone contains the largest percentage of acreage of dairies, 1.59%, out of all the six Coalition zones and contains approximately 2,302 operations. Field crops are more common in the sandiest soils (the southwest corner of the zone) whereas the soils higher in clay and silts (the northwest portion) have more deciduous nut and fruit orchards and a small percentage of vineyards. In relation to overall irrigated land use, this zone contains 38% deciduous fruits/nuts, 31% pasture, 23% field crops, 3% vineyards and 1% grains/hay (Table 3, Figure 5). The city of Turlock and part of the city of Modesto are located within the zone and the amount of total urban in this zone comprises 6% of the total acreage, the largest percent of urban of all the zones. The main waterways through these cities are the canals of the TID which drain urban runoff during the storm season and also treated municipal waste.

Figure 5. Land use for Prairie Flower Drain @ Crows Landing Zone (Zone 2). See Figure 10 for a land use legend.



Highline Canal @ Hwy 99 Zone (Zone 3)

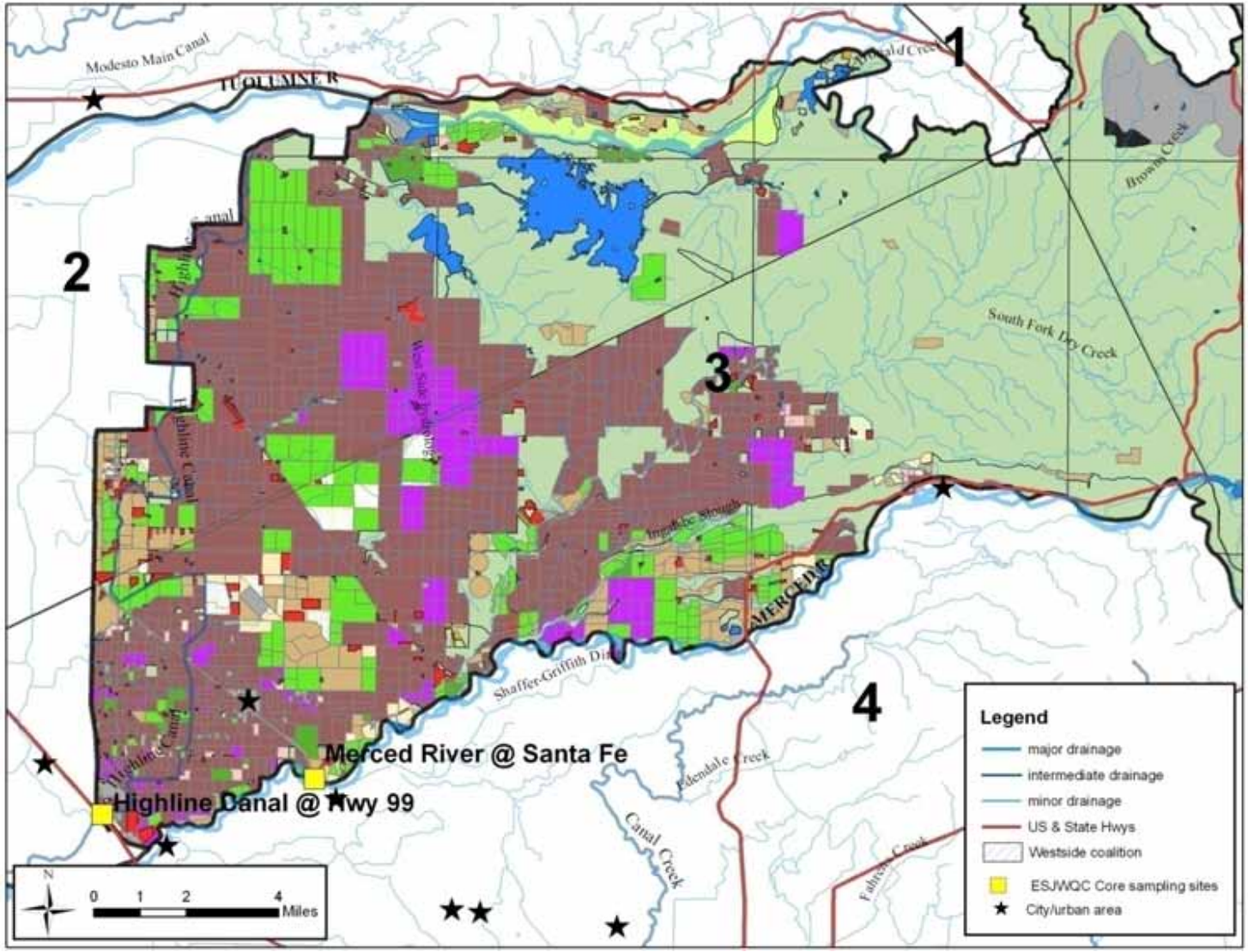
Climate and River Flows

The Highline Canal @ Hwy 99 Zone (Zone 3) is a large zone that covers from the valley floor to the high Sierra crest. This zone borders the Prairie Flower Drain @ Crows Landing Rd Zone on the east. The Merced River is the southern border and the Tuolumne River is the border to the north. The average summer temperature for the valley is around 60˚F at night and up to 100°F in the day. The winter temperatures range from 31˚-65˚F with the possibility of freezing temperatures. The average temperatures decrease with increasing elevation. The average rainfall for this zone within the valley is between 11-13 inches with a majority of the rain occurring between November and March. The higher elevations receive from 30 to over 50 inches of precipitation. The Merced River flows through Lake McClure which has inflows that varies from 2,500-15,000 cfs during large storm events. The spring runoff is greatest in months between April and June with inflows of 8,000-10,000 cfs. The highest outflows occur in months between March and June with flows around 1,000-2,000 cfs. Water supplied to growers in this region comes from groundwater or the Eastside Water District with a small portion along the eastern edge of the zone being supplied by TID.

Soil Types and Land Use

In comparison to the Prairie Flower Drain @ Crows Landing Zone, the Highline Canal @ Hwy 99 Zone is less sandy (average 62% of the area) however a majority of the soils are relatively sandy and well drained. Moving east in this zone, most of the irrigated agriculture run-off infiltrates into groundwater. A majority of the crops within this zone include deciduous nut and fruit orchards (61% of all irrigated acres) and a few large vineyards (9% of all irrigated acres). In addition, there are row/field crops (16%) and irrigated pasture (11%) and a small portion of grains/hay (2%). Dairies comprise approximately 0.2% of the zone area (Table 3, Figure 6).

Figure 6. Land use for Highline Canal @ Hwy 99 Zone (Zone 3). See Figure 10 for a land use legend.



Merced River @ Santa Fe Zone (Zone 4)

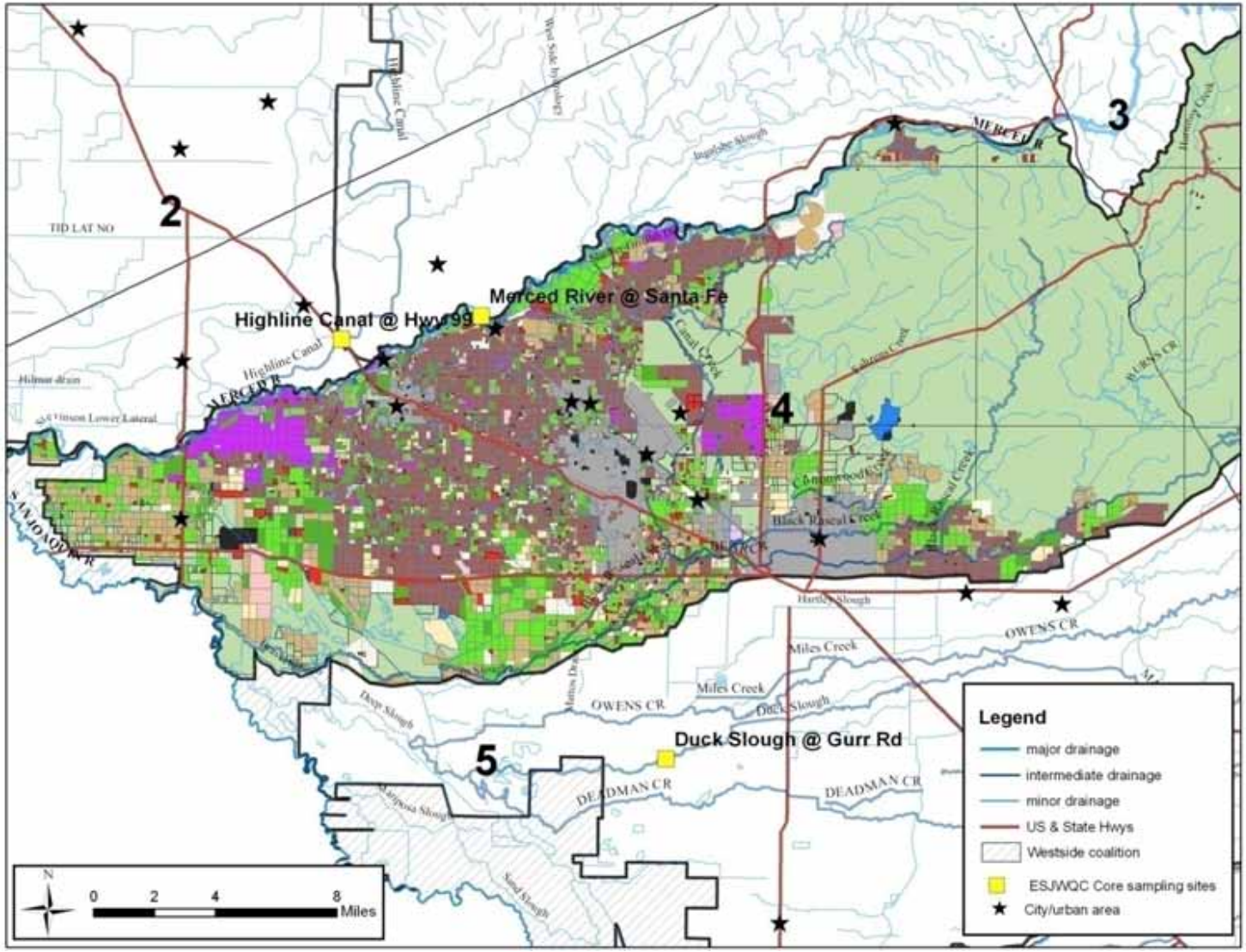
Climate and River Flows

The Merced River @ Santa Fe Zone (Zone 4) is comprised of flat valley floor with some rolling grasslands to the east. This zone is more arid than the zones to the north. Many of the small creeks in this area do not flow except when large rain events produce sufficient storm runoff during the winter. This zone is bordered by the Merced River to the north. The seasonal flows of the Merced River are described in more detail in the Highline Canal @ Hwy 99 Zone description and in general are highest during the spring as snow melt increases the amount of water in Lake McClure. The average rainfall for this area is approximately 12 inches with most of the precipitation occurring between the months of November and March. The foothills in the eastern portion of this zone receive more rainfall than the valley floor. In the 2,100 foot range the average rainfall is approximately 30 inches per season. Winter temperatures for this zone are on average between 31-65˚F with the possibility of freezing. The summers are warm with temperatures in the high 90's common.

Soil Types and Land Use

The soils of this zone are similar to the Dry Creek @ Wellsford Zone and are comprised of 59% sand, 25% silt and 16% clay. This area has less sand and more silt and clay soils than the Highline Canal @ Hwy 99 Zone that this zone borders to the north on the other side of the Merced River. The Merced River runs along the northern edge of the zone and contains irrigated deciduous fruits and nuts, vineyards and a few row crops. Overall, the largest percentage of land use within this zone is deciduous fruits and nuts comprising 38% of the total irrigated acres within the zone. The second largest percentage of irrigated land use within this zone is field crops (22%) followed by pasture (20%) then vineyards (6%) and grains/hay (4%). Merced, Atwater, and Livingston are the major cities within this zone with the total amount of urban area close to 4% (Table 3, Figure 7).

Figure 7. Land use for Merced River @ Santa Fe Zone (Zone 4). See Figure 10 for a land use legend.



Duck Slough @ Gurr Rd Zone (Zone 5)

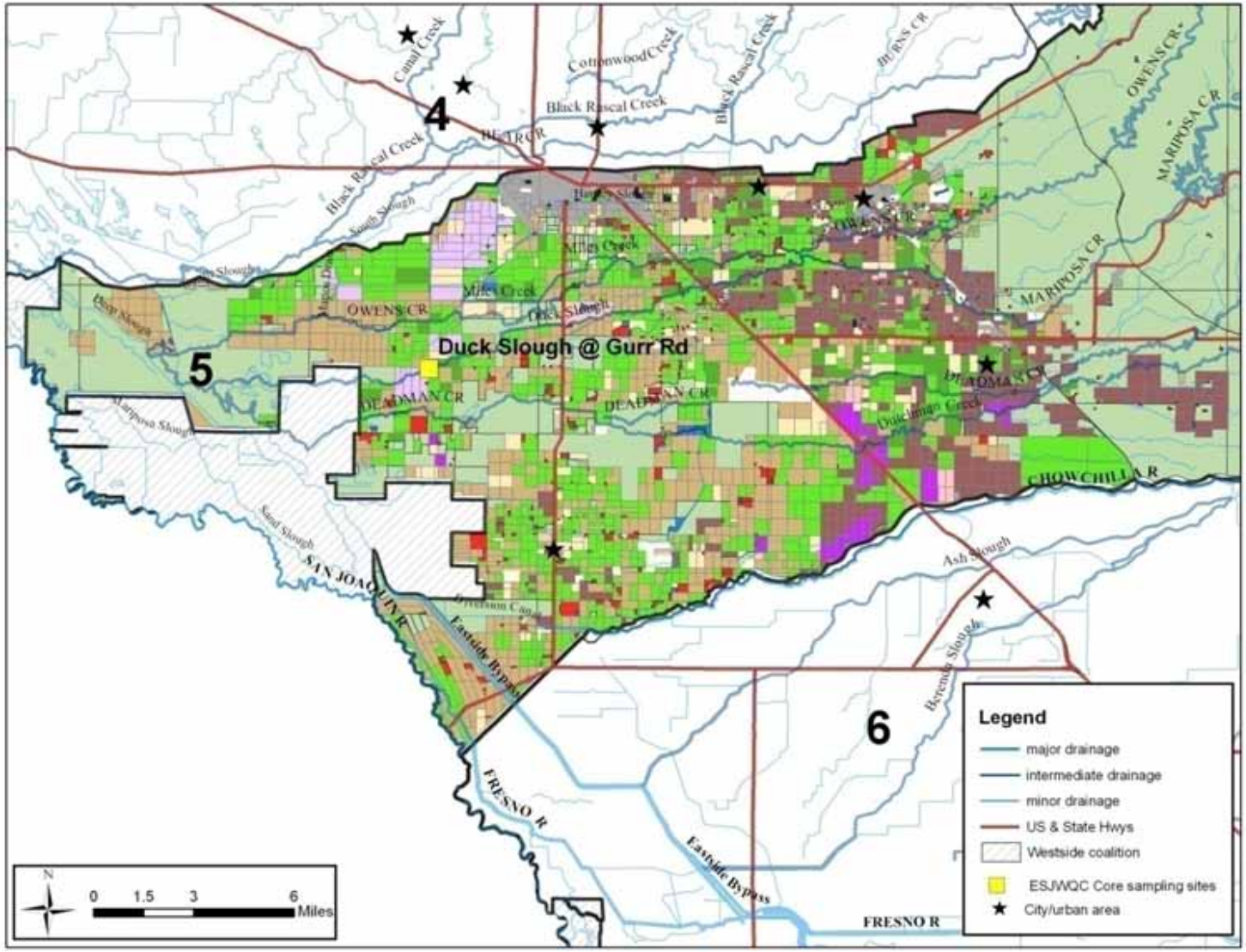
Climate and River Flows

Zone 5 is largely valley floor with the Eastern edge extending into the foothills. The valley floor around Merced receives an average rainfall of 12.5 inches annually with most falling from November through March. All rainfall may occur during one to two large storm events. The summer is warm with highs over 100˚F and a day time average in the 90's. The winter temperature is mild with highs of 65˚F and lows around 30˚F, with an average in the 50's. The Chowchilla River is on the South edge of this zone and is dry for the majority of the year. Flows are low or nonexistent for much of the year (seasonal river flow covered in zone 6 description).

Soil Types and Land Use

Soils within the Duck Slough @ Gurr Rd Zone contain almost equal portions of sandy (40%) and silty (36%) soils. On average soils are comprised of 24% clay. This irrigated agriculture in this area is mostly comprised of field crops (33%) and pasture (31%). There is a small amount of rice in the northwestern section of the zone between Owens Creek and South Slough and some vineyards towards the southern edge of the zone between the Chowchilla River and Dutchman Creek. Deciduous fruits/nuts are more prevalent closer to the foothills of this zone and overall comprise 19% of the irrigated land. There are few dairies/feedlots in this zone (460) which comprise 0.66% of the total zone area. The lower portion of Merced falls within the northern portion of this zone which also contains smaller cities such as Planada and Le Grand. Overall 2% of the total zone area is urban (Table 3, Figure 8).

Figure 8. Land use for Duck Slough @ Gurr Rd Zone (Zone 5). See Figure 10 for a land use legend.



Cottonwood Creek @ Rd 20 Zone (Zone 6)

Climate and River Flows

Zone 6 is a large zone with varying topography from the flat marsh lands to the west and the mountainous Sierras to the east. This zone is bordered by the Chowchilla River on the north and the Fresno River running through the center along with the San Joaquin River bordering the west and south. The majority of the agriculture takes place in the more temperate valley region of the zone. The average temperature in the summer in the lower elevations is 50˚F at night to 100˚F in the day. The average winter temperature has a range of 30˚F to the 60's. The majority of the rain for this area falls in the winter months between November and March with the greatest amount of precipitation in January, February, and March. The lower elevations (150') around the city of Merced receive around 12-14 inches of rainfall annually. The foothills to the East receive 26 inches annually at the 2,000 foot level. The Chowchilla River originates in the foothills with most of it water coming from rainfall. Eastman Lake is the largest reservoir in the Chowchilla River drainage and generally has little or no discharge. The large storm events in January and February are when the most inflow into this system occurs. The Fresno River in the middle of the zone flows through Lake Hensley which is the largest reservoir in the drainage. The inflow to this reservoir spikes with the large storms in January and February up to 1,000 cfs but is usually around 50-100cfs. March inflows tend to be elevated due to the release of water from reservoirs upstream. Outflows are highest in April through August at approximately 100-200 cfs with lower outflows during the rest of the year. The San Joaquin River that starts high up in the Sierras and flows all along the southern and western portions of the zone. The river flows through Millerton Lake before reaching the valley. This drainage has many smaller reservoirs higher up the San Joaquin River with most being small hydroelectric producers. The small reservoirs upstream make the inflow to Millerton Lake dependant on their outflow releases. The highest inflows to Millerton Lake are in the months of March through May with 2000-4000 cfs common and spikes of 15,000 cfs in some years. The outflows are usually around 2,000 cfs and take place around April through July, with May through July being the highest months at 1,000-8,000 cfs.

Soil Types and Land Use

The Cottonwood Creek @ Rd 20 Zone is the southernmost zone of the Coalition region and has the second sandiest soils (average of 64%) compared to the other zones. Due to the sandy soils, there is little runoff during storm and irrigation seasons and creeks in this area (such as Ash Slough) are often dry. The irrigated agriculture in the area is comprised of deciduous fruits/nuts (32%) and vineyards (31%). This area contains the largest percentage of vineyards of all the zones with a large percentage bordering the San Joaquin River to the south. There are some citrus orchards in the south east portion of the zone. Most orchards and vineyards within this zone are irrigated using drip or microspray which generate little to no runoff. Water is primarily supplied by the Madera Irrigation District and the Gravelly Ford Water District to the west. Fifteen percent of the irrigated land is used for field crops and 13% for pasture, both of which are scattered in the western portion of the zone. Dairies and feedlots are scattered across the

zone with approximately 1,725 operations (3% of total zone acreage). Madera is the largest city in this zone with the amount of urban land comprising 3% of the overall acreage (Table 3, Figure 9).

Figure 9. Land use for Cottonwood Creek @ Rd 20 Zone (Zone 6). See Figure 10 for a land use legend.

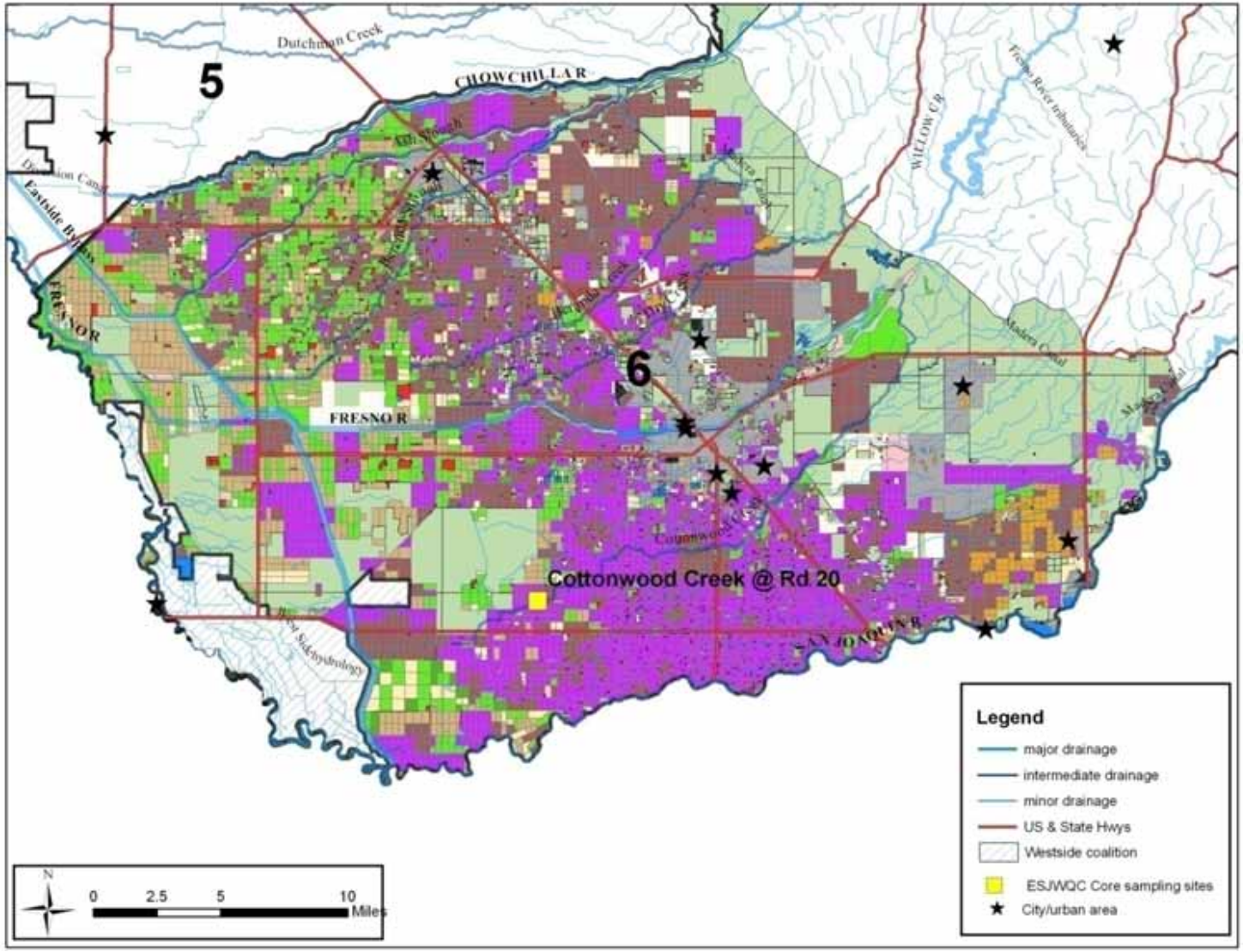


Figure 10. Land use legend for ESJWQC.

Source:
Land use survey data. CA Department of Water Resources (available for each county). Alameda (2006). Contra Costa (1995). Calaveras (2000). Alameda (2006).
US Geological Survey. 1999. California Resources Agency. Statewide coverages. Obtained from California Spatial Information Library.

Valuable Aquatic Resources

Aquatic resources for water bodies within the Coalition area have been defined in part as those assigned as beneficial uses (BU) by the CVRWQCB. Using the tributary rule, BUs can be applied to upstream tributaries based on the currently assigned BU (Table 4) in downstream water bodies. Important aquatic resources exist in the Coalition area, including cold water and warm water stream aquatic habitat, wetlands and fisheries resources.

Wetlands are an important aquatic resource within the Coalition area. These habitats are associated with riparian areas along many of the water bodies in the region (particularly in the Sandy Mush country area of southern Merced County) and savannah step region of the lower Sierra Foothills. Vernal pools are isolated catchments and are found heterogeneously distributed across the Coalition in upland areas. They receive winter rains and require an aquitard to maintain their characteristic pools into the spring. These wetlands maintain a unique flora and fauna and are protected by regulations specified in the Clean Water Act and the Endangered Species Act. Generally, vernal pools and irrigated agriculture are not found together, although there are exceptions.

Several fisheries are considered important in the Coalition region. Steelhead trout (*Oncorhynchus mykiss*) were common in the region prior to the construction of dams on all of the major tributaries of the San Joaquin River. Once the dams were built, historic spawning grounds were eliminated and with them, most of the wild salmonids in the San Joaquin Valley. Currently, no permanent steelhead stocks exist in the drainages of the San Joaquin Valley despite occasional reports of fish in the Tuolumne and Merced Rivers. The California Department of Fish and Game considers the Tuolumne River to have suitable habitat to support a steelhead run if one could become established.

Chinook salmon (*Oncorhynchus tshawytscha*) are present in the San Joaquin system and are found in all major tributaries in the region. All of the major tributaries are considered to be impaired for salmonid spawning and/or migration habitat as is the main stem of the San Joaquin River (Table II-1 of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basin; the Basin Plan).

Beneficial Uses

The CVRWQCB has assigned beneficial uses (BU) to water bodies within the Coalition region, but many water bodies monitored by the Coalition do not have assigned BUs. Using the tributary rule, the Coalition applied BUs for upstream tributaries based on those assigned to downstream water bodies as listed in the Basin Plan (Table 4). Water Quality Trigger Limits (WQTLs) are based on the BUs applied to the specific water body. Figure 11 is a map of the Coalition area with each water body color coded based on the assigned BU.

Table 4. Primary water bodies that drain directly into the major rivers of the ESJWQC region and the beneficial use for each of the major rivers. Sites are sorted alphabetically by name.

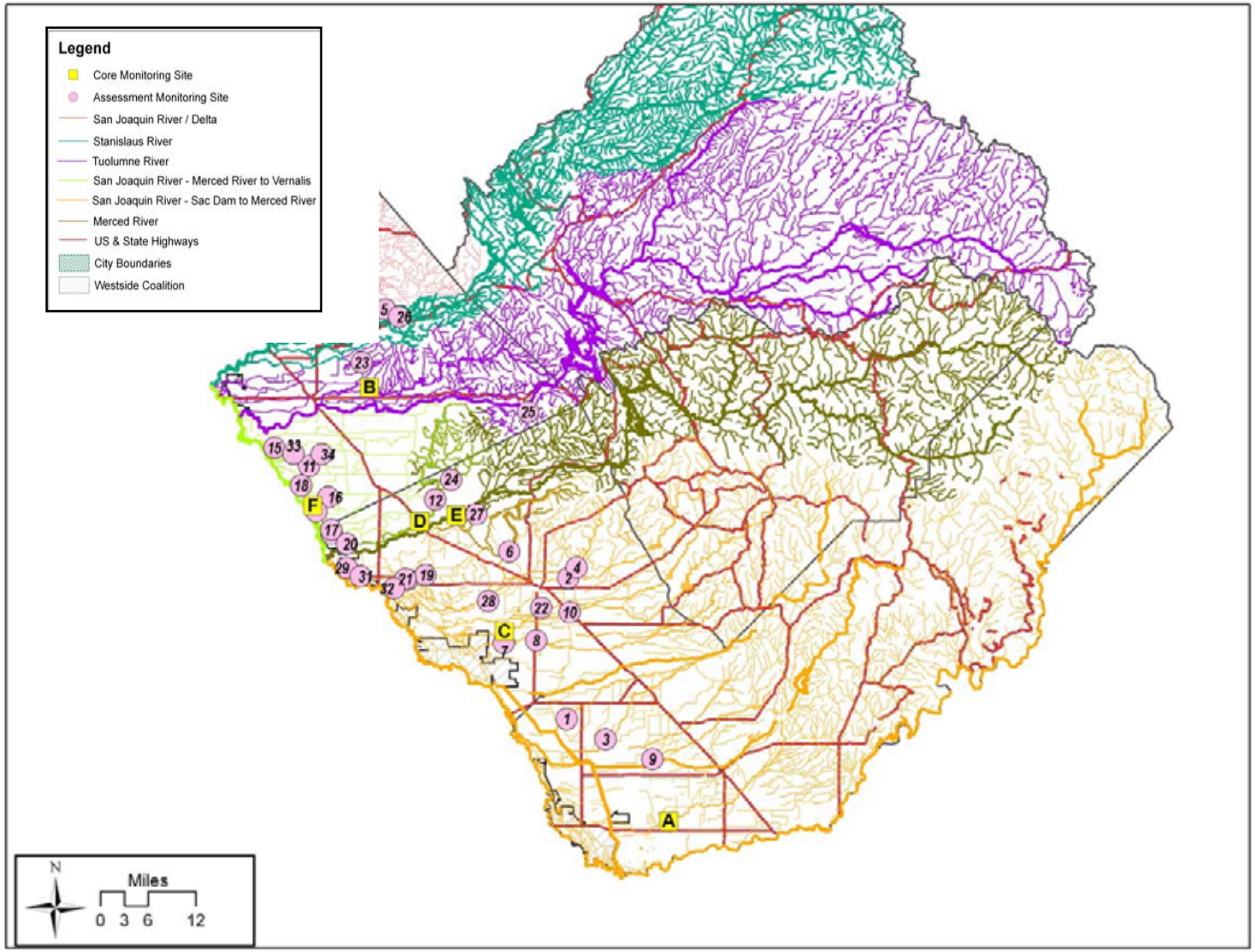
ID	Site Subwatershed (site name)	Immediate Downstream River	Beneficial Use of Immediate Downstream River
1	Ash Slough @ Avenue 21**	San Joaquin River[2]	1-4, 7-9, 11-15
2	Bear Creek @ Kibby Rd**	San Joaquin River[2]	1-4, 7-9, 11-15
3	Berenda Slough along Avenue 18 ½	San Joaquin River[2]	1-4, 7-9, 11-15
4	Black Rascal Creek @ Yosemite Rd	San Joaquin River[2]	1-4, 7-9, 11-15
5	Burnett Lateral @ 28 Mile Rd	Sacramento San Joaquin Delta[6]	1-5, 7-13, 15, 16
5	Burnett Lateral @ 28 Mile Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
6	Canal Creek @ West Bellevue Rd	San Joaquin River[2]	1-4, 7-9, 11-15
A	Cottonwood Creek @ Rd 20	San Joaquin River[2]	1-4, 7-9, 11-15
7	Deadman Creek @ Gurr Rd	San Joaquin River[2]	1-4, 7-9, 11-15
7	Deadman Creek @ Gurr Rd	San Joaquin River[2]	1-4, 7-9, 11-15
8	Deadman Creek @ Hwy 59	San Joaquin River[2]	1-4, 7-9, 11-15
8	Deadman Creek @ Hwy 59	San Joaquin River[2]	1-4, 7-9, 11-15
9	Dry Creek @ Rd 18**	San Joaquin River[2]	1-4, 7-9, 11-15
B	Dry Creek @ Wellsford Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
C	Duck Slough @ Gurr Rd	San Joaquin River[2]	1-4, 7-9, 11-15
10	Duck Slough @ Hwy 99	San Joaquin River[2]	1-4, 7-9, 11-15
11	Hatch Drain @ Tuolumne Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
D	Highline Canal @ Hwy 99	Merced River[5]	1, 3-15
D	Highline Canal @ Hwy 99	San Joaquin River[3]	1-4, 7-9, 11-13, 15
12	Highline Canal @ Lombardy Rd	Merced River[5]	1, 3-15
12	Highline Canal @ Lombardy Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
13	Hilmar Drain @ Central Ave	San Joaquin River[3]	1-4, 7-9, 11-13, 15
14	Howard Lateral @ Hwy 140	San Joaquin River[2]	1-4, 7-9, 11-15
15	Lateral 2 1/2 near Keyes Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
16	Lateral 5 1/2 @ South Blaker Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
17	Lateral 6 and 7 @ Central Ave	San Joaquin River[3]	1-4, 7-9, 11-13, 15
18	Levee Drain @ Carpenter Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
19	Livingston Drain @ Robin Ave	San Joaquin River[2]	1-4, 7-9, 11-15
20	Lower Stevinson @ Faith Home Rd	Merced River[5]	1, 3-15
21	McCoy Lateral @ Hwy 140	San Joaquin River[2]	1-4, 7-9, 11-15
E	Merced River @ Santa Fe	Merced River[5]	1, 3-15
22	Miles Creek @ Reilly Rd	San Joaquin River[2]	1-4, 7-9, 11-15
23	Mootz Drain @ Langworth Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
24	Mustang Creek @ East Ave	Merced River[5]	1, 3-15
24	Mustang Creek @ East Ave	San Joaquin River[3]	1-4, 7-9, 11-13, 15
25	Peaslee Creek @ Lake Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
F	Prairie Flower Drain @ Crows Landing Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
26	Rodden Creek @ Rodden Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
27	Silva Drain @ Meadow Dr	Merced River[5]	1, 3-15

ID	Site Subwatershed (site name)	Immediate Downstream River	Beneficial Use of Immediate Downstream River
28	South Slough @ Quinley Rd	San Joaquin River[2]	1-4, 7-9, 11-15
29	Unnamed Drain @ Cemetary Rd	San Joaquin River[2]	1-4, 7-9, 11-15
30	Unnamed Drain @ Hogin Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15
31	Unnamed Drain @ Hwy 140	San Joaquin River[2]	1-4, 7-9, 11-15
32	Unnamed Drain near Bear Creek @ West Bose Rd	San Joaquin River[2]	1-4, 7-9, 11-15
33	Westport Drain @ Vivian Ave	San Joaquin River[3]	1-4, 7-9, 11-13, 15
34	Yori Grove Drain @ East Taylor Rd	San Joaquin River[3]	1-4, 7-9, 11-13, 15

[1] Friant Dam to Mendota Pool reach
[2] Sack Dam to Merced River reach (all waterbodies that drain to this reach enter via the East Side Bypass with the exception of Livingston Drain)
[3] Mouth of Merced River to Vernalis
[4] New Don Pedro Reservoir to San Joaquin River reach
[5] McSwain Reservoir to San Joaquin River reach
[6] "Beneficial uses vary throughout the Delta and will be evaluated on a case-by-case basis" (wording from the Basin Plan).
[7] Goodwin Dam to San Joaquin River
** Surface water flow in these water bodies terminates in subterranean flow except for periods of increased runoff during large winter storms
* Beneficial Use code list:

1 - Municipal and Domestic Supply
2 - Agriculture Supply (irrigation)
3 - Agriculture Supply (stock watering)
4 - Industrial Process Supply
5 - Industrial Service Supply
6 - Hydropower Generation
7 - Water Contact Recreation
8 - Non-contact Water Recreation
9 - Warm Freshwater Habitat
10 - Cold Freshwater Habitat
11 - Migration of Aquatic Organisms (warm)
12 - Migration of Aquatic Organisms (cold)
13 - Spawning, Reproduction, and/or Early Development (warm)
14 - Spawning, Reproduction, and/or Early Development (cold)
15 - Wildlife Habitat

Figure 11. Beneficial use designation of water bodies within the Coalition area. Due to the size of the map, site ID 13 coincides with site ID 17 and site ID 14 coincides with site ID 21. Site ID information is included in Table 4 and 5.



MONITORING STRATEGY

Coalition ambient water and sediment quality monitoring for agricultural discharge will occur with three types of monitoring: Core Monitoring Assessment Monitoring and Management Plan Monitoring. Combined, these three levels of monitoring are designed to characterize the discharge from irrigated agriculture as a result of irrigation and storm water runoff. Core Monitoring will occur at sites that have undergone intensive monitoring in the past to assess general water quality trends over time. Assessment Monitoring will occur at sites that have not been well characterized by previous monitoring. Samples collected from Assessment Monitoring locations will be analyzed for a large suite of constituents to adequately characterize water quality at those sites. This monitoring strategy allows for comprehensive monitoring in the short term and general trend monitoring over successive years.

The Coalition area has been divided into six zones based on hydrology, crop types, land use, soil types, and rain fall. For a description of each zone in regards to land use, hydrology, precipitation, soil types and crop patterns refer to the Description of Coalition Area section of this MRPP. The zone names are based on the core monitoring location within that area and include: 1) Dry Creek @ Wellsford Zone, 2) Prairie Flower Drain @ Crows Landing Zone, 3) Highline Canal @ Hwy 99 Zone, 4) Merced River @ Santa Fe Zone, 5) Duck Slough @ Gurr Rd Zone, and 6) Cottonwood Creek @ Rd 20 Zone. Each zone contains one Core Monitoring location and one Assessment Monitoring location that will rotate every two years.

Core Monitoring

Core Monitoring sites have been selected from water bodies that have a history of monitoring and are suitable to track water and sediment quality trends over extended periods of time. A list of criteria used to select these sites is provided below. Core sites will undergo Assessment Monitoring every three years in order to evaluate the effects of changes in land-use and management practices and provide information about long-term trends and effectiveness of the management practices. Management plan monitoring may also occur at Core sites. Core Monitoring is not limited to largest volume water bodies, but includes a diversity of water body size and flows. Data generated from the Core Monitoring sites will be used to establish trend information about the effectiveness of the Coalition's efforts to reduce or eliminate the impact of irrigated agriculture on surface waters.

Core Monitoring Sites Selection Criteria:

1. Core sites have been monitored for at least three years with at least one year of monitoring for all constituents of concern.
2. Core Monitoring locations include small, intermediate and large site subwatersheds.
3. Core Monitoring locations include site subwatersheds dominated by field crops and by orchards.

4. Core Monitoring locations include areas with low flow (irrigation ditches that have flow only when pumps are on), medium flow (increases with irrigation or large storm events), and high flows (natural rivers).

Assessment Monitoring

Assessment Monitoring will focus on a diversity of monitoring sites that are representative of individual zones. Assessment Monitoring sites were selected based on the sizes and flows of surface water bodies and land uses (e.g., agricultural activities, crops and pesticide use), and include water bodies that carry agricultural drainage into natural water bodies, both directly and indirectly. Sites with known water quality impairments (such as, but not limited to those in the Clean Water Act 303(d) listing) and sites undergoing compliance monitoring for TMDLs will also be included in this monitoring. Assessment Monitoring sites are selected in order to adequately characterize water quality for all waters of the State within the Coalition region. In conjunction with Core Monitoring for trends and Special Projects focused on specific problems, Assessment Monitoring will demonstrate the effectiveness of management practices and identify locations for implementation of new management practices, as needed.

To allow the Coalition to monitor a large number of waterbodies across the six zones, the Assessment Monitoring sites will be rotated every two years. Each zone will contain one Assessment Monitoring site which will represent a specific subwatershed including the crop type, land use and hydrology specific to that subwatershed. If an Assessment Monitoring site exhibits more than one water quality exceedance for the same constituent within the two years of monitoring, it will become part of the ESJWQC Management Plan monitoring which requires additional monitoring beyond the initial two years. For site subwatersheds that are currently under a management plan, the Coalition will continue to monitor at that location for the constituents within the management plan for which it is listed.

Special Project Monitoring

Special project monitoring will occur for the purpose of constituent-specific monitoring or targeted source identification studies as needed. This supplementary monitoring may include, but is not limited to, specific targeted studies to source exceedances or monitoring to provide information about conditions of a water body that predate agricultural inputs that occurred prior to the formation of the Coalition. Pre-existing conditions may include legacy pesticides and metals use by agriculture in the past and which bind to sediments and settled into the bed of the water body. These compounds can result in current water contamination when sediment is mobilized into the water column. Additionally, there are natural background levels of salts and metals in the subwatershed that occur as a result of weathering of local soils. Special Project Monitoring is considered supplemental to the MRPP's requirements and will occur in specific site subwatersheds based on the actions described in the Coalition's Management Plan.

The ESJWQC Management Plan includes a schedule for Management Plan monitoring based on the previous year's monitoring results. Each April, the Management Plan will be updated with new sites and/or constituents that will be included in that year's Management Plan process of sourcing, outreach and education. The ESJWQC Management Plan includes the following eight requirements of the MRP and will be update yearly:

1. Identification of irrigated agriculture source.
2. Identification of management practices implemented to address exceedances.
3. Management practice implementation schedule.
4. Management practice performance goals with a schedule.
5. Waste-specific monitoring schedule.
6. A process and schedule for evaluating management practice effectiveness.
7. Identification of the participants and Coalition Group(s) that will implement the Management Plan.
8. An identified routine schedule of reporting to the Regional Water Board.

MONITORING SITES

Site Names and Locations

The ESJWQC monitoring program includes monitoring at 36 (six in 2008-09) Assessment Monitoring sites (Table 5) and six Core Monitoring sites (Table 6). Core Monitoring sites will assess trends of water quality within each zone and will undergo Assessment Monitoring every third year. Assessment Monitoring sites will rotate to new locations every two years to assess water quality across each zone ensuring that all subwatersheds are being fully characterized by the Coalition over time. Specific criteria used to select monitoring sites are provided in the previous section. In general, to facilitate source identification sites are prioritized according to the size of the water body (intermediate sized water bodies are generally higher priority, although the Coalition attempted to select sites in all water body sizes) and the area of irrigated land in the site subwatershed. Because many of the intermediate water bodies are located in Merced County, some proposed sampling sites are located in smaller water bodies in order to ensure complete coverage across the Coalition region. Alternatively, Coalition counties that have very limited irrigated agriculture may have no sampling sites. In Calaveras, Tuolumne and Mariposa Counties, a very small portion of land is used for agriculture and the agriculture that does occur almost entirely consists of vineyards and orchards on drip or microspray irrigation, or dry-farmed with no irrigation. As such, these areas of the Coalition region are not considered a priority and tentative sites have not been selected in these counties. Sites were selected based on quantity and type of irrigated land and not on representation by county. In some instances the proposed sampling locations are a significant distance upstream of the confluence of the intermediate-sized water body with the San Joaquin River. In these instances, the location of the proposed sample site is established in the most downstream position where agriculture is the predominant land use. Some water bodies cannot be sampled due to inaccessibility or safety concerns to the samplers.

Table 5. ESJWQC sampling locations for Assessment Monitoring. Two Assessment Monitoring locations will be monitored within each zone and will rotate every two years. Sites are sorted by zone number and site name.

ID	Zone	Monitoring Type	Site Name	Station Code	Latitude	Longitude
5	1	Assessment	Burnett Lateral @ 28 Mile Rd	535BLATMR	37.80343	-120.83992
23	1	Assessment	Mootz Drain @ Langworth Rd	535XMDALR	37.70582	-120.89303
26	1	Assessment	Rodden Creek @ Rodden Rd	535XRCARD	37.79042	-120.80790
11	2	Assessment	Hatch Drain @ Tuolumne Rd	535XHDATR	37.51490	-121.01220
13	2	Assessment	Hilmar Drain @ Central Ave	535XHDACA	37.39060	-120.95820
15	2	Assessment	Lateral 2 1/2 near Keyes Rd	535LTHNKR	37.54780	-121.09274
16	2	Assessment	Lateral 5 1/2 @ South Blaker Rd	535LFHASB	37.45823	-120.96726
17	2	Assessment	Lateral 6 and 7 @ Central Ave	535LSSACA	37.39779	-120.95971
18	2	Assessment	Levee Drain @ Carpenter Rd	535XLDACR	37.47903	-121.03012
20	2	Assessment	Lower Stevinson @ Faith Home Rd	535LSAFHR	37.37238	-120.92318
30	2	Assessment	Unnamed Drain @ Hogin Rd	535XUDAHR	37.43129	-120.99380
33	2	Assessment	Westport Drain @ Vivian Rd	535XWDAVR	37.53680	-121.04860
34	2	Assessment	Yori Grove Drain @ East Taylor Rd	535YGDETR	37.53690	-120.98346
12	3	Assessment	Highline Canal @ Lombardy Ave	535XHCHNN	37.45560	-120.72070
24	3	Assessment	Mustang Creek @ East Ave	535XMCAEA	37.49180	-120.68390
25	3	Assessment	Peaslee Creek @ Lake Rd	535XPCALR	37.61769	-120.50733
2	4	Assessment	Bear Creek @ Kibby Rd	535XBCAKR	37.31280	-120.41380
4	4	Assessment	Black Rascal Creek @ Yosemite Rd	535BRCAYR	37.33210	-120.39470
6	4	Assessment	Canal Creek @ West Bellevue Rd	535CCAWBR	37.36075	-120.54941
14	4	Assessment	Howard Lateral @ Hwy 140	535XHLAHO	37.30790	-120.78200
19	4	Assessment	Livingston Drain @ Robin Ave	535XLDARA	37.31690	-120.74230
21	4	Assessment	McCoy Lateral @ Hwy 140	535XMLAHO	37.30945	-120.78759
27	4	Assessment	Silva Drain @ Meadow Dr	535XSDAMD	37.42910	-120.62610
28	4	Assessment	South Slough @ Quinley Rd	535XSSAQR	37.26990	-120.59710
29	4	Assessment	Unnamed Drain @ Cemetary Rd	535XUDACR	37.32835	-120.92290
31	4	Assessment	Unnamed Drain @ Hwy 140	535XUDAHO	37.31370	-120.89110
32	4	Assessment	Unnamed Drain near Bear Creek @ West Bose Rd	535UNDAWB	37.29159	-120.81410
7	5	Assessment	Deadman Creek @ Gurr Rd	535XDCAGR	37.19360	-120.56120
8	5	Assessment	Deadman Creek @ Hwy 59	535DMCAHF	37.19810	-120.48690
10	5	Assessment	Duck Slough @ Hwy 99	535XDSAHN	37.25010	-120.41000
22	5	Assessment	Miles Creek @ Reilly Rd	535XMCARR	37.25820	-120.47550
1	6	Assessment	Ash Slough @ Ave 21	545XASAAT	37.05450	-120.41580
3	6	Assessment	Berenda Slough along Ave 18 1/2	545XBSAAE	37.01820	-120.32650
9	6	Assessment	Dry Creek @ Rd 18	545XDCARE	36.98180	-120.21950

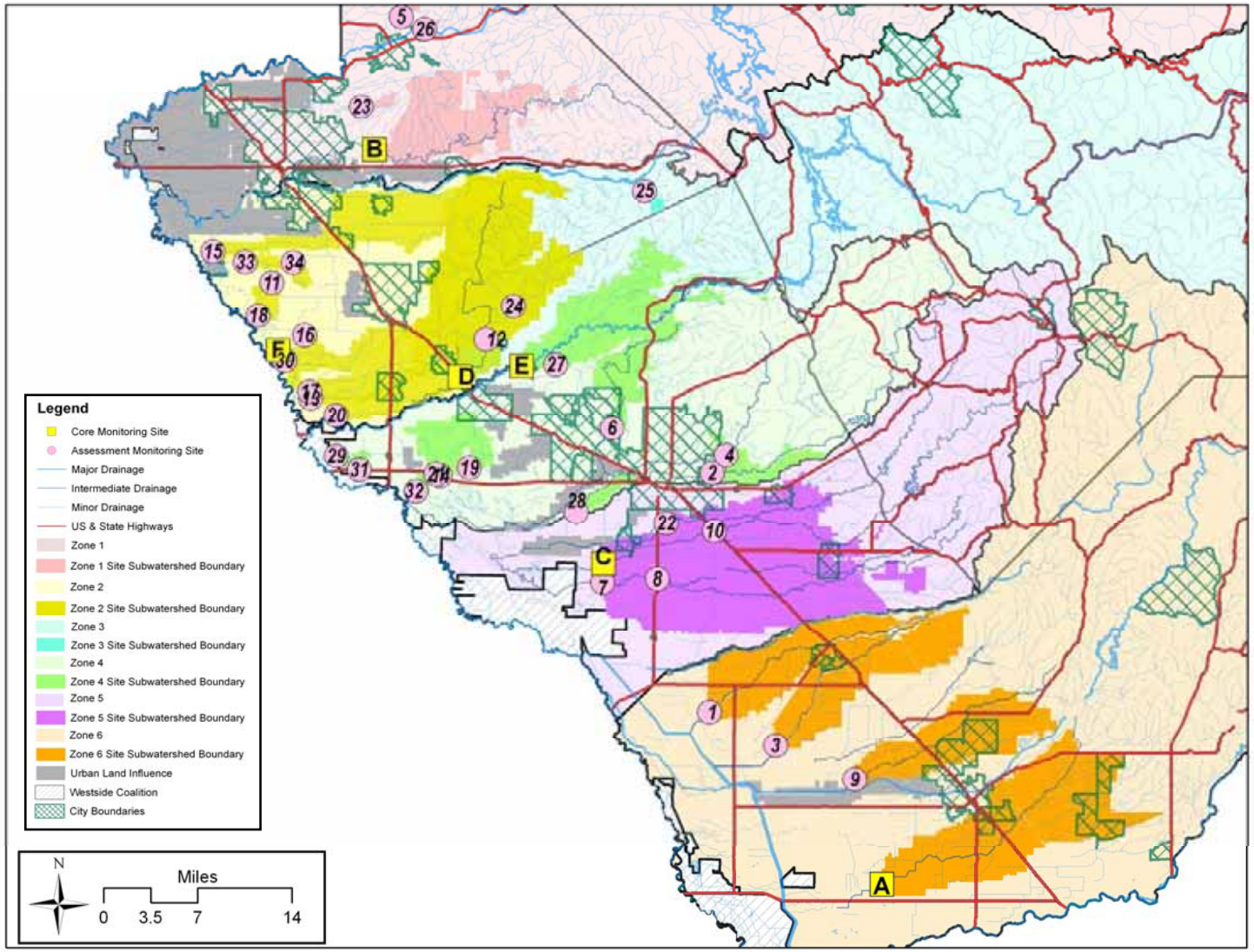
Table 6. ESJWQC sampling locations for Core Monitoring (sorted by zone number).

ID	Zone	Site Name	Station Code	Latitude	Longitude
B	1	Dry Creek @ Wellsford Rd	535XDCAWR	37.6602	-120.8743
F	2	Prairie Flower Drain @ Crows Landing Rd	535XPFDCL	37.4422	-121.0024
D	3	Highline Canal @ Hwy 99	535XHCHNN	37.4153	-120.7557
E	4	Merced River @ Santa Fe	535XMRSFD	37.4271	-120.6721
C	5	Duck Slough @ Gurr Rd	535XDSAGR	37.2142	-120.5596
A	6	Cottonwood Creek @ Rd 20	545XCCART	36.8686	-120.1818

Site Subwatershed Descriptions and Coalition Area Maps

The Coalition area has been divided into site subwatersheds that are monitored either through Assessment or Core Monitoring. Water quality monitoring within the Coalition area will rotate within a zone among the Assessment Monitoring locations to eventually characterize all agricultural discharge. Figure 12 shows all Assessment and Core Monitoring locations. There are some areas of the Coalition region that do not have agricultural discharge, are dominated by urban land uses, or cannot be sampled due to logistic problems (e.g., lack of sampling locations, private property access). Water bodies in these locations are being represented by another site subwatershed within the zone. Land uses for the site subwatersheds are provided in Table 7.

Figure 12. Site subwatershed size designation for all subwatersheds in the Coalition region (based on irrigation flows).
Due to the size of the map and proximity of sampling locations, site IDs 17 and 13 overlap as do 21 and 14. Site ID information is included in Table 5.



Descriptions of the 34 site subwatersheds are provided alphabetically. Maps for each site subwatershed are included in Attachment I.

Ash Slough @ Ave 21 (27,704 irrigated acres) – Agriculture upstream includes vineyards, field crops, and deciduous nuts. Ash Slough flows just north of Chowchilla but there appears to be a buffer of agricultural land between Ash Slough and Chowchilla. Dairies are located upstream.

Bear Creek @ Kibby Rd (6,740 irrigated acres) – This site subwatershed drains an eastern portion of the Coalition region in Merced County. Bear Creek originates in the foothills of the Sierras with Burn's Creek as one of the major tributaries. Bear Creek drains to the east just north of the towns of Planada, through Merced and eventually to the San Joaquin River. The primary irrigated agriculture in the site subwatershed includes deciduous nuts, field crops, truck crops, and irrigated pasture.

Berenda Slough along Road 18 ½ (25,006 irrigated acres) – Berenda Slough flows through the northern portion of Madera County and empties into the Eastside Bypass when flows are sufficient. Often there is low flow which disappears prior to the confluence of Berenda Slough and the Bypass. The primary agriculture is orchards and vineyards with small amounts of pasture and field crops.

Black Rascal Creek @ Yosemite Road (535 irrigated acres) – The headwaters of Black Rascal Creek are in the Sierra foothills. It is located just to the north of the Bear Creek site subwatershed and to the east of the city of Merced. Citrus and field crops make up the majority of the agriculture in the site subwatershed.

Burnett Lateral @ 28 Mile Rd (1,163 irrigated acres) – This site is located just north of the Stanislaus River, along the northern border of the Coalition region. Burnett Lateral drains a small site subwatershed to the north and can flow either into the Stanislaus River to the south or through a series of canals to the west and eventually into the San Joaquin River. Agricultural lands are composed of deciduous fruits and nuts, pastures and dairies.

Canal Creek @ West Bellevue Rd (4,241 irrigated acres) – The creek is fed by the Main Canal off of the Merced River, which diverges from the river in the Sierra Nevada foothills only a few miles below Lake McClure. Canal Creek runs west, predominantly along wild vegetation then south along a section of irrigated agricultural land before reaching the sampling site just east of the city of Atwater.

Cottonwood Creek @ Road 20 (40,699 irrigated acres) – This site subwatershed is at the very southern edge of the Coalition region in Madera County and drains into the Eastside Bypass. The immediate upstream agriculture is vineyards and there are deciduous nuts farther to the east. There are only a few dairies in the Cottonwood Creek site subwatershed.

Deadman Creek @ Gurr Rd (48,056 irrigated acres) - This site subwatershed is a downstream site from Deadman Creek @ Hwy 59. The primary agriculture in the site subwatershed is orchards and row crops with some irrigated pasture upstream.

Deadman Creek @ Highway 59 (38,230 irrigated acres) – Deadman Creek flows out of the Sierra foothills and confluences with Dutchman's Creek in the vicinity of Highway 59. The primary agriculture in the site subwatershed is orchards and row crops with some irrigated pasture upstream.

Dry Creek @ Road 18 (23,086 irrigated acres) – Dry Creek originates in the Sierra foothills and flows to the north of the city of Madera eventually drains into the San Joaquin River through various channels and irrigation ditches. Deciduous crops are the primary irrigated agriculture in the upper portion of the site subwatershed whereas vineyards predominate in the lower portions. There are field crops scattered throughout the site subwatershed.

Dry Creek @ Wellsford Road (23,115 irrigated acres) – This site subwatershed is in the northern part of the Coalition region and drains a combination of field crops, deciduous nuts, and vineyards. Dry Creek originates to the east of Modesto and drains into the Tuolumne River. This site subwatershed samples Dry Creek at the furthest downstream location that collects agricultural drainage prior to flowing through the urban areas of Modesto. Dairies are located upstream of this site and the town of Waterford may contribute an urban signal.

Duck Slough @ Gurr Road (28,636 irrigated acres) – This site subwatershed is a monitoring location downstream from Duck Slough @ Hwy 99. Located to the south and west of Merced, this site drains field crops immediately upstream and deciduous nuts further upstream as well as some irrigated pasture. The city of Merced delivers treated water to Duck Slough a few miles upstream of the Gurr Road site. Duck Slough flows west eventually becoming Deadman Creek in the western portion of the Coalition region. The slough eventually flows into the San Joaquin River via Deadman Creek and Deep Slough.

Duck Slough @ Hwy 99 (15,622 irrigated acres) – This site subwatershed is located upstream of the Duck Slough @ Gurr Road site and was selected to determine relative contribution of water quality impairments in the upstream portion of the Duck Slough subwatershed. Duck Slough originates in the Sierra foothills and flows west eventually joining with Deadman Creek in the western portion of the coalition region. The monitoring site is located just east of Highway 99 south of Planada and Merced. Irrigated agriculture in this site subwatershed is primarily deciduous nuts, with truck crops and irrigated pasture the next most common land uses.

Hatch Drain @ Tuolumne Rd (259 irrigated acres) – This small site subwatershed is located in the western portion of the Coalition region in Stanislaus County. The two major crops are citrus and field crops.

Highline Canal @ Highway 99 (35,220 irrigated acres) – The Highline Canal is a conveyance of the Turlock Irrigation District and carries both clean irrigation water and irrigation return flow during the summer, and storm water runoff during the winter. This site was selected as a downstream companion site to the Highline Canal @ Lombardy Road site. This site subwatershed is monitored to determine the relative contribution of the upstream and downstream site subwatersheds to water quality impairments. The sampling site is located just south of Delhi as the canal crosses the highway. The irrigated agriculture is primarily deciduous nuts, and these are located at the lower end of the site subwatershed. A small number of vineyards are also present.

Highline Canal @ Lombardy Road (30,154 irrigated acres) – The Highline Canal is a conveyance of the Turlock Irrigation District and carries both clean irrigation water and irrigation return flow during the summer, and storm water runoff during the winter. The main upstream tributary of the Highline Canal is Mustang Creek. The Highline Canal flows west and eventually drains into the Merced River. Dairies are present upstream and Mustang Creek, a major tributary during the dormant season, passes immediately to the southeast of the Turlock Airport. The main agricultural crop upstream is deciduous nuts.

Hilmar Drain @ Central Ave (2,718 irrigated acres) – This site subwatershed is located toward the western edge of the Coalition region near the San Joaquin River. This is a small site subwatershed containing primarily field crops and a large number of dairies with irrigated pasture. Hilmar Drain originates at Williams Ave and Washington Road and eventually drains into the San Joaquin River.

Howard Lateral @ Hwy 140 (3,876 irrigated acres) – The lateral is located just south and west of Livingston Drain, in the central portion of the Coalition region in Merced County. Agricultural land use is predominantly truck/nursery/berry crops and deciduous fruit, but also includes field crops, pasture, grains/hay, vineyard and dairy.

Lateral 2 1/2 near Keyes Rd (32,740 Irrigated acres) – This site subwatershed is located in the western portion of the Coalition region just south of the Tuolumne River and East of the San Joaquin River. The site subwatershed extends east past the City of Modesto to Turlock Lake. The primary agriculture in this site subwatershed is deciduous fruits and nuts but also includes almost all other crops types and land use found in the Coalition Region.

Lateral 5 1/2 @ South Blaker Rd (44,758 irrigated acres, 22,244 acres during storm runoff) – This site is located east of the San Joaquin River and west of the City of Turlock. The site subwatershed extends to the north and east, reaching the Tuolumne River to the north. During irrigation season the area that drains to this location extends east of Turlock, but during the storm season, the water drains to the Highline Canal. Agriculture in the site subwatershed is varied and includes all crop types and land uses found in the Coalition Region.

Lateral 6 and 7 @ Central Ave (71,798 irrigated acres, 29,306 acres during storm runoff) – This site is located on the northern border of Merced County, just to the east of the San Joaquin River. The site subwatershed extends to the north and east past the City of Turlock and Delhi, reaching the Tuolumne River to the north. Agriculture in the site subwatershed is varied and includes all crop types and land uses found in the Coalition Region.

Levee Drain @ Carpenter Rd (2,500 irrigated acres) – Levee Drain is located just south of Hatch Drain, in the western portion of the Coalition Region, and confluences directly with the San Joaquin River. Land use upstream of the sample site to the north and east include truck/nursery/berry crops, pasture and dairy.

Livingston Drain @ Robin Ave (3,656 irrigated acres) – Livingston Drain is located in the west central portion of the Coalition region in Merced County. It is located west of Atwater and Livingston. The agriculture is almost entirely citrus.

Lower Stevenson @ Faith Home Rd (74,983 irrigated acres) – This site is located on the northern border of Merced County, along the Merced River. The site subwatershed extends to the north and east through Hilmar-Irwin and Delhi, reaching the Tuolumne River to the north. Agriculture in the site subwatershed is varied and includes all crop types and land uses found in the Coalition Region.

McCoy Lateral @ Hwy 140 (5,759 irrigated acres) – The site is located less than one mile east of the Howard Lateral confluence (Howard Lateral @ Hwy 140 sample site). The lateral receives inputs from north and south drainages. Agricultural land use is predominantly truck/nursery/berry crops and deciduous fruit, but also includes field crops, pasture, grains/hay, vineyard and dairy.

Merced River @ Santa Fe Drive (27,796 irrigated acres) – This water body is designated as a major water body and is 303d listed. It was selected as an integrator site for several of the drains and tributaries in the vicinity. The Merced River originates in the high Sierra encountering several dams and impoundments as it flows west. The Merced River eventually drains into the San Joaquin River near Hatfield State Park. Upstream agriculture includes some field crops in the immediate vicinity of the river and deciduous nuts, primarily almonds.

Miles Creek @ Reilly Rd. (9,664 irrigated acres) – Miles Creek is located just north of Duck Slough and drains into Owen's Creek. The primary agriculture includes field crops, deciduous nut & fruit, pasture and truck, nursery and berry. Within the subwatershed are also urban drainages, dairies and hay and pasture lands.

Mootz Drain @ Langworth Rd (1,074 irrigated acres) – This site subwatershed is located in the northern part of the Coalition region. The drain originates to the east of Modesto and drains through Lateral 6 into the Stanislaus River. Land use upstream of the site is predominantly pastures and dairies. A small portion of land is allocated as field crops.

Mustang Creek @ East Ave (12,113 irrigated acres) – Mustang Creek originates in the foothills of the Sierra Nevada and flows into the upper portion of the Highline Canal. Mustang Creek is ephemeral with flow found primarily during winter runoff events. Summer flows are intermittent. Citrus and deciduous nut crops are the main agriculture with smaller amounts of field crops and grains and hay.

Peaslee Creek @ Lake Rd (809 irrigated acres) – This site is located on the eastern side of the coalition region just south of the Tuolumne River. The creek confluences with the Tuolumne River just west and north of the sample site. Land use in the site subwatershed includes vineyards and deciduous fruits/nuts. There is also one section of land allocated as feedlot/dairy/farmstead.

Prairie Flower Drain @ Crows Landing Road (4,080 irrigated acres) – Relative to other drains in the western portion of the Coalition region, Prairie Flower Drain is longer and appears to drain mostly irrigated agriculture. Dairies and feedlots are ubiquitous in this part of the Coalition region and this drain may receive runoff from several dairies immediately upstream. Upstream agriculture is field crops.

Rodden Creek @ Rodden Rd (246 irrigated acres) – The site is located just north of the Stanislaus River, along the northern border of the Coalition region. The creek confluences with the Stanislaus River less than one mile south of the sampling site. Rodden Creek drains a small site subwatershed to the northeast. Agricultural lands are composed of deciduous fruits and nuts, pastures and dairies.

Silva Drain @ Meadow Drive (67 irrigated acres) – This is a very small site subwatershed that joins with Jones Drain just upstream of the confluence of Jones Drain with the Merced River. The primary agriculture is citrus orchards with small amounts of field crops and irrigated pasture. Large dairies are found in the site subwatershed.

South Slough @ Quinley Road (2,352 irrigated acres) – South Slough begins just west of Merced and eventually flows into Bear Creek. Pasture, deciduous nuts, and citrus are the primary crops in the site watershed.

Unnamed Drain @ Hogin Rd (1,091 irrigated acres) – This drain is located south of the Prairie Flower Drain and confluences with the San Joaquin River west of the sample site. Land use in the site subwatershed consists of truck/nursery/berry crops, pasture and dairy.

Unnamed Drain @ Hwy 140 (444 irrigated acres) – The sample site is located at the southwestern end of the Coalition region. The upstream site subwatershed consists mostly of pasture, dairy and field crops.

Unnamed Drain @ Cemetary Rd (1,102 irrigated acres) – The sample site is located just north of the Unnamed Drain @ Hwy 140 site. Land use in the site subwatershed is predominantly pasture and field crops.

Unnamed Drain near Bear Creek @ West Bose Rd (1,176 irrigated acres) – The unnamed drain is located on the western side of the Coalition region, just east of the San Joaquin River. The site subwatershed is small, extending north to McCoy Lateral. Land use consists of pasture, field crops, truck/nursery/berry crops, dairy and grains/hay.

Westport Drain @ Vivian Road (1,474 irrigated acres) – This site subwatershed is located adjacent to the Hatch Drain subwatershed in the western portion of the Coalition region. The primary agriculture in this site subwatershed is citrus and field crops.

Yori Grove Drain @ East Taylor Rd (1,226 irrigated acres) – The sample site along Yori Grove Drain is just east of the Westport Drain sample site. The site drains irrigated land to the south. Land use includes deciduous fruits/nuts, vineyard, field crops, pasture and dairy. Urban land is also found within the site subwatershed.

Site Subwatershed Land Use

Table 7. Acreage of crops grown in site subwatersheds of the ESJWQC region showing irrigated (I) and non-irrigated (NI) acres. Sites are listed alphabetically.

Site Subwatershed	Citrus	Citrus	Deciduous nut and fruit	Deciduous nut and fruit	Field crop	Field crop	Grain and hay	Grain and hay	Idle	Idle	Wild vegetation*	Water surface	Pasture	Pasture	Rice	Feedlot, dairy, farmstead	Truck, nursery, berry	Urban	Golfcourse, cemetery, landscape	Vineyard	Total Acres	Irrigated Acres
	I	NI	I	NI	I	NI	I	NI	I	NI	NI	NI	I	NI	I	NI	I	NI	NI	I		
Ash Slough @ Ave 21			6889		9101		726		33			1273	4936			712	635	1311	33	5383	31032	27704
Bear Creek @ Kibby Rd			2983		1581		223	242			238		1414			67	539	10			7297	6740
Berenda Slough along Ave 18 1/2	97		15574		3048		1804	1413	261		3792	267	1695			720	116	1622	215	2412	33034	25006
Black Rascal Creek @ Yosemite Rd			180		142		11	167					201			11					712	535
Burnett Lateral @ 28 Mile Rd			452					118	15		29	16	696	19		35		2			1382	1163
Canal Creek @ West Bellevue Rd			1892		634			201	171	633	6967	8	1300			219		13		245	12284	4241
Cottonwood Creek @ Rd 20	571		10326		3724	314	664	2009	1172		11352	615	847			562	85	10062	25	23310	65637	40699
Deadman Creek @ Gurr Rd	7		11333		16221			4286	672		12060	393	14833	21		914	3393	399		1596	66129	48056
Deadman Creek @ Hwy 59	7		10246		11458		2366	1153	666		7318	296	8740	626			3329	312		1418	47935	38230
Dry Creek @ Rd 18	422		12103		1105		444	1213	495		3918	104	637			446	169	4614	314	6710	32697	22086
Dry Creek @ Wellsford Rd		8	8064		4516			2395	239		4606	204	7346	1310	1188	1414		486		1762	33538	23115
Duck Slough @ Gurr Rd			8766		7975		1271	322	832		3154	172	7303	76	318	1056	2172	676	17		34108	28636
Duck Slough @ Hwy 99			8290		2768		416	259	315		422	94	2445	66		439	1388	457	17		17376	15622
Hatch Drain @ Tuolumne Rd					155								104			17		11			286	259
Highline Canal @ Hwy 99	77		20603		7029		661	12	221		550	183	4826	352		1356	371	619	4	1432	38295	35220
Highline Canal @ Lombardy Ave	77		16644		6771		661	12	80		507	179	4769	352		1187	110	345	1	1041	32738	30154

Site Subwatershed	Citrus		Deciduous nut and fruit		Field crop		Grain and hay		Idle		Wild vegetation*	Water surface	Pasture		Rice	Feedlot, dairy, farmstead	Truck, nursery, berry	Urban	Golfcourse, cemetery, landscape	Vineyard	Total Acres	Irrigated Acres
	I	NI	I	NI	I	NI	I	NI	I	NI	NI	NI	I	NI	I	NI	I	NI	NI	I		
Hilmar Drain @ Central Ave			87		1968						9	11	664			215					2954	2718
Howard Lateral @ Hwy 140			1260		251		167		114		159	5	377			76	1602	41		105	4158	3876
Lateral 2 ½ near Keyes Rd	26	7	23792		4492		100	3	441		1587	206	2542	20		1290	674	4348	251	672	40452	32740
Lateral 5 ½ @ South Blaker Rd	87		21403		13393		211	55	123		1682	301	7669	37		2484	930	1629	20	942	50965	44758
Lateral 5 ½ @ South Blaker Rd Storm	10		9238		7559		113	44	123		1287	140	4162	20		1583	921	1468	20	118	26806	22244
Lateral 6 & 7 @ Central Ave	96		34615		21008		822	757	173		2471	511	9829	522		4175	1065	2677	257	4191	83167	71798
Lateral 6 & 7 @ Central Ave Storm	19		11539		11575		118	44	92		1556	334	4837	39		2713	921	2340	253	205	36585	29306
Levee Drain @ Carpenter Rd					1675						23	96	826			335		9			2964	2500
Livingston Drain @ Robin Ave			2367		58		176		18		131	2	58	20		146	922	37		58	3992	3656
Lower Stevinson @ Faith Home Rd	106		40000	7	18265		833	784	417		2661	372	9260	532		3827	1510	4020	121	4591	87306	74983
Lower Stevinson @ Faith Home Rd Storm	29		10633		7762		130	44	166		1475	295	3873	38		1888	890	1981	105	184	29493	23668
McCoy Lateral @ Hwy 140			1573		1264		234		214		117	28	222	9		276	924	13		1327	6202	5759
Merced River @ Santa Fe	45		14109		5422	140	700	226	141	276	5006	256	4483	101		1099	278	339	4	2616	35242	27796
Miles Creek @ Reilly Rd	3		1767		3927		548	536	145		568	82	2201			475	1073	860	15		12200	9664
Mootz Drain @ Langworth Rd					100				2				972			122		4			1200	1074
Mustang Creek @ East Ave			4095		2053		486	701			374	5	235			86				5244	13279	12113
Peaslee Creek @ Lake Rd			482													20				327	829	809
Prairie Flower Drain @ Crows Landing Rd					2674							30	1406			443					4553	4080
Rodden Creek @ Rodden Rd			80		3			38	5			33	159			4		17			339	246
Silva Drain @ Meadow Dr					59								8	4							70	67

Site Subwatershed	Citrus		Deciduous nut and fruit		Field crop		Grain and hay		Idle		Wild vegetation*		Pasture		Rice	Feedlot, dairy, farmstead	Truck, nursery, berry	Urban	Golfcourse, cemetery, landscape	Vineyard	Total Acres	Irrigated Acres
	I	NI	I	NI	I	NI	I	NI	I	NI	NI	NI	I	NI	I	NI	I	NI	NI	I		
South Slough @ Quinley Rd			326		799		304	27	62				712			214	149	47			2641	2352
Unnamed Drain @ Cemetary Rd					269						353		833								1455	1102
Unnamed Drain @ Hogin Rd					515						89	40	576			36					1256	1091
Unnamed Drain @ Hwy 140					43						58		400			20					522	444
Unnamed Drain near Bear Creek @ West Bose Rd					182		56		670				190			35	77				1212	1176
Westport Drain @ Vivian Rd			432		575								264			126		7		202	1607	1474
Yori Grove Drain @ East Taylor Rd			420		355						12		287			63		105		163	1406	1226

Assessment Monitoring

Assessment Monitoring will take place at newly established monitoring sites or at sites that have not been fully characterized according to a two-year cycle. Assessment Monitoring will be conducted on a monthly basis for 12 months of the year (Table 8).

Table 8. Assessment Monitoring schedule.

Parameters (See Table 12 for details)	Monitoring Frequency *
303(d) waste constituent to be monitored if Agriculture is identified as contributing source	Monthly
Water Column Toxicity	Monthly
Toxicity Identification Evaluation (as needed based on toxicity results)	Monthly
Pesticides	Monthly
Metals	Monthly
Nutrients	Monthly
General Physical Parameters (including flow)	Monthly
Pathogens	Monthly
Sediment Toxicity Sampling (all)	Twice per year **
Photo monitoring (digital)	Every monitoring site with every monitoring event

* Every third year Core Monitoring will include all Assessment Monitoring parameters and be conducted monthly for a period of 12 months.
**One sample will be collected between 15 August and 15 October and the second between 1 March and 30 April of each year.

Assessment monitoring will consist of monthly sampling for general water quality parameters, nutrients and pathogens from December through September. Assessment Monitoring will also include water column and toxicity monitoring, as well as the series of pesticides, metals and nutrients described in Table 12. Monthly sampling events will be scheduled in the best way possible to capture at least two storm runoff events per year. No more than one complete sample per month will be collected.

Core Monitoring

Core Monitoring will be used to track compliance with specific regulatory water quality standards, and to track trends in water conditions over time. The Core Monitoring sites will include monthly monitoring and is summarized in Table 9.

Table 9. Core Monitoring schedule.

Parameters (See Table 12 for details)	Monitoring Frequency*
Assessment Monitoring	Once every three years*
Nutrients	Monthly
General Physical Parameters (including flow)	Monthly
Pathogens	Monthly
Photo monitoring (digital)	Every monitoring site with every monitoring event
Parameter(s) of Concern**	Monthly

* Every third year Core Monitoring will include all Assessment Monitoring parameters.
**Parameters of Concern may be selected by the Regional Water Board Executive Officer from toxicity, pesticides or metals analyses that result in an exceedance or detection during Assessment Monitoring.

Core Monitoring will consist of the general physical, pathogen and nutrient parameters that are listed in more detail in Table 12. Core Monitoring parameters include general water quality measurements that may provide data indicative of water quality impairment. The list of Assessment Monitoring parameters shall be repeated at the Core Monitoring locations during every third year of monitoring. The Coalition Group may submit written requests for the removal or addition of Core Monitoring sites for approval by the Executive Officer.

Table 10 provides the sequential schedule for monitoring at each site, including Assessment Monitoring and Core Monitoring. Once all locations have been monitored within a zone, the schedule will repeat.

Table 10. Assessment and Core Monitoring schedule. C = Core Monitoring. A = Assessment Monitoring.

Zone	Site ID	Monitoring Location	2008*	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	B	Dry Creek @ Wellsford Rd	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
1	23	Mootz Drain @ Langworth Rd	A	A	A					A	A					A	A					A	A	
1	26	Rodden Creek @ Rodden Rd				A	A					A	A					A	A					A
1	5	Burnett Lateral @ 28 Mile Rd						A	A					A	A					A	A			
2	F	Prairie Flower Drain @ Crows Landing	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
2	15	Lateral 2 1/2 near Keyes Rd	A	A	A																			A
2	34	Yori Grove Drain @ East Taylor Rd				A	A																	
2	18	Levee Drain @ Carpenter Rd						A	A															
2	16	Lateral 5 1/2 @ South Blaker Rd								A	A													
2	30	Unnamed Drain @ Hogin Rd										A	A											
2	17	Lateral 6 and 7 @ Central Ave												A	A									
2	13	Hilmar Drain @ Central Ave														A	A							
2	20	Lower Stevenson @ Faith Home Rd																A	A					
2	11	Hatch Drain @ Tuolumne Rd																		A	A			
2	33	Westport Drain @ Vivian Rd																				A	A	
3	D	Highline Canal @ Hwy 99	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
3	25	Peaslee Creek @ Lake Rd	A	A	A					A	A					A	A					A	A	
3	12	Highline Canal @ Lombardy Ave				A	A					A	A					A	A					A
3	24	Mustang Creek @ East Ave						A	A					A	A					A	A			
4	E	Merced River @ Santa Fe Rd	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
4	14	Howard Lateral @ Hwy 140	A	A	A																			
4	21	McCoy Lateral @ Hwy 140				A	A																	
4	31	Unnamed Drain @ Hwy 140						A	A															

Zone	Site ID	Monitoring Location	2008*	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
4	32	Unnamed Drain near Deep Slough @ West Bose Rd								A	A													
4	29	Unnamed Drain @ Cemetary Rd										A	A											
4	6	Canal Creek @ West Bellevue Rd												A	A									
4	28	South Slough @ Quinley Rd														A	A							
4	19	Livingston Drain @ Robin Ave																A	A					
4	2	Bear Creek @ Kibby Rd																		A	A			
4	4	Black Rascal Creek @ Yosemite Rd																				A	A	
4	27	Silva Drain @ Meadow Dr																						A
5	C	Duck Slough @ Gurr Rd	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
5	7	Deadman Creek @ Gurr Rd	A	A	A							A	A							A	A			
5	8	Deadman Creek @ Hwy 59				A	A							A	A							A	A	
5	10	Duck Slough @ Hwy 99						A	A							A	A							A
5	22	Miles Creek @ Reilly Rd								A	A							A	A					
6	A	Cottonwood Creek @ Rd 20	C	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A	C	C	A
6	1	Ash Slough @ Ave 21	A	A	A					A	A					A	A					A	A	
6	3	Berenda Slough along Ave 18 1/2				A	A					A	A					A	A					A
6	9	Dry Creek @ Rd 18						A	A					A	A					A	A			

*Sampling in 2008 will only be for October thru December under this MRPP.

Special Project Monitoring

Special Project monitoring will include specific targeted studies for the implementation of a Management Plan that results from more than one exceedance within three years of either Core or Assessment Monitoring. Monitoring for Management Plans may include more extensive monitoring than what is required in the Core Monitoring or Assessment Monitoring schedules. The schedule for Special Project Monitoring will be determined as outlined in the ESJWQC Management Plan which is updated on a yearly basis.

Special Project monitoring may also occur in areas where Total Maximum Daily Load (TMDL) studies are required. Table 11 lists all water bodies currently listed for TMDLs as well as their EPA TMDL status. The six Coalition zones are distinct by land use, crop type, depth to ground water and climate. Therefore, by monitoring for TMDL constituents at any Assessment Monitoring site within the zone, the Coalition is providing an assessment for the listed constituent through the representativeness of the site within the zone. In addition, the Assessment Monitoring locations within each zone are tributaries to the 303(d) listed water body provided in Table 11. Currently, all TMDLs are within Zone 1 (Dry Creek @ Wellsford Ave Zone), Zone 2 (Prairie Flower Drain @ Crows Landing Zone), Zone 3 (Highline Canal @ Hwy 99 Zone) and Zone 4 (Merced River @ Santa Fe Rd Zone). The Coalition has monitored for all listed TMDL constituents at one or more locations within each of these zones with the exception of Group A pesticides. Starting in October 2008, the Coalition will monitor for Group A pesticides at sites listed in Table 11.

Table 11 does not specifically list sites from Zone 3 due to previous monitoring within that area which has characterized water quality for both chlorpyrifos and diazinon. Both Highline Canal @ Hwy 99 and Highline Canal @ Lombardy Ave have chlorpyrifos management plans and will continue to be monitored for chlorpyrifos according to the management plan schedule. None of the three sites within Zone 3 have experienced exceedances of the diuron WQTL. A new site (Peaslee Creek @ Lake Rd) will be added to the monitoring schedule in Zone 3 and will be monitored for all Assessment Monitoring constituents, including chlorpyrifos and diazinon.

Group A pesticides are considered legacy pesticides and based on pesticide use reports (PUR) the most recent use of any Group A pesticide was in 2006 (endosulfan). Therefore, if the Coalition does not detect any Group A pesticides during 2008/2009 monitoring, the Coalition will have demonstrated that these pesticides are not impacting water quality and will discontinue monitoring for Group A pesticides in 2010. The status of TMDLs and 303(d) listed water bodies and their associated constituents will be reviewed annually at the time of the Annual Monitoring Report.

Table 11. List of water bodies within the ESJWQC that require TMDL monitoring.

WATER BODY NAME/SECTION	CONSTITUENT	PREVIOUSLY MONITORED FOR (BY ZONE)	TMDL REQUIREMENT STATUS	Coalition Zone	2008/2009 Monitoring Site
Harding Drain (Turlock Irrigation District Lateral #5)	Unknown Toxicity	Yes	Requiring TMDLs	2	Lateral 2 ½ near Keyes Rd
Harding Drain (Turlock Irrigation District Lateral #5)	Chlorpyrifos	Yes	Requiring TMDLs	2	Lateral 2 ½ near Keyes Rd
Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorpyrifos	Yes	Requiring TMDLs	2, 3, 4	Lateral 2 ½ near Keyes Rd
Merced River, Lower (McSwain Reservoir to San Joaquin River)	Diazinon	Yes	Requiring TMDLs	2, 3, 4	Lateral 2 ½ near Keyes Rd
Merced River, Lower (McSwain Reservoir to San Joaquin River)	Group A Pesticides	No	Requiring TMDLs	2, 3, 4	Merced River @ Santa Fe Rd
San Joaquin River (Merced River to Tuolumne River)	Unknown Toxicity	Yes	Requiring TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Boron	Yes	Being Addressed by USEPA Approved TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Selenium	Yes	Being Addressed by USEPA Approved TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Electrical Conductivity	Yes	Being Addressed by USEPA Approved TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Chlorpyrifos	Yes	Being Addressed by USEPA Approved TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	DDT	Yes	Requiring TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Diazinon	Yes	Being Addressed by USEPA Approved TMDLs	2	Lateral 2 ½ near Keyes Rd
San Joaquin River (Merced River to Tuolumne River)	Group A Pesticides	No	Requiring TMDLs	2	Lateral 2 ½ near Keyes Rd
Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Unknown Toxicity	Yes	Requiring TMDLs	1	Mootz Drain @ Langworth Rd
Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon	Yes	Requiring TMDLs	1	Mootz Drain @ Langworth Rd

WATER BODY NAME/SECTION	CONSTITUENT	PREVIOUSLY MONITORED FOR (BY ZONE)	TMDL REQUIREMENT STATUS	Coalition Zone	2008/2009 Monitoring Site
Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Group A Pesticides	No	Requiring TMDLs	1	Mootz Drain @ Langworth Rd

Monitoring Parameters

Monitoring data is used to characterize discharges from irrigated lands to surface waters and to evaluate the effectiveness of management practice implementation efforts. Water quality is evaluated by both field-measured parameters and laboratory analytical data. Field measured parameters include flow, pH, electrical conductivity (specific conductance), water temperature, air temperature and dissolved oxygen. Laboratory analytical data include the list of constituents, parameters, and tests in Table 12 below. Site conditions are documented by taking digital photos and recording weather, site conditions and water conditions at every monitoring site during each monitoring event.

Acceptable methods for laboratory field procedures, quantification limits, and quality control requirements are described in detail in the Coalition Quality Assurance Project Plan (QAPP). Specific collection and handling information for each of the analytical tests is outlined in the QAPP.

All constituents listed in the MRP are included in Table 12 including Group A pesticides except for fecal coliform. The Coalition has been monitoring for *E. coli* since 2004 using the WQTL of 235 MPN/100 mL (a fecal coliform number). *E. coli* is a sub-category of fecal coliform and therefore if the amount of *E. coli* detected in a sample is above the WQTL than it is assumed that the fecal coliform is also above the WQTL and the sample is treated as exceeding a fecal coliform WQTL. It is not necessary therefore to also collect a sample for fecal coliform analysis.

Some TMDL constituents listed in Table 11 are monitored at all assessment locations as per the MRP including unknown toxicity, chlorpyrifos, diazinon, boron, selenium, electrical conductivity (specific conductance), and DDT. Group A pesticides have been added to all Assessment Monitoring in Zone 1, 2, and 3 as described under Special Project Monitoring.

Table 13 includes all monitoring locations (both Assessment and Core) that will be monitored from 2008/2009 to 2011 including the constituents to be monitored for at each site.

Table 12. Coalition Monitoring parameters.

Constituents, Parameters, and Tests	Monitoring Type
TMDL/CWA 303(d) listed*	
Aldrin	As needed to characterize 303d listed waterbodies
Chlordane	As needed to characterize 303d listed waterbodies
Heptachlor	As needed to characterize 303d listed waterbodies
Heptachlor epoxide	As needed to characterize 303d listed waterbodies
Hexachlorocyclohexane (including Lindane) (gamma-BHC)	As needed to characterize 303d listed waterbodies
Hexachlorocyclohexane (alpha-BHC)	As needed to characterize 303d listed waterbodies
Hexachlorocyclohexane (beta-BHC)	As needed to characterize 303d listed waterbodies
Hexachlorocyclohexane (delta-BHC)	As needed to characterize 303d listed waterbodies
Endosulfan I	As needed to characterize 303d listed waterbodies
Endosulfan II	As needed to characterize 303d listed waterbodies
Toxaphene	As needed to characterize 303d listed waterbodies
Photo Monitoring	
Photograph of monitoring location	With every monitoring event
WATER COLUMN SAMPLING	
Physical Parameters and General Chemistry	
Flow (field measure)	Assessment and Core
pH (field measure)	Assessment and Core
Electrical Conductivity (field measure)	Assessment and Core
Dissolved Oxygen (field measure)	Assessment and Core
Temperature (field measure)	Assessment and Core
Turbidity	Assessment and Core
Total Dissolved Solids	Assessment and Core
Total Suspended Solids	Assessment and Core
Hardness	Assessment and Core
Total Organic Carbon	Assessment and Core
Pathogens	
E. coli	Assessment and Core
Water Column Toxicity Test	
Algae -*Selenastrum capricornutum*	Assessment
Water Flea – *Ceriodaphnia dubia*	Assessment
Fathead Minnow - *Pimephales promelas*	Assessment
Toxicity Identification Evaluation**	As needed based on criteria described in MRP Part II.E
Pesticides	
Carbamates	
Aldicarb	Assessment
Carbaryl	Assessment

Constituents, Parameters, and Tests	Monitoring Type
Carbofuran	Assessment
Methiocarb	Assessment
Methomyl	Assessment
Oxamyl	Assessment
Organochlorines	
DDD	Assessment
DDE	Assessment
DDT	Assessment
Dicofol	Assessment
Dieldrin	Assessment
Endrin	Assessment
Methoxychlor	Assessment
Organophosphates	
Azinphos-methyl	Assessment
Chlorpyrifos	Assessment
Diazinon	Assessment
Dichlorvos	Assessment
Dimethoate	Assessment
Dimeton-s	Assessment
Disulfoton (Disyton)	Assessment
Malathion	Assessment
Methamidophos	Assessment
Methidathion	Assessment
Parathion-methyl	Assessment
Phorate	Assessment
Phosmet	Assessment
Herbicides	
Atrazine	Assessment
Cyanazine	Assessment
Diuron	Assessment
Glyphosate	Assessment
Linuron	Assessment
Paraquat dichloride	Assessment
Simazine	Assessment
Trifluralin	Assessment
Metals	
Arsenic (total)	Assessment
Boron (total)	Assessment
Cadmium (total and dissolved)	Assessment
Copper (total and dissolved)	Assessment

Constituents, Parameters, and Tests	Monitoring Type
Lead (total and dissolved)	Assessment
Nickel (total and dissolved)	Assessment
Molybdenum (total)	Assessment
Selenium (total)	Assessment
Zinc (total and dissolved)	Assessment
Nutrients	
Total Kjeldahl Nitrogen	Assessment and Core
Nitrate plus Nitrite as Nitrogen	Assessment and Core
Total Ammonia	Assessment and Core
Unionized Ammonia (calculated value)	Assessment and Core
Total Phosphorous (as P)	Assessment and Core
Soluble Orthophosphate	Assessment and Core
SEDIMENT SAMPLING	
Sediment Toxicity	
Hyalella azteca	Assessment
Pesticides (as needed based on criteria described in MRP Part II.E.2)	
Bifenthrin	As needed based on criteria described in MRP Part II.E
Cyfluthrin	As needed based on criteria described in MRP Part II.E
Cypermethrin	As needed based on criteria described in MRP Part II.E
Esfenvalerate	As needed based on criteria described in MRP Part II.E
Lambda-Cyhalothrin	As needed based on criteria described in MRP Part II.E
Permethrin	As needed based on criteria described in MRP Part II.E
Fenpropathrin	As needed based on criteria described in MRP Part II.E
Chlorpyrifos	As needed based on criteria described in MRP Part II.E
Other sediment parameters	
Total Organic Carbon	Assessment
Grain Size	Assessment

*303(d) constituents used by agriculture were last reported in 2006. The Coalition will monitor for these constituents in 2008/2009 at Assessment Monitoring locations in Zone 1 and Zone 2 and the Core Monitoring location in Zone 4; if there are no detections and no reported use for them these constituents will be dropped from monitoring in 2010.

** Specific TIE manipulations utilized in each test will be reported.

Table 13. Monitoring schedule for 2008 – 2010 including site name, ID, zone and constituent groups.

ID	Zone	Monitoring Type	Monitoring Location	Group A Pesticides*	Physical Parameters	Nutrients	Pathogens	Carbamates	Organochlorines	Organophosphates	Herbicides	Metals (total and dissolved)	Water Column Toxicity	Sediment Toxicity/Chemistry
B	1	C	Dry Creek @ Wellsford Rd		x	x	x							
23	1	A	Mootz Drain @ Langworth Rd	x	x	x	x	x	x	x	x	x	x	x
F	2	C	Prairie Flower Drain @ Crows Landing		x	x	x							
15	2	A	Lateral 2 1/2 near Keyes Rd	x	x	x	x	x	x	x	x	x	x	x
D	3	C	Highline Canal @ Hwy 99		x	x	x							
24	3	A	Mustang Creek @ East Ave		x	x	x	x	x	x	x	x	x	x
E	4	C	Merced River @ Santa Fe Rd	x	x	x	x			**x**		**x**		
14	4	A	Howard Lateral @ Hwy 140		x	x	x	x	x	x	x	x	x	x
C	5	C	Duck Slough @ Gurr Rd		x	x	x			**x**		**x**		
7	5	A	Deadman Creek @ Gurr Rd		x	x	x	x	x	x	x	x	x	x
A	6	C	Cottonwood Creek @ Rd 20		x	x	x						**x**	
1	6	A	Ash Slough @ Ave 21		x	x	x	x	x	x	x	x	x	x

*Group A pesticides will be monitored for during 2008/2009 and if none are detected the Coalition will request to remove them from monitoring in 2010.
Bolded Xs are for additional constituents at Core Monitoring locations due to one exceedance during previous monitoring (see Table 21 for specifics).

MONITORING PROTOCOLS

Full descriptions of the monitoring protocols including sample collection methods, standard operating procedures (SOPs) for all measurements and laboratory quality assurance are available in the Coalition QAPP. A summary of the sampling methods, protocols and quality assurance is provided below.

Sample Collection Methods

Ambient Water Sampling

Sampling generally occurs over one or two days per event, with one event occurring each month. For water sampling, a specified type and quantity of bottles are filled with ambient water based on the requirements of the laboratory analysis and the requirements of the individual sampling site as described in the QAPP (Table 14, Table 15). After samples are collected, they are stored at a temperature less than or equal to 4°C, and are delivered the same evening or the next morning to their respective laboratories. The timeframe by which samples are delivered to the laboratories is based on the shortest holding time among the constituents analyzed. All bottles collected from a site are considered a single sample and share a common site ID and sample time. Although all bottles are considered a single sample, no volumes are homogenized. Field duplicates and samples for matrix spike analysis are filled as simultaneously as possible. Field blanks are collected in an identical bottle to the environmental sample using an identical process, but bottles are filled with deionized (DI) water and capped. Field quality control (QC) samples are stored at 4°C alongside environmental samples until extraction or analysis. After samples are collected and stored on ice, discharge is measured.

Sediment Sampling

Sediment is collected from the topmost 2 cm of bed substrate and the sample is placed into the appropriate containers for toxicity testing, grain size and total organic carbon (TOC) analyses, and any chemical analyses that may be necessary due to toxicity. Detailed sampling SOPs, collection containers, and holding times are included with the QAPP. As with the ambient water samples, containers are rinsed with DI water and stored away from sunlight and chilled to 4°C. Sediment chemistry and total organic carbon samples are frozen within 48 hours; sediment toxicity and grain size samples are held at 4°C until analysis.

Field Measures

Field parameters are measured at the same time as sample collection. Supplemental field data are collected including weather observations, water and sediment characteristics and site

descriptions at the time of sampling. Information that is supplemental to program requirements is maintained in a SWAMP-comparable database.

Quality Assurance

Water samples are collected during each month that water is discharged from agriculture, including storm season months. Samples will be analyzed for a variety of constituents based on the specific requirements for Assessment and Core Monitoring sites outlined in Table 10. Sediment quality monitoring will occur once during the irrigation season and once during the storm season of each monitoring year at all sites. All quality assurance (QA) criteria are described in the QAPP and include criteria for precision, accuracy, contamination, and completeness and each are briefly described below. Failure to meet any of the criteria will result in notification of the QA Officer by either the field crew or laboratory and all associated data will be appropriately flagged. Review of the failures may result in rejection of the data.

Precision and Accuracy

Precision is assessed through a combination of field and laboratory duplicate samples. Precision is measured as the relative percent difference (RPD) between a sample and it's duplicate. Laboratory duplicate samples include a laboratory control spike (LCS) and it's associated duplicate (LCSD), a matrix spike sample (MS) and it's associated duplicate (MSD) or an environmental sample that is split in the laboratory to create an associated duplicate. Field duplicate samples are two samples collected at the same time at the same location and in the same fashion. To assess precision, only one laboratory duplicate is required per batch which may be met by an LCSD, an MSD or a laboratory duplicate split from an environmental sample.

Accuracy is assessed by spiking a sample with a known quantity of the constituents to be analyzed and calculating the percent recovery (PR). This may be done on laboratory purified water (LCS) or environmental water (MS). The MS should not be used solely to assess precision due the likelihood of matrix interference however if an LCS does not fall within acceptance criteria an MS may be used to validate that batch if it is within criteria. Some constituents are difficult to spike (e.g. turbidity) and therefore a laboratory may chose to use a certified reference material (CRM). A CRM may be used in place of an LCS sample.

If results for any precision or accuracy analyses do not meet the data quality objectives listed in the QAPP, calculations and instruments must be checked and the analyst may be required to repeat the analysis to confirm the results. If the results repeatedly fail to meet the objectives (indicating inconsistent homogeneity, unusually high concentrations of analytes or poor laboratory precision) then the lab is obligated to halt the analysis of samples, identify the source of the imprecision, and make corrections where appropriate before proceeding. If results for any field duplicates and associated environmental samples do not meet the data

quality objectives listed in the QAPP, then the samplers must assess sampling practices and make corrections to their field procedures which will ensure homogeneity in the samples before proceeding.

Representativeness and Completeness

Sampling locations are selected to represent all discharges from a subwatershed and are collected during periods of agricultural discharge, including events during winter storm runoff and irrigation discharge.

Completeness is defined as the amount of valid data obtained from a measurement system as compared to the planned amount. Project completeness is divided into two areas: field and transport completeness and laboratory completeness. The completeness goal of 90% per year is based on the combination of these two areas. If the completeness criteria are not met, the Coalition will review each incomplete sampling event and make adjustments in field and/or laboratory procedures to ensure that completeness is met the following year.

Field and transport completeness requires that samplers successfully visit each site, document the visit, collect the field information and samples, as outlined in the QAPP, and successfully transport the samples to the laboratories. A properly documented dry site does not reduce the completeness of the event.

Laboratory completeness refers to the process of sample reception, COC documentation, storage and in-house preservation, extraction, analysis, and laboratory QA/QC.

Minimizing bias

Bias in sample timing is minimized by using a predetermined sample schedule that rigidly defines the sample dates for each site months in advance. In this way sampling at any given site will not be influenced by temporal factors that risk introducing intentional or unintentional bias, such as irrigation events or weather patterns.

Bias in field sampling quality control monitoring is minimized by randomly distributing QC samples among all sites throughout the year. Additionally, the samplers collecting the QC samples are randomly assigned to minimize the chances of a single site or single sampler exerting more influence on overall sample quality than randomness would predict.

Bias in analysis is minimized through the use of professional, private, objective third-party laboratories. Any potential bias that may be introduced by these labs is assessed with semi-lab-blind QC samples; field QC samples are not overtly identified to the lab. They are not truly lab-blind, however, as they share a sample time with the environmental sample and are distinguished only by a two-letter suffix on their station code/sample ID.

Table 14. Field and laboratory analytical methods.

Constituent	Matrix	Analyzing Lab	WQTL	RL	MDL	Analytical Method		
						Method	SOP/ QAPP Appendix	Modified for Method
Physical Parameters								
Flow	Fresh Water	Field Measure	NA[1]	1 cfs	NA	USGS R2Cross streamflow Method	Appendix IV	Yes
pH	Fresh Water	Field Measure	6.5-8.5	0.1 pH units	NA	EPA 150.1	Appendix IX	No
Electrical Conductivity	Fresh Water	Field Measure	700 µmhos/cm	100 µmhos/cm	NA	EPA 120.1	Appendix IX	No
Dissolved oxygen	Fresh Water	Field Measure	7 mg/L	0.1 mg/L	NA	SM 4500-O	Appendix IX	No
Temperature	Fresh Water	Field Measure	NA[1]	0.1 °C	NA	SM 2550	Appendix IX	No
Turbidity	Fresh Water	Caltest	variable	1.0 NTU	0.020 NTU	EPA 180.1	SOPW-TURB-rev6, Appendix XXIX	No
Total Dissolved Solids	Fresh Water	Caltest	450 mg/L	10 mg/L	4.0 mg/L	SM2540C	SOP W-TDS-rev7, Appendix XXVI	No
Total Suspended Solids	Fresh Water	Caltest	NA[2]	3 mg/L	2.0 mg/L	SM2540D	SOP B-TSS-rev6, Appendix XXX	No
Hardness	Fresh Water	Caltest	NA[1]	10 mg/L	3.0 mg/L	SM2340C	SOP W-HARD-rev7, Appendix XXII	No
Total Organic Carbon	Fresh Water	Caltest	NA[1]	0.5 mg/L	0.30 mg/L	SM5310B	SOP W-TOC/DOC-rev9, Appendix XXVIII	No
Pathogens								
Escherichia coli	Fresh Water	Caltest	235 MPN/100 mL	1 MPN/100 mL	1.0 MPN/100 mL	SM 9223	SOP B-MMOMUG-REV9, Appendix XXI	No
Toxicity								
Water Column Toxicity	Fresh Water	AQUA-Science	No Toxicity	NA	NA	EPA 821-R-02-012	SOP 6.1A-5/Appendix XV, SOP 6.2A-5/Appendix XVI	No
	Fresh Water	AQUA-Science	No Toxicity	NA	NA	EPA 821-R-02-013	SOP 6.3C-4/ Appendix XVII	No
Sediment Toxicity	Sediment	AQUA-Science	No Toxicity	NA	NA	EPA 100.1	Appendix XVIII	No
Carbamates								
Aldicarb	Fresh Water	APPL Inc	3 µg/L	0.4 µg/L	0.20 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Carbaryl	Fresh Water	APPL Inc	2.53 µg/L	0.07 µg/L	0.050 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No

Constituent	Matrix	Analyzing Lab	WQTL	RL	MDL	Analytical Method		
						Method	SOP/ QAPP Appendix	Modified for Method
Carbofuran	Fresh Water	APPL Inc	ND	0.07 µg/L	0.050 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Methiocarb	Fresh Water	APPL Inc	0.5 µg/L	0.4 µg/L	0.20 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Methomyl	Fresh Water	APPL Inc	0.52 µg/L	0.07 µg/L	0.050 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Oxamyl	Fresh Water	APPL Inc	50 µg/L	0.4 µg/L	0.20 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Organochlorines								
DDD	Fresh Water	APPL Inc	0.00083 µg/L	0.01 µg/L	0.003 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
DDE	Fresh Water	APPL Inc	0.00059 µg/L	0.01 µg/L	0.004 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
DDT	Fresh Water	APPL Inc	0.00059 µg/L	0.01 µg/L	0.007 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Dicofol	Fresh Water	APPL Inc	NA[1]	0.1 µg/L	0.01 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Dieldrin	Fresh Water	APPL Inc	0.00014 µg/L	0.01 µg/L	0.005 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Endrin	Fresh Water	APPL Inc	0.036 µg/L	0.01 µg/L	0.007 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Methoxychlor	Fresh Water	APPL Inc	0.03 µg/L	0.01 µg/L	0.008 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Organophosphates								
Azinphos-methyl	Fresh Water	APPL Inc	0.01 µg/L	0.1 µg/L	0.02 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Chlorpyrifos	Fresh Water	APPL Inc	0.015 µg/L	0.015 µg/L	0.003 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Diazinon	Fresh Water	APPL Inc	0.1 µg/L	0.02 µg/L	0.004 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Dichlorvos	Fresh Water	APPL Inc	0.085 µg/L	0.1 µg/L	0.02 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Dimethoate	Fresh Water	APPL Inc	1.0 µg/L	0.1 µg/L	0.08 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Dimeton-s	Fresh Water	APPL Inc	NA[2]	0.1 µg/L	0.01 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Disulfoton	Fresh Water	APPL Inc	0.05 µg/L	0.05 µg/L	0.02 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Malathion	Fresh Water	APPL Inc	ND	0.1 µg/L	0.05 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Methamidiphos	Fresh Water	APPL Inc	0.35 µg/L	0.2 µg/L	0.08 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Methidathion	Fresh Water	APPL Inc	0.7 µg/L	0.1 µg/L	0.04 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Parathion, methyl	Fresh Water	APPL Inc	ND	0.1 µg/L	0.075 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Phorate	Fresh Water	APPL Inc	0.7 µg/L	0.1 µg/L	0.07 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Phosmet	Fresh Water	APPL Inc	140 µg/L	0.2 µg/L	0.06 µg/L	EPA 8141A	SOP ANA8141A/Appendix XIII	No
Herbicides								
Atrazine	Fresh Water	APPL Inc	1.0 µg/L	0.5 µg/L	0.07 µg/L	EPA 619	SOP ANA619/Appendix XI	No
Cyanazine	Fresh Water	APPL Inc	1.0 µg/L	0.5 µg/L	0.09 µg/L	EPA 619	SOP ANA619/Appendix XI	No
Diuron	Fresh Water	APPL Inc	2 µg/L	0.4 µg/L	0.2 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Glyphosate	Fresh Water	NCL Ltd	700 µg/L	5 µg/L	4.0 µg/L	EPA 547	SOP ME075v08/Appendix XIX	No

Constituent	Matrix	Analyzing Lab	WQTL	RL	MDL	Analytical Method		
						Method	SOP/ QAPP Appendix	Modified for Method
Linuron	Fresh Water	APPL Inc	1.4 µg/L	0.4 µg/L	0.2 µg/L	EPA 8321	SOP HPL8321A/ Appendix XIV	No
Paraquat dichloride	Fresh Water	APPL Inc	3.2 µg/L	0.5 µg/L	0.08 µg/L	EPA 549.1	SOP ME019v10/Appendix XX	No
Simazine	Fresh Water	APPL Inc	4.0 µg/L	0.5 µg/L	0.08 µg/L	EPA 619	SOP ANA619/Appendix XI	No
Trifluralin	Fresh Water	APPL Inc	5 µg/L	0.01 µg/L	0.036 µg/L	EPA 8141	SOP ANA8141A/Appendix XIII	No
Metals								
Arsenic	Fresh Water	Caltest	10 µg/L	0.5 µg/L	0.01 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Boron	Fresh Water	Caltest	700 µg/L	10 µg/L	0.47 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Cadmium	Fresh Water	Caltest	Variable[3] (MUN=2.0 µg/L)	0.1 µg/L	0.01 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Copper	Fresh Water	Caltest	Variable[3] (MUN=170 µg/L)	0.5 µg/L	0.06 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Lead	Fresh Water	Caltest	Variable[3] (MUN=2.0 µg/L)	0.5 µg/L	0.07 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Molybdenum	Fresh Water	Caltest	10 µg/L	0.3 µg/L	0.02 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Nickel	Fresh Water	Caltest	Variable[3] (MUN=12 µg/L)	0.5 µg/L	0.01 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Selenium	Fresh Water	Caltest	50 µg/L (5 µg/L 4 day average)	1 µg/L	0.06 µg/L	EPA 200.8 (ICPMS Reaction Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Zinc	Fresh Water	Caltest	Variable[3.] (MUN=5000 µg/L)	1 µg/L	0.8 µg/L	EPA 200.8 (ICPMS Collision Cell)	SOP M-2008-3MODErev1, Appendix XXIII	No
Nutrients								
Total Kjeldahl Nitrogen	Fresh Water	Caltest	NA[1]	0.5 mg/L	0.06 mg/L	SM4500NH3 C	SOP W-NH3-TKN-rev9, Appendix XXVII	No

Constituent	Matrix	Analyzing Lab	WQTL	RL	MDL	Analytical Method		
						Method	SOP/ QAPP Appendix	Modified for Method
Nitrate (as N)+ Nitrite (as N)	Fresh Water	Caltest	10,000 µg/L	0.05 mg/L	0.05 mg/L	EPA 353.2	SOP W-NNO3-rev6, Appendix XXIV	No
Total Ammonia	Fresh Water	Caltest	1.5 mg/L or variable[4]	0.1 mg/L	0.040 mg/L	SM4500NH3 C	SOP W-NH3-TKN-rev9, Appendix XXVII	No
Total Phosphorus	Fresh Water	Caltest	NA[1]	0.01 mg/L	0.040 mg/L	SM4500P E	SOP W-PHOS-rev6, Appendix XXV	No
Soluble Orthophosphate	Fresh Water	Caltest	NA[1]	0.01 mg/L	0.010 mg/L	SM4500P E	SOP W-PHOS-rev6, Appendix XXV	No
Sediment								
Bifenthrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0003 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Cyfluthrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Cypermethrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Esfenvalerate	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Lambda-Cyhalothrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0003 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Permethrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Fenpropathrin	Sediment	Caltest	NA[5]	0.0003 mg/kg	0.0002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Chlorpyrifos	Sediment	Caltest	NA[5]	0.003 mg/kg	0.002 mg/kg	EPA 8270 (GCMS/SIM)	SOP O-Pyrethroidsrev4, APPENDIX XXXII	No
Total Solids	Sediment	Caltest	NA	0.1%	0.1%	SM2540B	SOP W-RESIDUE-rev6, APPENDIX XXXI	No
Total Organic Carbon	Sediment	Caltest[6]	NA[1]	200 mg/kg	100 mg/kg	Walkley Black	PTS SOP #4, Appendix XXXIV	No
Grain Size	Sediment	Caltest[6]	NA[1]	1% sand, silt, clay, gravel	0.4 µm	ASTM D-422-63, ASTM D4464M-85	PTS SOP #3, Appendix XXXIII	No

[1] Not available until completion of evaluation studies or no Water Quality Trigger Limit applicable.
[2]Currently these constituents do not have a WQTL designated by the Regional Board however this may change in the future.
[3] Variable WQTLs based on hardness. Municipal and domestic supply WQTLs in parenthesis are regardless of hardness.
[4] Variable WQTLs based on pH and temperature. Municipal and domestic supply WQTLs in parenthesis are regardless of pH and temperature.
[5] Sediment chemistry result reported if positive sediment toxicity is measured.
[6] Subcontracted to PTS Laboratories.

Table 15. Laboratory analytical methods of constituents monitored for CWA 303(d) compliance.

Constituent	Matrix	Analyzing Lab	WQTL	RL	MDL	Analytical Method		
						Method	SOP/Appendix	Modified for Method
Aldrin	Fresh Water	APPL Inc	0.00013 µg/L[1] 3 µg/L[2]	0.01 µg/L	0.009 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Chlordane	Fresh Water	APPL Inc	0.00057 µg/L[1] 0.0043 µg/L[2]	0.01 µg/L	0.007 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Heptachlor	Fresh Water	APPL Inc	0.00021 µg/L[1] 0.0038 µg/L[2]	0.01 µg/L	0.008 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Heptachlor epoxide	Fresh Water	APPL Inc	0.0001 µg/L[1] 0.0038 µg/L[2]	0.01 µg/L	0.007 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Hexachlorocyclohexane (alpha-BHC)	Fresh Water	APPL Inc	0.0039 µg/L[1,3] 0.95 µg/L[2,3]	0.01 µg/L	0.005 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Hexachlorocyclohexane (beta-BHC)	Fresh Water	APPL Inc	0.0039 µg/L[1,3] 0.95 µg/L[2,3]	0.01 µg/L	0.008 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Hexachlorocyclohexane (gamma-BHC; Lindane)	Fresh Water	APPL Inc	0.0039 µg/L[1,3] 0.95 µg/L[2,3]	0.01 µg/L	0.005 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Hexachlorocyclohexane (delta-BHC)	Fresh Water	APPL Inc	0.0039 µg/L[1,3] 0.95 µg/L[2,3]	0.01 µg/L	0.005 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Endosulfan I	Fresh Water	APPL Inc	110 µg/L[1,4] 0.056 µg/L[2,4]	0.01 µg/L	0.005 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Endosulfan II	Fresh Water	APPL Inc	110 µg/L[1,4] 0.056 µg/L[2,4]	0.01 µg/L	0.004 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No
Toxaphene	Fresh Water	APPL Inc	0.00073 µg/L[1] 0.0002 µg/L[2]	0.5 µg/L	0.380 µg/L	EPA 8081A	SOP ANA8081A/Appendix XII	No

[1] Municipal and domestic supply
[2] Cold freshwater habitat, spawning
[3] WQTL is total Hexachlorocyclohexane
[4] WQTL is total Endosulfan

Quality Control

This project will comply with all current Surface Water Ambient Monitoring Program (SWAMP) QC guidelines to maintain comparability of data quality throughout the ILRP SWAMP Comparable database. Field QC frequencies are calculated to insure that a minimum of 5% of all analyses are for QC purposes. All analytical QCs must be analyzed at a frequency of 5% or 1 per batch whichever is more frequent. A comprehensive summary of QC activities and requirements for this project are provided in the Coalition QAPP.

When control limits are exceeded, the lab QA officer and Project QA Officer must agree on a potential cause and develop an appropriate response. Detections in field or lab blank samples will be sourced to the best of the project's ability and field, analytical, or cleaning practices will be modified to reduce the risk of further contamination. Excessive RPD values or low recovery rates may also require a change of field or laboratory practices. Exceedances of analytical control limits will be reported in the appropriate lab report allowing the data to be flagged as it is entered into the database. These exceedances will also be discussed in the appropriate report from MLJ-LLC to the CVRWQCB together with an assessment of the control actions developed from more recent analyses, if available.

REPORTING PLAN

The Coalition will provide information on monitoring results and Coalition activities to the CVRWQCB over the course of each monitoring year in various reports. There are four types of reporting: Exceedance Reports, Quarterly Monitoring Data Reports, Annual Monitoring Reports and Management Plan Report updates. Immediate reporting on results will occur as Exceedance Reports which will be submitted for every exceedance of water quality trigger limits within five business days of receiving results. Reporting on outreach and actions as follow-up to exceedances will occur through the Coalition's Management Plan update which will be submitted each year for sites that experience more than one exceedance of any water quality trigger limit within a three year period. The Coalition will submit Quarterly Monitoring Data Reports which will include all new data received by the Coalition since the last Quarterly Monitoring Report. Once a year an Annual Monitoring Report will be submitted which will include an in depth analysis of the monitoring and reporting from the previous year.

Exceedance Reports

The Coalition will submit an exceedance report for all monitoring results that show exceedances of water quality standards or trigger limits. The site name, sample date, constituent, exceedance data, the estimated flow at the monitoring location and photographs of the site will be included in all exceedance reports. Laboratory results will be reviewed and exceedances will be summarized within five business days from the time they are received, and an Exceedance Report will be submitted by email within 24 hours thereafter. The Exceedance Report will include a description of the exceedance(s), the follow-up monitoring, and the analysis or other actions the Coalition may take to address the exceedance(s).

For exceedances involving pesticides or toxicity, a description of the investigation of pesticide use within the watershed area that is physically associated with the exceedance location will be provided; including all pesticides applied within the area that drains to the monitoring site during at least the four weeks prior to the exceedance date. Results of the pesticide use investigation will also be summarized and discussed in the Annual Monitoring Report. The development of an approved Management Plan may supersede this requirement.

Quarterly Data Deliverables

Each quarter the Coalition will submit the monitoring results from the previous quarter in electronic format as well as hard copy. The time schedule for quarterly submittals is provided in Table 16. The Quarterly Submittal of Monitoring Data Reports will be submitted as electronic copies in Surface Water Ambient Monitoring Program (SWAMP) comparable format. The submittal will also include copies of all field and laboratory data as well as all quality control and quality assurance information as required by the Coalition MRP.

Table 16. Annual and quarterly monitoring data submittal schedule.

Due Date	Type	Reporting Period
1 March	Annual Report	1 January to 31 December of previous year
1 June	Quarterly Monitoring Data Report	1 January through 31 March of same calendar year
1 September	Quarterly Monitoring Data Report	1 April through 30 June of same calendar year
1 December	Quarterly Monitoring Data Report	1 July through 30 September of same calendar year

Annual Monitoring Report

The Annual Monitoring Report will be submitted each year by March 1st, covering the monitoring period from the previous calendar year, up to December 31st. Each monitoring report will include all of the components outlined in the Coalition MRP, including:

1. Signed Transmittal Letter;
2. Title page;
3. Table of contents;
4. Executive Summary;
5. Description of the Coalition Group geographical area;
6. Monitoring objectives and design;
7. Sampling site descriptions and rainfall records for the time period covered under the AMR;
8. Location map(s) of sampling sites, crops and land uses;
9. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible (example table is included in (MRP Order Attachment C);
10. Discussion of data to clearly illustrate compliance with the Coalition Group Conditional Waiver, water quality standards, and trigger limits;
11. Electronic data submitted in a SWAMP comparable format;

12. Sampling and analytical methods used;
13. Copy of chain-of-custody forms;
14. Field data sheets, signed laboratory reports, laboratory raw data (as identified in Attachment C);
15. Associated laboratory and field quality control samples results;
16. Summary of Quality Assurance Evaluation results (as identified in Attachment C for Precision, Accuracy and Completeness) ;
17. Specify the method used to obtain flow at each monitoring site during each monitoring event;
18. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
19. Summary of Exceedance Reports submitted during the reporting period and related pesticide use information;
20. Actions taken to address water quality exceedances that have occurred, including but not limited to, revised or additional management practices implemented;
21. Status update on preparation and implementation of all Management Plans and other special projects; and
22. Conclusions and recommendations.

Specific information required for each of these components is outlined in the Coalition MRP and will be addressed in the AMR.

Management Plans

Water quality of waters of the State within the Coalition boundaries will be assessed to determine if they are getting better or worse as a result of the implementation of the Coalition Management Plan. If more than one exceedance of the same parameter at the same location occurs within a three-year period, then a schedule for Management Plan development and implementation will be provided to the Regional Board staff within 10 business days. The Executive Officer can require a written Management Plan for an exceedance of any constituent at any time. Management Plans may also be required when monitoring from other Water Board programs result in exceedances. The ESJWQC Management Plan will be updated on an annual basis on April 1 of each year. In the Management Plan Report, all data collected and any actions taken under the Management Plan from the previous year will be reported and reviewed. Any location and constituent combination that resulted in a second exceedance will be added to the Management Plan with a specific site subwatershed assessment.

If a contaminant addressed by the Management Plan can be reasonably assumed through source identification to be caused in whole or in part by irrigated agriculture, then additional Management Plan components will include the following eight requirements identified in Board Order R5-2008-005:

1. Identification of irrigated agriculture source -- general practice or specific location -- that may be the cause of the water quality problem, or a study design to determine the source.
2. Identification of management practices to be implemented to address the exceedances.
3. Management practice implementation schedule. Implementation may occur through another Water Board regulatory program designed to address the specific exceedances.
4. Management practice performance goals with a schedule.
5. Waste-specific monitoring schedule.
6. A process and schedule for evaluating management practice effectiveness.
7. Identification of the participants and Coalition Group(s) that will implement the Management Plan.
8. An identified routine schedule of reporting to the Regional Water Board.

The ESJWQC has created a prioritization scheme for constituents of concern in coordination with the CVRWQCB which is included as part of the Coalition Management Plan. Sources of exceedances will be investigated using one or more of the following: Pesticide Use Reports (PURs), Toxicity Identification Evaluations (TIEs), review and analysis of historical pesticide applications, or additional monitoring. Prioritization of exceedances will be used to focus outreach. Depending on the priority of the exceedance, the Coalition will identify management practices that will be effective to reduce or eliminate exceedances in the future. Individual grower contacts will occur if necessary to determine current management practices and inform growers of management practices that can be implemented to improve water quality. Management Plans provide information on each of the site subwatersheds outlining the Coalition actions that will be performed in the subsequent monitoring year. The Coalition will keep track of all meetings and contacts and monitoring the following year will evaluate the effectiveness of the outreach and management practice implementation. Management Plan Reporting will occur annually and will provide information regarding achievement of the performance goals, stages when evaluations will occur to determine the effectiveness of the management practice implementation, and if the Management Plan strategies need to be revised. Water quality conditions in waters of the State within the Coalition boundaries will be assessed to determine if they are getting better or worse through implementation of the Coalition Management Plan.

For exceedances that the Coalition determines are not likely to be remedied or addressed by a Management Plan, the Coalition will submit a request of exemption from the development of a Management Plan to the Executive Officer. The Coalition may also submit additional Management Plans and/or monitoring within a current Management Plan as requested by the Executive Officer.

WATER QUALITY STATUS

Water Quality Status and Monitoring Background

Eight water bodies within the Coalition area are listed on the EPA 303(d) list as impaired. Three sections of the San Joaquin River from the Mendota Pool to the Southern border of the San Joaquin Delta are included. Listings contain (but are not limited to) numerous constituents including selenium, boron, legacy pesticides (DDT), ammonia, electrical conductivity, diazinon and chlorpyrifos. Unknown toxicity is also listed as a cause of impairment for several water bodies. All listed water bodies are located downstream of urban regions known to discharge organophosphate pesticides, metals, and other constituents, however municipal discharge is listed as the source of impairment for only one site, Harding Drain. Agriculture is listed as a source of impairment for all water bodies (or sections of water bodies) on the 303(d) list, including chlorpyrifos and/or diazinon (see Table 11).

The Department of Pesticide Regulation's (DPR) Surface Water Database provides information on pesticide concentrations in the Coalition region. This database was created in 1997 by DPR under agreement with the State Water Resources Control Board. This database contains the results from approximately 34,500 samples collected from 40 different sites in Stanislaus and Merced Counties from August 1991 through September 2003. This database was supplemented with information available to the Coalition through recent organophosphate total maximum daily load (OP TMDL) sampling programs. Data from TMDL sampling for 2003 and 2004 are available for analysis. The EPA 303d list of impaired water bodies were used to establish potential causes of impairment, and these were compared to the data available from the two databases.

The DPR database (http://www.cdpr.ca.gov/docs/emon/surfwtr/surfcont.htm) was searched for records of pesticides in the Coalition region. The original focus was on diazinon, chlorpyrifos, and pyrethroids. Diazinon samples were collected at 39 sites listed in the database. Of the total 1370 individual samples tested for either diazinon or the metabolite diazoxon, 197 (14%) samples contained concentrations greater than 80 ng/l. The 197 samples with concentrations greater than 80 ng/l occurred at most of the 39 sites for which sample data were available. There have been exceedances in all years except 2003. The overwhelming majority of exceedances occurred in samples collected during the winter season, but samples collected during the summer also had exceedances.

Based on the DPR database, chlorpyrifos was monitored at 38 sites in the watershed. A total of 1486 samples were collected and analyzed for chlorpyrifos or chlorpyrifos OA. 147 (9.9%) of the samples had concentrations of chlorpyrifos OA over 20 ng/l. There was no measured concentration of chlorpyrifos in 1,200 samples. There have been exceedances of the chlorpyrifos criteria in the DPR database in almost every year. Exceedances in the database occurred during almost every month of the year. Many of the sample locations are

downstream of urban influences and the chlorpyrifos signals at those locations from dates prior to the removal of chlorpyrifos from the retail marked can't be attributed definitively to agricultural sources.

Permethrin was monitored for in 366 water column samples collected from 26 sites. All results were nondetects with a 0.5 ng/l limit of quantification (LOQ). Esfenvalerate was tested in 60 samples with all readings listed as non-detects with a LOQ of 50 ng/l at all sites except a single sample with a concentration of 0.0566 µg/l. Cypermethrin and lambda-cyhalothrin were monitored for in 17 samples, all were nondetects.

The Coalition initiated its monitoring program in July 2004 and has continued to monitor surface waters during the summer irrigation seasons and the winter storm water runoff season. This program is probably the most comprehensive yet undertaken in the Coalition region to characterize water quality with samples analyzed for chemical constituents, fecal indicator bacteria, water column and sediment toxicity, nutrients, physical and field parameters. The results have been provided to the Regional Board in semi-annual monitoring reports (SAMR) submitted in 2005-2008 and includes data from the irrigation season 2004 up to the storm season of 2008.

Sampling has occurred at as many as 24 sites in the Coalition region since 2004. Numerous exceedances of several water quality triggers were experienced during the years of monitoring. The most common exceedance was for color which was experienced at every site followed by exceedances of the *E. coli* trigger which were experienced at every site except one. Chlorpyrifos continues to be a water quality problem with exceedances at all sites except four. However, diazinon exceedances were experienced at only one site over approximately four years of monitoring indicating a decrease in the absolute number of exceedances and the percentage of samples with exceedances relative to the results from the DPR database. Copper, cadmium, lead, and nickel exceedances occurred during all years in which samples were collected for metals analysis. Additional pesticide exceedances were experienced for diuron, malathion, dimethoate, permethrin, and thiobencarb. Legacy pesticides and degradation products DDT, DDE, and DDD were found but not common. Toxicity to all test organisms was experienced during the years of monitoring. Sixteen sites experienced *Selenastrum* and *Ceriodaphnia* toxicity, and ten sites experienced *Hyalella* toxicity. Only two sites experienced *Pimephales*. There are fewer exceedances of nutrients and those exceedances appear to be concentrated in site subwatersheds with large numbers of dairies.

Compared to the results in the DPR database, monitoring by the Coalition indicates that chlorpyrifos is still a problem in the region. Exceedances are commonplace and occur in most months of sampling including exceedances of pesticides, metals, bacteria and field parameters. Toxicity was not included in the DPR database but numerous toxicity exceedances occurred during the years of sampling and coincide with exceedances of chlorpyrifos and diuron. Diuron

and copper are now common exceedances in the Coalition region. Other metals such as cadmium, nickel and lead experienced exceedances but the causes (sources) of those exceedances are unknown. Several legacy pesticide (no longer in use and/or distributed) exceedances were experienced but most were experienced only once with the exception of two exceedances of DDE, the degradation product of DDT. Exceedances of TDS and EC are common in several site subwatersheds close to the San Joaquin River where salty shallow ground water is pumped into drains from fields to lower the water table. The Coalition Management Plan further addresses exceedances of water quality in respect to historical detections, climate trends and probable sources.

Monitoring results from 2004-2007 are summarized in Table 17 and include results for toxicity tests, pesticide detections and metal detections.

Additional monitoring in the Coalition region was conducted under the auspices of the ILRP and the TMDL program by the CVRWQCB. Sampling for both programs was conducted by UC Davis Aquatic Ecosystems Analysis Laboratory. Monitoring was conducted across the entire Central Valley. The ILRP monitoring program, termed the Ag Waiver program, was initiated in July 2004 and was conducted periodically until 2007 although monitoring in the Coalition region was performed only in 2004 and 2005. Sampling was conducted for a larger number of chemical constituents than the Coalition monitored including disinfection byproducts. Water column and sediment toxicity, field parameters, and physical parameters were also monitored. Seven sites within the Coalition region were monitored and there were no sites in common between the Coalition and the Ag Waiver program. Three sites in the Ag Waiver program were on the same water bodies as the Coalition's monitoring program although at different locations.

In the Ag Waiver program, 2 of 34 *Ceriodaphnia* toxicity tests (6%), 0 *Pimephales* toxicity tests, 18 of 33 *Selenastrum* toxicity tests (55%), and 0 of 8 *Hyalella* tests exhibited significant toxicity (Table 18). Detections of occurred in 46 of 470 tests for organophosphates (10%), 0 of 329 tests for organochlorines, 3 of 155 tests for carbamates (2%), 32 of 287 tests for herbicides (11%), 1 of 143 tests for pyrethroids (<1%), and 143 of 241 tests for metals (91%). Compared to Coalition sampling using the same constituents, 9% of the *Ceriodaphnia* tests, <1% of the *Pimephales* tests, 6% of the *Selenastrum* tests and 22% of the *Hyalella* tests were significant. Detections occurred in 3% of the organophosphate tests, <1% of the organochlorine tests, <1% of the carbamate tests, 3% of the herbicide tests, <1% of the pyrethroid tests, and 83% of the metals tests. The Coalition detected fewer organophosphates and herbicides and had a lower percentage of significant Selenastrum toxicity tests, and the remaining test results were relatively similar between the two programs.

Sampling for the TMDL program occurred at only one site in the Coalition region (Table 19), and the sample location was not the same as any Coalition monitoring location. TMDL monitoring

included only organophosphates. There were detections in 9 of 40 organophosphate samples (23%). There were a greater percentage of detections in the TMDL monitoring program relative to either the Ag Waiver program or the Coalition monitoring.

These results indicate that multiple pesticides and metals can be detected at individual sites. Effects of multiple chemicals on toxicity are poorly understood, particularly for those constituents that have different modes of action. Chemicals within the same chemical class, e.g. organophosphates, can be additive in their action. Often, the combined toxicity of two organophosphate chemicals, e.g. chlorpyrifos and diazinon can be estimated using a toxic unit approach where one toxic unit is the concentration of the chemical at its LC_{50}. Unfortunately, for those chemicals that do not have the same mechanism of action, the toxic unit approach is not generally applicable. Consequently, it is unknown if these chemicals are additive or synergistic in their toxicity. A more in-depth discussion of joint toxicity for specific chemicals will be provided in the Management Plan.

Table 17. Summary tally of historical water quality monitoring data including toxic samples, pesticide detections and metal detections.

Monitoring Site	Significant Toxicity Results								Pesticide Detections by Group										Metal Detections	
	Ceriodaphnia dubia		*Pimephales promelas*		*Selenastrum capricornutum*		*Hyalella azteca*		Organo-phosphates		Organo-chlorines		Carbamates		Herbicides		Pyrethroids		Metals	
	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests
Ash Slough @ Ave 21	0	10	0	10	1	10	0	4	4	65	0	35	0	30	0	45	0	54	31	40
August Road Drain upstream of Crows Landing Bridge (Hogin Rd)	0	3	0	3	0	3	0	2	2	11	NA	NA	NA	NA	NA	NA	0	12	NA	NA
Bear Creek @ Kibby Rd	3	24	0	21	0	21	0	9	2	159	1	91	0	78	0	117	0	116	81	100
Berenda Slough along Ave 18 1/2	1	10	0	9	3	11	0	2	4	109	0	63	0	54	4	83	0	54	NA	NA
Black Rascal Creek @ Yosemite Rd	5	16	0	13	0	13	0	3	5	143	0	91	0	78	0	117	0	78	NA	NA
Cottonwood Creek @ Rd 20	0	19	0	19	0	19	1	8	6	128	0	70	0	60	1	90	0	102	61	78
Deadman Creek (Dutchman) @ Gurr Rd	0	16	1	18	1	17	0	5	4	154	0	91	3	78	5	117	0	90	86	100
Deadman Creek @ Hwy 59	0	13	0	13	0	13	0	3	2	143	3	91	2	78	10	117	2	78	NA	NA
Dry Creek @ Rd 18	1	14	0	13	1	14	1	4	5	125	0	77	0	66	4	99	0	76	72	89
Dry Creek @ Wellsford Rd	2	24	0	22	4	24	1	9	11	172	1	91	0	78	10	119	0	120	81	100
Duck Slough @ Gurr Rd	3	27	0	25	2	26	5	11	5	182	0	91	0	78	6	121	4	140	88	104
Duck Slough @ Hwy 99	1	23	0	22	1	24	0	4	4	171	0	91	0	78	2	119	0	120	83	102
Hatch Drain @ Tuolumne Rd	0	5	0	5	0	5	2	2	1	55	2	35	1	30	1	45	0	30	32	36
Highline Canal @ Hwy 99	4	23	0	19	1	20	4	9	4	146	0	84	0	72	2	108	0	106	68	92
Highline Canal @ Lombardy Rd	4	26	0	21	3	27	6	10	7	150	0	84	0	72	3	108	0	114	68	93
Hilmar Drain @ Central Ave	1	24	0	22	2	24	2	9	4	161	1	91	0	78	2	117	0	120	92	100
Jones Drain @ Oakdale Rd	1	23	0	22	1	22	0	9	6	162	1	91	0	78	2	117	0	120	89	102
Livingston Drain @ Robin Ave	0	5	0	5	0	5	0	1	2	55	0	35	0	30	0	45	0	30	31	36
Lone Willow Slough @ Madera Ave	1	5	0	5	1	5	2	4	3	10	NA	NA	NA	NA	NA	NA	1	20	NA	NA
Merced River @ Santa Fe	3	27	0	25	1	26	0	9	3	172	0	91	0	78	3	117	0	132	71	99
Miles Creek @ Reilly Rd	1	6	0	5	1	6	1	2	2	55	0	35	2	30	2	45	0	30	30	36
Mustang Creek @ East Ave	0	7	0	7	0	7	0	2	2	77	2	49	0	42	2	63	0	42	NA	NA
Prairie Flower Drain @ Crows Landing Rd	2	24	2	24	1	23	4	10	7	163	0	91	2	78	7	117	1	120	95	100
Silva Drain @ Meadow Dr	1	14	0	13	0	13	2	4	7	154	0	91	0	78	6	119	0	78	NA	NA

Monitoring Site	Significant Toxicity Results								Pesticide Detections by Group										Metal Detections	
	Ceriodaphnia dubia		*Pimephales promelas*		*Selenastrum capricornutum*		*Hyalella azteca*		Organo-phosphates		Organo-chlorines		Carbamates		Herbicides		Pyrethroids		Metals	
	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests
South Slough @ Quinley Rd	0	6	0	6	0	6	0	2	1	66	3	45	0	36	0	54	1	36	NA	NA
Westport Drain @ Vivian Rd	0	5	0	5	1	6	0	1	1	55	0	35	0	30	0	45	0	30	33	36

NA – Not Applicable; no monitoring was conducted for those constituents.

Table 18. Summary tally of Regional Ag Waiver monitoring results within the ESJWQC area.

Zone	Monitoring Site	Significant Toxicity Results								Pesticide Detections by Group										Metals Detections	
		Ceriodaphnia dubia		*Pimephales promelas*		*Selenastrum capricornutum*		*Hyalella azteca*		Organo-phosphates		Organo-chlorines		Carbamates		Herbicides		Pyrethroids		Metals	
		Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Significant Toxicity Results	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests
1	Dry Creek at J9	0	5	0	5	5	5	0	1	6	50	0	35	1	25	2	35	0	26	35	40
2	Stevison Lower Lateral at Faith Home Road	0	5	0	5	0	5	NA	NA	2	50	0	35	0	25	2	35	1	26	40	40
3	Duck Slough at Arboleda Drive	0	5	0	5	4	5	0	2	2	70	0	49	1	25	0	35	0	28	50	56
	Ingalsbe Slough at J17	0	5	0	5	5	5	0	1	0	50	0	35	0	25	0	35	0	26	34	40
5	Owens Creek at Gurr Road	0	4	0	4	0	4	0	1	3	40	0	28	1	20	6	28	0	4	32	32
6	Berenda Creek at Avenue 17.5 west of Madera	2	7	0	6	1	6	0	2	31	180	0	126	0	20	20	98	0	18	27	32
	Cottonwood Creek at Hwy 145 in Madera County	0	3	0	3	3	3	0	1	2	30	0	21	0	15	2	21	0	15	23	24

NA- Not Applicable; no monitoring was conducted for those results.

Table 19. Summary tally of results from the Regional Board Organophosphate TMDL (2007).

Zone	Monitoring Site	Pesticide Detections by Group									
		Organophosphates		Organochlorines		Carbamates		Herbicides		Pyrethroids	
		Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests	Number of Detections	Number of Tests
2	San Joaquin River @ Crows Landing	9	40	NA	NA	NA	NA	NA	NA	NA	NA

Protection of Beneficial Uses

Beneficial uses assigned to water bodies that are to be monitored by the Coalition are included in Table 4. In order to protect those beneficial uses, a list of water quality trigger limits (WQTLs) is used to determine if and to what magnitude an exceedance of a chemical constituent has occurred. Table 20 lists all sites monitored between 2004 and 2007, providing the current assessment status with regards to the protection of beneficial uses assigned to each water body. The Coalition has developed a method to protect beneficial uses of water bodies within its boundaries by creating a monitoring program to assess water quality in all water bodies that receive agricultural discharge. The monitoring plan includes rotating Assessment Monitoring locations, determining trends and overall status of zones through Core Monitoring locations, notifying growers of exceedances within their areas, identifying for growers possible management practices that can be used to protect beneficial uses of their waterways, and monitoring the effect of newly initiated management practices through additional monitoring and in some cases special studies. The Coalition has actively pursued grant monies (including Proposition 50 and Proposition 84 grants) with the help of CURES to supplement costs to the Coalition for determining suitable MANAGEMENT PRACTICESs for this area and to aid growers in implementing structural management practices.

The ESJWQC Management Plan does not provide for management of single exceedances that have occurred at Core Monitoring locations. Although outside the required constituents to be monitored during Core Monitoring years, constituents in Table 21 will be monitored during the next year at core sites. If no additional exceedances occur in a three year period, the Coalition will cease to monitor for these additional constituents during Core Monitoring years.

Table 20. Assessment of beneficial uses protection at Coalition monitoring sites.

Monitoring Site	Immediate Downstream Water Body	Beneficial Use Immediate Downstream Water Body	Assessment Status 2004-2007 Meets BUs?
Merced River @ Santa Fe	Merced River (McSwain Reservoir to SJ River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Silva Drain @ Meadow Dr	Merced River (McSwain Reservoir to San Joaquin River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Highline Canal @ Hwy 99	San Joaquin River (mouth of Merced River to Vernalis) / Merced River (McSwain Reservoir to SJR)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Highline Canal @ Lombardy Ave	San Joaquin River (mouth of Merced River to Vernalis) / Merced River (McSwain Reservoir to SJR)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Hilmar Drain @ Central Ave	San Joaquin River (mouth of Merced River to Vernalis)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No
Mustang Creek @ East Ave	San Joaquin River (mouth of Merced River to Vernalis) / Merced River (McSwain Reservoir to SJR)	MUN	No
		AG	No
		REC 1	No
		AQ Life	Yes
Prairie Flower Drain @ Crows Landing Rd	San Joaquin River (mouth of Merced River to Vernalis)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No
Westport Drain @ Vivian Rd	San Joaquin River (mouth of Merced River to Vernalis)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No
Ash Slough @ Ave 21	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Bear Creek @ Kibby Rd	San Joaquin River (Sack	MUN	No

Monitoring Site	Immediate Downstream Water Body	Beneficial Use Immediate Downstream Water Body	Assessment Status 2004-2007 Meets BUs?
	Dam to mouth of Merced River)	AG	Yes
		REC 1	No
		AQ Life	No
Berenda Slough along Ave 18 1/2	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Black Rascal Creek @ Yosemite Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Cottonwood Creek @ Rd 20	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Deadman Creek @ Gurr Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Deadman Creek @ Hwy 59	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Dry Creek @ Rd 18	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Duck Slough @ Gurr Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No
Duck Slough @ Hwy 99	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
Hatch Drain @ Tuolumne Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	No
		REC 1	No

Monitoring Site	Immediate Downstream Water Body	Beneficial Use Immediate Downstream Water Body	Assessment Status 2004-2007 Meets BUs?
		AQ Life	No
Livingston Drain @ Robin Ave	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	Yes
		AG	Yes
		REC 1	Yes
		AQ Life	No
Miles Creek @ Reilly Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	Yes
		REC 1	No
		AQ Life	No
South Slough @ Quinley Rd	San Joaquin River (Sack Dam to mouth of Merced River)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No
Dry Creek @ Wellsford Rd	Tuolumne River (New Don Pedro Dam to SJ River)	MUN	No
		AG	No
		REC 1	No
		AQ Life	No

AG- Agricultural beneficial uses.
AQ Life- Aquatic life beneficial uses (includes both cold/warm water spawning and habitat).
MUN- Municipal beneficial uses; for *E. coli* a WQTL of 235 MPN/100mL was used to assess MUN status.
NA- Not Applicable; beneficial use is not applicable to downstream water body.
REC 1- Recreation beneficial uses.

Table 21. Core Monitoring sites and additional consituents due to previous exceedances of WQTL.

Site Name	Toxicity					Metals				Pesticides						Constituents to Add to Core Monitoring Locations
	Ceriodaphnia	*Pimephales*	*Selenastrum*	*Hyalella*	Arsenic	Cadmium	Copper	Lead	Nickel	Chlorpyrifos	Carbofuran	Cyanazine	Diazinon	Diuron	Simazine	
Cottonwood Creek @ Rd 20		1	1	**1**			MP	**MP**		**MP**		**1**	**1**	**MP**	**1**	Pimephales, Selenastrum and Hyalella toxicity testing; herbicides; organophosphates
Dry Creek @ Wellsford Rd	MP		MP	**1**		**MP**	MP	**1**		MP				MP		Hyalella toxicity testing; metals (total and dissolved)
Duck Slough @ Gurr Rd	MP		MP	MP		1	MP	MP	MP	1	**1**					Metals (total and dissolved); organophosphates; carbamates
Highline Canal @ Hwy 99	MP		**MP**	MP		**MP**	MP	MP		MP				**MP**		None
Merced River @ Santa Fe	MP		1*					1		1						Metals (total and dissolved) and organophosphates (including Group A)
Prairie Flower Drain @ Crows Landing Rd	MP	MP	**MP**	MP	1†	MP				MP						None

*single exceedance from March 2005; no toxicity in last three years.

†single exceedance in June 2007 and associated with cadmium exceedance which is under a management plan. Although arsenic for this site does not require a management plan it will be managed with cadmium due to similar characteristics and transportation methods.

Bolded MP or 1 are due to exceedances occurring between September 2007 and June 2008 and will be assessed in the 2009 Management Plan Report.

SOURCES OF DISCHARGE

Agricultural Drainage

There are five possible sources of discharge within the Coalition region: urban storm or dry weather runoff, discharge from waste water treatment plants, irrigation discharge, agricultural storm water discharge, and discharge to groundwater by agriculture. Waterbodies in the ESJWQC region receive agricultural discharge from storm and irrigation runoff. In addition, in sandy areas a large portion of the discharge does not create surface runoff but rather infiltrates and recharges the groundwater. In the Prairie Flower Drain @ Crows Landing Zone and the Highline Canal @ Hwy 99 Zone most of the waterways consist of irrigation district canals and delivery systems with relatively small amount of surface runoff.

Agricultural impacts on water quality include direct discharge of storm water and irrigation tail water containing constituents in excess of the WQTLs, spray drift, and effects due to water diversions. Water bodies within the ESJWQC have been heavily engineered to move water from sources to end users, generally growers but also urban centers. Many of the urban centers contribute discharge seasonally as storm water (e.g. Turlock, Ceres, and Keyes drain to the Highline Canal). Urban inputs may mix with agricultural inputs especially as the cities of Modesto, Turlock, Atwater, Livingston, and Merced continue to grow. Other delivery canals can accept discharges which are transferred downstream where the water may be reused. Consequently, water bodies can carry clean irrigation water exclusively, a combination of clean water and agricultural discharge, or primarily agricultural discharge depending on the season.

Pesticide Use Report Data

Information gathered for this section is based on data available from the California Department of Pesticide Regulation (DPR) website (http://calpip.cdpr.ca.gov/cfdocs/calpip/prod/main.cfm), GIS data obtained from the California Department of Water Resources (DWR), and the relevant County Agricultural Commissioner (CAC) 2002 Agricultural Crop and Livestock Reports. The information presented is based on the most updated data available at the time this report was written (Attachment II).

AGRICULTURAL PRACTICES SUMMARY

Agricultural practices are targeted at reducing either discharge of sediment and the associated sorbed constituents, or reducing the discharge of water that contains dissolved constituents. Whether these constituents are pesticides, nutrients, or pathogens, management of water and sediment discharges are primarily focused on retaining constituents on the fields rather than moving them to surface waters. The Coalition developed a survey for growers to complete and provide information on their management practices. The surveys were sent to growers during the spring and summer of 2007 and were summarized for the entire Coalition region in the December 31, 2007 SAMR. Growers were allowed to select from a list of management practices used on their operations and were also given an option to provide a written response. Many of the written responses appear to be variations of the listed options and, consequently, a complete, detailed analysis is difficult to provide. Failure of growers to provide survey responses was due to one or more of the following reasons: 1) the grower was not a member of the Coalition, 2) the grower was unable to respond (i.e. wrong address, did not receive mail, did not have enough information to respond) or 3) the grower was unwilling to respond. A review of the survey responses that were received was performed to determine the general status of the management practices in the region.

The Coalition distributed management practices surveys to selected growers in the Coalition region (both coalition members and non members). The surveys were sent to landowners who the coalition identified as having fields directly adjacent or near a waterway monitored by the coalition and where exceedances occurred in 2006.

Of the returned surveys, a large number of growers indicated that there was no discharge from their property during either the storm or irrigation season as a result of local conditions or lack of proximity to waterways. Of those who indicated discharge was a possibility, growers often indicated that several different management practices were utilized to control discharge. Drainage management systems included holding basins, bermed fields, recirculating systems, and sediment settling basins. Many growers indicated that they allowed vegetation to grow in drainage ditches in either winter or summer, or both as a means of trapping sediment. When asked about practices used to lessen storm or irrigation runoff from fields to ditches, canals, or streams, growers indicated that they used a variety of practices including grass row centers in orchards, grass waterways, gravity tailwater recapture systems, vegetated filter strips, or irrigation management systems such as drip, microspray, sprinkler, or careful water management. Additionally growers attended commodity-specific training sessions, obtained a soil nutrient analysis, followed a crop nutrient management plan, received an agronomist's advice on practices, laser leveled their fields, obtained PCA recommendations, obtained Certified Crop Advisor recommendations, or performed sprayer calibrations.

Management Practices to Reduce Water Use and Waste Discharge

One of the primary goals of the Coalition is to gather information on management practices that are demonstrated to benefit water quality and to provide information and support to growers to facilitate the implementation of these management practices. Over the last several years, the Coalition has collaborated with many groups including the University of California Agricultural Cooperative Extension, the Coalition for Urban and Rural Environmental Stewardship (CURES), pesticide registrants and pest control advisors to gather information on the most up-to-date management practices to reduce the potential of pesticide runoff. Information is provided to growers regularly throughout the year by means of Coalition outreach meetings, mailings, personal communication and the Coalition website. Each management practice is viewed as one tool in a collective tool box and the management practices (tools) that are most beneficial to a particular farm will depend on factors such as the size of the farm, the drainage system, soil type, crop type and the agricultural pests that must be controlled.

A working list of management practices is provided in Table 22 below. Management practices are described based on the goal (e.g. water conservation, waste discharge reduction) and the mechanism of the practice. Management practices are continually developing and changing and therefore the information will be updated in the ESJWQC Management Plan. Outreach materials will be included in the Management Plan and AMR where applicable.

Table 22. Table of management practices, target constituents, mechanism and possible improvements to water quality.

Management Practice	Endpoint	Management Practice Target(s)	Management Practice Mechanism	Effected water/sediment quality monitoring parameter(s)
Sediment basin	Reduce discharge	PI, PS, K, S, NP	Settling of sediment, pesticides bound to sediments; allow time for biodegradation of pesticides	Color, turbidity, EC, TDS, metals, short half-life pesticides, high Koc pesticides, total phosphorous
Vegetated buffers	Reduce discharge	PI, PS, K, S, NP, NN	Removal of sediment, nutrients, pesticides bound to sediments, or any contaminants with low solubility	Color, turbidity, EC, TDS, metals, pesticides, nutrients
Cover crop, dormant season vegetation	Reduce discharge	K, S, NP	Removal of sediment, pesticides bound to sediments, or any contaminants with low solubility; protect soils and soil nutrients for growing season	Color, turbidity, EC, TDS, metals, pesticides, nutrients
Sprayer calibration	Reduce discharge	D	Reduce potential for spray drift	All pesticides
Polyacrylamide (PAM)	Reduce discharge	PI, K, S, NP	A surfactant that removes sediment from the water column, thus pulling out pesticides bound to sediments	Color, turbidity, metals, pyrethroid pesticides, total phosphorous
Dormant season field retainers	Reduce discharge	PS, S	Reduce/eliminate storm runoff	Color, turbidity, EC, TDS, copper, pyrethroid pesticides, organophosphate pesticides
Micro irrigation	Reduce water use & discharge	D,W	Increase water efficiency, eliminate potential for spray drift	All pesticides, copper
Tail water return	Reduce water use & discharge	PI , PS, K, S, W, NP, NN	Re-use of irrigation water, eliminate discharge altogether	Color, turbidity, EC, TDS, metals, all pesticides, all nutrients

Management Practice Targets Code:

D: Chemical (pesticide) drift
PS: Dormant spray pesticide storm runoff
S: Sediment runoff
NP: Nutrients: phosphorous
PI: Pesticide runoff from irrigation
K: High K_{oc} pesticide runoff
W: Water use efficiency
NN: Nutrients: nitrate, nitrite or Kjeldhal nitrogen

Management Practices Implementation

Over the course of monitoring, when exceedances occur at a sample site more than once, the Coalition is required to formulate a Management Plan to address those exceedances. The ESJWQC Management Plan contains goals and actions that are designed to address the problems specific to a site subwatershed. Management practices, outreach and implementation are important components of the plan. The Management Plan provides a prioritization scheme and sequence by which management actions occur. Based on this plan, management practices are recommended to growers through general outreach at county and/or subwatershed meetings and in higher priority subwatersheds on an individual grower and/or grower group basis. In some cases, Coalition representatives are able to conduct site visits to individual farms in order to investigate sources of exceedances and to speak with growers or applicators in person. After outreach or contact occurs, management practices are implemented by growers on a voluntary basis. In particular, where exceedances are experienced in a small site subwatershed, it is possible to work closely with growers to encourage the implementation of management practices at an individual site.

The Coalition will attempt to document the implementation of management practices in the Coalition region. Conversations with growers indicate that they are changing practices but often do not report the changes to the Coalition. Changing chemicals, application practices (e.g. timing of application, calibrating nozzles), or implementing structural management practices are occurring in the Coalition region but are difficult to track. The Coalition is developing a process to track new management practices that are implemented in the region. Information regarding management practices will be more completely developed in the Management Plan.

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Attachment I

ESJWQC Business Rules

RESPONSIBILITIES
MEMBERS OF THE BOARD OF DIRECTORS
EAST SAN JOAQUIN WATER QUALITY COALITION

The Directors of the East San Joaquin Water Quality Coalition (COALITION) shall govern the activities of the organization in such a manner as to achieve the objectives of the COALITION as prescribed in Article III, Section 1, of the Bylaws of the Corporation as given below.

ARTICLE III

OBJECTIVES, PURPOSES AND POWERS

Section 1. **Objectives.** The *raison d'être* of the Corporation shall be:

(a) **Nonprofit Public Benefit Corporation.** The Corporation is a nonprofit public benefit corporation and is not organized for the private gain of any person. The Corporation was organized and exists for charitable, scientific, and educational purposes under the Nonprofit Public Benefit Corporation Law;

(b) **Specific Purposes.** The specific purposes of the Corporation are:

(1) Support research on farming practices;

(2) Monitoring of local waterways;

(3) Stewardship of the environment with respect to the use of various agricultural inputs by proactively communicating environmental issues and disseminating information leading to solutions;

(4) To raise funds via contributions from centers for higher learning, business and professional groups, corporations, foundations, and individuals in order to further the purposes of this Corporation;

(5) To pursue charitable endeavors that develop, support, and promote activities and programs that improve water quality throughout the San Joaquin Valley of the State of California for all beneficial uses; and,

(6) To undertake such other projects, programs, and activities that fall within the foregoing specific purposes of this Corporation that are not inconsistent with Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America).

(c) **Section 501(c)(3) Charitable Organization.** The Corporation has been organized and shall be operated exclusively for charitable, scientific, educational, and prevention of cruelty to children purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America);

(d) **Prohibited Activities.** Notwithstanding any other provision of this Article, the Corporation shall not carry on any activity not permitted to be carried on by (a) a corporation exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) or (b) a corporation contributions to which are deductible from gross income pursuant to Section 170(c)(2) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America); and

(e) **No Propaganda Or Political Activities.** Except as provided in Section 501(h) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) following the filing by the Corporation with the Internal Revenue Service of an election under Section 501(h)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) to have applied to the Corporation the provisions of Section 501(h) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America), no substantial part of the activities of the Corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation; The Corporation shall not participate in, or intervene in (including the publishing or distribution of statements), any political campaign on behalf of (or in opposition to) any candidate for public office.

In pursuing the achievement of these objectives the Board of Directors of the COALITION shall utilize the powers provided to the Board of Directors by the Bylaws of the Corporation in Article V, Section 1. as given below.

ARTICLE V
BOARD OF DIRECTORS

Section 1. **Powers.**

A. **General Corporate Powers.** Subject to the provisions of the Nonprofit Public Benefit Corporation Law and any limitations in the Articles of Incorporation and these Bylaws, the activities and affairs of the Corporation shall be conducted and all corporate

powers shall be exercised by or under the direction of the Board of Directors. The Board of Directors may delegate the management of the activities of the Corporation to any person or persons, a management company, or committee however composed, *provided* that the activities and affairs of the Corporation shall be managed and all corporate powers shall be exercised under the ultimate direction of the Board of Directors. Without prejudice to such general powers, but subject to the same limitations, it is expressly declared that the Board of Directors, in addition to the other powers enumerated in these Bylaws, shall have the powers enumerated in Subsection B of this Section.

B. **Specific Powers.** Without prejudice to these general powers, and subject to the same limitations, the Board of Directors shall have the power to:

(a) Select and remove all officers, employees, and agents of the Corporation; Prescribe any powers and duties for the officers, employees, and agents of the Corporation that are consistent with law, the Articles of Incorporation, and these Bylaws; Fix the compensation of the officers, employees, and agents of the Corporation;

(b) Change the Principal Executive Office or the principal business office in the State of California from one location to another; Cause the Corporation to be qualified to do business in any other state, territory, dependency or country and conduct business or hold any meeting or meetings of the Board of Directors, including the Annual Meeting Of The Board Of Directors, within or outside the State of California;

(c) Adopt, make, and use a corporate seal and alter the form of the seal;

(d) Borrow money and incur indebtedness on behalf of the Corporation and cause to be executed and delivered for the purposes of the Corporation, in the corporate name, promissory notes, bonds, debentures, deeds of trust, mortgages, pledges, hypothecations, and other evidences of debt and securities; All checks, drafts or orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents of the Corporation and in such manner as shall from time to time be determined by resolution of the Board of Directors; In the absence of such determination by the Board of Directors, such instruments shall be signed by the Chief Financial Officer or an Assistant Treasurer and countersigned by the Chief Executive Officer / President or a Vice President;

(e) Accept on behalf of the Corporation any contribution, gift, bequest or devise for the general purposes or for any special purpose of the Corporation;

(f) Contract for goods and/or services for the Corporation, subject to the limitations elsewhere provided in these Bylaws, to maintain and otherwise manage or cause to be managed, all other property acquired by the Corporation and to

contract and pay for maintenance, utilities, materials, and supplies and services relating to facilities and to employ personnel reasonably necessary for the operation of the Corporation, including, without limitation, where appropriate, attorneys-at-law and accountants;

(g) Enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to a specific instance;

(h) Adopt and publish rules and regulations governing the use of facilities of the Corporation, and the personal conduct of the directors and their guests and delegatees thereon, and to establish penalties for the infraction thereof;

(i) Conduct, manage, and control the affairs and business of the Corporation;

(j) Contract and pay for the expenses of the Corporation;

(k) Prescribe such rules relating to the affairs and conduct of the Corporation as in the judgment of the Board of Directors, from time to time, may be found necessary or proper;

(l) Pay taxes and special assessments that are or would become a lien on property of the Corporation;

(m) Exercise all other powers granted to the Board of Directors by the laws of the State of California or the Articles of Incorporation or these Bylaws;

(n) From time to time, amend, revise, restate or repeal these Bylaws; and

(o) Remove a director from the Board of Directors for cause (the absence of a director from four (4) consecutive meetings of the Board of Directors shall constitute cause for removal).

Membership Policy

East San Joaquin Water Quality Coalition

Draft v 6-6-08

As a registered member of the Coalition, irrigated acres that you own or manage are now legally covered under the requirements described for watershed coalitions in the Irrigated Lands Regulatory Program (Amended Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Order No. R5-2006-0053).

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2. File required reports with the Central Valley Regional Water Quality Control Board (Regional Board) to maintain ILRP coverage for Coalition members.

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4. Spread costs equitably among Coalition members.

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Attachment I

ESJWQC Business Rules

RESPONSIBILITIES
MEMBERS OF THE BOARD OF DIRECTORS
EAST SAN JOAQUIN WATER QUALITY COALITION

The Directors of the East San Joaquin Water Quality Coalition (COALITION) shall govern the activities of the organization in such a manner as to achieve the objectives of the COALITION as prescribed in Article III, Section 1, of the Bylaws of the Corporation as given below.

ARTICLE III

OBJECTIVES, PURPOSES AND POWERS

Section 1. **Objectives.** The *raison d'être* of the Corporation shall be:

(a) **Nonprofit Public Benefit Corporation.** The Corporation is a nonprofit public benefit corporation and is not organized for the private gain of any person. The Corporation was organized and exists for charitable, scientific, and educational purposes under the Nonprofit Public Benefit Corporation Law;

(b) **Specific Purposes.** The specific purposes of the Corporation are:

(1) Support research on farming practices;

(2) Monitoring of local waterways;

(3) Stewardship of the environment with respect to the use of various agricultural inputs by proactively communicating environmental issues and disseminating information leading to solutions;

(4) To raise funds via contributions from centers for higher learning, business and professional groups, corporations, foundations, and individuals in order to further the purposes of this Corporation;

(5) To pursue charitable endeavors that develop, support, and promote activities and programs that improve water quality throughout the San Joaquin Valley of the State of California for all beneficial uses; and,

(6) To undertake such other projects, programs, and activities that fall within the foregoing specific purposes of this Corporation that are not inconsistent with Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America).

(c) **Section 501(c)(3) Charitable Organization.** The Corporation has been organized and shall be operated exclusively for charitable, scientific, educational, and prevention of cruelty to children purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America);

(d) **Prohibited Activities.** Notwithstanding any other provision of this Article, the Corporation shall not carry on any activity not permitted to be carried on by (a) a corporation exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) or (b) a corporation contributions to which are deductible from gross income pursuant to Section 170(c)(2) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America); and

(e) **No Propaganda Or Political Activities.** Except as provided in Section 501(h) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) following the filing by the Corporation with the Internal Revenue Service of an election under Section 501(h)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America) to have applied to the Corporation the provisions of Section 501(h) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any future internal revenue law of the United States of America), no substantial part of the activities of the Corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation; The Corporation shall not participate in, or intervene in (including the publishing or distribution of statements), any political campaign on behalf of (or in opposition to) any candidate for public office.

In pursuing the achievement of these objectives the Board of Directors of the COALITION shall utilize the powers provided to the Board of Directors by the Bylaws of the Corporation in Article V, Section 1. as given below.

ARTICLE V
BOARD OF DIRECTORS

Section 1. **Powers.**

A. **General Corporate Powers.** Subject to the provisions of the Nonprofit Public Benefit Corporation Law and any limitations in the Articles of Incorporation and these Bylaws, the activities and affairs of the Corporation shall be conducted and all corporate

powers shall be exercised by or under the direction of the Board of Directors. The Board of Directors may delegate the management of the activities of the Corporation to any person or persons, a management company, or committee however composed, *provided* that the activities and affairs of the Corporation shall be managed and all corporate powers shall be exercised under the ultimate direction of the Board of Directors. Without prejudice to such general powers, but subject to the same limitations, it is expressly declared that the Board of Directors, in addition to the other powers enumerated in these Bylaws, shall have the powers enumerated in Subsection B of this Section.

B. **Specific Powers.** Without prejudice to these general powers, and subject to the same limitations, the Board of Directors shall have the power to:

(a) Select and remove all officers, employees, and agents of the Corporation; Prescribe any powers and duties for the officers, employees, and agents of the Corporation that are consistent with law, the Articles of Incorporation, and these Bylaws; Fix the compensation of the officers, employees, and agents of the Corporation;

(b) Change the Principal Executive Office or the principal business office in the State of California from one location to another; Cause the Corporation to be qualified to do business in any other state, territory, dependency or country and conduct business or hold any meeting or meetings of the Board of Directors, including the Annual Meeting Of The Board Of Directors, within or outside the State of California;

(c) Adopt, make, and use a corporate seal and alter the form of the seal;

(d) Borrow money and incur indebtedness on behalf of the Corporation and cause to be executed and delivered for the purposes of the Corporation, in the corporate name, promissory notes, bonds, debentures, deeds of trust, mortgages, pledges, hypothecations, and other evidences of debt and securities; All checks, drafts or orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents of the Corporation and in such manner as shall from time to time be determined by resolution of the Board of Directors; In the absence of such determination by the Board of Directors, such instruments shall be signed by the Chief Financial Officer or an Assistant Treasurer and countersigned by the Chief Executive Officer / President or a Vice President;

(e) Accept on behalf of the Corporation any contribution, gift, bequest or devise for the general purposes or for any special purpose of the Corporation;

(f) Contract for goods and/or services for the Corporation, subject to the limitations elsewhere provided in these Bylaws, to maintain and otherwise manage or cause to be managed, all other property acquired by the Corporation and to

contract and pay for maintenance, utilities, materials, and supplies and services relating to facilities and to employ personnel reasonably necessary for the operation of the Corporation, including, without limitation, where appropriate, attorneys-at-law and accountants;

(g) Enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to a specific instance;

(h) Adopt and publish rules and regulations governing the use of facilities of the Corporation, and the personal conduct of the directors and their guests and delegatees thereon, and to establish penalties for the infraction thereof;

(i) Conduct, manage, and control the affairs and business of the Corporation;

(j) Contract and pay for the expenses of the Corporation;

(k) Prescribe such rules relating to the affairs and conduct of the Corporation as in the judgment of the Board of Directors, from time to time, may be found necessary or proper;

(l) Pay taxes and special assessments that are or would become a lien on property of the Corporation;

(m) Exercise all other powers granted to the Board of Directors by the laws of the State of California or the Articles of Incorporation or these Bylaws;

(n) From time to time, amend, revise, restate or repeal these Bylaws; and

(o) Remove a director from the Board of Directors for cause (the absence of a director from four (4) consecutive meetings of the Board of Directors shall constitute cause for removal).

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Attachment II

ESJWQC Site Maps 2009

Table of Figures

Figure 1. Map of Ash Slough @ Ave 21 site subwatershed

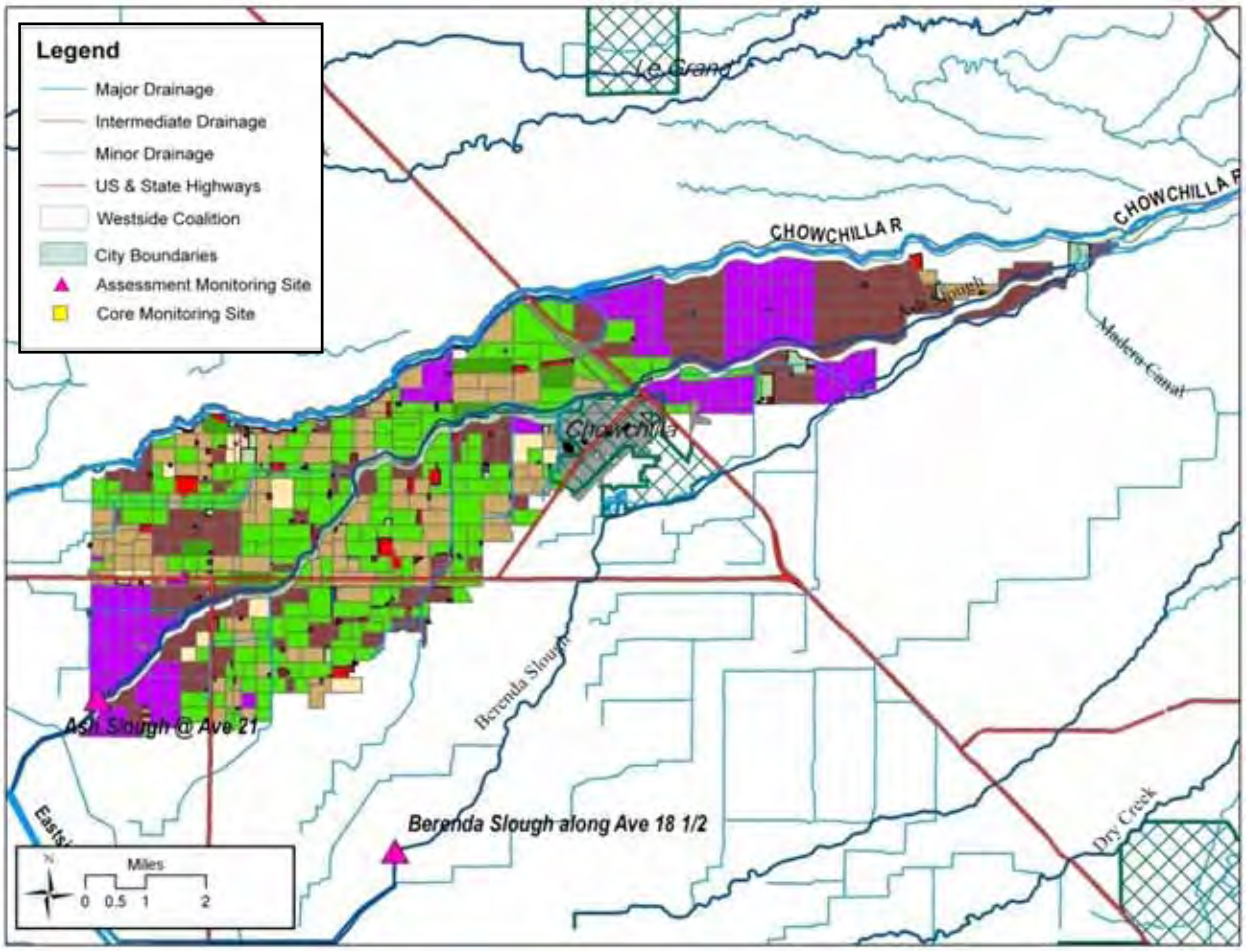


Figure 2. Map of Bear Creek @ Kibby Rd site subwatershed

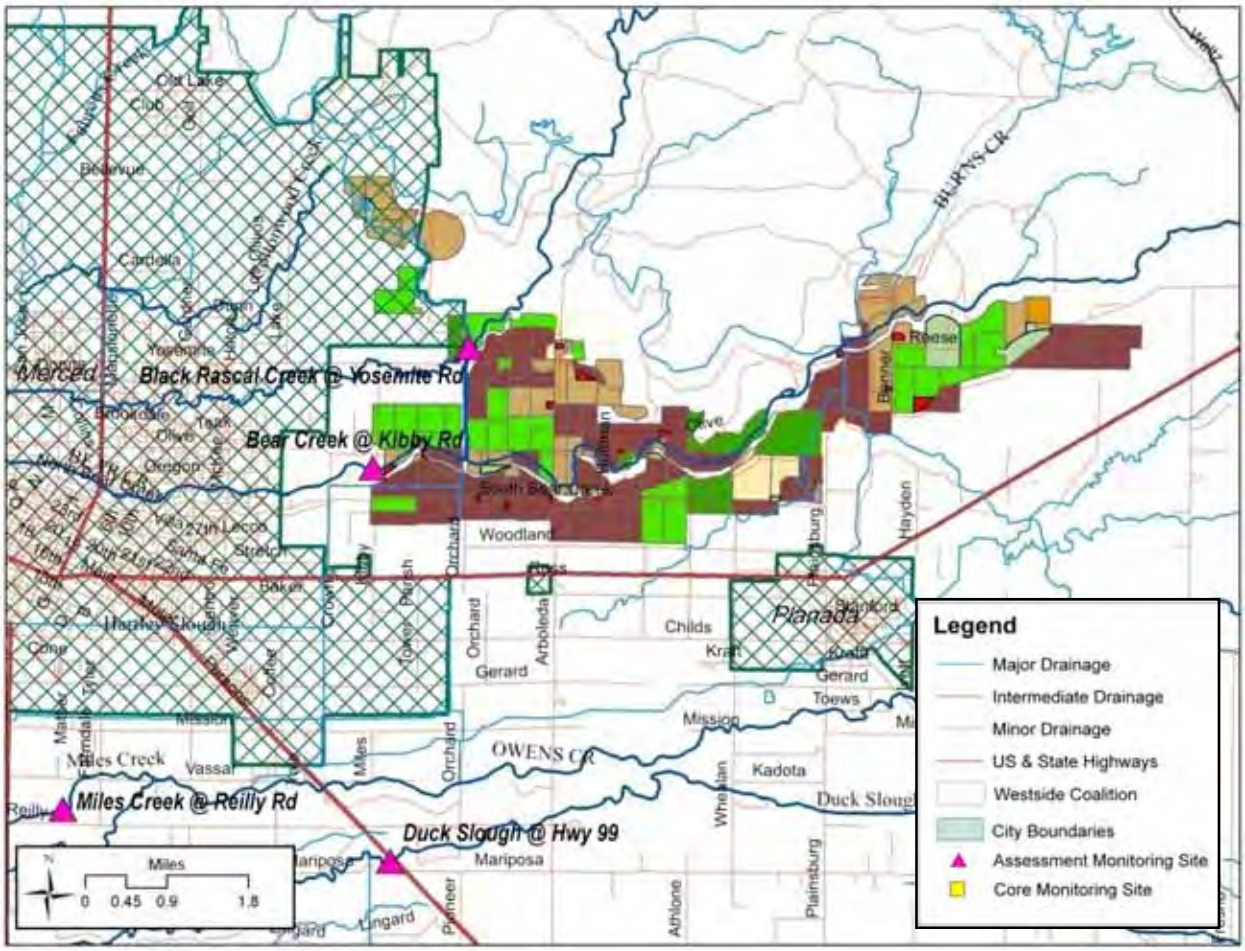


Figure 3. Map of Berenda Slough along Ave 18 ½ site subwatershed

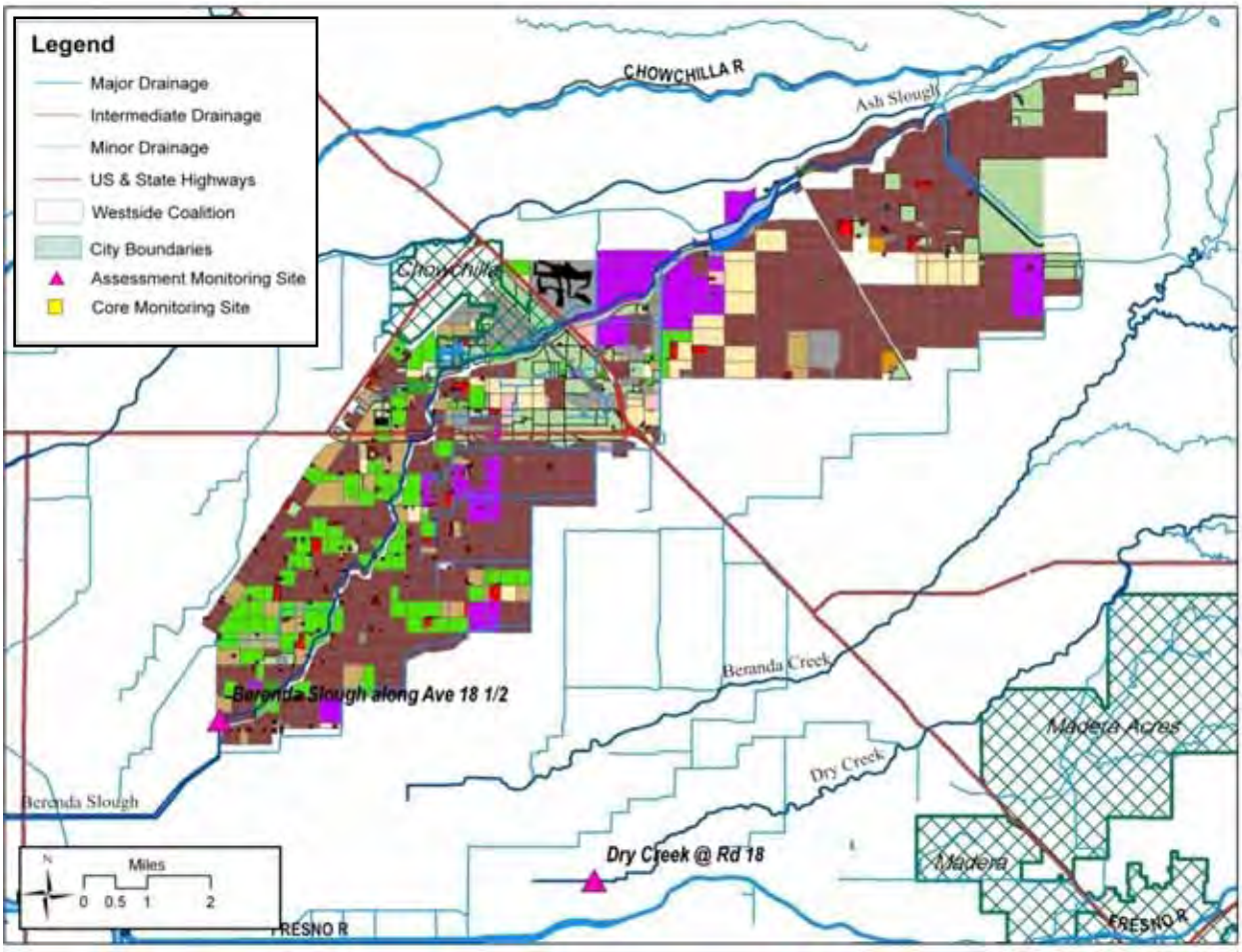


Figure 4. Map of Black Rascal Creek @ Yosemite Rd site subwatershed

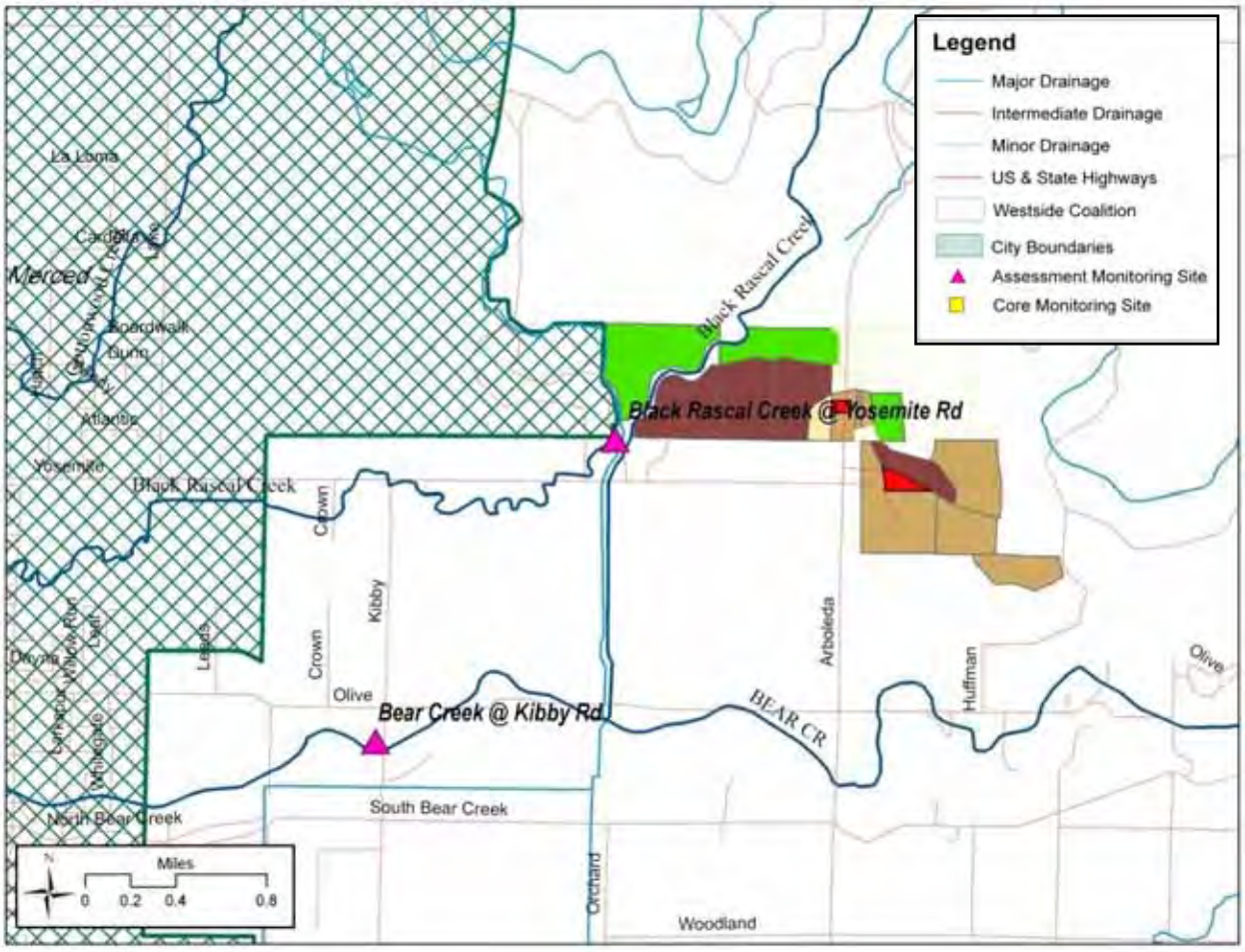


Figure 5. Map of Burnett Lateral @ 28 Mile Rd site subwatershed

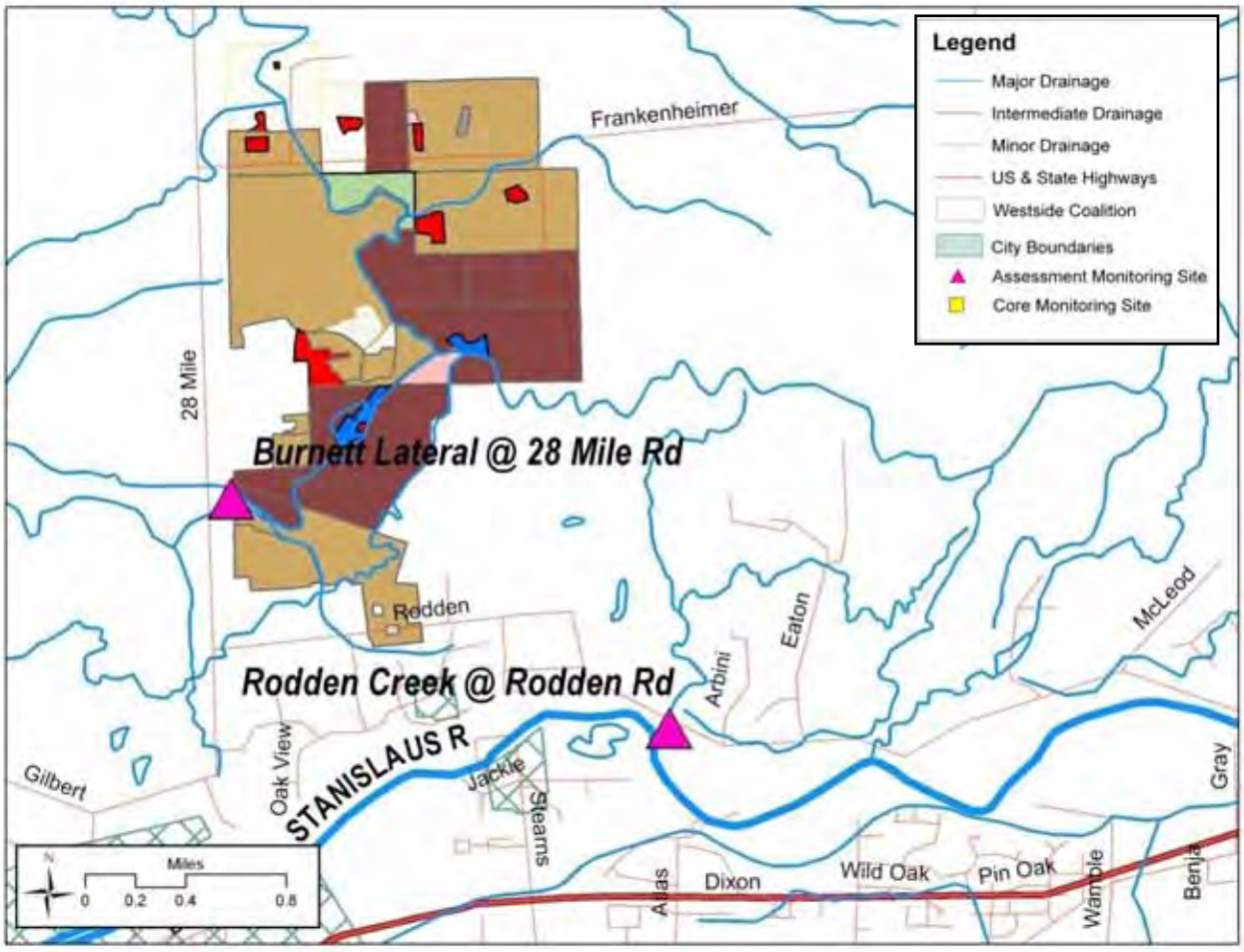


Figure 6. Map of Canal Creek @ West Bellevue Rd site subwatershed

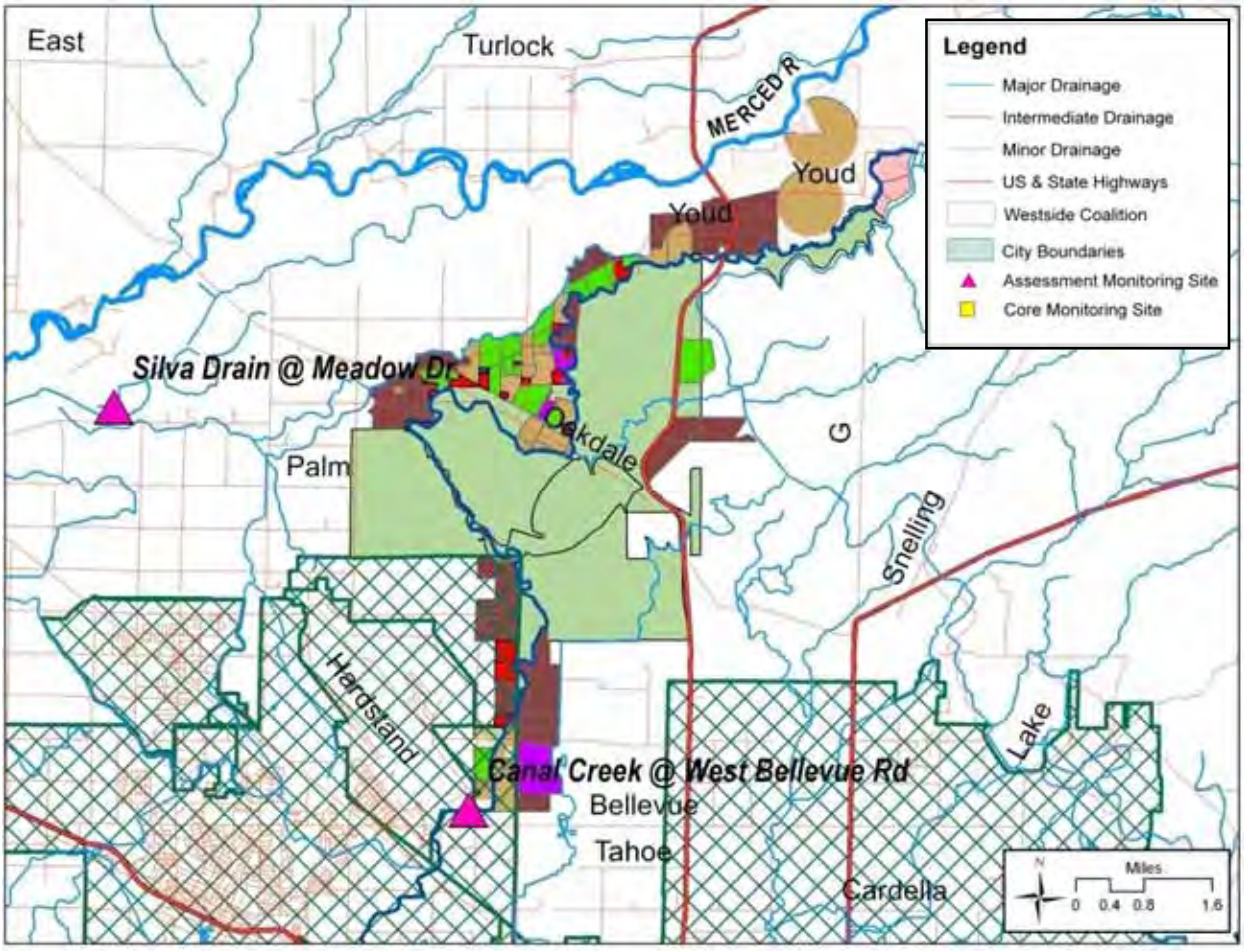


Figure 7. Map of Cottonwood Creek @ Rd 20 site subwatershed

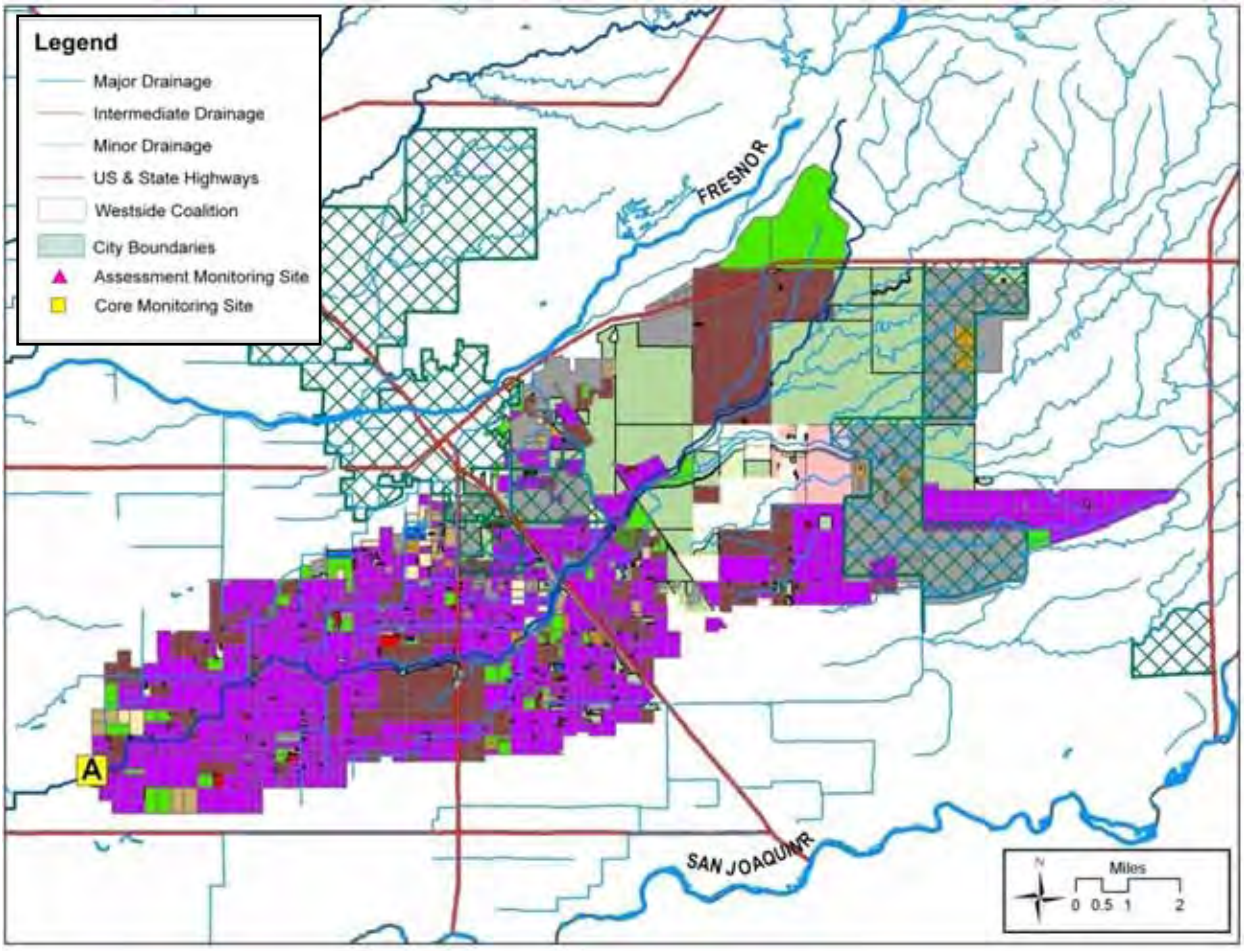


Figure 8. Map of Deadman Creek @ Gurr Rd site subwatershed

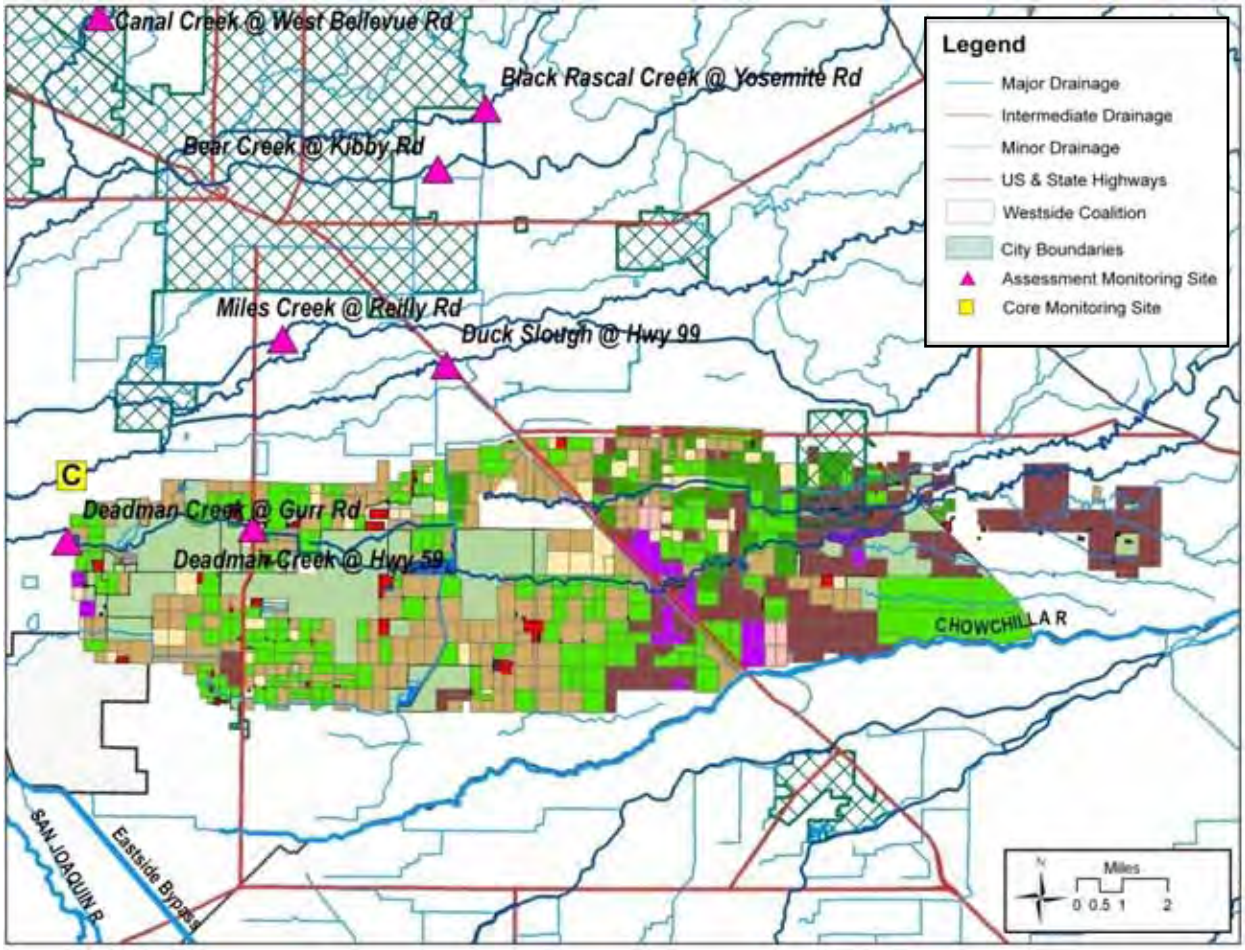
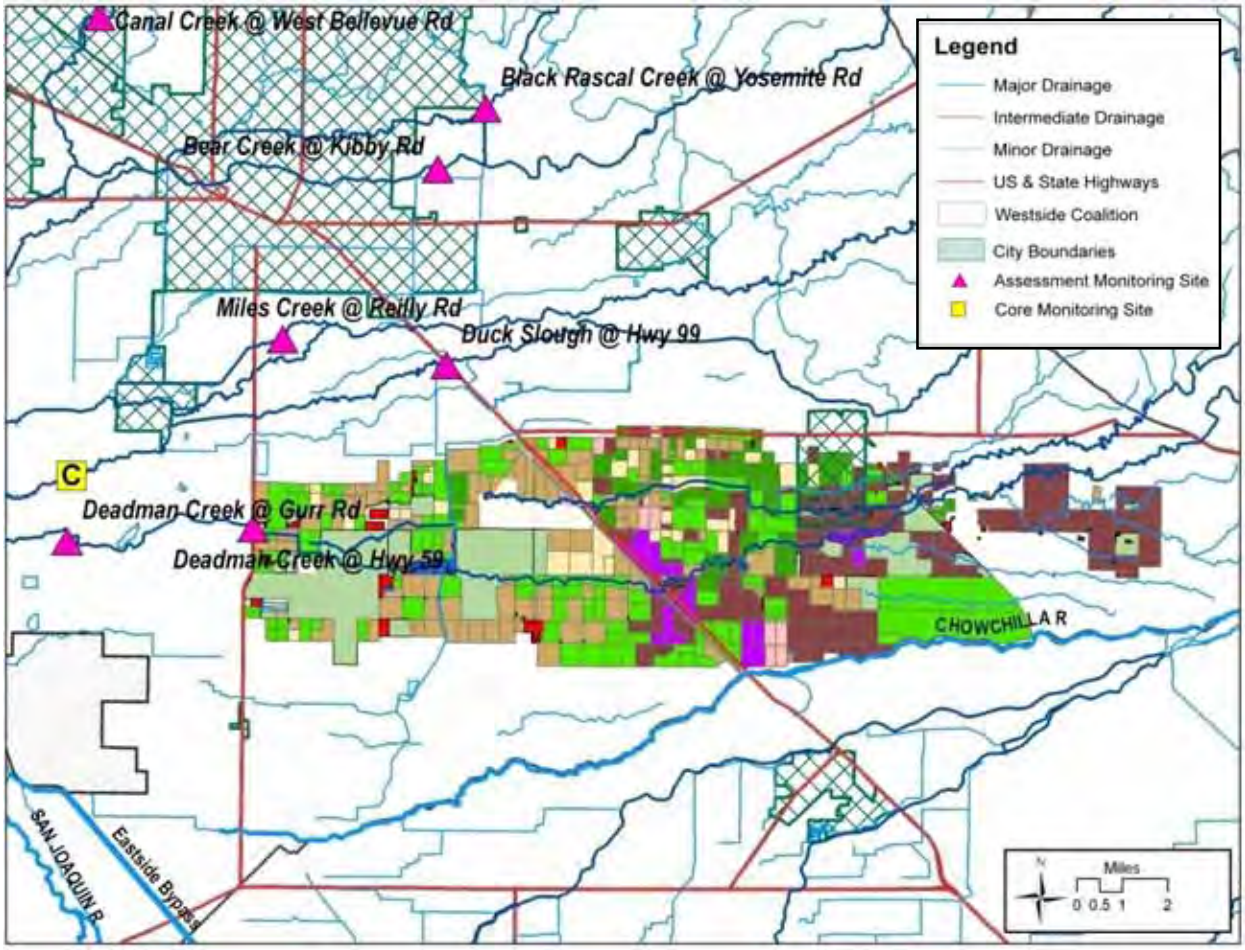


Figure 9. Map of Deadman Creek @ Hwy 59 site subwatershed



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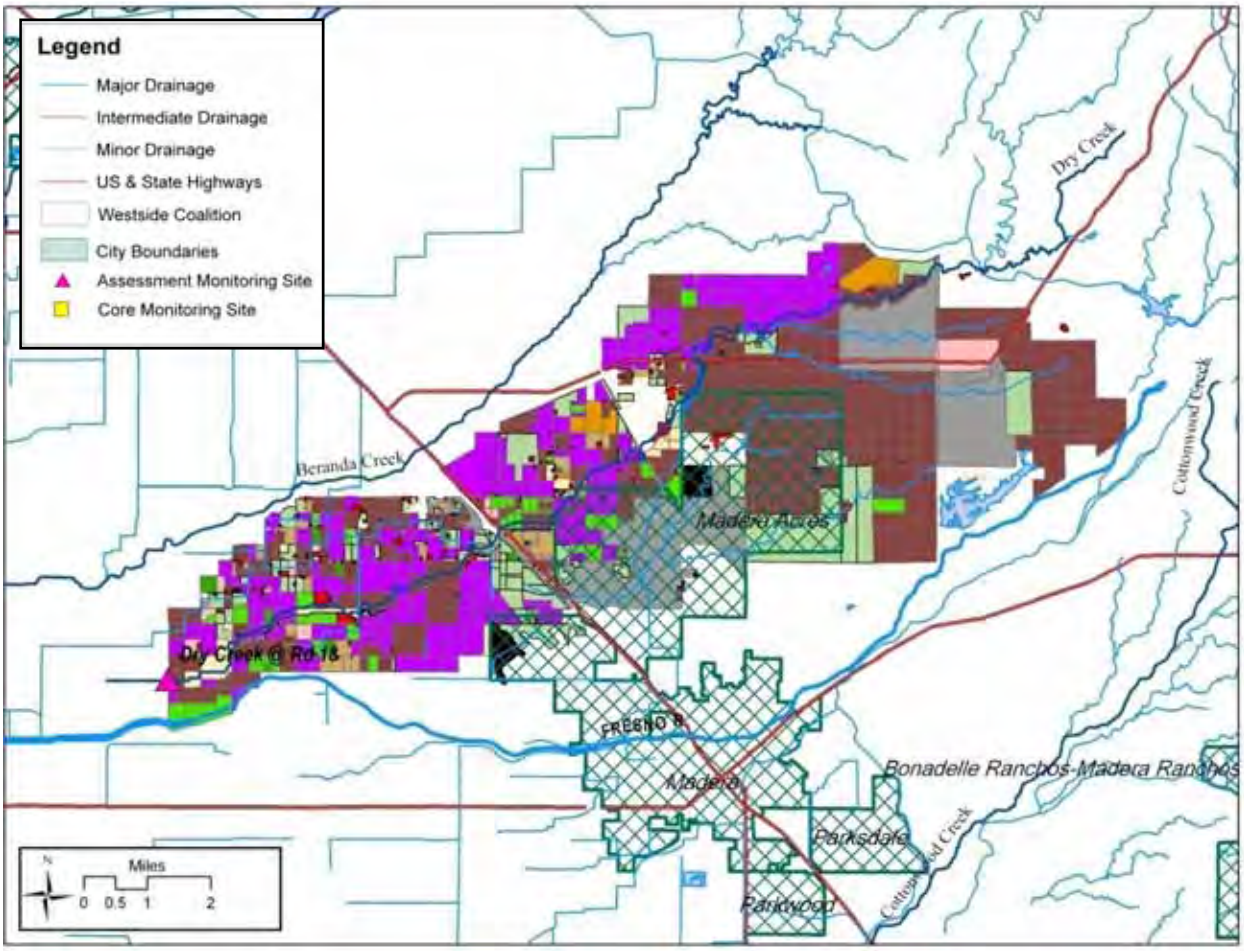

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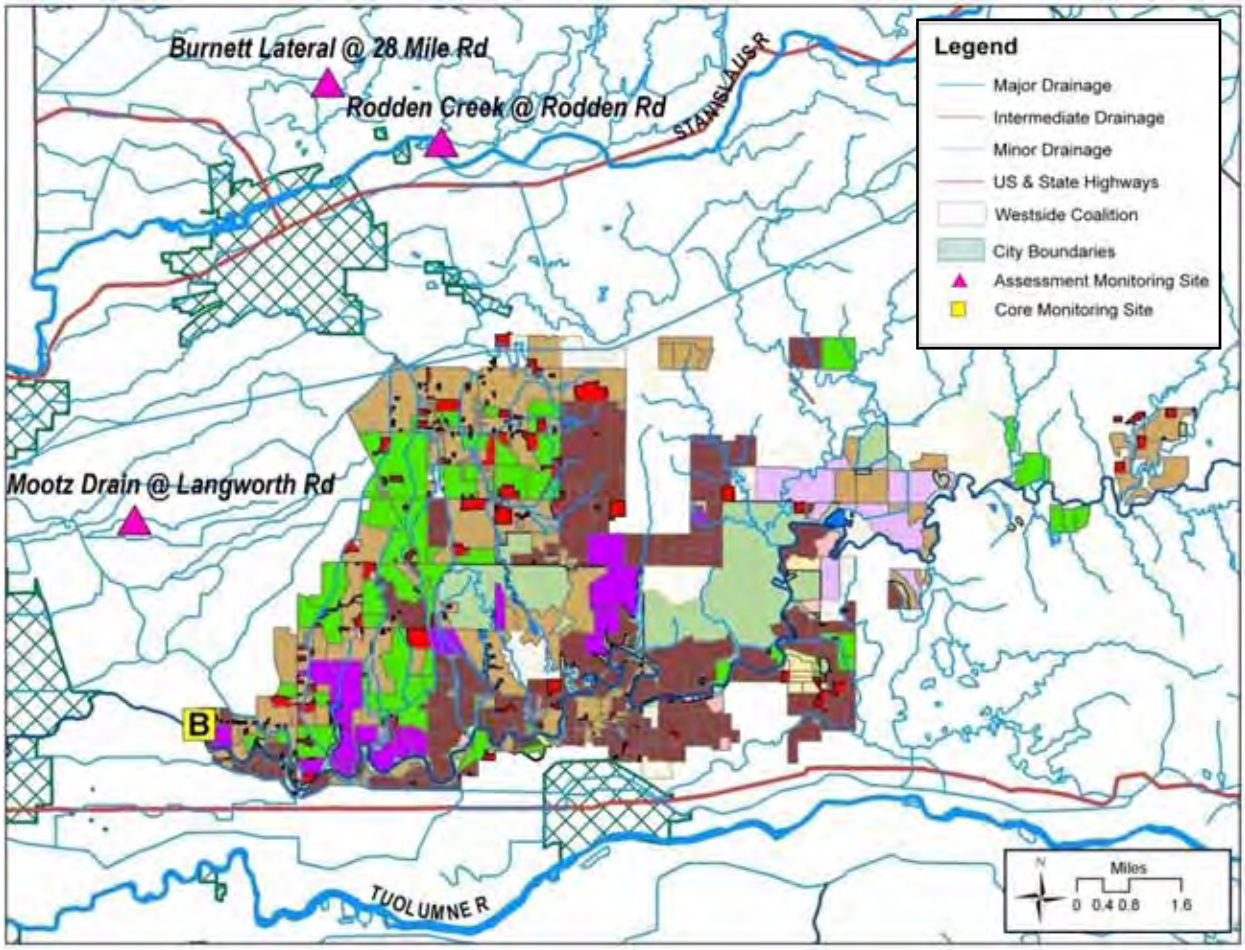


Figure 12. Map of Duck Slough @ Gurr Rd site subwatershed

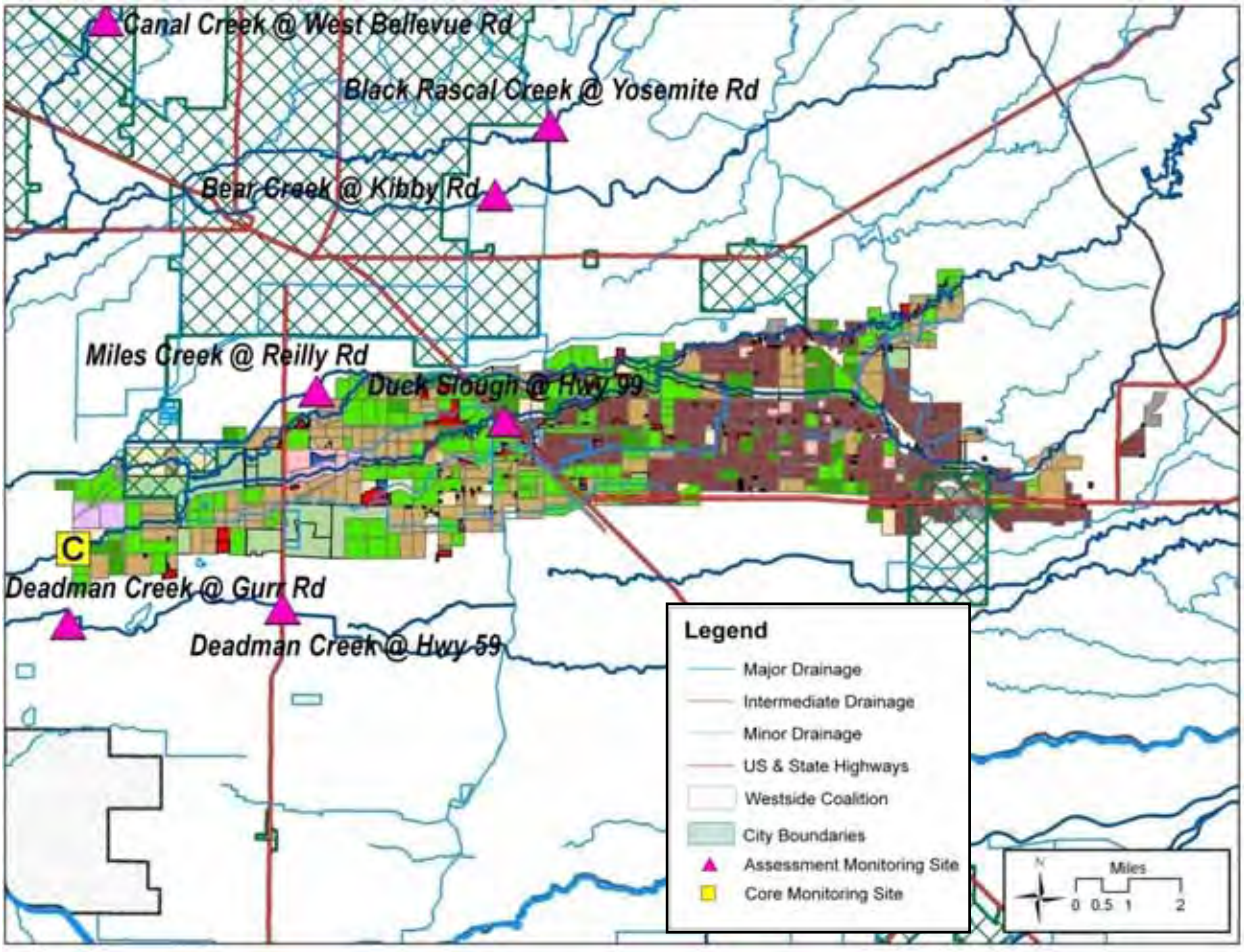


Figure 13. Map of Duck Slough @ Hwy 99 site subwatershed

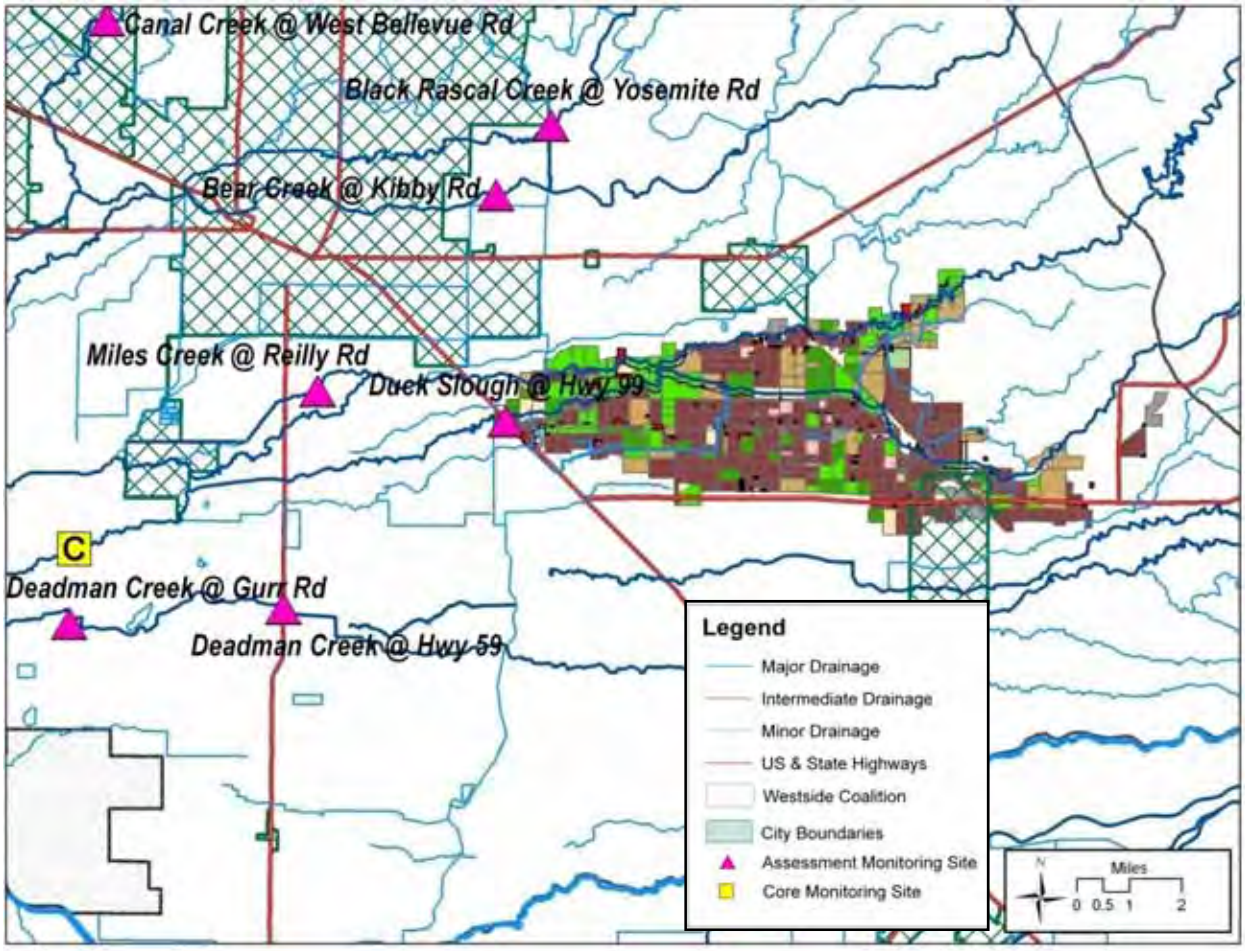


Figure 14. Map of Hatch Drain @ Tuolumne Rd site subwatershed

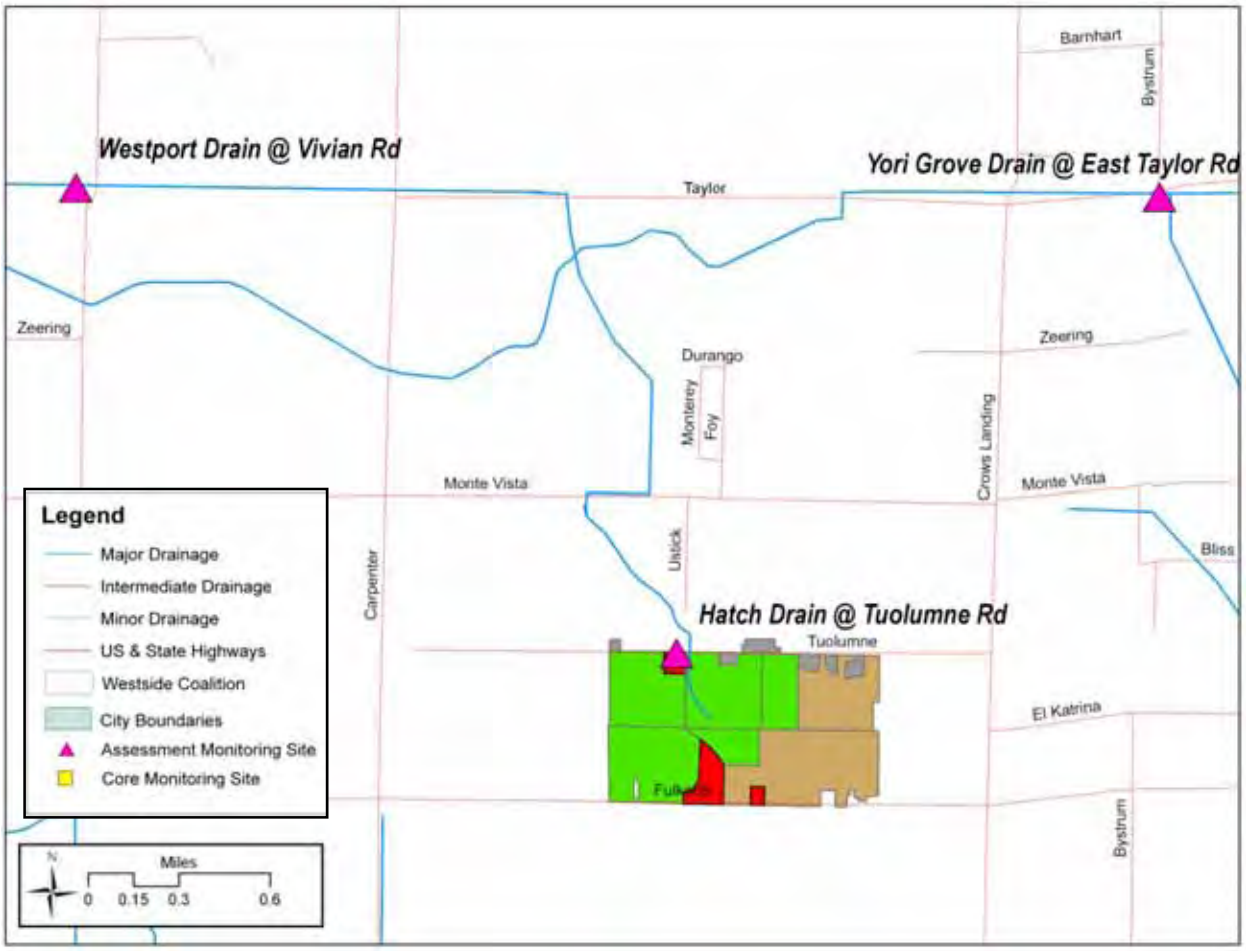


Figure 15. Map of Highline Canal @ Hwy 99 site subwatershed

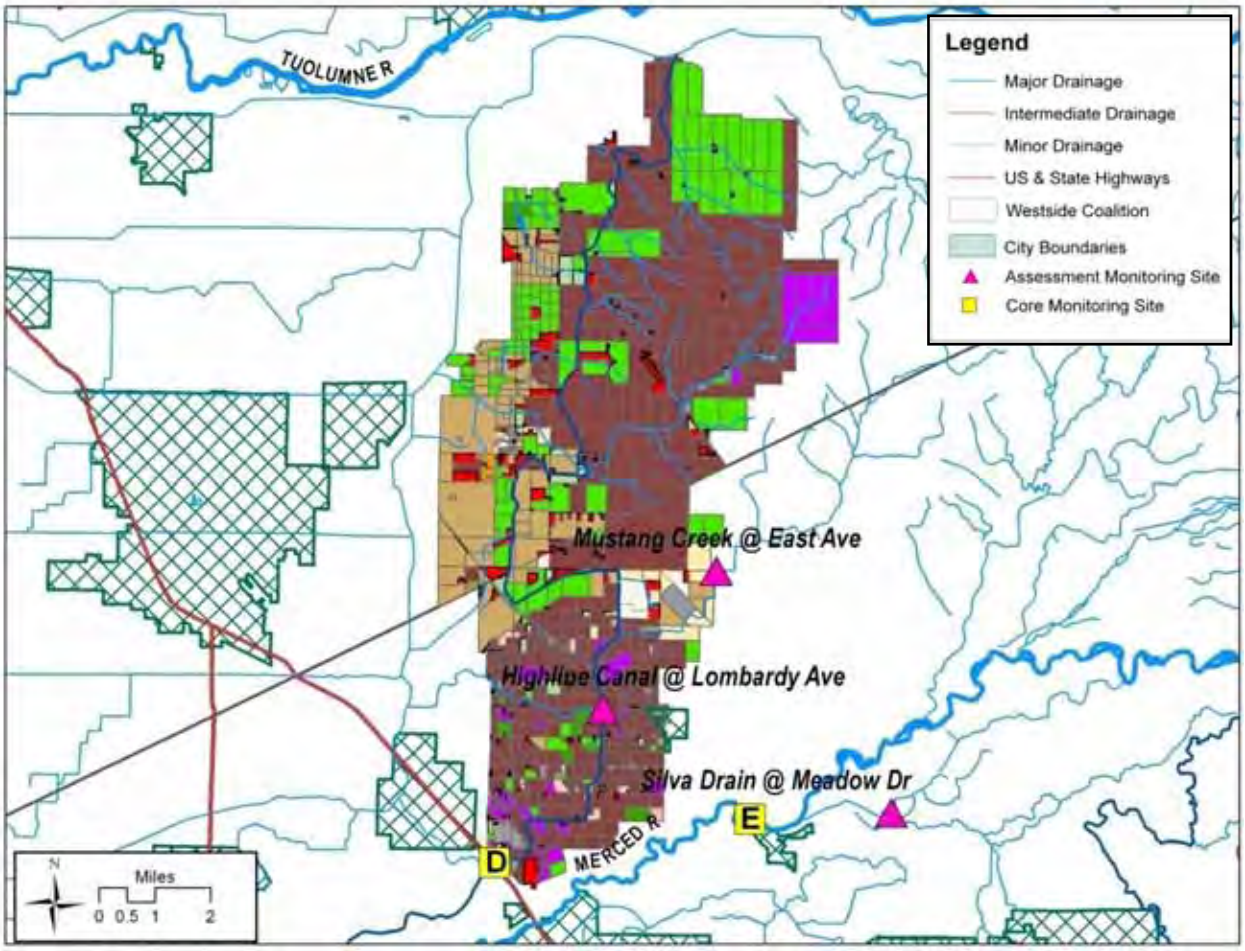


Figure 16. Map of Highline Canal @ Lombardy Rd site subwatershed

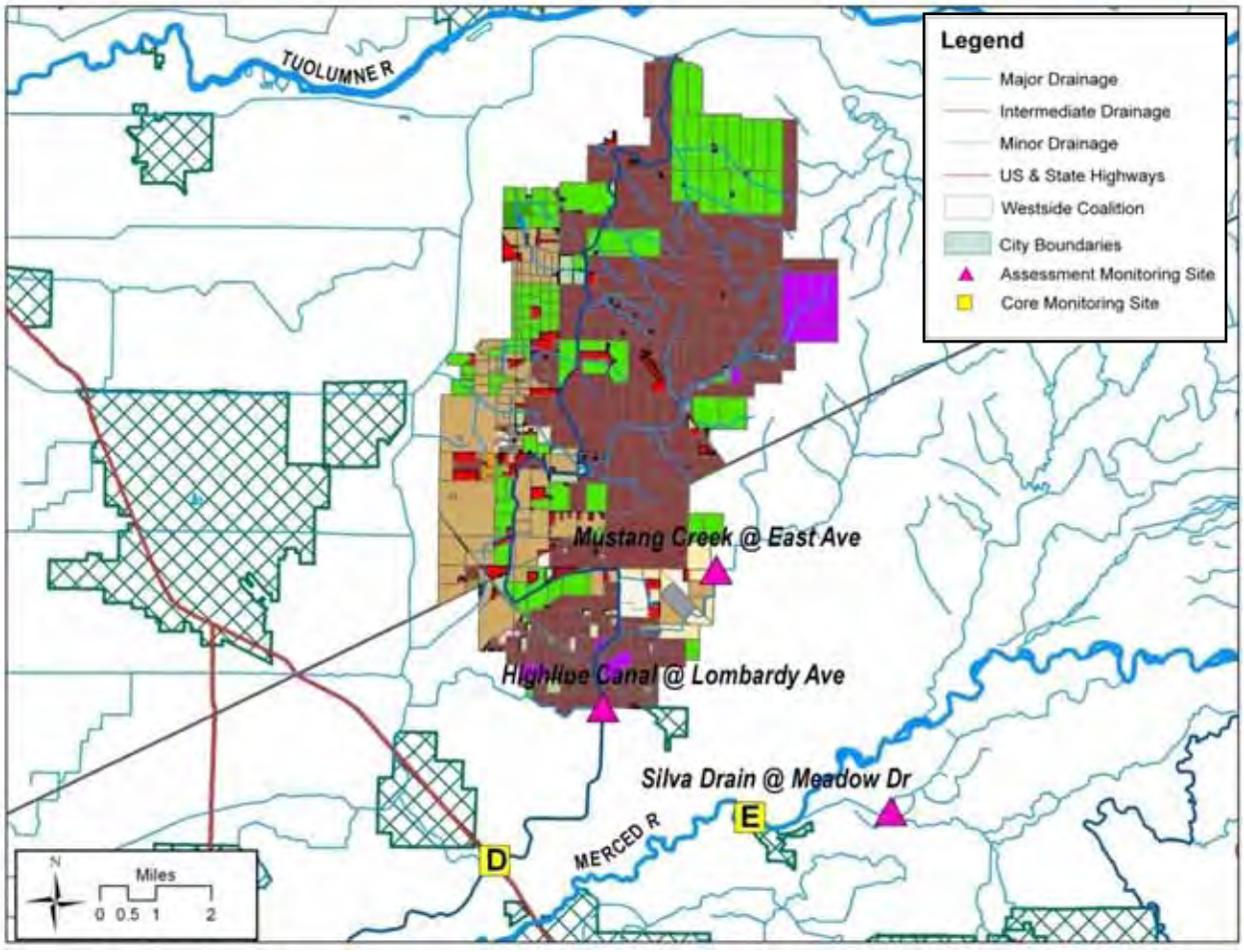


Figure 17. Map of Hilmar Drain @ Central Ave site subwatershed

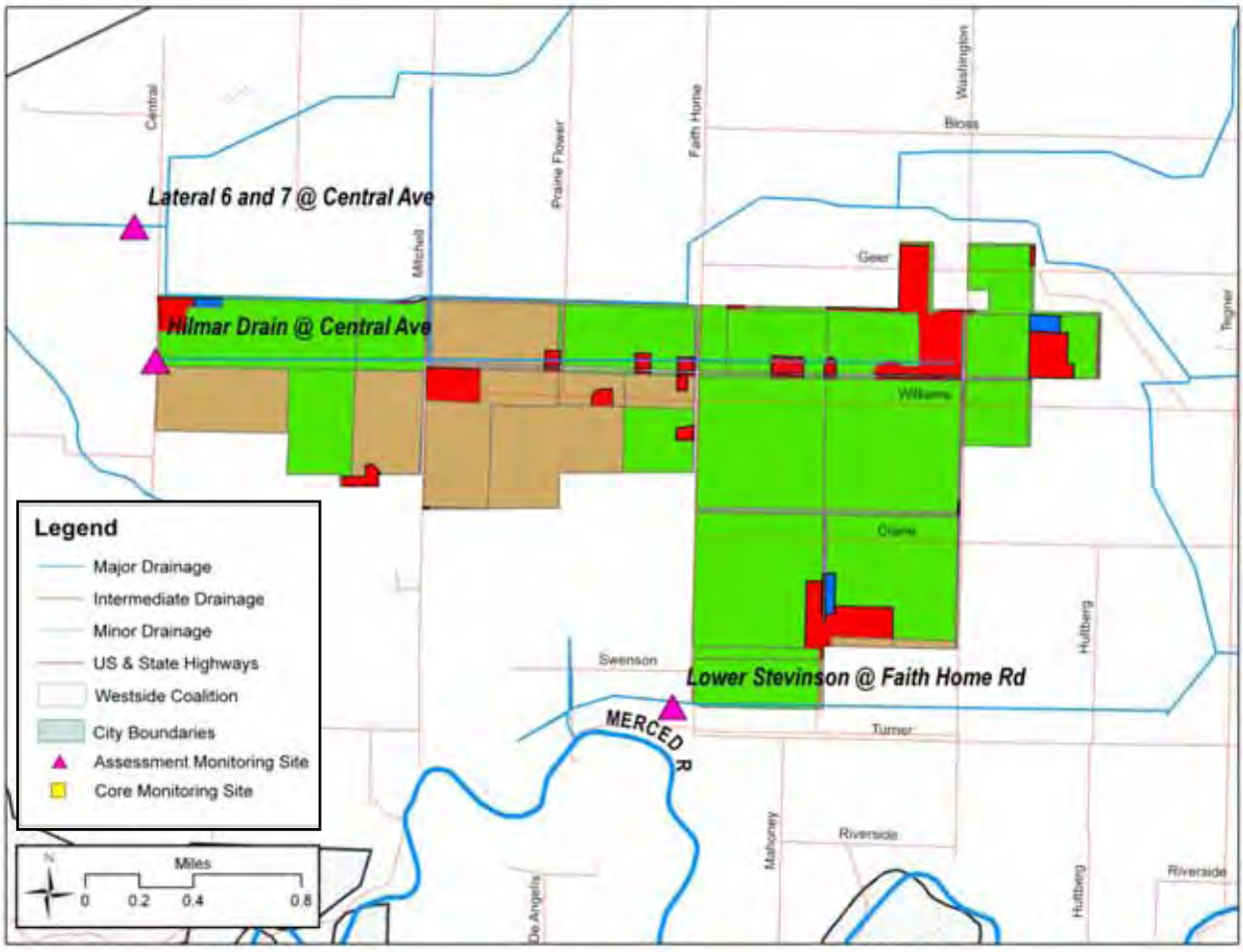


Figure 18. Map of Howard Lateral @ Hwy 140 site subwatershed

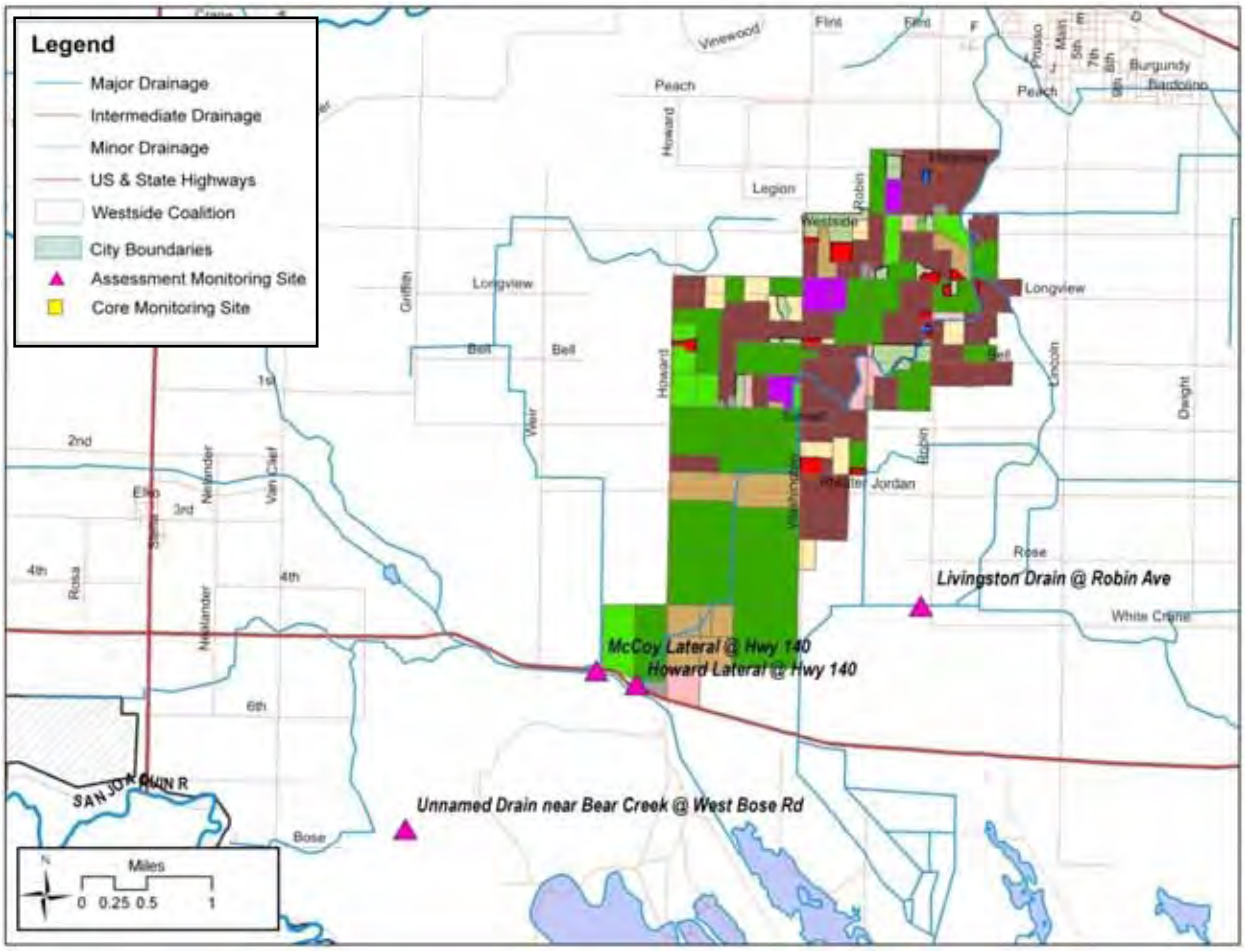


Figure 19. Map of Lateral 2 ½ near Keyes Rd site subwatershed

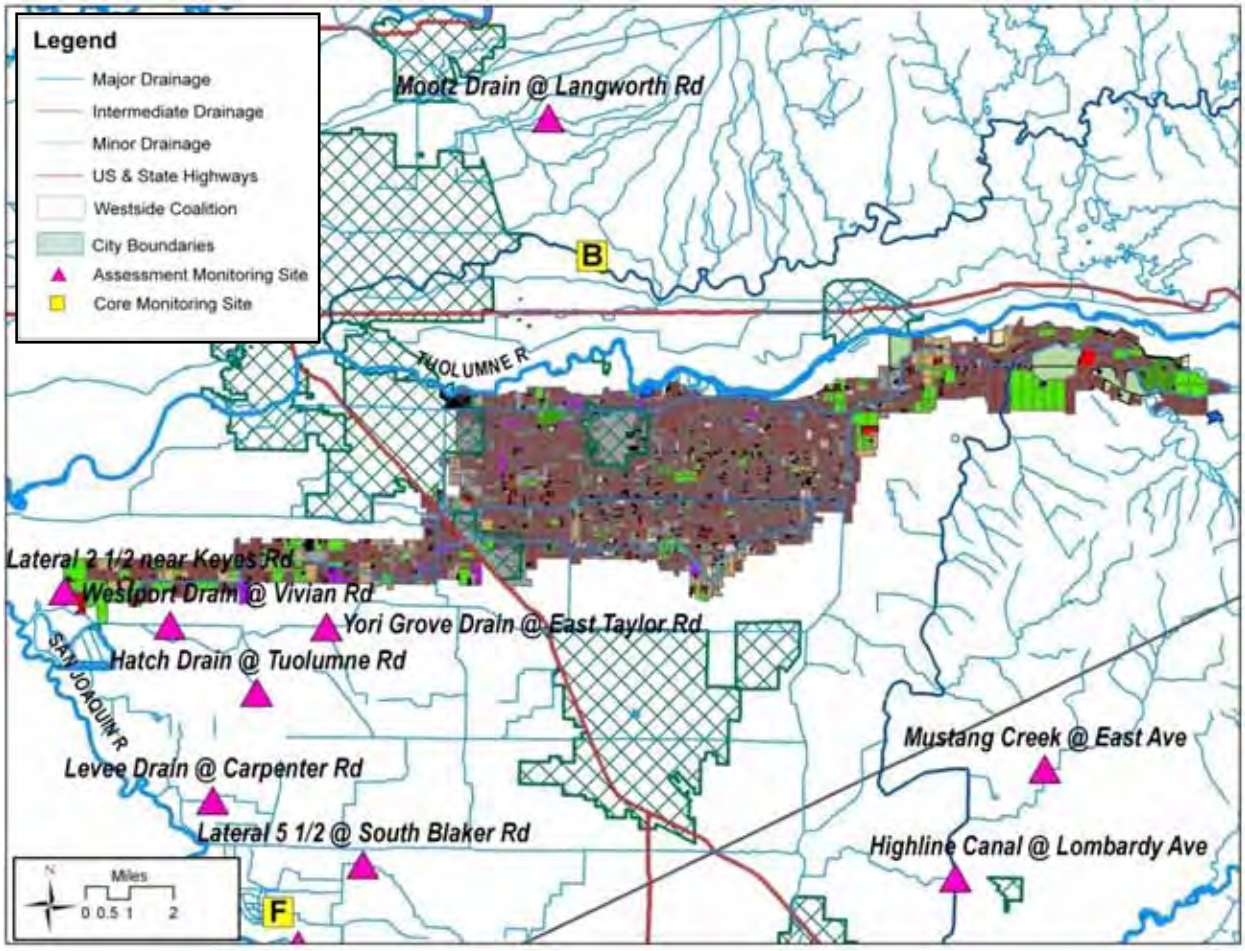


Figure 20. Map of Lateral 6 and 7 @ Central Ave site subwatershed

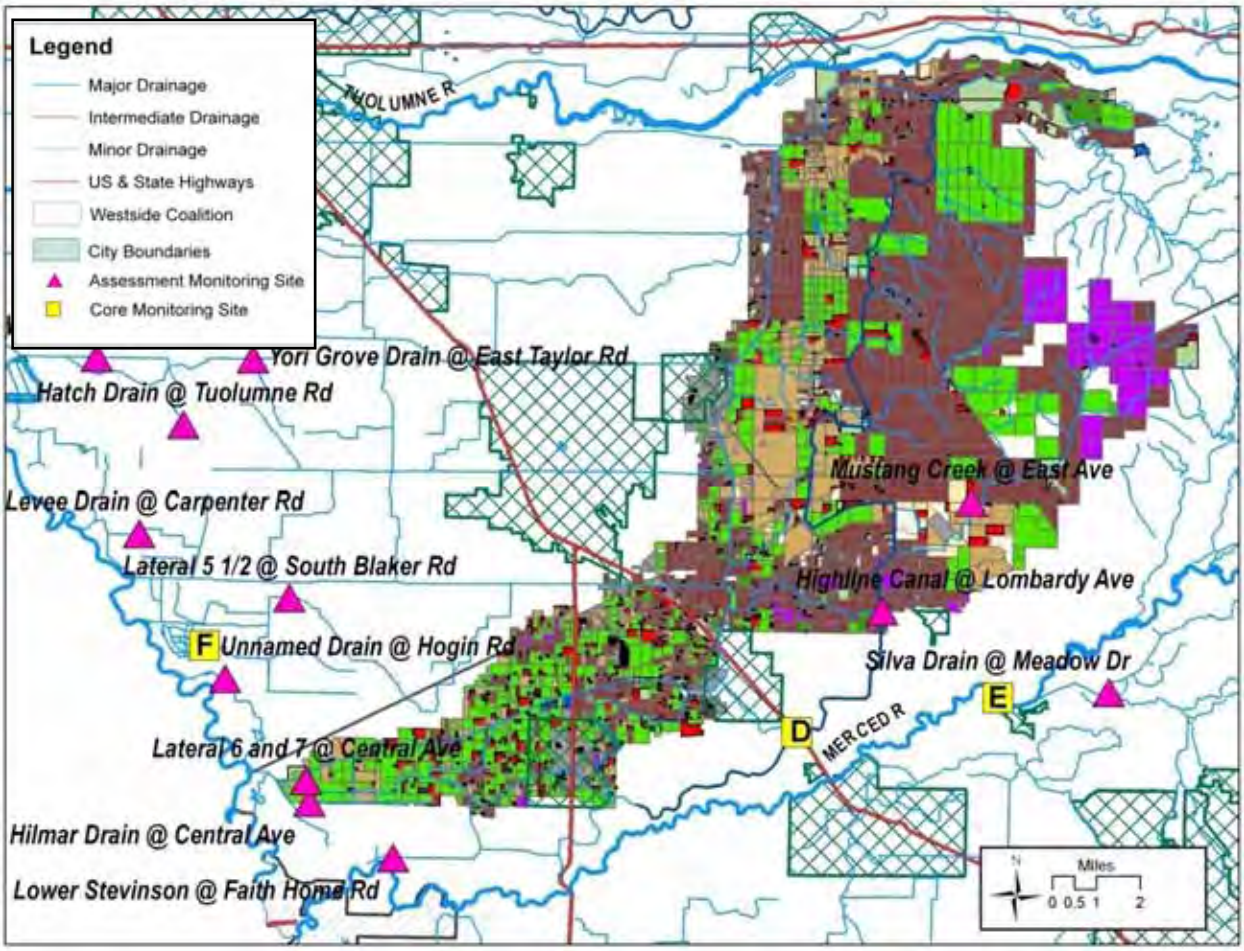


Figure 21. Map of Lateral 6 and 7 @ Central Ave site subwatershed (storm)

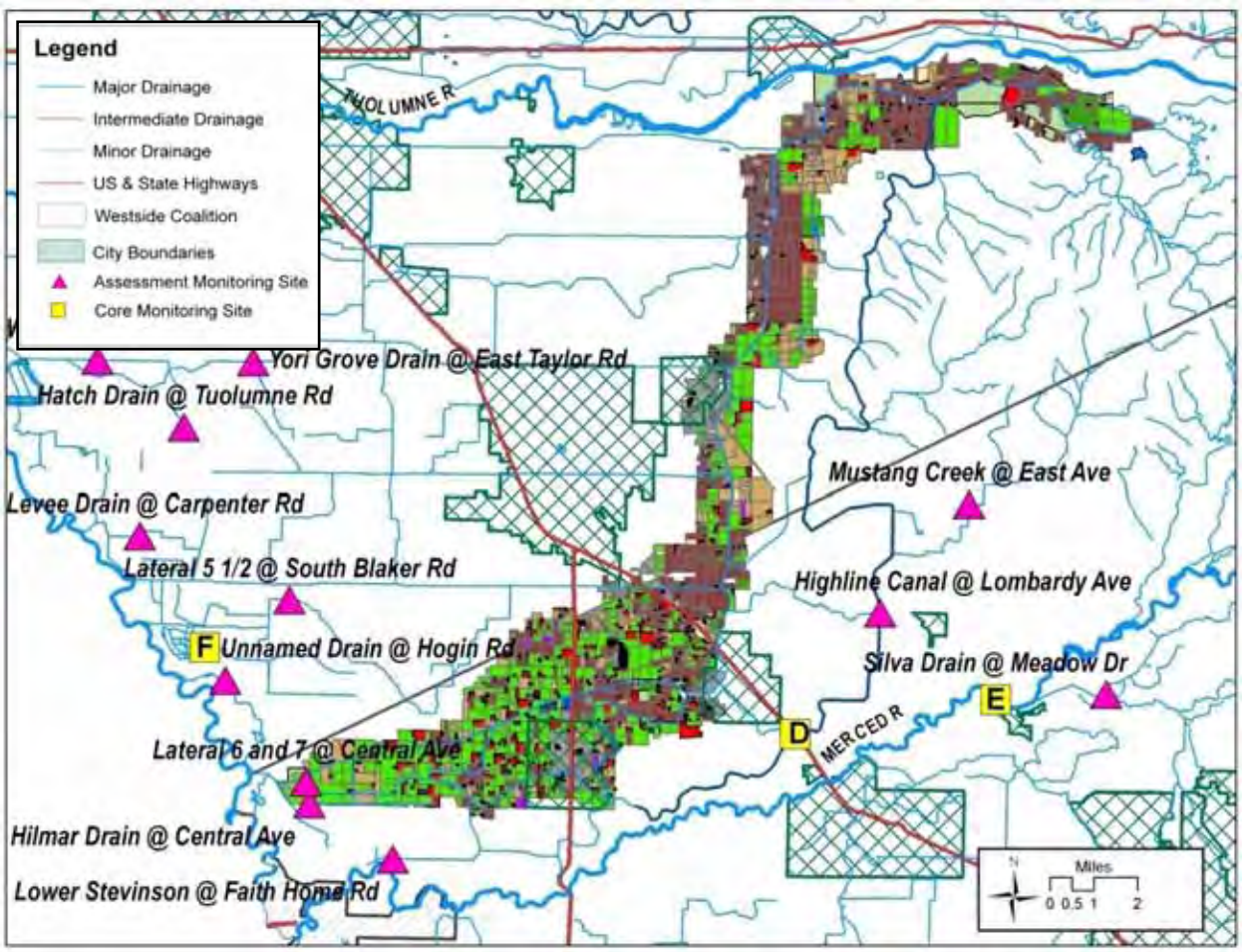


Figure 22. Map of Lateral 5 ½ @ South Blaker Rd site subwatershed

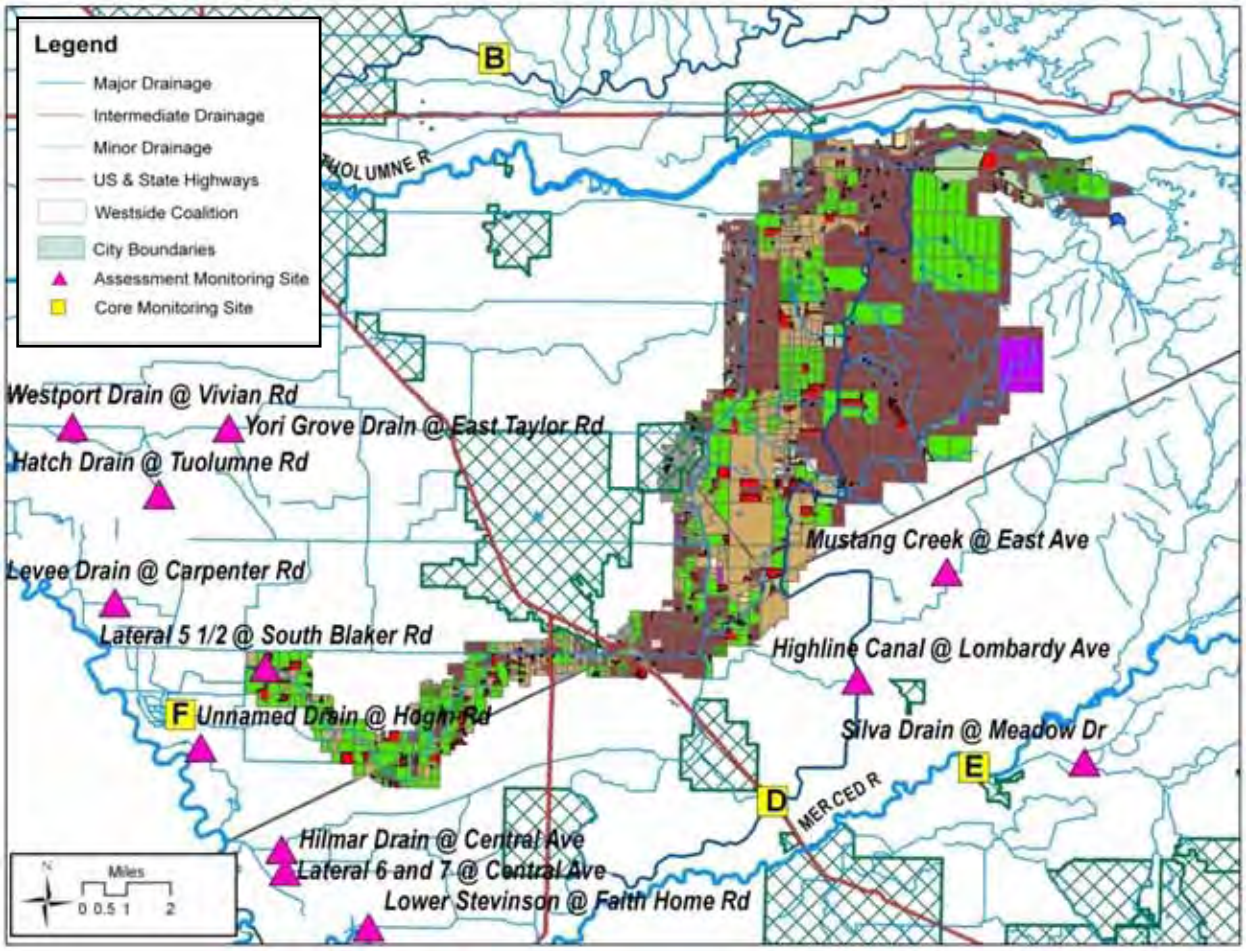


Figure 23. Map of Lateral 5 ½ @ South Blaker Rd site subwatershed (storm)

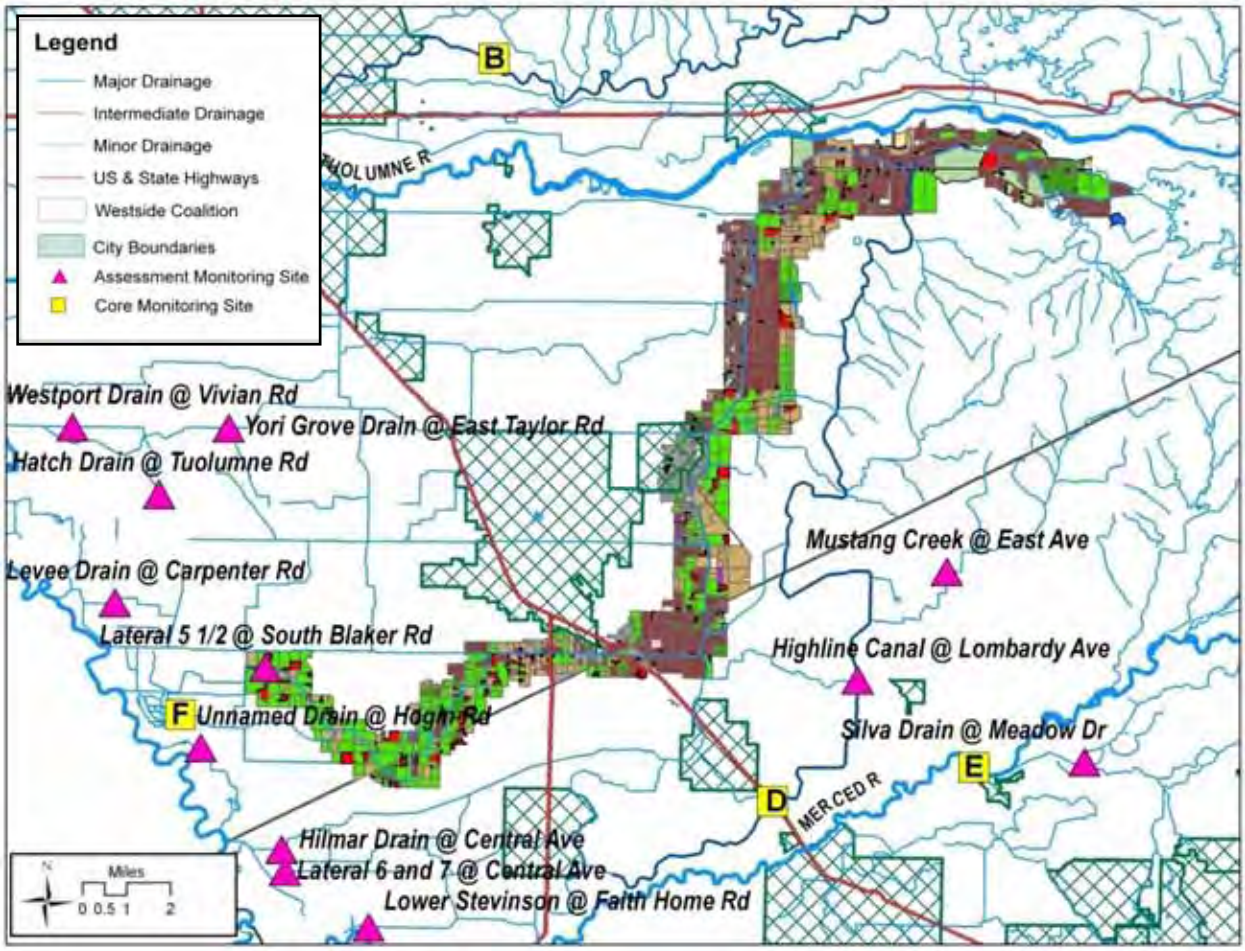
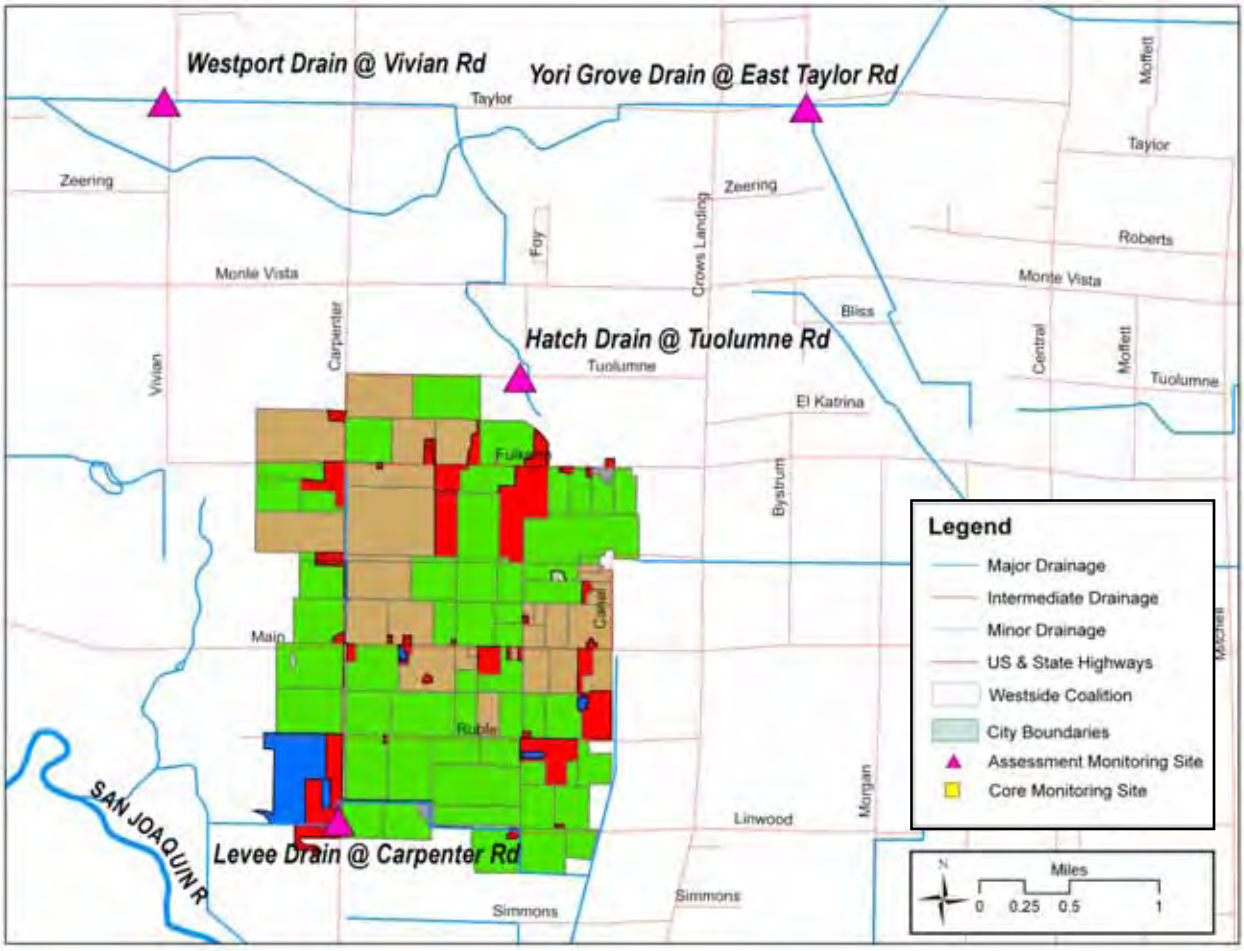


Figure 24. Map of Levee Drain @ Carpenter Rd site subwatershed



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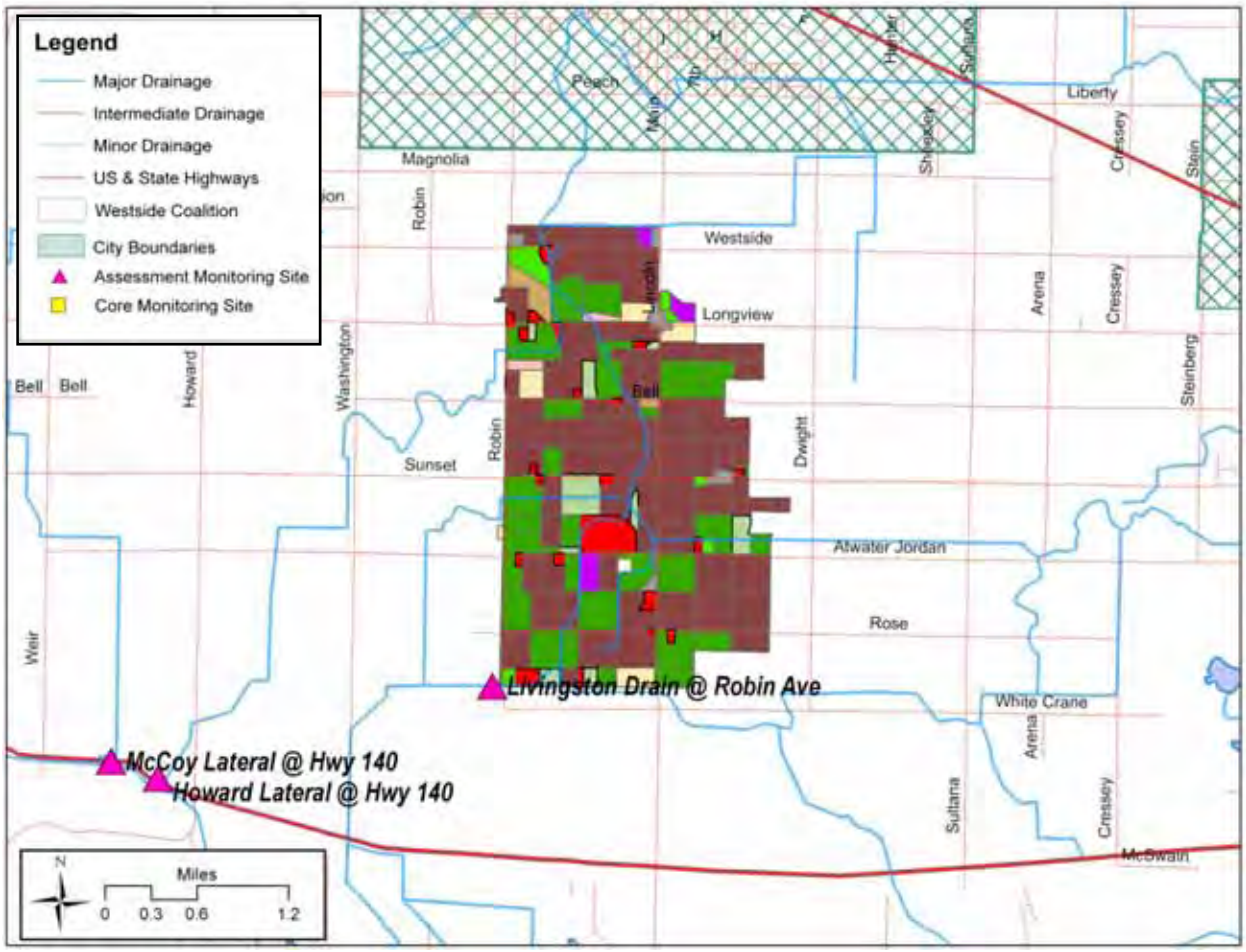


Figure 26. Map of Lower Stevinson @ Faith Home Rd site subwatershed

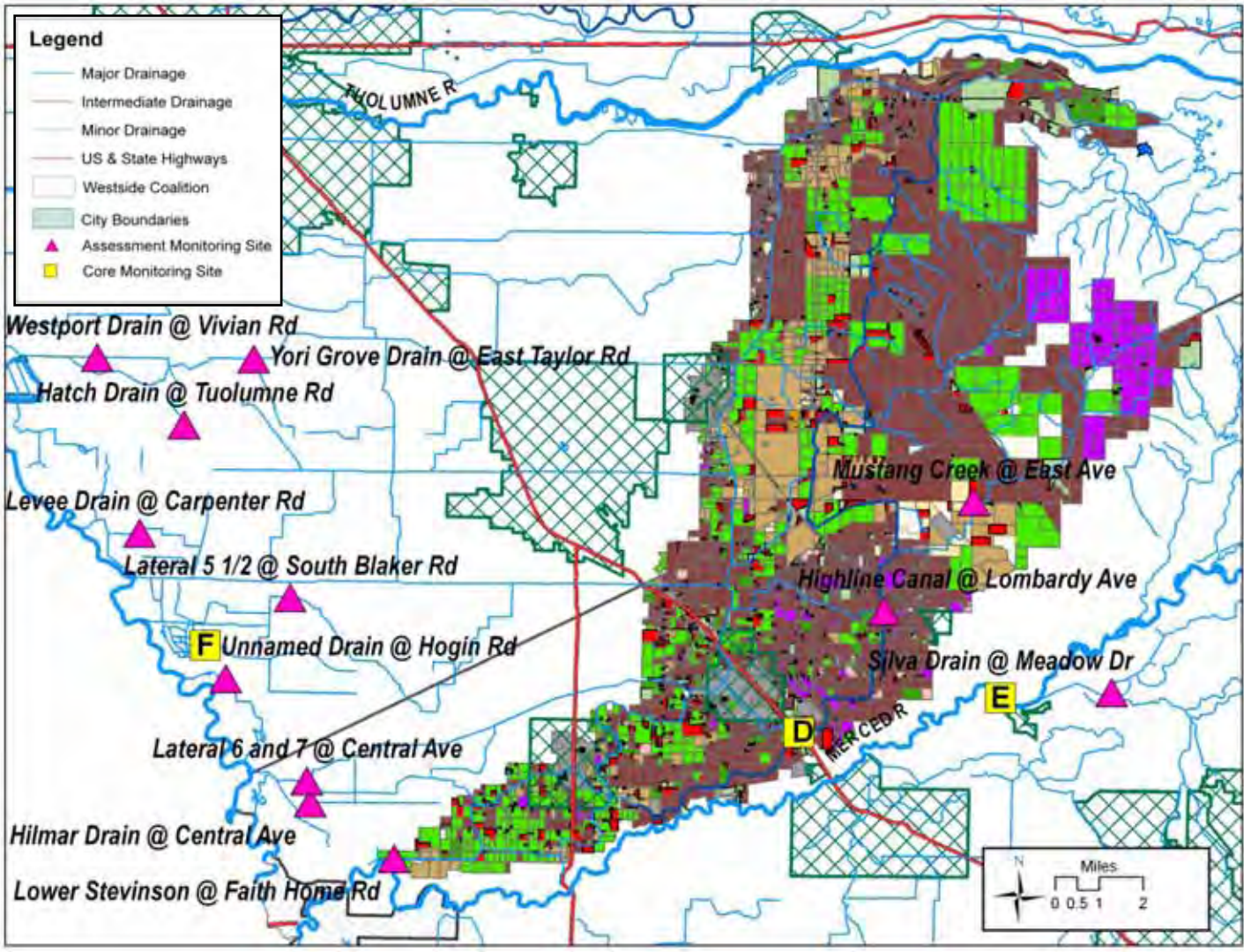


Figure 27. Map of Lower Stevinson @ Faith Home Rd site subwatershed (storm)

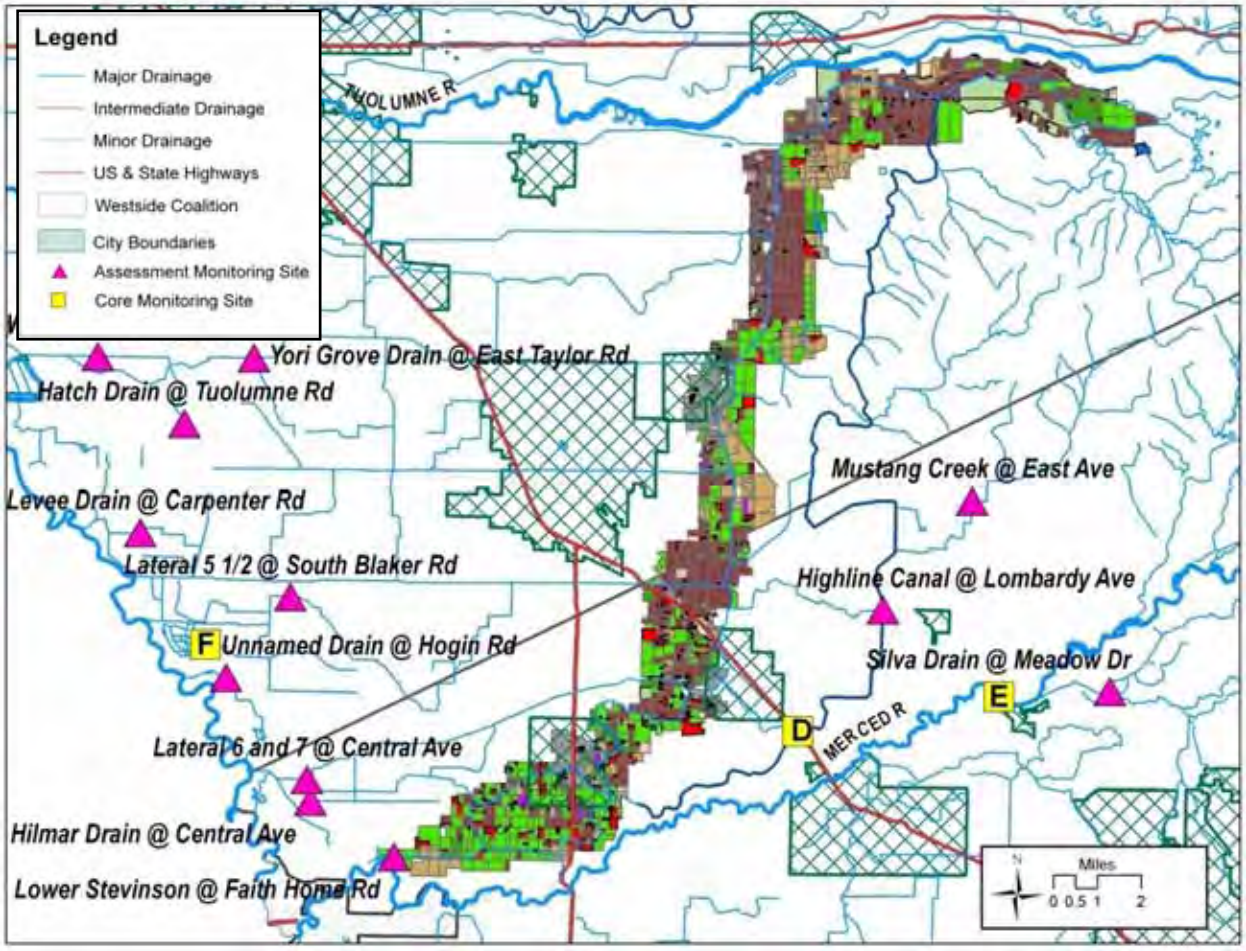
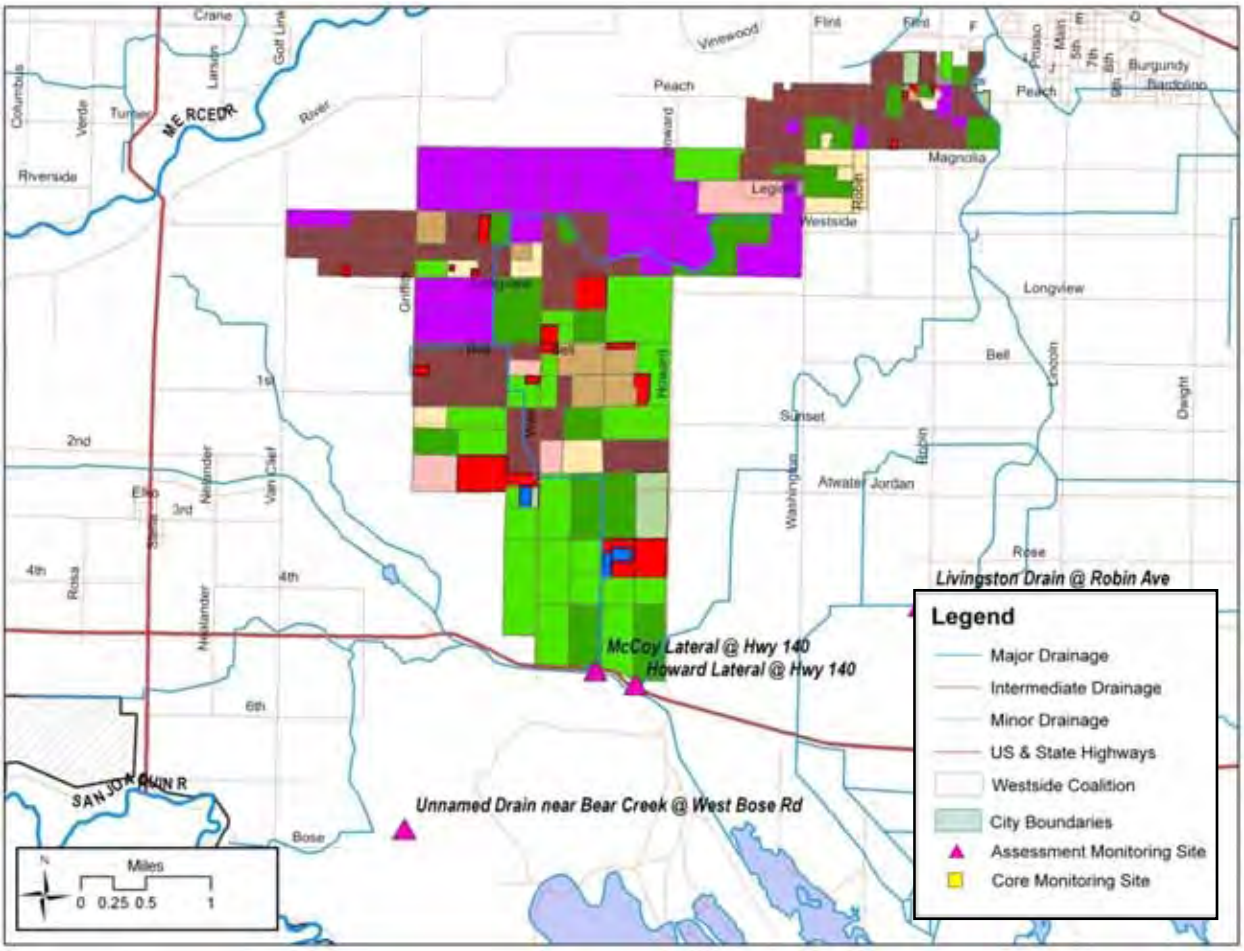


Figure 28. Map of McCoy Lateral @ Hwy 140 site subwatershed



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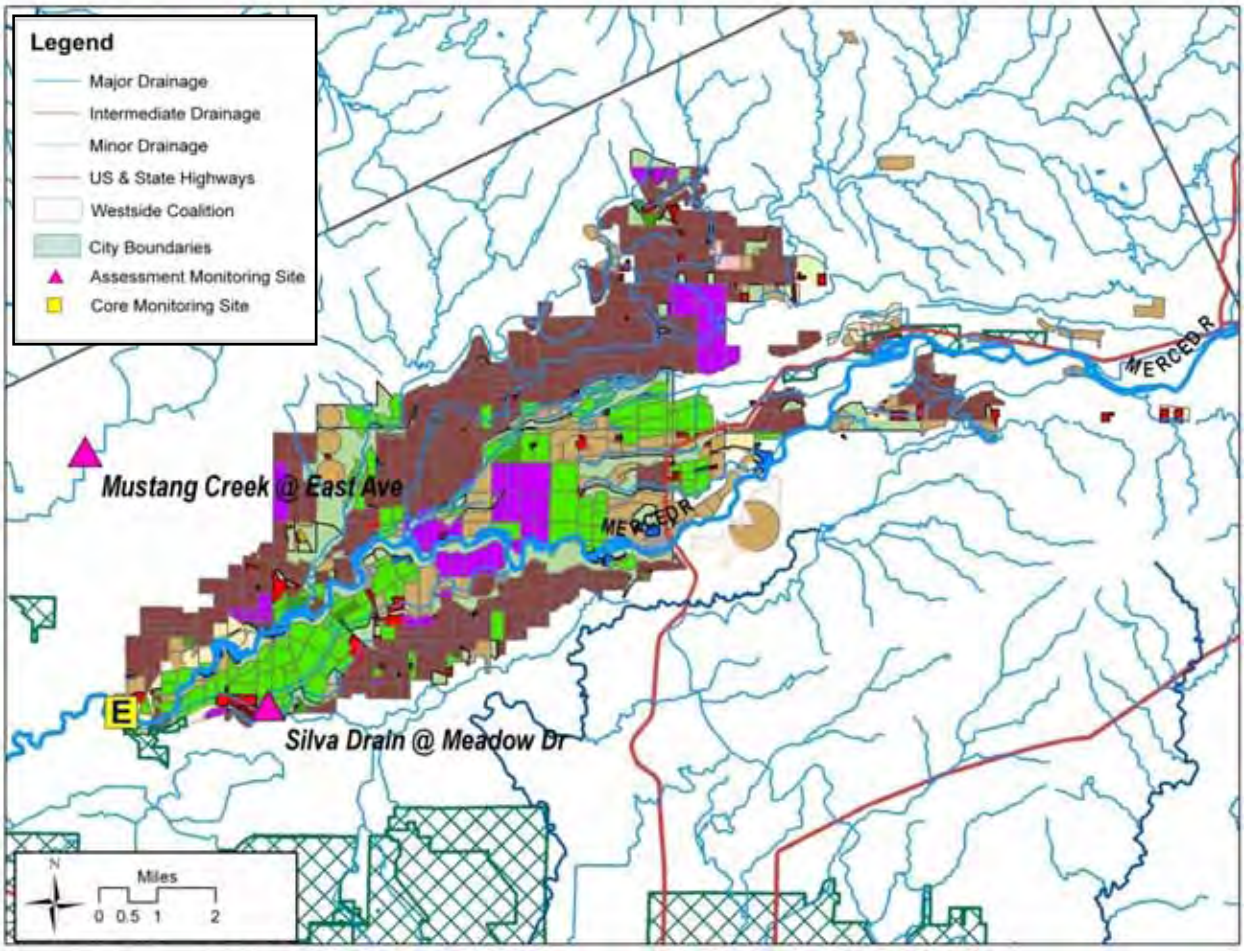
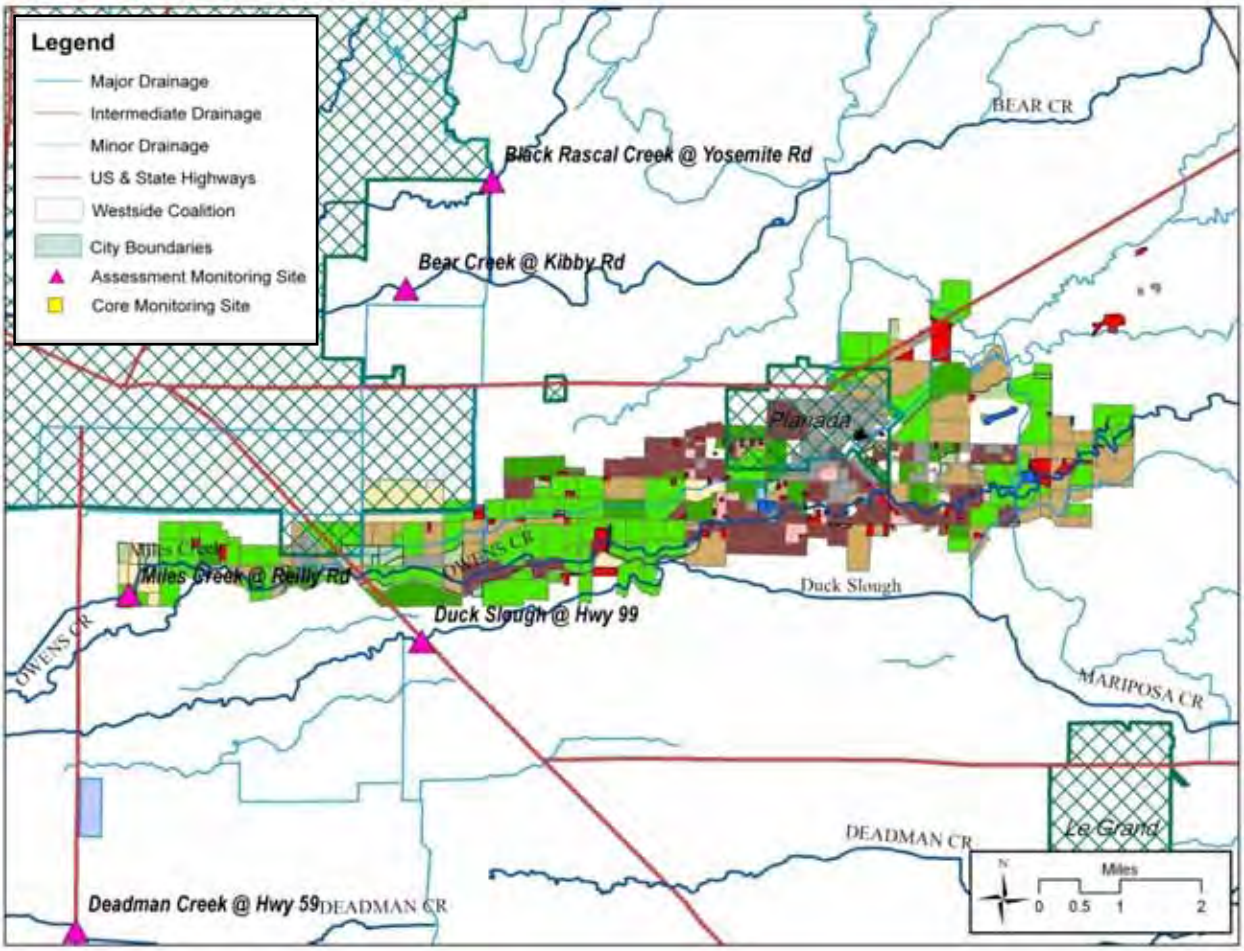


Figure 30. Map of Miles Creek @ Reilly Rd site subwatershed



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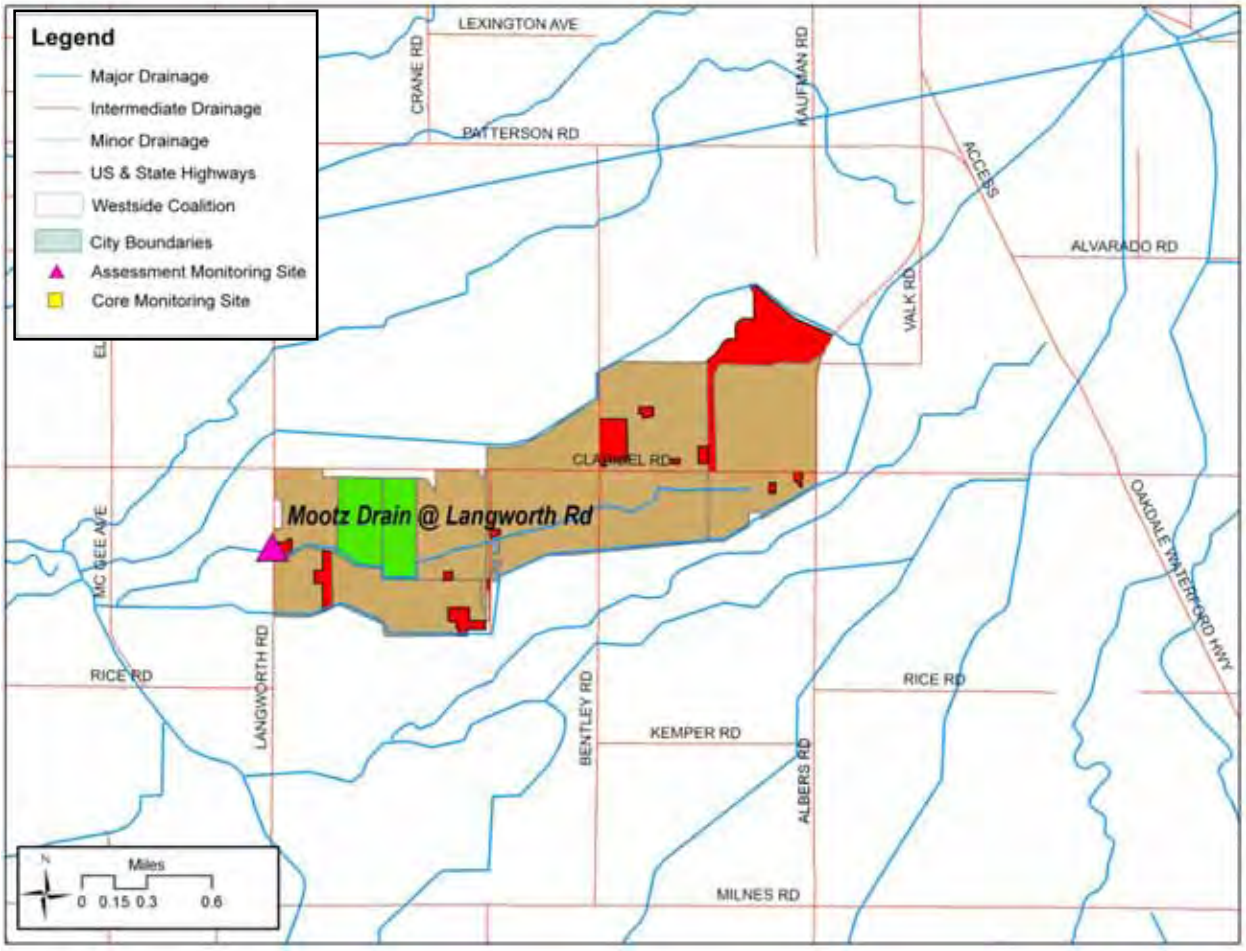

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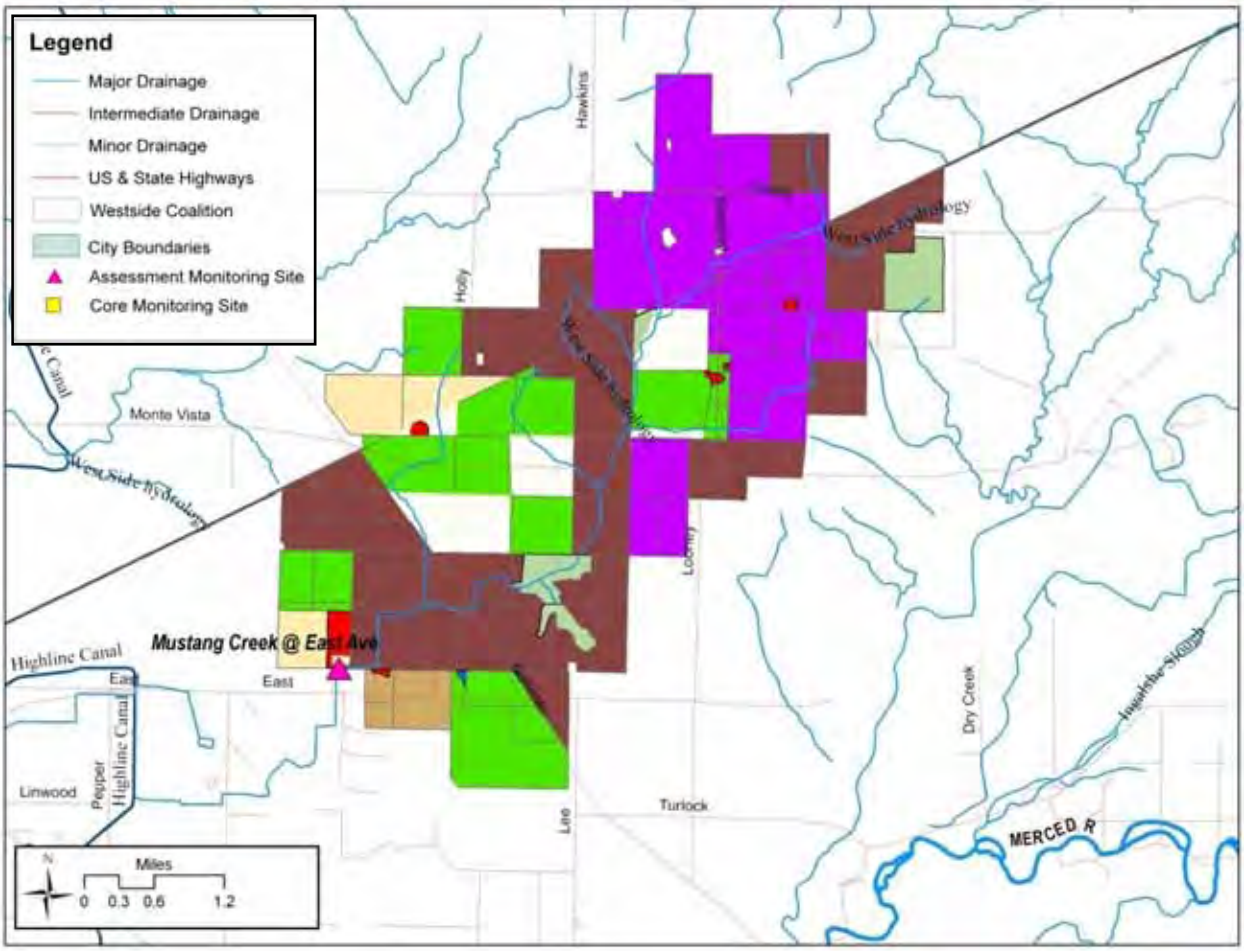

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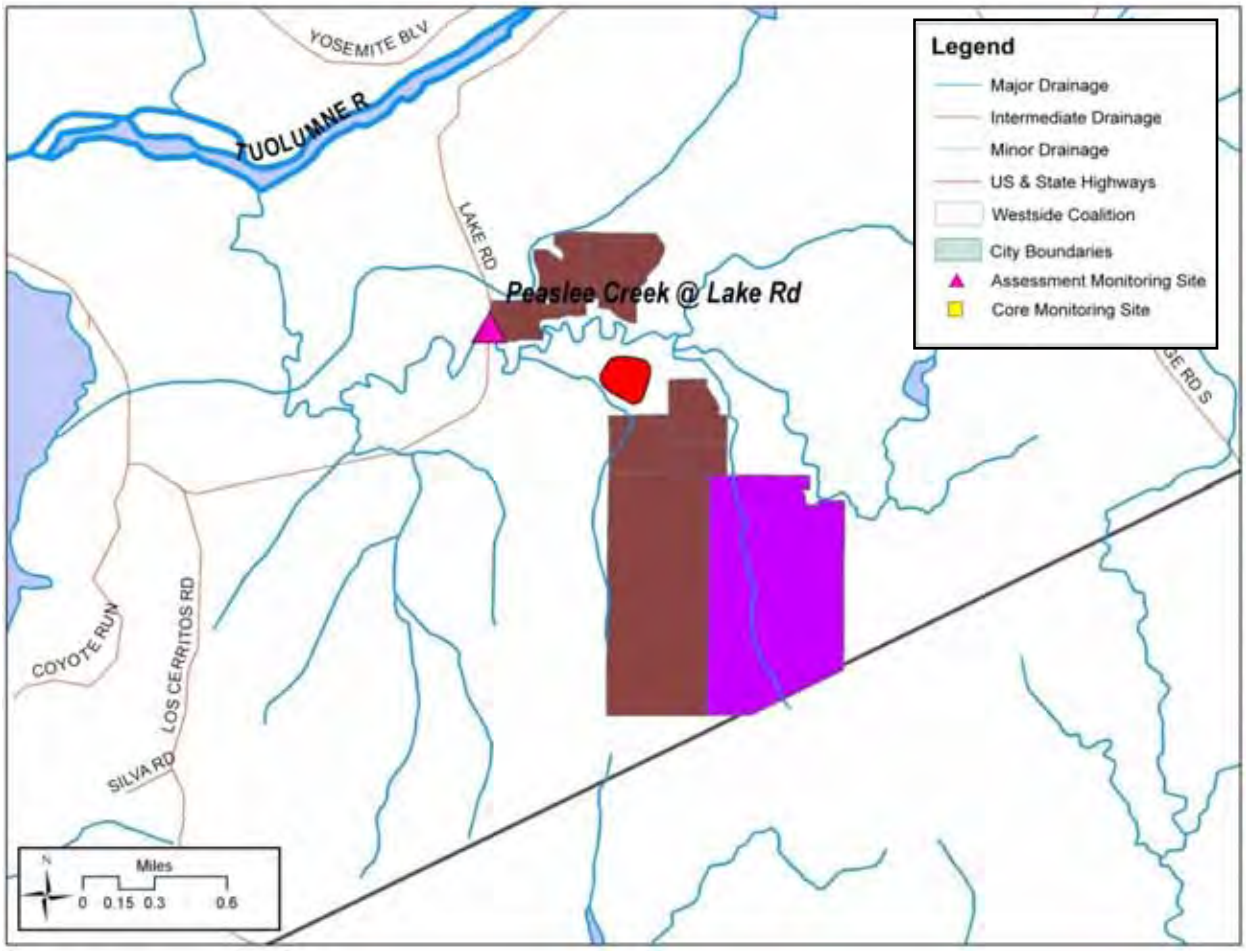
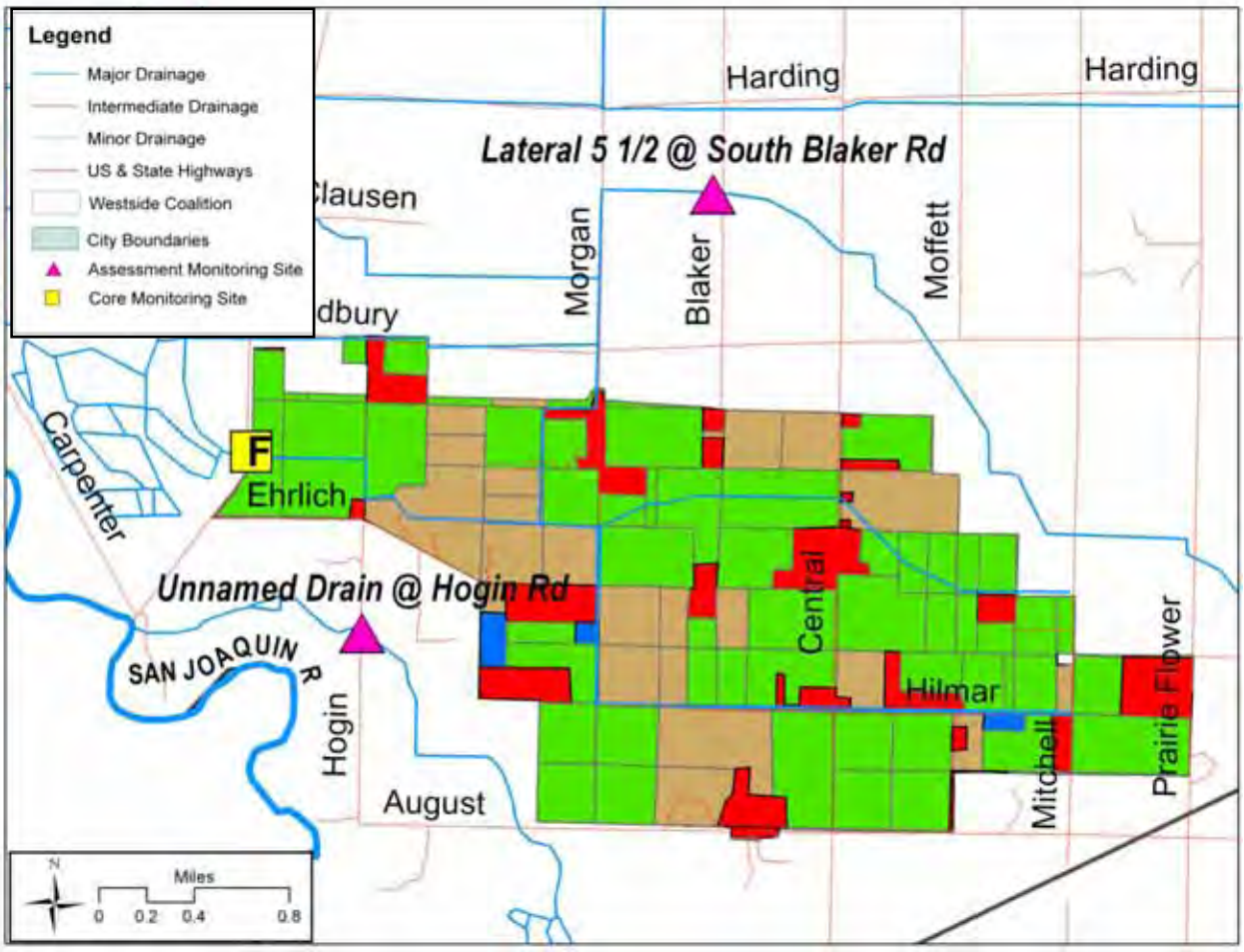


Figure 34. Map of Prairie Flower Drain @ Crows Landing Rd site subwatershed



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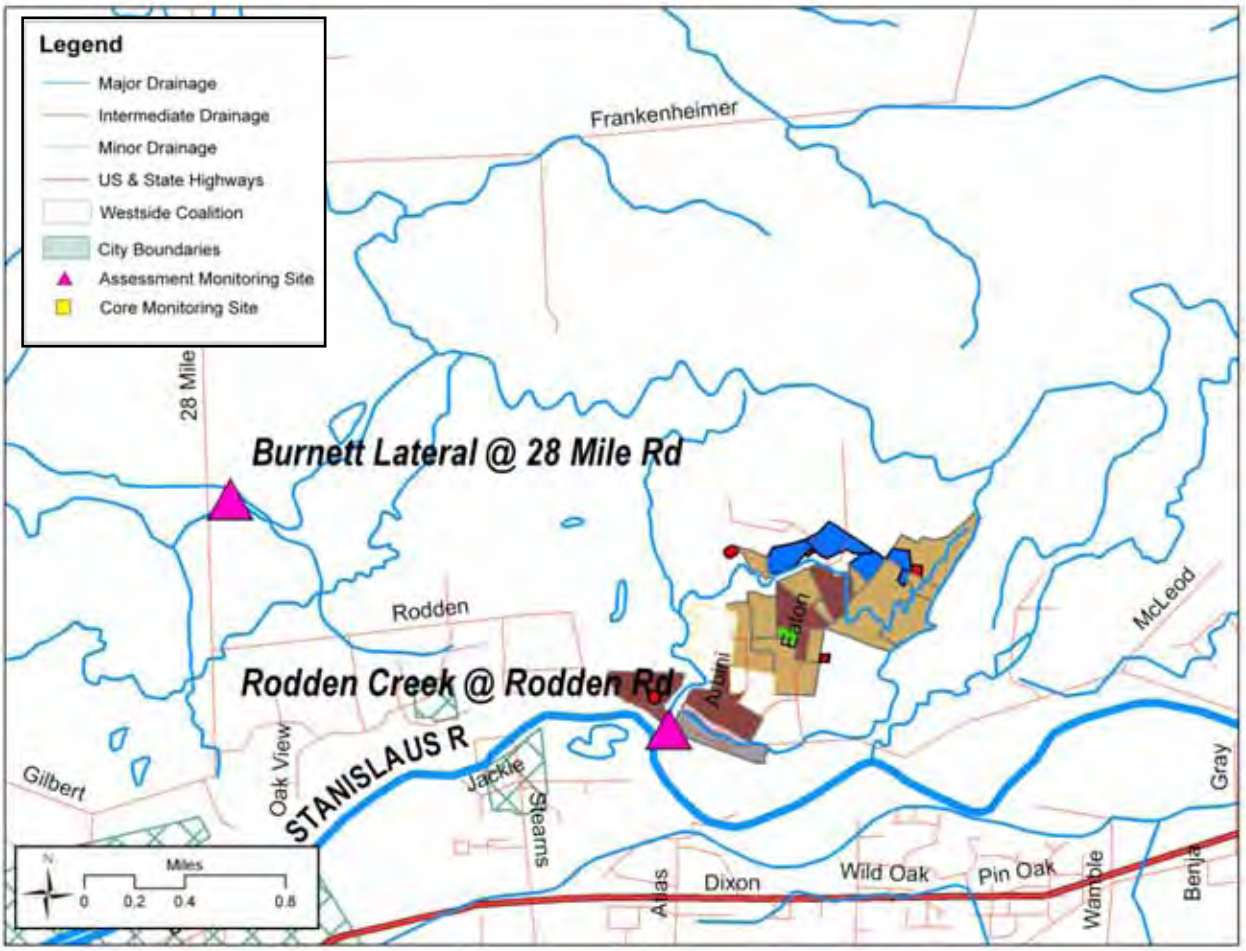

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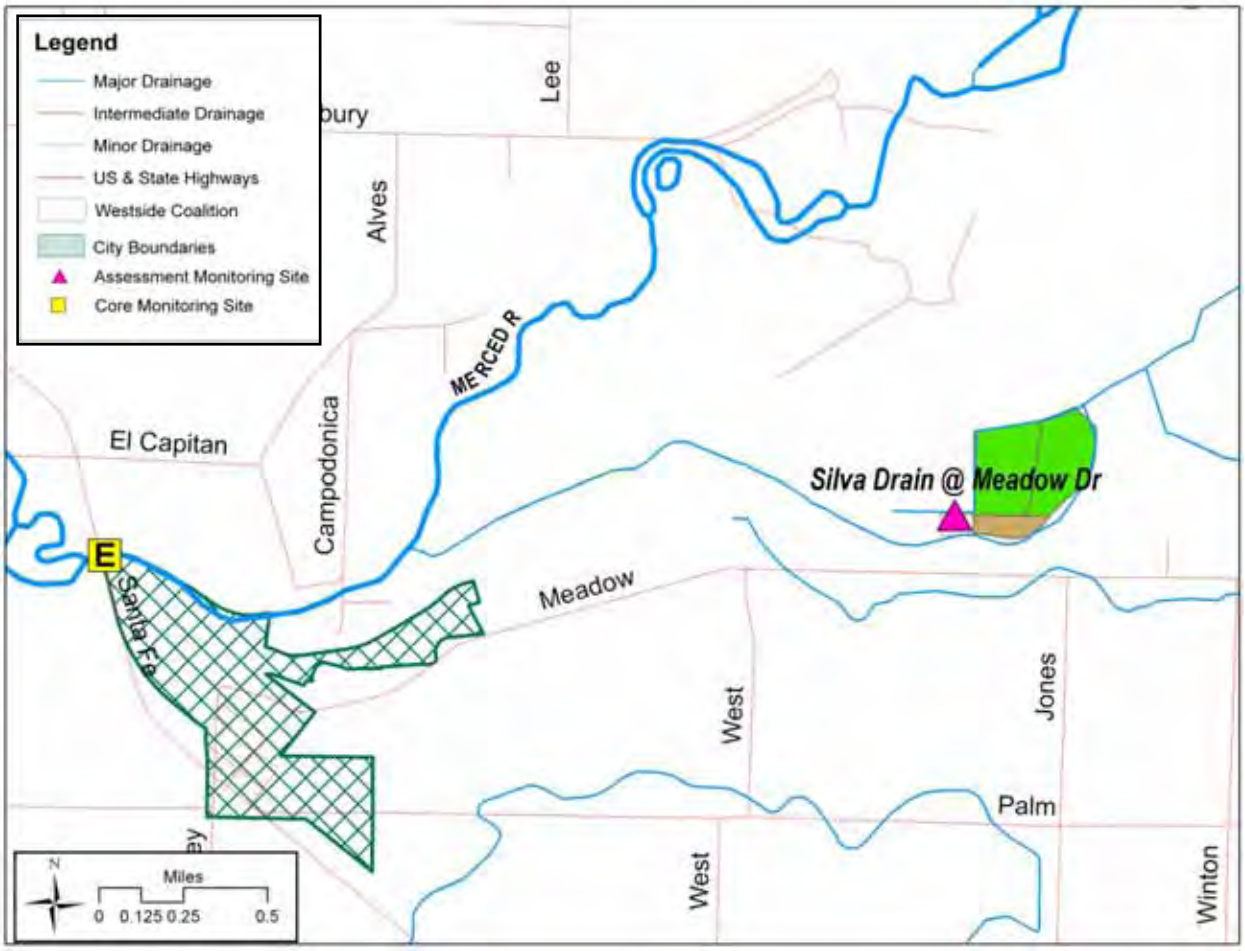


Figure 37. Map of South Slough @ Quinley Rd site subwatershed

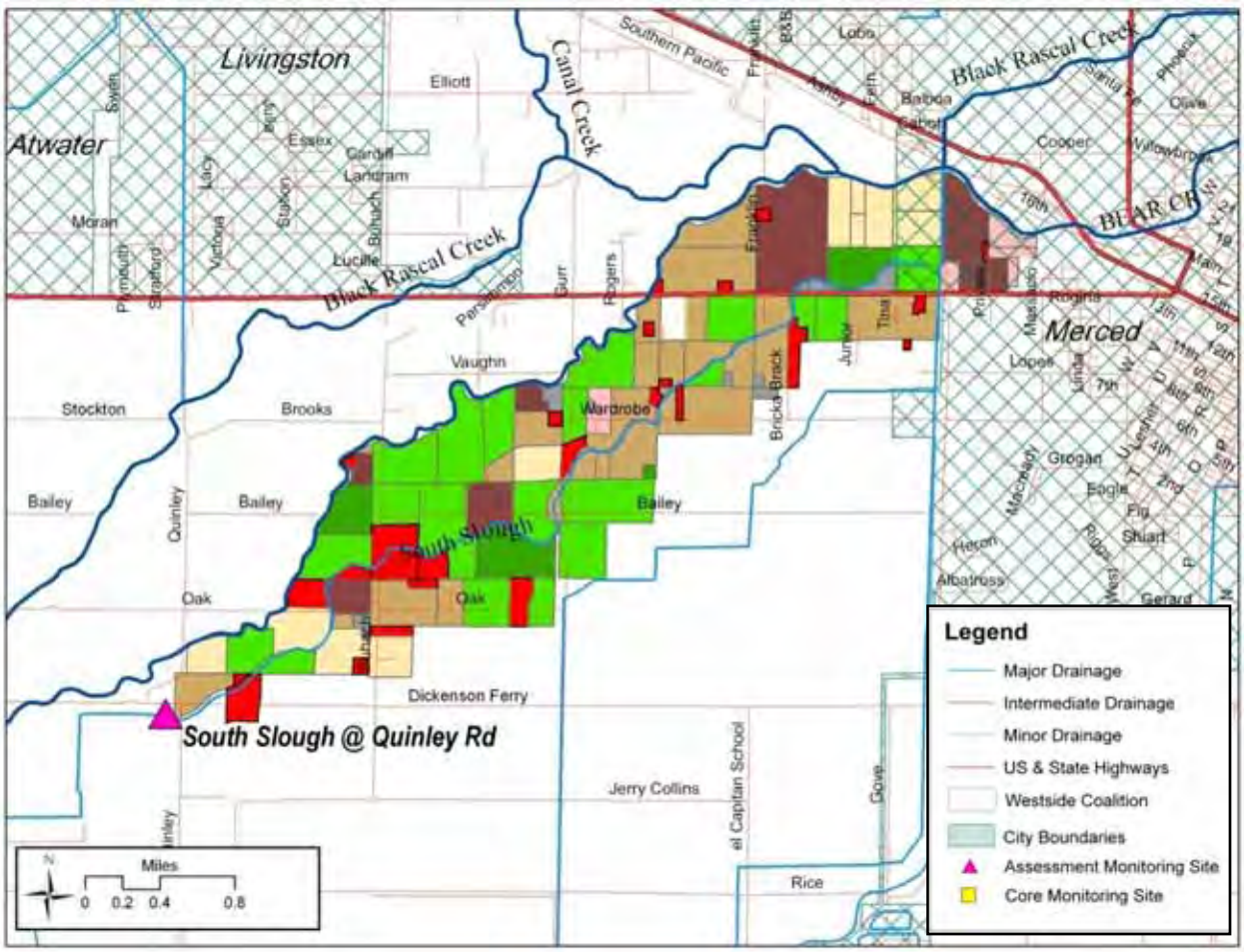


Figure 38. Map of Unnamed Drain @ Cemetary Rd site subwatershed

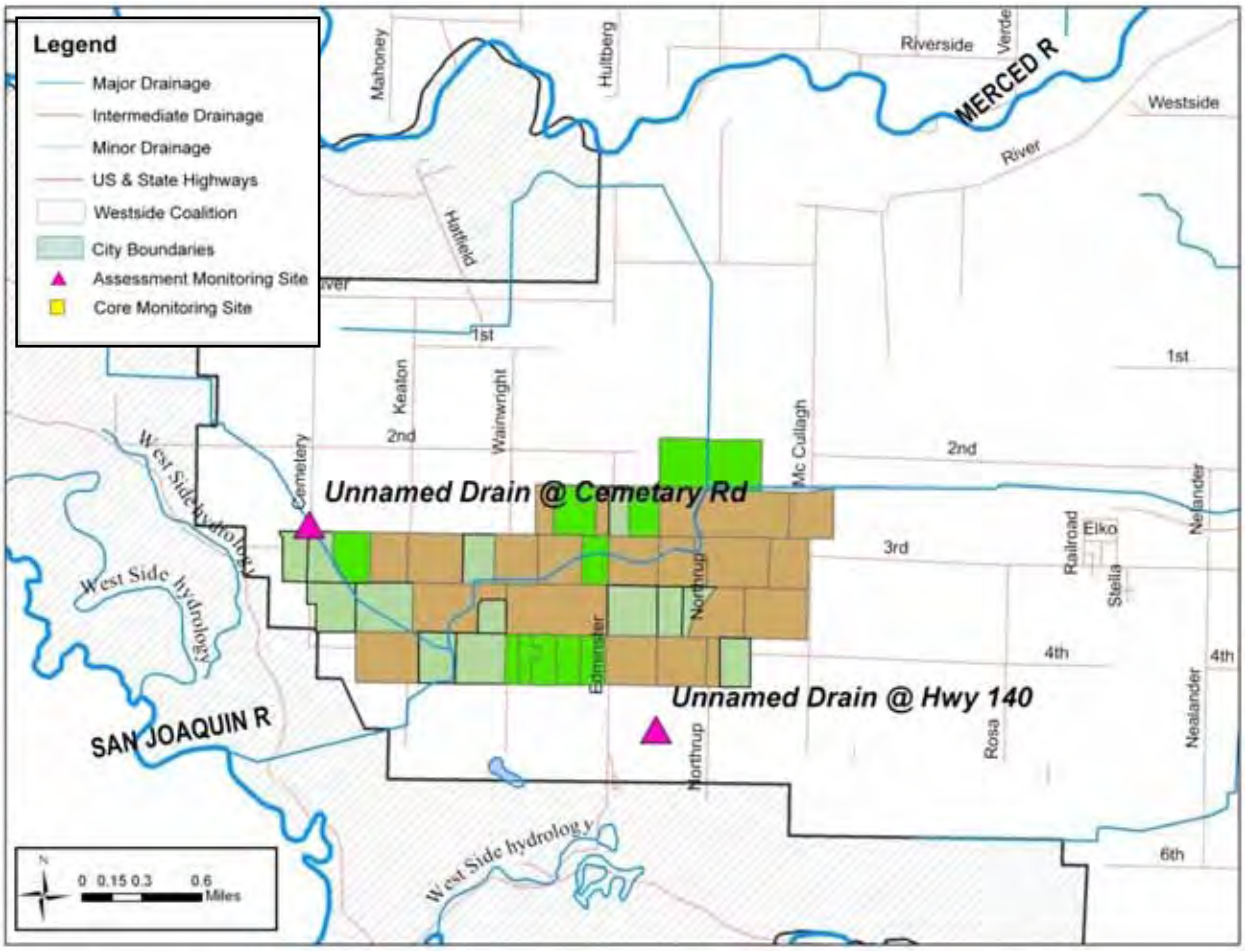


Figure 39. Map of Unnamed Drain @ Hogin Rd site subwatershed

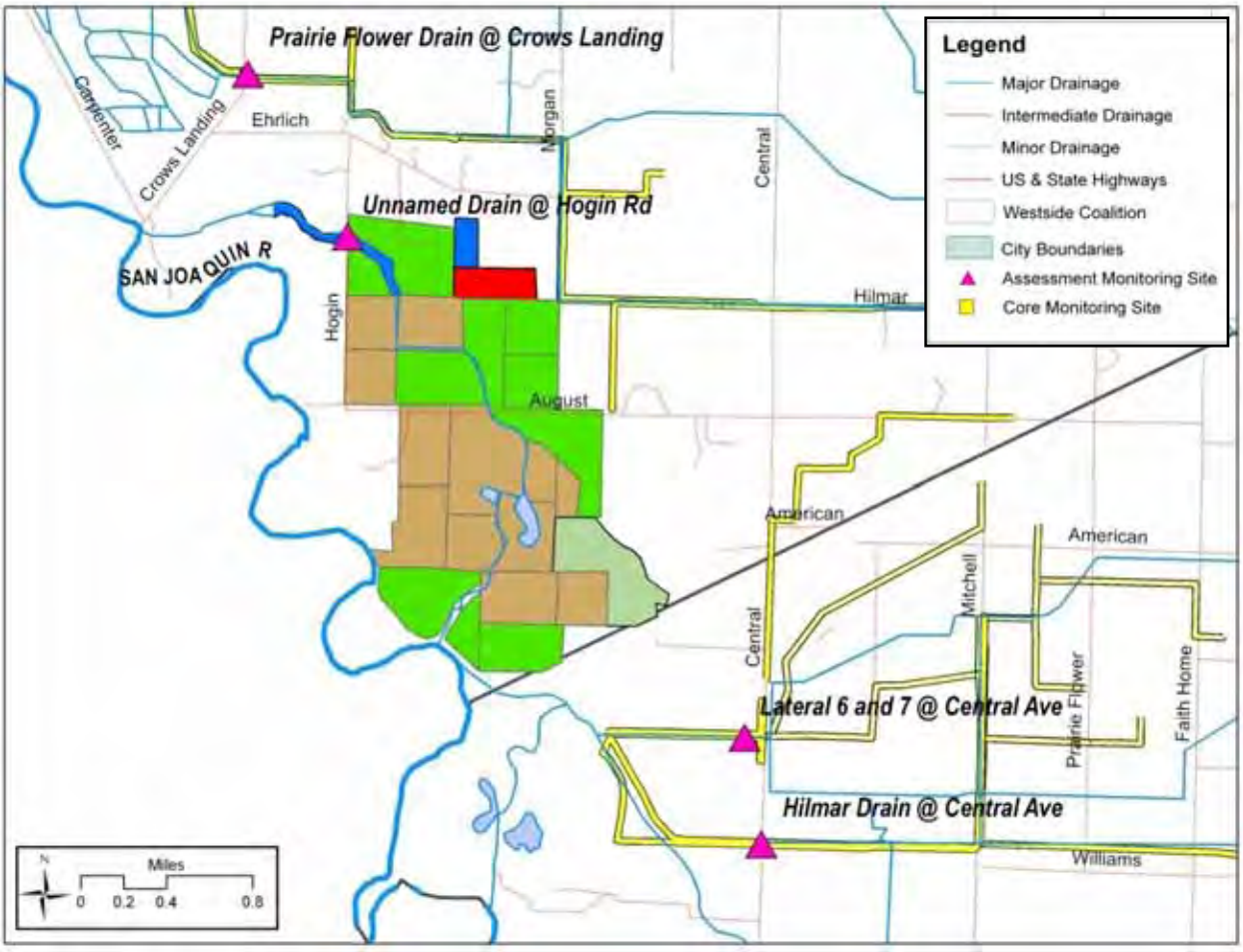


Figure 40. Map of Unnamed Drain @ Hwy 140 site subwatershed

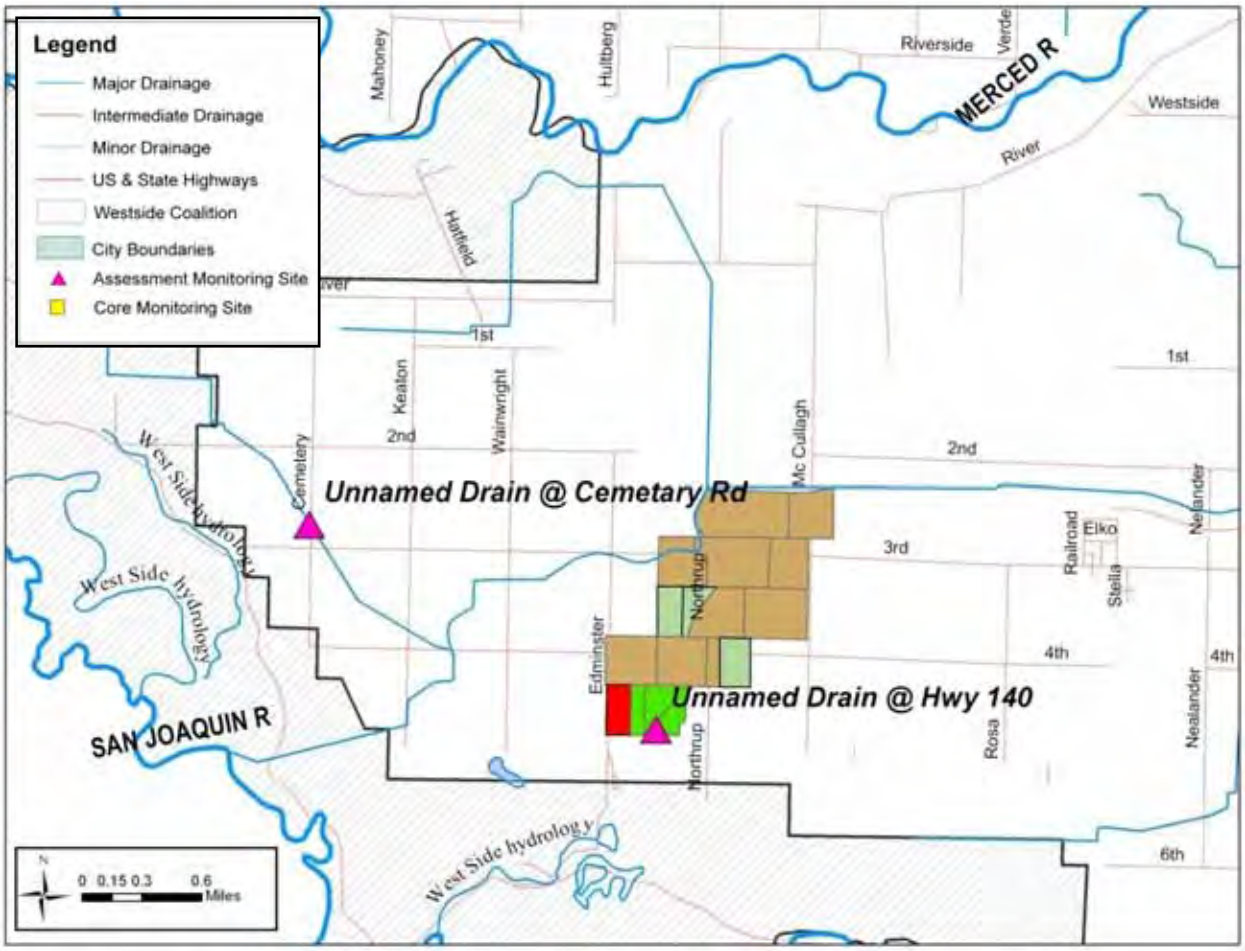


Figure 41. Map of Unnamed Drain near Bear Creek @ West Bose Rd site subwatershed

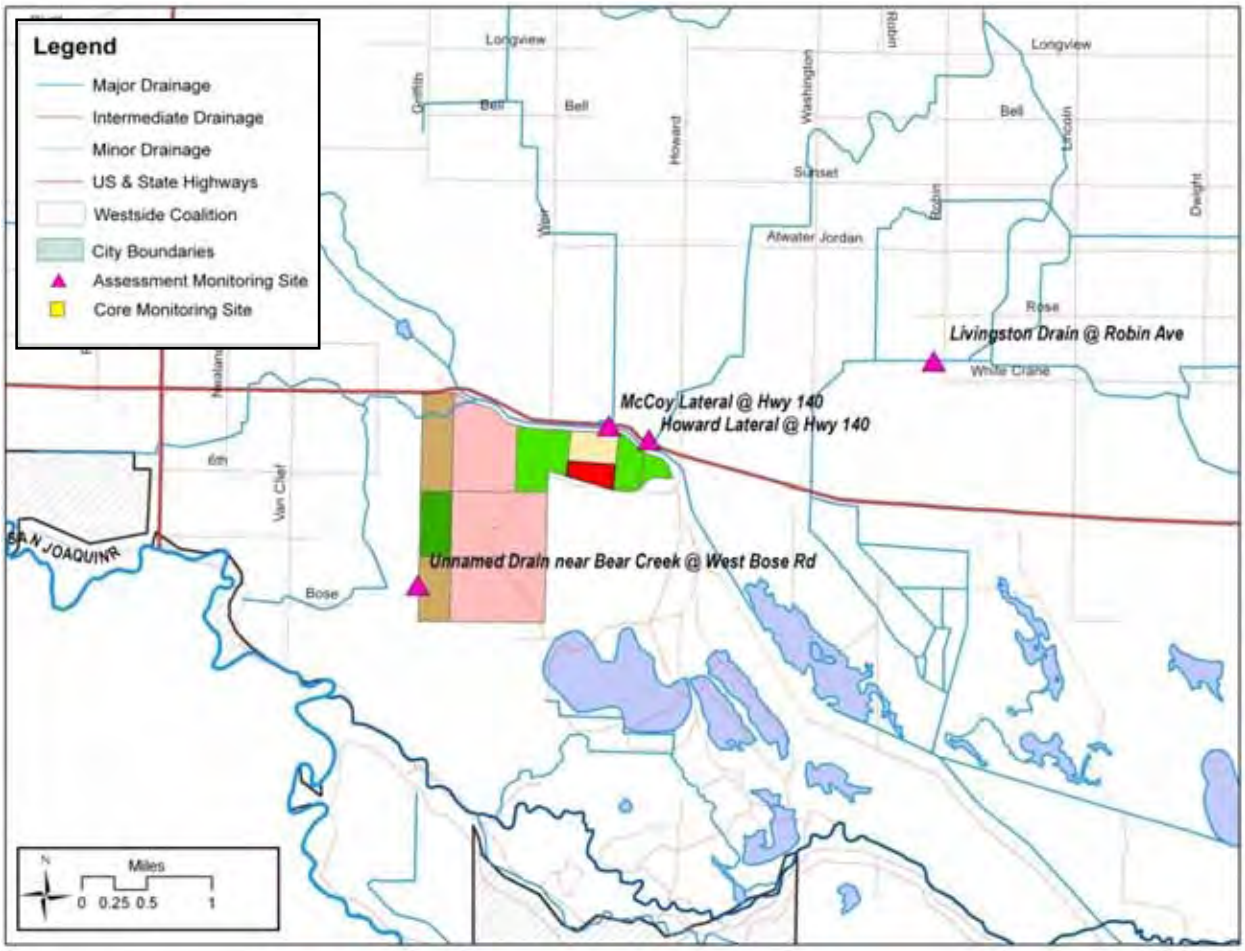


Figure 42. Map of Westport Drain @ Vivian Rd site subwatershed

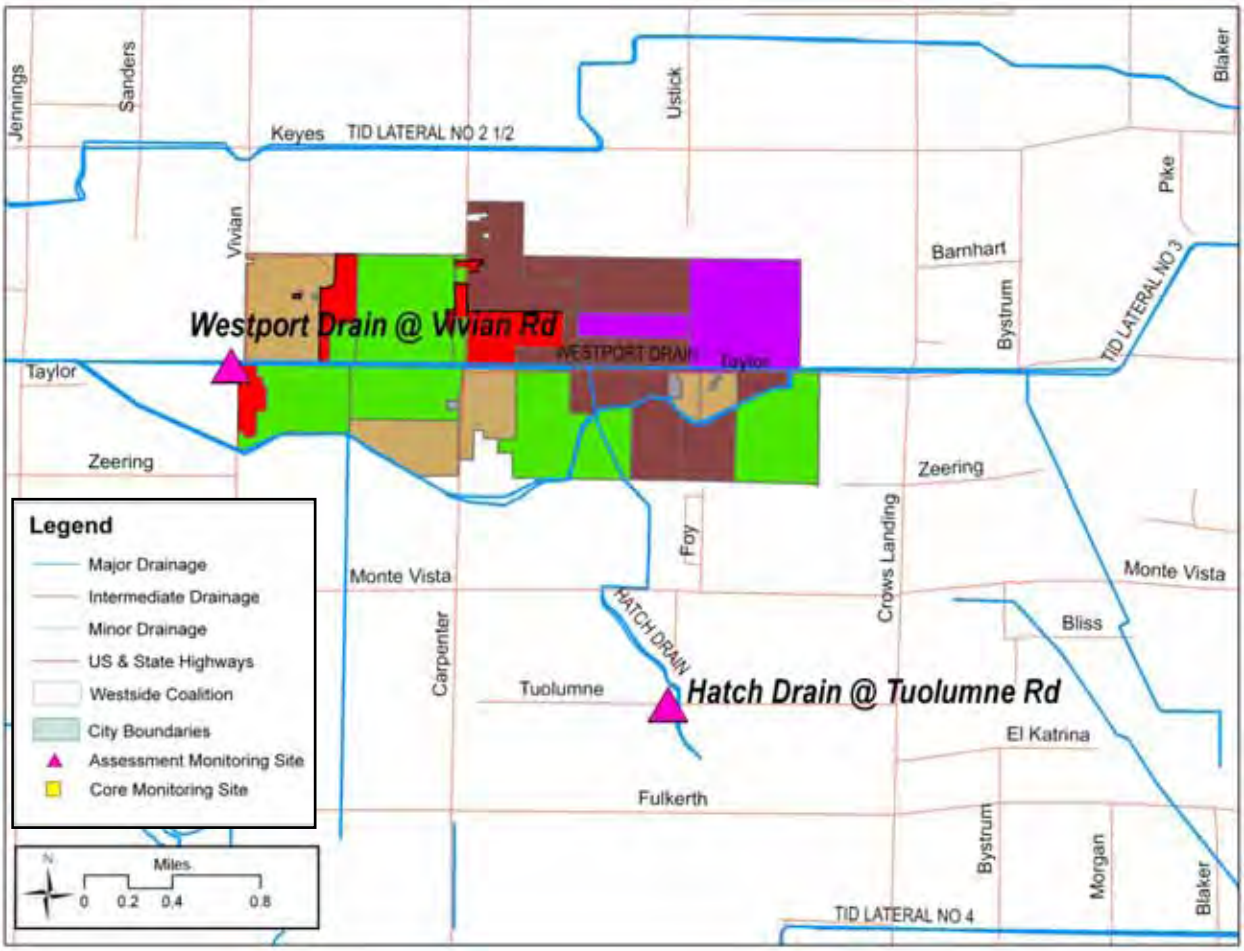
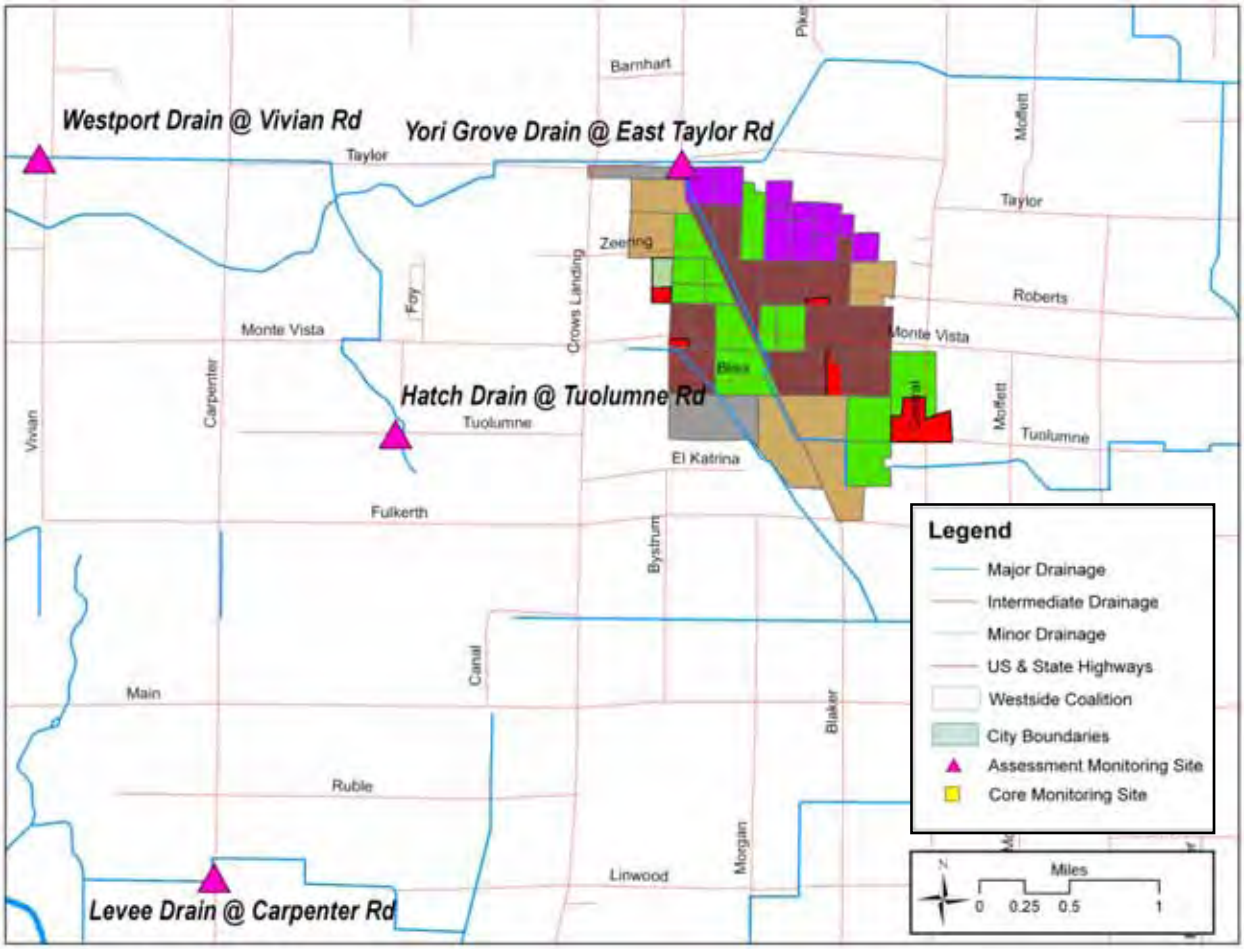


Figure 43. Map of Yori Grove Drain @ East Taylor Rd site subwatershed



Attachment III

ESJWQC Pesticide Use - 2007

List of Tables

Ash Slough @ Ave 21

Table 1. Ash Slough @ Ave 21 pesticide application data for 2007.

Acres of Irrigated Land: 27703				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Mar	16.37	392
BIFENTHRIN	ALMOND	Jun	7.60	76
		Jul	31.42	1099
		Aug	1.90	19
		Sep	11.70	117
	CORN FOR/FOD	Jun	42.43	456
		Jul	2.98	35
		Aug	3.77	38
CARBARYL	PASTURELAND	Jun	110.00	110
CHLORPYRIFOS	ALFALFA	Mar	154.86	372
		Aug	186.98	303
	ALMOND	Jul	3761.76	1856
		Aug	70.62	38
	CORN FOR/FOD	Jul	99.22	101
COPPER HYDROXIDE	ALMOND	Jan	1128.19	1099
		Mar	7.67	10
	GRAPE, WINE	Mar	1158.95	2488
		Apr	562.07	690
		May	28.25	35
COPPER OXYCHLORIDE SULFATE	GRAPE, WINE	Jun	76.00	19
CYFLUTHRIN	ALFALFA	Mar	1.99	56
DIAZINON	ALMOND	May	43.75	110
	PRUNE	Mar	102.00	68
DICOFOL	COTTON	Jul	13.54	18
DIMETHOATE	ALFALFA	Mar	3.95	458
	CORN FOR/FOD	Jun	235.83	478
		Aug	18.76	38
DIURON	ALFALFA	Jan	115.20	72
	COTTON	Sep	2.93	80
		Oct	5.21	142
	GRAPE, RAISIN	Feb	52.91	72
ESFENVALERATE	ALMOND	Jan	31.87	1321

Acres of Irrigated Land: 27703				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	5.21	142
		Jun	12.10	186
		Jul	14.17	236
	TOMATO FRESH	Jul	3.25	70
FENPROPATHRIN	GRAPE, WINE	May	10.95	56
GLYPHOSATE	ALMOND	Mar	20.80	28
		Apr	512.07	409
		May	136.83	110
		Jun	344.99	338
		Jul	1124.47	1182
		Aug	200.32	220
		Sep	91.00	104
GLYPHOSATE, ISOPROPYLAMINE SALT	ALFALFA	Mar	199.56	138
	ALMOND	Jan	17.95	405
		Feb	55.87	96
		Mar	1008.74	362
		Apr	512.12	485
		May	271.30	218
		Jun	817.86	723
		Jul	289.69	355
		Aug	111.23	575
		Oct	220.32	216
		Dec	54.85	55
	CORN FOR/FOD	Apr	69.80	70
		May	52.56	40
	COTTON	May	69.80	70
		Jun	34.84	35
		Jul	74.79	70
	FIG	Mar	214.39	430
	GRAPE	May	60.07	60
	GRAPE, RAISIN	Feb	45.05	72
		Jun	37.54	75
	PISTACHIO	Jan	47.86	48
		Jul	33.38	39
	GRAPE, WINE	Feb	22.60	46
		Apr	41.80	25
		May	248.23	240
		Jun	37.54	75
		Jul	24.93	25
GLYPHOSATE, POTASSIUM	ALMOND	Jan	137.92	103

Acres of Irrigated Land: 27703				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
SALT		Feb	131.56	112
		Mar	408.38	522
		Apr	1389.35	1003
		May	284.11	363
		Jun	228.85	217
		Jul	2313.73	2091
		Aug	511.69	366
		Sep	472.89	422
		Nov	43.03	34
	CORN FOR/FOD	May	437.73	295
		Jul	149.09	133
	COTTON	Jul	73.95	78
	GRAPE	Apr	367.21	213
	PISTACHIO	Apr	386.17	240
		May	496.50	526
		Jun	634.42	667
		Jul	473.06	850
		Aug	110.33	75
		Sep	896.47	312
	WHEAT SEED	Sep	1.38	4
	GRAPE, WINE	Jan	236.34	236
		Feb	55.56	131
		Mar	1064.23	480
		Apr	1343.20	1112
		May	348.38	505
		Jun	886.54	1135
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	26.27	910
MALATHION	ALFALFA	Mar	1125.97	622
METHOMYL	CORN FOR/FOD	Jul	130.72	315
PARAQUAT DICHLORIDE	ALFALFA	Feb	61.60	89
	ALMOND	Jan	65.06	145
		Mar	714.63	1334
		Apr	13.84	40
		May	1.73	4
		Jun	31.49	27
		Jul	71.98	62
		Aug	41.53	30
		Sep	13.84	11
		Oct	9.69	43
	PISTACHIO	Aug	88.60	66

Acres of Irrigated Land: 27703				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	PRUNE	Mar	40.49	68
	GRAPE, WINE	Mar	99.44	167
		Apr	53.59	90
PERMETHRIN	ALMOND	Jan	137.36	632
		Jul	433.03	1086
	PISTACHIO	May	7.78	39
		Jul	57.42	160
		Aug	1971.55	87
		Sep	123.80	320
SIMAZINE	ALMOND	Jan	31.73	145
		Feb	30.50	49
	GRAPE, RAISIN	Feb	53.72	72
	GRAPE, WINE	Jan	128.51	236
		Mar	391.64	642
		Apr	466.47	1037
TRIFLURALIN	ALFALFA	Jan	418.00	209
		Feb	492.00	478
		May	350.00	175
	GRAPE, WINE	Apr	908.98	2413
		May	13.38	488
		Jun	661.07	2413

Bear Creek @ Kibby Rd

Table 2. Bear Creek @ Kibby Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 6715				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
ALDICARB	COTTON	Mar	207.23	307
		Jun	455.70	217
BIFENTHRIN	ALMOND	Jul	30.80	308
	CORN HUMAN CONSUMP	May	1.11	11
	SQUASH WINTER	Jul	2.09	21
	WALNUT	Jun	14.10	98
CHLORPYRIFOS	ALMOND	May	85.49	46
		Jul	518.75	264
	WALNUT	May	277.86	150
		Jun	29.91	15
COPPER HYDROXIDE	ALMOND	Jan	215.20	100
		Mar	94.69	44
	PEACH	Jan	895.77	175
	WALNUT	Mar	870.57	198
		Apr	1772.93	374
COPPER OXIDE (OUS)	PEACH	Feb	729.93	117
DIAZINON	PRUNE	May	75.00	100
ESFENVALERATE	ALMOND	Jan	20.74	408
		May	3.29	101
		Jul	5.84	163
	CORN HUMAN CONSUMP	May	0.27	6
	PEACH	Jan	8.88	175
		Feb	3.90	117
		Jun	5.20	111
		Jul	1.95	64
	PRUNE	Feb	1.50	30
	WALNUT	Jun	0.31	15
		Jul	0.76	15
FENPROPATHRIN	TOMATO	Jun	16.59	80
GLYPHOSATE	ALFALFA	Jan	117.00	90
		Jun	93.60	90
	ALMOND	Jan	28.12	38
		Feb	24.96	32

Acres of Irrigated Agriculture: 6715				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	33.28	80
		May	208.16	161
		Jun	30.16	64
		Jul	455.97	219
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	6.91	233
	ALMOND	Jun	8.05	257
	CORN HUMAN CONSUMP	Mar	0.57	20
		Apr	0.24	8
		Jun	0.25	8
	PEACH	Jun	3.66	117
	TOMATO	May	2.41	80
MALATHION	ALFALFA	Mar	196.76	233
METHOMYL	CORN FOR/FOD	May	28.80	64
		Jul	56.25	125
	CORN HUMAN CONSUMP	May	17.64	39
PARAQUAT DICHLORIDE	ALFALFA	Jan	46.10	54
	ALMOND	Feb	97.58	337
		Mar	51.67	206
		Apr	37.76	122
		Jun	64.92	47
	PISTACHIO	Feb	76.14	55
	UNCULTIVATED AG	May	4.14	2
PERMETHRIN	CORN FOR/FOD	Jul	10.84	54
	PISTACHIO	May	282.25	1320
		Jun	163.64	453
		Jul	16.26	61
SIMAZINE	PEACH	Feb	25.50	85
TRIFLURALIN	TOMATO	Apr	4.49	18

Berenda Slough along Ave. 18 ½

Table 3. Berenda Slough along Ave 18 1/2 pesticide application data for 2007.

Acres of Irrigated Agriculture: 25005				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
ALDICARB	BEAN DRIED	Jun	21	20
BIFENTHRIN	ALMOND	Jun	97.35	974
		Jul	147.91	1444
		Sep	18.99	190
	CORN FOR/FOD	Jul	2.98	35
CHLOROPICRIN	SOIL FUM/PREPLT	Dec	3483.81	23
CHLORPYRIFOS	ALMOND	Jan	562.9	320
		May	2305.06	1144
		Jul	3888.89	2005
		Aug	70.62	38
	CORN FOR/FOD	Jul	48.48	48
		Sep	38.38	38
	WALNUT	Aug	518.41	260
COPPER HYDROXIDE	ALMOND	Jan	5688.74	1477
	GRAPE, RAISIN	Mar	60.52	75
	PEACH	Jan	42.98	7
	WALNUT	Mar	846.27	260
		Apr	906.39	260
	GRAPE, WINE	Mar	624.74	1219
		Apr	638.93	708
		May	28.24	35
COPPER OXIDE (OUS)	ALMOND	Mar	107.39	64
COPPER OXYCHLORIDE SULFATE	GRAPE, WINE	Jun	76	19
DIAZINON	ALMOND	May	43.75	110
DIMETHOATE	ALFALFA	Mar	58.41	157
	BEAN DRIED	Aug	19.74	40
	CORN FOR/FOD	Jul	1.2	43
		Aug	21.25	43
DIURON	GRAPE	Feb	61.6	39
	GRAPE, RAISIN	Feb	19.84	27
ESFENVALERATE	ALMOND	Jan	79.13	1241
		Feb	12.99	322
		Apr	0.98	20
		May	12.37	252

Acres of Irrigated Agriculture: 25005				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jun	27.73	426
		Jul	22.5	378
	PEACH	Jan	0.43	7
	TOMATO FRESH	Jul	3.25	70
	UNCULTIVATED AG	Feb	2.44	40
GLYPHOSATE	ALMOND	Apr	145.22	120
		May	124.98	105
		Jun	680.98	375
		Jul	238.82	192
		Aug	41.66	35
		Sep	74.88	72
	FIG	Jun	57.89	40
	GRAPE, RAISIN	May	57.89	40
	GRAPE, WINE	May	77.18	53
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	109.83	248
		Feb	501.43	737
		Mar	1084.93	551
		Apr	1081.59	1128
		May	454.28	388
		Jun	2133.19	1482
		Jul	864.6	1001
		Aug	399.12	453
		Oct	64.54	142
		Dec	1.76	4
	FIG	Jan	14.86	40
		Mar	476.15	970
	GRAPE	Feb	47.99	39
		Apr	55.18	154
	GRAPE, RAISIN	Feb	16.89	27
		Jul	46.74	75
	PISTACHIO	Jan	106.67	87
		Feb	100.12	50
		Apr	6.01	3
		Jul	33.38	39
		Aug	254.3	254
		Dec	31.76	64
	GRAPE, WINE	Jan	79.27	53
		Feb	22.6	46
		Apr	74.79	150
GLYPHOSATE, POTASSIUM SALT	ALMOND	Jan	42.93	39
		Feb	558.86	718

Acres of Irrigated Agriculture: 25005				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	1694.92	1496
		Apr	4119.42	3055
		May	708.33	830
		Jun	1769.58	1080
		Jul	3269.68	2483
		Aug	2641.24	1786
		Sep	206.11	165
		Oct	110.53	112
	CORN FOR/FOD	May	74.48	48
		Jul	0.69	1
	COTTON	Jun	32.25	34
		Jul	38.37	38
		Aug	0.69	1
	FIG	Apr	796.46	385
	GRAPE, RAISIN	Mar	6.9	13
		Jun	6.9	13
	PISTACHIO	Mar	15.04	11
		Apr	546.17	351
		Jun	82.75	44
		Jul	177.92	145
		Aug	79.88	70
	WALNUT	Apr	93.78	104
		May	110.33	80
		Aug	137.91	100
		Sep	110.33	80
	WHEAT SEED	Sep	1.38	4
	GRAPE, WINE	Jan	310.98	310
		Feb	35.11	70
		Mar	10.35	10
		Apr	1306.55	1146
		May	189.64	150
		Jun	343.95	502
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	1.04	35
	ALMOND	Jan	6.17	225
		May	4.92	157
		Jun	14.44	467
		Jul	0.98	33
		Sep	6.14	308
	BEAN DRIED	Jul	0.6	20
MALATHION	ALFALFA	Mar	167.35	114
METHOMYL	CORN FOR/FOD	Jul	31.41	70
PARAQUAT DICHLORIDE	ALMOND	Feb	16.61	12

Acres of Irrigated Agriculture: 25005				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	339.06	534
		Apr	215.95	353
		May	143.96	255
		Jun	1179.65	1040
		Jul	314.73	437
		Aug	231.5	325
		Sep	27.68	22
	FIG	May	145.35	150
	ORANGE	Jun	55.37	40
	PISTACHIO	Jul	110.74	80
	TANGERINE	Jun	2.77	2
	WALNUT	Apr	6.92	32
		Jun	41.53	80
		Jul	41.53	80
	GRAPE, WINE	Jul	30.02	147
		Sep	9.23	20
PERMETHRIN	ALMOND	Jan	263.31	1217
		May	41.47	98
		Jul	674.67	1692
		Aug	476.5	1195
	PISTACHIO	Apr	81.02	254
		May	72.38	309
		Jun	101.99	335
		Jul	178.33	587
		Aug	2136.84	656
		Sep	138.94	587
PHOSMET	ALMOND	Jul	1738.8	552
SIMAZINE	ALMOND	Feb	378.9	286
		May	8.25	55
	GRAPE	Feb	69.3	39
	GRAPE, RAISIN	Feb	20.14	27
	GRAPE, WINE	Jan	313.08	363
		Apr	466.47	1037
TRIFLURALIN	GRAPE, WINE	Apr	390.54	1037
		May	13.38	488
		Jun	284.03	1037

Black Rascal Creek @ Yosemite Rd

Table 4. Black Rascal Creek @ Yosemite Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 744				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
ALDICARB	COTTON	Mar	126.90	188
		Jun	394.80	188
BIFENTHRIN	CORN HUMAN CONSUMP	May	1.11	11
	WALNUT	Jun	13.50	90
		Aug	11.00	110
CHLORPYRIFOS	ALMOND	Jul	351.49	174
	WALNUT	May	266.60	142
COPPER HYDROXIDE	WALNUT	Mar	810.04	183
		Apr	1379.84	224
DIURON	COTTON	Sep	5.67	189
ESFENVALERATE	ALMOND	May	0.65	20
	CORN HUMAN CONSUMP	May	0.27	6
FENPROPATHRIN	TOMATO	Jun	16.59	80
GLYPHOSATE	ALMOND	Jan	28.12	38
		Jul	113.82	55
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Aug	30.01	20
		Sep	30.01	20
	WALNUT	Jul	168.46	85
GLYPHOSATE, POTASSIUM SALT	ALMOND	Sep	176.54	85
LAMBDA-CYHALOTHRIN	CORN HUMAN CONSUMP	Mar	0.57	20
		Apr	0.24	8
		Jun	0.25	8
	TOMATO	May	2.41	80
METHOMYL	CORN HUMAN CONSUMP	May	17.64	39
PARAQUAT DICHLORIDE	ALMOND	Jun	64.92	47
		Aug	33.20	38
PERMETHRIN	PISTACHIO	Aug	8.83	30

Cottonwood Creek @ Road 20

Table 5. Cottonwood Creek @ Road 20 pesticide application data for 2007.

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jun	32.3	323
		Jul	37.7	377
		Aug	1.3	13
	CORN FOR/FOD	Aug	6.16	62
CARBARYL	PISTACHIO	Jun	12.5	25
	PLUM	Aug	120	30
CHLORPYRIFOS	ALMOND	Jul	360.61	186
		Aug	75.77	38
	GRAPE	Mar	326.05	163
	GRAPE, RAISIN	May	14.87	8
	WALNUT	Jul	9.29	11
COPPER	GRAPE	Aug	220	60
		Sep	928	232
COPPER HYDROXIDE	ALMOND	Jan	831.97	420
		Feb	715.24	363
	GRAPE	Mar	415.32	423
		Apr	203.64	330
		May	9.22	21
	GRAPE, RAISIN	Mar	1133.28	1419
		Apr	514.99	545
		May	60.67	81
	NECTARINE	Jan	267.2	66
	PEACH	Jan	1059.16	262
		Mar	12.65	10
	PISTACHIO	Sep	242.1	150
	PLUM	Jan	121.05	30
	GRAPE, WINE	Mar	1514.2	1935
		Apr	1137.66	1283
		May	50.88	37
COPPER OXIDE (OUS)	ALMOND	Mar	191.29	114
	GRAPE	Apr	10.07	12
	GRAPE, RAISIN	Mar	92.93	60
		Apr	227.71	258
	ORANGE	Mar	45.12	20
COPPER OXYCHLORIDE SULFATE	GRAPE, RAISIN	Jul	2508	1261
	GRAPE, WINE	Jul	204	107

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
COPPER SULFATE (BASIC)	ORANGE	Jan	164.64	51
	TANGELO	Oct	94.08	16
CYFLUTHRIN	TANGERINE	Apr	11.78	280
DIAZINON	ALMOND	Jan	72.95	36
	CHERRY	Feb	20	10
	NECTARINE	Jan	132.39	66
	PEACH	Jan	515.18	262
	PLUM	Jan	57.43	30
	PRUNE	Mar	42	28
DICOFOL	COTTON	Jun	480.71	480
DIMETHOATE	CORN FOR/FOD	Aug	18.68	55
		Sep	18.68	55
	ORANGE	May	178.09	240
		Jul	88.87	240
	TANGERINE	May	103.89	140
		Jul	103.68	140
DIURON	COTTON	Sep	44.42	806
	GRAPE	Feb	7.2	3
		Mar	8	5
	GRAPE, RAISIN	Jan	64.12	246
		Feb	365.66	357
		Mar	291.2	375
		Apr	6.4	6
	ORANGE	Jan	73.6	46
		Mar	246.4	154
		Aug	8	5
	GRAPE, WINE	Jan	22.96	78
		Mar	11.45	22
		Apr	6.4	20
ESFENVALERATE	ALMOND	Jan	69.84	1446
		Feb	20.33	363
		May	1.68	55
		Jul	82.91	150
	CHERRY	Feb	0.48	10
	NECTARINE	Jan	2.7	66
	N-OUTDR TRANSPL	May	8.43	207
		Jun	8.43	207
		Jul	8.43	207
		Aug	8.43	207
		Sep	0.69	17
	PEACH	Jan	744.94	262
		Aug	1.1	54
	PLUM	Jan	195.22	30

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	PRUNE	Feb	6.83	168
FENPROPATHRIN	GRAPE	Jun	236.09	129
		Aug	44.58	390
	GRAPE, WINE	Aug	75.93	377
GLYPHOSATE	ALMOND	May	104	160
		Jun	24.58	197
	GRAPE, RAISIN	Mar	24.8	30
		Apr	79.62	165
		May	67.27	115
GLYPHOSATE, DIAMMONIUM SALT	ALMOND	Mar	27.74	37
		Apr	2363.26	197
	GRAPE	Apr	224.93	30
	GRAPE, RAISIN	Jan	103.09	275
	GRAPE, WINE	Jan	59.98	160
		Apr	1349.58	120
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	152.95	331
		Feb	628.96	865
		Mar	404.51	576
		Apr	1483.63	1360
		May	1683.32	1767
		Jun	1061.75	758
		Jul	2311.13	1741
		Aug	1715.91	1183
		Sep	739.84	516
		Dec	29.68	34
	CHERRY	Apr	13.93	8
		Jul	29.26	21
		Oct	5.23	5
	COTTON	Jun	1788.62	1440
	GRAPE	Jan	18.44	16
		Feb	38.17	55
		Mar	87.01	111
		Apr	33.48	49
		Jun	408.46	163
		Jul	52.06	50
	GRAPE, RAISIN	Jan	82.89	168
		Feb	623.84	763
		Mar	818.8	873
		Apr	552	571
		May	348.42	438
		Jun	107.13	43
	OLIVE	Jul	132.4	28
	ORANGE	Jan	3.99	8

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	18.02	5
		May	142.7	87
		Jun	101.08	51
		Jul	924.97	411
		Aug	92.44	50
		Sep	46.06	41
	PISTACHIO	Jan	73.04	345
		Feb	151.27	201
		Mar	154.81	212
		Apr	158.55	100
		May	110.16	95
		Jun	251.04	193
		Aug	161.52	141
		Sep	39.89	40
	POMEGRANATE	Aug	293.17	157
	PRUNE	May	31.54	28
	WALNUT	Jul	8.78	11
	GRAPE, WINE	Jan	870.35	977
		Feb	907.09	964
		Mar	598.14	772
		Apr	1747.35	1418
		May	806.05	867
		Jun	818.23	611
		Jul	676.04	780
GLYPHOSATE, POTASSIUM SALT	ALFALFA	Feb	132.75	70
		Mar	208.53	110
	ALMOND	Feb	293.97	389
		Mar	351.49	231
		Apr	571.71	336
		May	206.88	216
		Jun	453.81	265
		Jul	326.18	193
		Aug	701.63	663
		Sep	383.38	369
	APRICOT	Apr	1.38	2
	CHERRY	Jan	2.16	10
	CORN FOR/FOD	Jul	56.9	110
	FIG	Jun	162.76	145
	GRAPE	Jan	9.61	17
		Feb	284.56	423
		Mar	196.52	337

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Apr	108.73	112
	GRAPE, RAISIN	Jan	195.98	439
		Feb	666.64	667
		Mar	140	120
		Apr	700.58	451
		May	231.71	180
		Jun	22.07	38
		Jul	13.79	10
	ORANGE	Jan	63.44	46
		Mar	318.59	154
		Apr	124.13	240
	PEACH	Jan	33.17	154
		Apr	1.38	1
		May	2.76	4
	PERSIMMON	May	8.28	5
	PISTACHIO	Feb	55.18	80
		Mar	1114.39	348
		Apr	1057.11	637
		May	1391.58	492
		Jun	274.45	103
		Jul	947.53	455
		Aug	100.68	31
		Sep	395.84	222
	POMEGRANATE	Feb	280.05	137
		May	8.28	7
		Jun	19.86	18
	PRUNE	Feb	105.53	63
		Apr	22.25	11
		Jun	115.88	56
	TANGERINE	Apr	72.41	140
	WALNUT	Jun	17.37	11
		Sep	43.44	28
	GRAPE, WINE	Jan	1063.71	1312
		Feb	1134.31	909
		Mar	262.73	258
		Apr	639.12	454
		May	1245.2	658
		Jun	2.76	6
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	7.52	250
METHIDATHION	ORANGE	Oct	385	154
METHOMYL	ALFALFA	Jul	108	160
	CORN FOR/FOD	Aug	5.04	14

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
PARAQUAT DICHLORIDE	ALMOND	Feb	109.46	251
		Mar	211.92	275
		Apr	814.03	673
		May	124.24	202
		Jun	175.58	172
		Jul	282.67	255
		Aug	105.9	115
		Sep	27.69	20
	FIG	Jun	4.15	3
	GRAPE	Jan	31.4	58
		Feb	21.65	40
		Mar	11.91	20
		Jun	165.77	326
		Sep	22.73	40
	GRAPE, RAISIN	Jan	9.99	22
		Feb	0.78	24
		Mar	303.4	476
		Apr	46.1	40
		May	93.43	144
		Jun	25.12	37
		Jul	124.59	240
	PISTACHIO	Mar	23.82	40
		Sep	8.29	20
	PRUNE	Mar	16.67	28
	GRAPE, WINE	Jan	29.37	21
		Feb	0.78	15
		Mar	56.63	107
		Apr	31.82	67
		May	172.61	360
		Jun	121.37	230
		Jul	255.08	217
		Aug	125.76	238
PERMETHRIN	ALMOND	May	11.16	35
		Jun	91.52	306
		Jul	466.52	1170
		Aug	5.58	20
	PISTACHIO	Apr	70.7	240
		May	1398.64	5012
		Jun	327.86	1100
		Jul	602.17	2183
		Aug	57.98	160
		Sep	1376.84	4092
PHOSMET	NECTARINE	May	185.42	66

Acres of Irrigated Agriculture: 40699				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	PEACH	Apr	89.6	32
		May	231	83
		Jul	316.4	113
		Aug	151.2	54
	PLUM	May	84	30
	GRAPE, WINE	May	49	35
SIMAZINE	ALMOND	Jan	46.57	218
		Feb	48.6	36
	GRAPE	Jan	94.63	111
		Feb	117.9	125
		Mar	29.03	25
		Apr	12.15	27
	GRAPE, RAISIN	Jan	564.12	904
		Feb	661.08	648
		Mar	1005.52	956
		Apr	9	6
	ORANGE	Jan	124.2	46
		Mar	8.95	5
		Aug	9.95	5
	PEACH	Jan	207.91	154
	GRAPE, WINE	Jan	1213.28	1853
		Feb	939.56	893
		Mar	164.8	208
		Apr	52.65	117
TRIFLURALIN	ALMOND	Feb	49.48	37
	COTTON	Jun	359.7	480
	GRAPE	Apr	54.8	107
	GRAPE, RAISIN	May	34.1	17
	GRAPE, WINE	Apr	65.07	190
		May	11.66	40

Deadman Creek @ Gurr Rd

Table 6. Deadman Creek @ Gurr Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 52091				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Mar	13.54	400
		Apr	2.74	80
	SUGARBEET	Jul	4.44	114
	TOMATO PROCESS	Apr	3.74	75
		May	3.74	75
ALDICARB	COTTON	Mar	332.55	394
		Apr	1054.89	1587
		Jun	447.30	213
BIFENTHRIN	ALMOND	Jun	11.80	118
		Jul	8.75	175
	CORN FOR/FOD	Jun	3.76	40
		Jul	3.85	50
CARBARYL	TOMATO	Mar	15.00	10
CARBOFURAN	ALFALFA	Mar	741.79	4299
CHLORPYRIFOS	ALFALFA	Mar	927.08	2535
		Jul	178.17	355
	CORN FOR/FOD	Jul	80.32	79
	PEACH	Jan	29.91	15
COPPER HYDROXIDE	ALMOND	Jan	9.68	59
		Feb	195.02	141
	GRAPE RAISIN	Mar	159.79	198
	GRAPE WINE	Mar	336.80	311
		Apr	1046.26	1181
	PEACH	Jan	92.10	15
	PEPPER FRUITING	Apr	15.35	13
	PISTACHIO	Apr	557.37	259
	TOMATO	Mar	19.91	74
		Apr	8.07	10
		May	9.21	10
	TOMATO PROCESS	Apr	32.28	30
	WALNUT	Mar	44.35	72
		Apr	169.47	62
COPPER SULFATE (BASIC)	APRICOT	Jan	58.80	6
	NECTARINE	Jan	98.00	10
	PEACH	Jan	196.00	20

Acres of Irrigated Agriculture: 52091				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
CYFLUTHRIN	ALFALFA	Mar	1.89	61
	COTTON	Jun	18.74	481
		Jul	37.95	960
		Aug	10.15	244
	TOMATO PROCESS	Apr	3.41	76
CYPERMETHRIN	ALFALFA	Mar	10.84	317
DIAZINON	CORN FOR/FOD	May	33.13	67
	PRUNE	Mar	39.00	26
DICOFOL	COTTON	Jun	1009.50	698
DIMETHOATE	ALFALFA	Mar	720.89	4396
	CORN FOR/FOD	Jun	19.79	40
		Jul	19.75	50
	TOMATO	Apr	3.74	10
		May	12.43	38
		Jun	153.53	436
		Jul	0.32	80
	TOMATO PROCESS	Jul	156.50	314
		Aug	188.88	379
DIURON	ALFALFA	Jan	854.05	778
		Feb	162.40	111
FENPROPATHRIN	GRAPE WINE	Jun	16.59	75
	TOMATO	Jun	72.09	436
		Jul	0.21	80
GLYPHOSATE	ALMOND	Jan	76.42	49
		Feb	348.12	262
		Apr	43.68	42
		May	20.80	20
		Jun	446.45	270
		Jul	262.58	137
	CORN FOR/FOD	Feb	285.48	366
		May	152.88	147
	FIG	Mar	103.71	67
		Jul	202.80	130
	TOMATO	Apr	40.39	68
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	67.05	2360
	ALMOND	Jun	0.01	75
		Jul	0.03	130
	N-OUTDOOR PLANT	Jul	5.98	183
	PEPPER FRUITING	Jun	1.48	53
	RICE	May	3.33	85

Acres of Irrigated Agriculture: 52091				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	TOMATO	May	0.25	10
		Jun	1.84	57
		Aug	2.03	68
MALATHION	ALFALFA	Mar	2574.56	2918
		Apr	40.47	80
	FIG	Jul	613.25	240
	OAT FOR/FOD	Mar	38.74	35
METHOMYL	ALFALFA	Jul	114.07	492
	CORN FOR/FOD	Jul	15.75	35
	SUGARBEET	Jul	52.79	117
OXAMYL	ALFALFA	May	29.87	40
	OAT	Jun	18.58	25
	PEPPER FRUITING	Apr	35.84	40
		May	59.34	80
		Jun	19.91	20
	TOMATO	Mar	69.69	106
		Apr	49.78	77
		May	129.43	206
		Jun	183.99	289
PARAQUAT DICHLORIDE	ALFALFA	Jan	649.79	952
		Feb	89.29	129
	ALMOND	Jan	59.50	94
		Mar	357.37	509
		Apr	852.68	1390
		May	843.54	689
		Jun	163.00	256
	FIG	May	80.29	116
		Jun	101.52	140
	GRAPE WINE	Mar	186.12	378
		May	277.14	628
	PISTACHIO	May	372.72	1093
		Jul	321.16	1060
	PRUNE	Mar	15.48	26
PERMETHRIN	ALMOND	Jan	134.35	599
		May	3.20	18
	CORN FOR/FOD	May	6.38	76
		Jun	6.38	49
	N-OUTDOOR PLANT	Jul	70.34	275
	PISTACHIO	Apr	204.49	820
		May	125.30	370
		Jun	251.42	786
		Jul	52.63	147

Acres of Irrigated Agriculture: 52091				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
SIMAZINE	ALMOND	Jan	29.04	58
		Feb	58.50	110
	GRAPE RAISIN	Feb	87.25	198
		May	29.70	198
	GRAPE WINE	Jan	342.43	628
		Mar	40.05	40
TRIFLURALIN	ALFALFA	Jan	3946.00	1973
		Feb	7948.20	3974
		Mar	12.04	27
		Apr	872.68	436
		May	395.00	193
	CORN FOR/FOD	May	7.79	10
	COTTON	Mar	39.39	66
		May	77.24	77
		Jun	348.51	698
	OAT	Apr	8.02	75
	PEPPER FRUITING	Mar	21.46	46
		May	13.04	30
		Jun	33.30	76
	SUGARBEET	May	59.57	80
	TOMATO	Jan	0.50	26
		Feb	22.06	44
		Mar	440.59	659
		Apr	123.43	199
		May	155.04	328
		Jun	60.68	129
	TOMATO PROCESS	Mar	261.90	721
		Apr	92.59	248
		May	153.62	668
		Jun	79.06	401
		Jul	12.50	75

Deadman Creek @ Hwy 59

Table 7. Deadman Creek @ Hwy 59 pesticide application data for 2007.

Acres of Irrigated Agriculture: 38230				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Mar	10.20	300
		Apr	2.74	80
	SUGARBEET	Jul	4.44	114
ALDICARB	COTTON	Mar	199.20	216
		Apr	268.91	368
		Jun	447.30	213
BIFENTHRIN	ALMOND	Jun	11.80	118
		Jul	8.75	175
	CORN FOR/FOD	Jun	3.76	40
CARBARYL	TOMATO	Mar	15.00	10
CARBOFURAN	ALFALFA	Mar	581.28	3405
CHLORPYRIFOS	ALFALFA	Mar	491.23	1534
		Jul	178.17	355
	CORN FOR/FOD	Jul	80.32	79
	PEACH	Jan	29.91	15
COPPER HYDROXIDE	ALMOND	Feb	195.02	141
	GRAPE RAISIN	Mar	159.79	198
	GRAPE WINE	Mar	336.80	311
		Apr	1046.26	1181
	PEACH	Jan	92.10	15
	PEPPER FRUITING	Apr	15.35	13
	PISTACHIO	Apr	557.37	259
	TOMATO	Mar	19.91	74
		Apr	8.07	10
		May	9.21	10
	TOMATO PROCESS	Apr	32.28	30
	WALNUT	Mar	44.35	72
		Apr	169.47	62
COPPER SULFATE (BASIC)	APRICOT	Jan	58.80	6
	NECTARINE	Jan	98.00	10
	PEACH	Jan	196.00	20
CYFLUTHRIN	COTTON	Jul	5.00	128
CYPERMETHRIN	ALFALFA	Mar	10.84	317
DIAZINON	CORN FOR/FOD	May	33.13	67
	PRUNE	Mar	39.00	26

Acres of Irrigated Agriculture: 38230				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
DIMETHOATE	ALFALFA	Mar	567.37	3405
	CORN FOR/FOD	Jun	19.79	40
	TOMATO	Apr	3.74	10
		May	12.43	38
		Jun	153.53	436
		Jul	0.32	80
DIURON	ALFALFA	Jan	854.05	778
ESFENVALERATE	ALMOND	Jan	523.08	1453
		Apr	2.44	37
		May	28.87	462
		Jul	9.31	166
	APRICOT	Jan	0.24	6
	NECTARINE	Jan	0.41	10
	N-OUTDOOR PLANT	Jun	1.24	24
		Jul	2.47	49
	OAT	Jun	0.91	25
	PEACH	Jan	0.81	20
	PEPPER FRUITING	May	1.63	4
		Jun	2.50	70
	TOMATO	May	0.82	23
		Jun	0.28	8
FENPROPATHRIN	GRAPE WINE	Jun	16.59	75
	TOMATO	Jun	72.09	436
		Jul	0.21	80
GLYPHOSATE	ALMOND	Jan	76.42	49
		Feb	348.12	262
		Apr	43.68	42
		May	20.80	20
		Jun	446.45	270
		Jul	262.58	137
	CORN FOR/FOD	Feb	285.48	366
		May	152.88	147
	FIG	Mar	103.71	67
		Jul	202.80	130
	TOMATO	Apr	40.39	68
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	49.06	1710
	ALMOND	Jun	0.01	75
		Jul	0.03	130
	PEPPER FRUITING	Jun	1.48	53
	RICE	May	3.33	85
	TOMATO	May	0.25	10
		Jun	1.84	57

Acres of Irrigated Agriculture: 38230				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Aug	2.03	68
MALATHION	ALFALFA	Mar	1726.69	2059
		Apr	40.47	80
	FIG	Jul	613.25	240
METHOMYL	ALFALFA	Jul	114.07	492
	CORN FOR/FOD	Jul	15.75	35
	SUGARBEET	Jul	52.79	117
OXAMYL	ALFALFA	May	29.87	40
	OAT	Jun	18.58	25
	PEPPER FRUITING	Apr	35.84	40
		May	59.34	80
		Jun	19.91	20
	TOMATO	Mar	69.69	106
		Apr	49.78	77
		May	129.43	206
		Jun	183.99	289
PARAQUAT DICHLORIDE	ALFALFA	Jan	319.27	475
	ALMOND	Jan	59.50	94
		Mar	357.37	509
		Apr	819.96	1325
		May	629.53	532
		Jun	48.45	89
	FIG	May	80.29	116
		Jun	101.52	140
	GRAPE WINE	Mar	186.12	378
		May	277.14	628
	PISTACHIO	May	372.72	1093
		Jul	321.16	1060
	PRUNE	Mar	15.48	26
PERMETHRIN	ALMOND	Jan	134.35	599
		May	3.20	18
	CORN FOR/FOD	May	6.38	76
		Jun	6.38	49
	N-OUTDOOR PLANT	Jul	24.85	92
	PISTACHIO	Apr	204.49	820
		May	125.30	370
		Jun	251.42	786
		Jul	52.63	147
SIMAZINE	ALMOND	Jan	29.04	58
		Feb	58.50	110
	GRAPE RAISIN	Feb	87.25	198
		May	29.70	198

Acres of Irrigated Agriculture: 38230				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	GRAPE WINE	Jan	342.43	628
		Mar	40.05	40
TRIFLURALIN	ALFALFA	Jan	3216.00	1608
		Feb	5756.20	2878
		Mar	12.04	27
		Apr	632.68	316
		May	295.00	143
	OAT	Apr	8.02	75
	PEPPER FRUITING	Mar	21.46	46
		May	13.04	30
		Jun	33.30	76
	TOMATO	Feb	22.06	44
		Mar	440.59	659
		Apr	123.43	199
		May	155.04	328
		Jun	60.68	129
	TOMATO PROCESS	Mar	63.40	125
		Apr	41.96	96
		May	56.73	161
		Jun	26.37	84

Dry Creek @ Road 18

Table 8. Dry Creek @ Road 18 pesticide application data for 2007.

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jun	11	110
		Jul	28.25	316
		Aug	5.65	47
		Dec	2.44	33
CHLORPYRIFOS	ALMOND	Jan	74.34	40
		May	37.17	20
		Jul	3319.46	1659
	N-GRNHS FLOWER	Jul	0.31	0.50
	WALNUT	Jun	65.8	33
		Aug	79.76	144
	WINE GRAPES	Feb	61.41	31
COPPER HYDROXIDE	ALMOND	Jan	3391.24	1271
		Feb	556.24	232
	APRICOT	Jan	76.66	19
	GRAPE	Apr	16.14	16
	GRAPE, RAISIN	Mar	152.69	153
		Apr	84.73	105
		May	77	50
	OLIVE	Jan	96.84	20
	OT-VINE	Mar	0.81	1
	PEACH	Jan	80.08	13
	PISTACHIO	Sep	96.84	60
	PLUM	Jan	646.8	105
	WINE GRAPES	Mar	200.23	226
		Apr	1535.71	1334
COPPER OXIDE (OUS)	ALMOND	Jan	251.7	76
COPPER SULFATE (BASIC)	ALMOND	Feb	104	200
		May	390	730
		Jun	312	530
	FIG	Feb	104.01	120
		May	117	120
	PISTACHIO	May	18.36	84
COPPER SULFATE (PENTAHYDRATE)	ALMOND	May	99	160
		Jul	633.6	640
	N-GRNHS FLOWER	Jan	0.91	2
		Feb	1.38	1
		Mar	2.32	3
		Apr	0.43	1

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	1.69	3
		Jun	0.56	1
		Jul	1.28	3
		Sep	0.3	1
	PISTACHIO	May	99	156
		Sep	66	39
CYFLUTHRIN	N-GRNHS FLOWER	Apr	0.16	2
		Jul	0.02	0.50
	ORANGE	May	9.95	100
DIAZINON	ALMOND	Jan	141.85	70
		May	1.5	48
	APRICOT	Jan	37.7	19
	PRUNE	May	92.5	60
	WATERMELON	May	6.18	22
DIMETHOATE	BEAN DRIED	Jul	34.6	70
		Aug	17.3	35
	CORN FOR/FOD	Sep	76.44	178
DIURON	ALFALFA	Feb	120	75
	GRAPE, RAISIN	Feb	7.46	14
		Mar	101.6	108
	ORANGE	Mar	624	417
		Oct	192	120
	TANGERINE	Oct	172.8	108
	WINE GRAPES	Feb	5.34	10
ESFENVALERATE	ALMOND	Jan	95.92	1841
		Feb	16.52	440
		Jul	1.22	24
	APRICOT	Jan	0.96	19
	PEACH	Jan	0.79	13
	PLUM	Jan	4.27	105
FENPROPATHRIN	WINE GRAPES	Jun	15.39	76
GLYPHOSATE	ALMOND	Jan	105.04	101
		Apr	331	327
		May	94.25	86
		Jul	225.94	208
		Aug	10.4	10
		Sep	38.48	37
		Oct	34.32	33
	PLUM	Sep	12.48	12
	WINE GRAPES	Apr	50.34	110
		Jun	13.73	110
GLYPHOSATE, DIAMMONIUM	GRAPE	Apr	254.92	34

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
SALT	POMEGRANATE	Apr	224.93	10
	WINE GRAPES	Apr	2759.14	184
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	165.53	125
		Feb	365.67	517
		Mar	188.85	169
		Apr	605.47	917
		May	918.28	710
		Jun	1070.02	1364
		Jul	1390.15	1937
		Aug	320.34	359
		Dec	70.58	47
	CHERRY	Mar	1	0.50
	FIG	Jan	12.75	80
		Feb	204.83	329
		Mar	62.06	36
	GRAPE	Feb	5.98	6
	GRAPE, RAISIN	Feb	50.98	43
		Mar	103.76	137
		May	78.12	66
		Jun	13.24	17
	N-GRNHS FLOWER	Jan	2	1
		Mar	15.19	8
		Jun	6	3
		Jul	5.19	2
		Sep	9.99	3
	OLIVE	Jul	10.53	7
	ORANGE	Jun	1054.36	345
		Jul	685.74	390
		Aug	35.68	100
		Sep	118.91	75
		Oct	178.37	120
	OT-VINE	Mar	1.74	10
	PISTACHIO	Jan	396.88	1675
		Feb	620.75	310
		Apr	33.06	18
		May	120.2	132
		Jun	380.58	151
		Jul	817.46	620
		Aug	396.16	626
		Sep	19.82	20
		Oct	301.75	414
		Dec	6.04	12
	TANGERINE	Jun	401.33	188
		Jul	160.53	108

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Aug	155.26	200
		Oct	160.53	108
	WALNUT	Feb	16.62	17
	WINE GRAPES	Feb	111.81	225
		Mar	326.29	239
		Apr	79.77	64
		May	290.36	204
		Jun	392.03	201
GLYPHOSATE, POTASSIUM SALT	ALMOND	Jan	284.41	374
		Feb	321.75	294
		Mar	879.53	490
		Apr	7691.24	830
		May	1664.22	1104
		Jun	1082.48	964
		Jul	1973.51	1593
		Aug	237.02	299
		Sep	55.16	78
	CORN FOR/FOD	Jul	75.1	67
	FIG	Feb	20.96	15
		Apr	755.78	240
		May	16.55	15
		Jun	308.94	280
		Jul	41.38	40
	GRAPE, RAISIN	Jan	26.76	114
		Feb	312.01	453
		Mar	247.12	382
		Apr	104.83	191
		May	367.36	489
		Jun	11.03	18
	KIWI	May	41.37	48
		Jun	22.06	30
		Jul	24.55	30
	ORANGE	Mar	806.82	417
		Apr	124.13	60
		May	27.58	80
		Aug	289.63	140
	PISTACHIO	Jan	179.27	150
		Mar	1095.07	639
		Apr	1099.14	576
		May	3303.64	1896
		Jun	1208.18	689
		Jul	2110.59	1670
		Aug	184.87	167
		Sep	1056.44	997
	WINE	Jan	2013.77	1995

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	GRAPES	Feb	310.73	457
		Mar	991.46	933
		Apr	2556.99	356
		May	290.9	91
		Jun	77.23	24
LAMBDA-CYHALOTHRIN	ALMOND	May	2.48	70
	BEAN DRIED	Aug	0.82	35
MALATHION	N-OUTDR PLANTS	Apr	0.48	1
		May	0.5	1
		Jun	0.49	1
		Aug	0.75	2
		Sep	0.48	1
OXAMYL	WATERMELON	May	2.99	22
PARAQUAT DICHLORIDE	ALFALFA	Feb	103.82	75
	ALMOND	Feb	50.44	57
		Mar	66.05	108
		Apr	127.89	174
		Jun	549.21	704
		Jul	302.03	246
		Aug	192.14	440
		Sep	114.2	175
	FIG	Jun	379.3	275
		Jul	276.86	200
	GRAPE, RAISIN	Mar	48.82	82
		May	46.54	95
	OLIVE	Jun	13.84	10
	PISTACHIO	Mar	29.18	88
		Jun	55.37	40
		Jul	110.74	80
		Aug	23.22	122
	PLUM	Mar	61.1	59
		Apr	19.18	37
		Jun	13.15	19
		Sep	3.46	5
	WINE GRAPES	Mar	23.82	40
		May	305.88	666
		Jun	14.77	32
PERMETHRIN	ALMOND	Jan	22.18	97
		May	22.33	53
		Jun	9.98	25
		Aug	3.99	20
	PISTACHIO	Apr	204.96	753
		May	412.97	1561
		Jun	489.58	1356
		Jul	904.6	1614

Acres of Irrigated Agriculture: 23299				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Aug	374.4	1291
		Sep	758.09	2524
PHOSMET	ALMOND	May	215.6	77
		Jun	74	37
	APRICOT	May	53.2	19
SIMAZINE	ALMOND	Jan	152.24	106
		Feb	35.77	29
		Mar	41.59	48
	GRAPE, RAISIN	Jan	146.88	109
		Feb	326.53	467
		Mar	504.96	617
	OLIVE	Jan	18	20
	ORANGE	Mar	180	100
	WINE GRAPES	Jan	728.32	1182
		Feb	29.7	25
		Mar	409.5	263
TRIFLURALIN	WATERMELON	May	2.5	5
		Jun	3.87	7

Dry Creek @ Wellsford Rd

Table 9. Dry Creek @ Wellsford Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jun	83.68	1254
		Jul	66.73	987
	CORN FOR/FOD	Jun	146250.77	185
		Jul	960122.77	1522
		Aug	249947.73	345
	WALNUT	Jul	14.90	153
CHLORPYRIFOS	ALFALFA	Mar	10.17	23
	ALMOND	Apr	135.74	240
		May	1445.33	869
		Jun	61.41	160
		Jul	1509.86	926
	APPLE	Apr	240.84	0
	CORN FOR/FOD	May	723.05	562
		Jun	120.06	80
		Jul	2208.56	159
	OP-DEC. TREE	Aug	12.02	6
	WALNUT	Apr	3004.32	20
		May	317.76	168
		Jun	706.39	357
		Jul	618606.94	527
		Aug	112166.55	202
		Sep	11.63	11
COPPER	GRAPE, WINE	Jul	344.00	86
		Aug	48.00	12
COPPER HYDROXIDE	ALMOND	Jan	5700.47	1248
		Feb	1483.04	1137
		Mar	72.41	39
		Apr	106.05	22
	CHERRY	Feb	107.80	18
	GRAPE, WINE	Apr	41.38	26
	NECTARINE	Jan	154.00	20
	PEACH	Jan	38.50	5
		Feb	18.83	7
	PEACH PROCESSNG	Feb	17.19	28
		Mar	17.19	28
	PLUM	Jan	69.30	9
	WALNUT	Mar	11513.50	673

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Apr	69101.04	2075
		May	294.00	104
		Jun	27.30	8
COPPER OXIDE (OUS)	ALMOND	Jan	409.01	94
		Feb	304.14	223
		Mar	52.44	100
	WALNUT	Mar	419.50	100
		Apr	692.18	165
COPPER OXYCHLORIDE	ALMOND	Feb	112.50	90
COPPER SULFATE (PENTAHYDRATE)	RICE	May	1197.90	121
		Jun	910.80	92
CYFLUTHRIN	OP-DEC. TREE	Jun	3.00	30
		Jul	1.85	19
		Aug	0.70	7
CYPERMETHRIN	RICE	May	7797.57	175
DIAZINON	ALMOND	Jan	39.69	20
DIMETHOATE	CORN FOR/FOD	Jun	88.74	185
		Jul	702.18	1522
		Aug	74236.66	555
DIURON	WALNUT	Jan	220.42	156
		Feb	29.33	40
ESFENVALERATE	ALMOND	Jan	12.85	254
		Mar	0.61	15
		Apr	0.49	8
		May	143313.89	1546
		Jun	2.68	62
		Jul	127727.44	1433
		Aug	4.88	100
	OP-DEC. TREE	May	0.40	13
		Jun	0.43	14
		Jul	0.79	26
		Aug	0.06	2
	PEACH PROCESSNG	May	0.76	15
		Jun	1.63	33
	WALNUT	Apr	26653.49	100
		May	39980.24	100
		Jun	0.73	15
		Jul	2.68	100
		Aug	0.16	8
FENPROPATHRIN	GRAPE, WINE	May	15082.45	50
		Jul	25338.52	90
GLYPHOSATE	ALMOND	Jan	344.23	590
		Feb	106.48	81

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	108.67	140
		Apr	103.29	130
		May	246.92	321
		Jun	315.56	410
		Jul	234.00	190
		Aug	163.81	150
	CORN FOR/FOD	May	269.36	259
		Jun	303.28	305
		Jul	38.59	40
	WALNUT	Feb	143490.87	300
		Mar	8.32	5
		Jul	67.54	140
		Aug	41.00	20
GLYPHOSATE, DIAMMONIUM SALT	ALMOND	Feb	17.99	13
	CORN FOR/FOD	Jun	60.17	107
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	574.72	945
		Feb	472.79	532
		Mar	426.72	390
		Apr	69755.73	608
		May	359.69	512
		Jun	737.39	495
		Jul	749.75	580
		Aug	132.24	212
	CHESTNUT	Mar	2831.85	4
		May	2831.85	4
		Jul	3398.22	4
	CORN FOR/FOD	Jun	105.62	106
		Jul	194.03	185
	GRAPE, WINE	Feb	53.26	22
		Mar	526.38	200
		Apr	65.58	22
		May	284.95	150
		Jun	29.73	43
	NECTARINE	Feb	13.35	20
	OT-DEC. TREE	Jan	100.64	45
	PEACH	Feb	3.34	5
	PEACH PROCESSNG	Apr	422.41	14
	PERSIMMON	Feb	3.37	6
		Mar	4334.74	6
		May	3.12	6
	PISTACHIO	Mar	2.48	9

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	2.50	9
		Jul	2.24	2
	PLUM	Feb	6.01	9
	PUMPKIN	Mar	5.45	3
		Jun	4502.87	3
	WALNUT	Jan	77.49	968
		Feb	39.45	60
		Mar	69.71	71
		Apr	55.30	70
		May	256.69	99
		Jun	70.88	64
		Jul	18047.37	103
		Aug	67.69	30
GLYPHOSATE, POTASSIUM SALT	ALMOND	Jan	1314.24	1444
		Feb	423.42	343
		Mar	13773.04	294
		Apr	680.85	543
		May	146493.83	1230
		Jun	433.00	271
		Jul	2317.59	1274
		Aug	676.38	450
	CORN FOR/FOD	Jun	68.96	50
		Aug	55.17	40
	GRAPE, WINE	Feb	49.10	22
		Mar	386.17	160
		Jul	662.01	600
		Aug	6.18	2
		Sep	18.54	6
	PISTACHIO	Feb	117.09	91
	WALNUT	Jan	225.00	247
		Feb	36.78	40
		Mar	248.25	146
		Apr	333.30	320
		May	190.08	114
		Jun	214.29	116
		Jul	126.00	87
		Aug	55.17	28
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	0.68	23
	ALMOND	Jan	1.62	80
		May	5892.04	1206
		Jun	0.25	8
		Jul	11371.66	1098

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	CORN FOR/FOD	Jun	1.50	50
	OT-DEC. TREE	Jun	2.28	90
		Jul	3.40	135
		Aug	4.53	180
	PEACH PROCESSNG	May	1.14	37
	RICE	Jul	632.03	22
	WALNUT	May	1.62	62
		Jun	1000.88	385
		Jul	1730.12	302
		Aug	10.14	425
MALATHION	OT-DEC. TREE	Aug	370.81	90
	WALNUT	May	64.92	8
		Jul	117.44	15
		Aug	158.55	27
METHIDATHION	ALMOND	Jan	30.01	35
METHOMYL	CORN FOR/FOD	Aug	18.00	40
	OT-DEC. TREE	Jul	40.50	45
PARAQUAT DICHLORIDE	ALMOND	Jan	71.25	180
		Feb	146.65	316
		Mar	922.93	1279
		Apr	298.38	734
		May	343.09	454
		Jun	246.33	455
		Jul	154.07	178
		Aug	587.05	452
	CHESTNUT	Feb	39.22	85
		Apr	39.22	85
		Jul	1.29	4
	GRAPE, WINE	Mar	357.40	205
		Apr	138.43	275
		May	83.06	150
		Jun	234.11	274
		Jul	37.75	75
	OT-VINE	Feb	11.77	25
	PLUM	Feb	1.21	4
	WALNUT	Jan	20.71	20
		Feb	6.21	6
		Mar	39.43	42
		Apr	9.69	16
		May	26.54	55

Acres of Irrigated Agriculture: 23338				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jun	5.11	7
		Jul	27.69	60
		Aug	296.59	371
PERMETHRIN	ALMOND	May	119151.78	1857
		Jul	2431.75	275
	CORN FOR/FOD	May	35.73	179
	PISTACHIO	Jun	3081.11	9
PHOSMET	APPLE	Jun	2.80	1
		Jul	2.80	1
		Aug	5.60	2
	PISTACHIO	Aug	27.59	9
	WALNUT	Jul	18.20	12
		Aug	147.00	42
SIMAZINE	ALMOND	Jan	247.80	575
		Feb	139.06	180
		Mar	25284.57	443
		Apr	56048.97	715
		May	21969.62	476
		Jun	80957.49	580
		Jul	142122.50	723
		Aug	36.37	100
	WALNUT	Jan	335.46	180
		Feb	96476.57	340
		Mar	59.33	105
		Apr	38.25	30
		Jun	5.50	3
TRIFLURALIN	ALMOND	Mar	254.74	254
		Apr	202.93	245
		Jun	414.80	560
		Jul	397.31	421

Duck Slough @ Gurr Rd

Table 10. Duck Slough @ Gurr Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 28711				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Mar	1.85	40
ALDICARB	COTTON	Mar	883.73	1202
		Apr	290.82	460
		May	33.08	49
		Jun	1047.90	499
BIFENTHRIN	ALMOND	Jun	3.60	36
		Jul	6.00	120
	CORN FOR/FOD	Apr	3.04	65
		Jun	5.63	60
CARBARYL	TOMATO	Jun	81.25	65
CARBOFURAN	ALFALFA	Mar	122.18	671
CHLORPYRIFOS	ALFALFA	Mar	863.11	1983
		Apr	28.75	57
		Jul	48.48	96
	ALMOND	Jun	19.94	10
	CORN FOR/FOD	Mar	136.25	130
		Jul	90.49	89
	PEACH	Jan	29.91	15
COPPER	ALMOND	May	8.25	33
COPPER HYDROXIDE	ALMOND	Feb	136.92	123
	NECTARINE	Feb	42.37	60
	PEACH	Jan	264.26	47
	PLUM	Feb	80.70	20
	TOMATO	Apr	8.07	10
	WALNUT	Mar	309.23	115
		Apr	414.80	138
COPPER OXIDE (OUS)	ALMOND	Jan	199.68	70
COPPER SULFATE (BASIC)	APRICOT	Jan	58.80	6
	NECTARINE	Jan	98.00	10
	PEACH	Jan	882.00	90
CYFLUTHRIN	ALFALFA	Mar	43.29	1102
	COTTON	Jul	35.38	983
		Aug	10.15	244
	TOMATO	Jun	4.26	95
	TOMATO PROCESS	Apr	3.41	76
CYPERMETHRIN	ALFALFA	Mar	5.90	180

Acres of Irrigated Agriculture: 28711				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	COTTON	Jun	1.80	37
DIAZINON	PRUNE	Jun	22.50	30
DICOFOL	COTTON	Jun	403.89	279
DIMETHOATE	ALFALFA	Mar	113.04	671
		Apr	36.04	73
	CORN FOR/FOD	Jun	29.68	60
	TOMATO	Apr	3.74	10
		May	46.61	95
		Jun	90.37	232
	TOMATO PROCESS	Jul	156.50	314
		Aug	75.33	151
DIURON	ALFALFA	Jan	499.02	447
		Feb	234.21	194
	RIGHTS OF WAY	Jan	19.99	5
ESFENVALERATE	ALMOND	Jan	2.28	70
		Mar	0.37	130
		Apr	2.44	37
		May	16.39	287
		Jul	7.19	112
	APRICOT	Jan	0.24	6
	NECTARINE	Jan	0.41	10
		May	3.05	50
		Jul	1.53	30
	N-OUTDOOR PLANT	Mar	0.07	1
		May	0.59	12
	OAT	Jun	0.91	25
	PEACH	Jan	5.29	122
		Jun	1.63	32
	PEPPER FRUITING	May	1.63	4
		Jun	1.07	30
	PLUM	May	2.90	60
		Jul	1.02	20
	PRUNE	Jan	16.87	330
		Feb	5.60	110
	SUGARBEET	Jul	0.99	35
	TOMATO	May	2.60	68
		Jun	1.72	48
	TOMATO PROCESS	May	0.36	10
FENPROPATHRIN	TOMATO	Jun	21.45	137
		Jul	14.56	93
GLYPHOSATE	ALFALFA	Jan	13.00	10
		Jun	10.40	10
	ALMOND	Jan	188.74	121

Acres of Irrigated Agriculture: 28711				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Feb	427.14	264
		Apr	43.68	42
		May	229.43	150
		Jun	1066.24	594
		Jul	74.88	51
	CORN FOR/FOD	Feb	302.44	372
		Mar	174.93	207
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	47.08	1616
	ALMOND	Mar	0.60	20
		May	19.43	496
		Jul	0.02	93
	CORN FOR/FOD	Mar	6.05	20
	COTTON	May	2.15	120
	TOMATO	Jun	2.39	77
		Aug	2.03	68
MALATHION	ALFALFA	Mar	1474.02	1534
		Apr	40.07	40
METHOMYL	ALFALFA	Jul	118.08	319
	CORN FOR/FOD	Jul	58.05	129
	SUGARBEET	Jul	33.84	75
OXAMYL	OAT	Jun	18.58	25
	PEPPER FRUITING	Apr	35.84	40
		May	29.87	40
	TOMATO	May	159.79	258
		Jun	124.25	195
		Jul	25.89	35
	TOMATO PROCESS	May	29.87	55
PARAQUAT DICHLORIDE	ALFALFA	Jan	194.22	131
		Feb	247.74	377
	ALMOND	Feb	347.42	660
		Mar	57.39	60
		Apr	313.42	270
		May	442.98	330
		Jun	47.76	55
		Jul	3.77	16
	CORN FOR/FOD	Feb	58.47	96
	CORN HUMAN CONSUMP	Mar	13.84	20
	COTTON	Feb	123.04	202
	PISTACHIO	May	11.42	33
		Jun	6.92	9
	WALNUT	Apr	44.99	78
PERMETHRIN	PISTACHIO	Apr	33.89	85

Acres of Irrigated Agriculture: 28711				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jun	21.18	85
		Jul	12.76	37
SIMAZINE	ALMOND	Jan	103.16	133
		Feb	62.01	127
TRIFLURALIN	ALFALFA	Feb	2534.00	1267
		Apr	148.00	74
	COTTON	Jun	139.43	279
	OAT	Apr	8.02	75
	PEPPER FRUITING	Mar	9.03	18
	SUGARBEET	May	26.00	35
	TOMATO	Mar	260.13	370
		Apr	48.34	106
		May	119.63	284
		Jun	26.58	61
		Jul	8.74	28
	TOMATO PROCESS	Mar	150.35	410
		Apr	14.16	32
		May	84.47	397
		Jun	26.37	84

Duck Slough @ Hwy 99

Table 11. Duck Slough @ Hwy 99 pesticide application data for 2007.

Acres of Irrigated Agriculture: 15622				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	RADICCHIO	Sep	3.18	69
ALDICARB	COTTON	Mar	656.85	899
		May	33.08	49
		Jun	1047.90	499
BIFENTHRIN	ALMOND	Jun	3.60	36
		Jul	6.00	120
		Aug	19.20	192
	CORN FOR/FOD	Apr	3.04	65
		Jun	1.88	20
CARBARYL	TOMATO	Jun	81.25	65
CHLORPYRIFOS	ALFALFA	Mar	233.77	304
		Apr	28.75	57
		Aug	24.34	49
	ALMOND	Jun	19.94	10
		Aug	3.99	9
	CORN FOR/FOD	Mar	136.25	130
		Jul	10.17	10
		Aug	121.75	175
	PEACH	Jan	29.91	15
	WALNUT	Aug	53.89	29
COPPER	ALMOND	May	8.25	33
COPPER HYDROXIDE	ALMOND	Feb	136.92	123
	NECTARINE	Feb	42.37	60
	PEACH	Jan	264.26	47
	PLUM	Feb	80.70	20
	TOMATO	Apr	8.07	10
	WALNUT	Mar	309.23	115
		Apr	414.80	138
COPPER OXIDE (OUS)	ALMOND	Jan	199.68	70
COPPER SULFATE (BASIC)	APRICOT	Jan	58.80	6
	NECTARINE	Jan	98.00	10
	PEACH	Jan	882.00	90
CYFLUTHRIN	ALFALFA	Mar	8.71	200
	COTTON	Jul	24.21	704
	TOMATO	Jun	4.26	95
CYPERMETHRIN	COTTON	Jun	1.80	37
DIAZINON	PRUNE	Jun	22.50	30
DIMETHOATE	CORN FOR/FOD	Jun	9.89	20
	TOMATO	Apr	3.74	10

Acres of Irrigated Agriculture: 15622				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	46.61	95
		Jun	56.69	129
DIURON	ALFALFA	Jan	499.02	447
		Feb	146.50	149
	COTTON	Sep	11.02	424
ESFENVALERATE	ALMOND	Jan	2.28	70
		Mar	0.37	130
		Apr	2.44	37
		May	16.39	287
		Jul	7.19	112
	APRICOT	Jan	0.24	6
	NECTARINE	Jan	0.41	10
		May	3.05	50
		Jul	1.53	30
	N-OUTDOOR PLANT	Mar	0.07	1
		May	0.59	12
	OAT	Jun	0.91	25
	PEACH	Jan	5.29	122
		Jun	1.63	32
	PEPPER FRUITING	May	1.63	4
		Jun	1.07	30
	PLUM	May	2.90	60
		Jul	1.02	20
	PRUNE	Jan	16.87	330
		Feb	5.60	110
	TOMATO	May	2.60	68
		Jun	1.72	48
		Aug	5.25	133
		Sep	5.13	136
	TOMATO PROCESSING	May	0.36	10
FENPROPATHRIN	TOMATO	Jun	5.33	34
GLYPHOSATE	ALMOND	Jan	188.74	121
		Feb	427.14	264
		Apr	43.68	42
		May	229.43	150
		Jun	1066.24	594
		Jul	74.88	51
		Aug	856.66	510
	CORN FOR/FOD	Feb	72.54	93
	COTTON	Sep	38.48	37
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Aug	2621.74	2015
		Sep	270.30	204
	COTTON	Sep	305.71	244
	N-OUTDOOR PLANT	Aug	95.31	64

Acres of Irrigated Agriculture: 15622				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	PLUM	Aug	6.41	4
	TOMATO PROCESSING	Sep	100.12	100
	WALNUT	Aug	37.65	70
		Sep	212.04	212
GLYPHOSATE, POTASSIUM SALT	ALMOND	Aug	646.75	464
		Sep	512.89	142
	PEACH	Aug	3.64	1
	WALNUT	Sep	86.89	36
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	23.64	829
	ALMOND	Mar	0.60	20
		May	19.43	496
		Jul	0.02	93
	CORN FOR/FOD	Mar	6.05	20
	COTTON	May	2.15	120
	TOMATO	Jun	2.39	77
		Sep	0.98	33
MALATHION	ALFALFA	Mar	516.57	556
		Apr	40.07	40
METHOMYL	ALFALFA	Jul	92.70	206
OXAMYL	OAT	Jun	18.58	25
	PEPPER FRUITING	Apr	35.84	40
		May	29.87	40
	TOMATO	May	159.79	258
		Jun	124.25	195
		Jul	25.89	35
		Aug	38.63	51
	TOMATO PROCESSING	May	29.87	55
PARAQUAT DICHLORIDE	ALFALFA	Jan	194.22	131
		Feb	89.93	149
	ALMOND	Feb	347.42	660
		Mar	57.39	60
		Apr	313.42	270
		May	442.98	330
		Jun	47.76	55
		Jul	3.77	16
		Aug	107.07	163
		Sep	263.68	259
	CORN FOR/FOD	Feb	58.47	96
	COTTON	Feb	123.04	202
	PISTACHIO	May	11.42	33
		Jun	6.92	9
	WALNUT	Apr	44.99	78
PERMETHRIN	ALMOND	Aug	387.70	973
	PISTACHIO	Apr	33.89	85

Acres of Irrigated Agriculture: 15622				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jun	21.18	85
		Jul	12.76	37
		Aug	9.97	40
		Sep	28.64	74
SIMAZINE	ALMOND	Jan	103.16	133
		Feb	62.01	127
TRIFLURALIN	ALFALFA	Feb	408.00	204
	OAT	Apr	8.02	75
	PEPPER FRUITING	Mar	9.03	18
	TOMATO	Mar	123.46	188
		Apr	48.34	106
		May	55.70	199
		Jun	26.58	61
		Jul	8.74	28
		Aug	22.58	45
	TOMATO PROCESSING	Mar	45.74	96
		Apr	14.16	32
		May	32.17	83
		Jun	26.37	84

Hatch Drain @ Tuolumne Rd

Table 12. Hatch Drain @ Tuolumne Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 552				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Feb	0.37	9
BIFENTHRIN	CORN FOR/FOD	Jun	7230.14	82
		Aug	58192.95	71
CARBARYL	ALFALFA	May	18.50	37
CHLORPYRIFOS	ALFALFA	Mar	7.60	30
	ALMOND	Jul	27.88	15
COPPER HYDROXIDE	ALMOND	Feb	27.63	45
DIMETHOATE	CORN FOR/FOD	Jun	40.48	82
		Aug	35.37	71
ESFENVALERATE	CORN FOR/FOD	Jun	2.13	52
GLYPHOSATE	ALMOND	Jan	119.60	110
		May	37.44	45
		Jun	58.34	305
	CORN FOR/FOD	Jun	47.84	46
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jun	22.53	15
	CORN FOR/FOD	May	35.01	35
		Jun	13.91	14
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	1705.78	158
	ALMOND	May	0.38	15
		Jul	1.75	60
	CORN FOR/FOD	May	0.98	34
MALATHION	ALFALFA	Mar	73.59	69
METHOMYL	SUDANGRASS	Jul	9.00	20
PARAQUAT DICHLORIDE	ALFALFA	Feb	6.00	9
TRIFLURALIN	ALFALFA	Feb	2.25	9
		Apr	15.00	8

Highline Canal @ Hwy 99

Table 13. Highline Canal @ Hwy 99 pesticide application data for 2007.

Acres of Irrigated Agriculture: 35002				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jul	21.27	213
	CORN FOR/FOD	Jun	126.88	158
		Jul	217.75	374
	WALNUT	Jul	0.06	10
CARBARYL	ALMOND	Apr	6.40	12
CHLORPYRIFOS	ALMOND	Apr	6.20	20
		Jul	251.17	183
	CORN FOR/FOD	May	318.16	318
	SWEET POTATO	May	16.20	8
	WALNUT	May	19.94	11
		Jun	20.34	10
		Jul	59.47	32
COPPERHYDROXIDE	ALMOND	Jan	514.76	157
		Feb	315.99	212
		Mar	94.44	77
	PEACH	Jan	1007.16	138
		Feb	215.60	28
		Mar	223.38	173
	WALNUT	Mar	138.60	30
		Apr	699.16	127
		May	252.32	78
COPPEROXIDE (OUS)	ALMOND	Jan	1141.04	200
		Feb	166.12	163
	PEACH	Jan	707.44	124
COPPER SULFATE (BASIC)	ALMOND	Jan	8317.85	827
		Feb	829.88	178
		Mar	659.05	157
	PEACH	Jan	3969.00	270
		Feb	418.02	85
		Mar	542.68	99
	WALNUT	Apr	303.80	31
		May	303.80	31
DIAZINON	ALMOND	Jan	206.18	102
	PEACH	Jan	35.72	36
DIMETHOATE	CORN	Jun	74.62	158

Acres of Irrigated Agriculture: 35002				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	FOR/FOD	Jul	181.35	374
DISULFOTON	PEACH	Jan	0.07	16
ESFENVALERATE	ALMOND	Jan	37.56	757
		Apr	6.51	128
		May	22.00	207
		Jun	0.65	10
		Jul	9.87	196
	PEACH	Jan	13.89	274
		May	31.58	688
		Jun	23.75	473
		Jul	1.83	45
	WALNUT	Jun	3.08	101
GLYPHOSATE	ALMOND	May	161.91	209
		Jun	115.87	189
		Jul	113.36	109
	CORN FOR/FOD	May	57.89	60
		Jun	332.80	320
LAMBDA-CYHALOTHRIN	ALMOND	Jan	1.00	40
		May	1.38	55
		Jun	1.59	63
		Jul	7.71	293
	CORN FOR/FOD	May	5.39	180
		Jun	5.33	178
	PEACH	May	3.26	119
PARAQUAT DICHLORIDE	ALMOND	Jan	72.32	54
		Feb	92.86	156
		Mar	284.38	403
		Apr	96.17	197
		May	166.44	206
		Jun	175.85	239
		Jul	192.22	384
	GRAPE WINE	Jun	62.42	56
		Jul	11.10	10
	PEACH	Jan	27.69	20
		Feb	6.54	14
		Mar	11.07	28
		Apr	1.88	8
		May	27.02	52
	WALNUT	Jan	19.73	19
		Mar	38.95	410
		Apr	3.08	3
		May	121.21	185
		Jun	37.06	46

Acres of Irrigated Agriculture: 35002				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jul	30.20	60
PERMETHRIN	CORN FOR/FOD	May	22.73	188
		Jun	10.55	55
PHOSMET	PEACH	May	5.60	2
		Jun	42.00	23
	WALNUT	Jun	68.60	14
SIMAZINE	ALMOND	Apr	1.80	8
	WALNUT	Apr	1.13	5
TRIFLURALIN	ALMOND	Jun	506.89	925

Highline Canal @ Lombardy Ave

Table 14. Highline Canal @ Lombardy Ave pesticide application data for 2007.

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jan	31.25	1000
		Jun	26.25	420
		Jul	82.53	1295
	CORN FOR/FOD	Jun	126.88	158
		Jul	292.88	610
		Aug	170.32	212
CARBARYL	ALMOND	Apr	6.40	12
		May	20.00	11
	APRICOT	May	20.02	5
CHLORPYRIFOS	ALFALFA	Mar	110.62	217
		Jun	2.50	5
	ALMOND	Apr	6.20	20
		May	1141.80	1102
		Jun	3949.06	1420
		Jul	8214.43	4677
		Aug	163.63	81
	CORN FOR/FOD	May	318.16	318
		Jul	472.47	523
		Aug	130.15	170
	SORGHUM MILO	Aug	4148.80	135
	WALNUT	May	359.46	193
		Jun	20.34	10
		Jul	218.08	110
COPPER HYDROXIDE	ALMOND	Jan	11801.82	3246
		Feb	1115.64	956
		Mar	54.66	810
	ALMOND, ORGANIC	Feb	53.90	35
	APRICOT	Feb	22.72	19
	GRAPE	Apr	183.04	6
	N-OUTDR PLANTS	Apr	90.09	30
		May	27.72	9
	PEACH	Jan	616.00	80
		Mar	135.08	110
	PEACH PROCESSNG	Jan	616.00	80
		Mar	138.28	93
	WALNUT	Feb	331.41	77
		Mar	1440.00	382
		Apr	2357.42	525

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	654.89	168
COPPER OXIDE (OUS)	ALMOND	Jan	1055.46	185
		Feb	1636.89	760
		Mar	277.93	530
	PEACH	Jan	159.75	28
	WALNUT	Mar	518.50	122
		Apr	2433.10	580
		May	314.63	75
COPPER SULFATE (BASIC)	ALMOND	Jan	4383.57	552
		Feb	232.85	55
		Mar	284.40	80
	PEACH	Jan	3483.90	237
		Feb	361.33	74
		Mar	401.51	76
CYFLUTHRIN	ALMOND	Jul	5.00	125
	OP-DEC. TREE	May	5.71	174
		Jun	9.52	290
		Jul	18.00	405
DIAZINON	N-OUTDR PLANTS	May	3757.64	9
DIMETHOATE	CORN FOR/FOD	May	41.98	85
		Jun	74.62	158
		Jul	286.97	610
		Aug	151.28	304
DIURON	ALFALFA	Jan	107.21	55
	CORN FOR/FOD	Jun	0.53	14
	WALNUT	Jan	15.34	49
		Feb	66.27	46
		Mar	17.77	40
		Apr	33.37	75
ESFENVALERATE	ALMOND	Jan	69.92	1242
		Apr	6.10	120
		May	149324.29	1644
		Jun	0.65	10
		Jul	16386.41	2969
	APRICOT	May	0.75	19
	PEACH	Jan	12.21	241
		May	21.38	447
		Jun	18.58	370
	PEACH PROCESSNG	Jan	3.90	80
		Mar	0.53	13
		May	3.25	80
		Jun	1.95	80
	WALNUT	Apr	29322.70	179
		Jun	1.04	17

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Jul	1.95	30
		Sep		8
GLYPHOSATE	ALFALFA	Aug	20.80	27
	ALMOND	Jan	462.47	738
		Feb	79.24	200
		Mar	377.62	546
		Apr	1648.38	2535
		May	915.95	917
		Jun	949.51	964
		Jul	2588.49	2651
		Aug	1727.45	1629
	CORN FOR/FOD	May	301.17	319
		Jun	492.95	525
		Jul	166.40	215
	WALNUT	Feb	59.63	54
		May	12.48	8
GLYPHOSATE, ISOPROPYLAMINE SALT	ALFALFA	Aug	6.54	55
	ALMOND	Jan	591.16	859
		Feb	330.83	335
		Mar	3141.25	3374
		Apr	1521.80	1700
		May	723.32	391
		Jun	3608.66	3769
		Jul	3519.56	2511
		Aug	535.34	720
		Sep		33
	APRICOT	Jul	20.56	19
	CORN FOR/FOD	Jun	134.16	116
		Jul	88.76	91
	GRAPE	Jan	5.34	6
	GRAPE, WINE	Jan	67.68	54
	KIWI	Mar	119.66	72
	N-OUTDR PLANTS	May	20.00	9
		Jul	120.02	60
		Aug	120.02	60
	OLIVE	Mar	9051.55	6
		Apr	2262.89	3
	OP-DEC. TREE	Jan	124.45	60
	PEACH PROCESSNG	May	41.15	65
	WALNUT	Feb	28.83	18
		Jul	48.01	48
		Sep		6
GLYPHOSATE, POTASSIUM SALT	ALFALFA	Mar	37.24	27
	ALMOND	Jan	963.31	1619
		Feb	316.66	340

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	164323.70	2210
		Apr	140145.64	1729
		May	98197.62	793
		Jun	50436.00	537
		Jul	62735.73	485
		Aug	365148.80	579
	APRICOT	Feb	8.51	19
	CORN FOR/FOD	Jun	288.52	274
		Jul	106544.66	209
		Aug	455.13	330
	GRAPE, WINE	Feb	1.38	0
		Apr	498.10	142
		May	568.88	309
	PEACH PROCESSNG	Mar	37.83	80
	PISTACHIO	Jan	7.49	13
		May	23940.11	18
	WALNUT	Jan	71.90	168
		Mar	24.52	40
		Apr	45.97	75
		May	2545.48	123
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	12.24	407
	ALMOND	Jan	17.71	716
		May	6049.03	3735
		Jun	9.96	422
		Jul	7898.98	770
	CORN FOR/FOD	May	5.39	180
		Jun	5.33	178
	PEACH	May	3.26	119
	PEACH PROCESSNG	May	0.20	13
		Jun	0.20	13
		Jul	1.10	44
	WALNUT	Jun	901.91	30
		Sep		35
MALATHION	N-OUTDR PLANTS	Jun	5914.88	4
	WALNUT	Aug	161.49	28
METHOMYL	ALFALFA	Aug	91.13	135
PARAQUAT DICHLORIDE	ALFALFA	Jan	56.54	55
	ALMOND	Jan	748.62	1709
		Feb	497.31	1087
		Mar	195.74	223
		Apr	591.89	1063
		May	169.11	224
		Jun	214.84	270
		Jul	1176.16	1406

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Aug	140.89	269
		Sep		14
	BEAN DRIED	Jan	8.65	10
	GRAPE	Feb	92.86	90
		Jun	30.94	56
		Jul	27.84	62
		Aug	38.76	56
	GRAPE, WINE	May	80.18	78
	PEACH	Jan	27.69	20
		Feb	4.67	13
		Mar	2.08	2
		Apr	1.88	8
		May	18.37	27
	PEACH PROCESSNG	Jan	5.19	6
	WALNUT	Jan	27.32	60
		Mar	65.85	390
		Apr	3.08	3
		May	75.32	115
		Jun	10.07	20
		Jul	30.20	60
		Sep		60
PERMETHRIN	ALMOND	May	169287.83	1073
		Jun	78442.17	408
		Jul	369524.13	1196
	CORN FOR/FOD	Jun	10.55	55
	WALNUT	Sep		50
PHOSMET	PEACH	May	5.60	2
		Jun	42.00	23
	WALNUT	Jun	68.60	14
SIMAZINE	ALMOND	Jan	564.33	1388
		Feb	15796.13	527
		Mar	507284.35	2789
		Apr	62889.72	3825
		May	88841.70	651
		Jun	89261.31	584
		Jul	240508.52	1399
	GRAPE	Jan	2.23	6
	PEACH PROCESSNG	Jan	11.94	6
		Mar	49.37	80
	WALNUT	Jan	30.54	49
		Feb	68.09	46
		Mar	35.37	40
		Apr	67.44	80
TRIFLURALIN	ALMOND	Apr	822.14	1291

Acres of Irrigated Agriculture: 29939				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		May	366.36	366
		Jun	764.92	1273
		Jul	1637.30	2170

Hilmar Drain @ Central Ave

Table 15. Hilmar Drain @ Central Ave pesticide application data for 2007.

Acres of Irrigated Agriculture: 2105				
Active Ingredients (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jul	2.00	40
	CORN FOR/FOD	Jun	233.86	390
		Jul	85.01	299
		Aug	7.93	59
COPPER HYDROXIDE	ALMOND	Jan	307.00	50
		Feb	61.40	50
		Mar	8.60	14
COPPER OXIDE (OUS)	ALMOND	Feb	14.68	14
DIMETHOATE	CORN FOR/FOD	Jun	193.64	390
		Jul	125.14	279
		Aug	24.69	59
DIURON	ALFALFA	Jan	252.93	173
	CORN FOR/FOD	Jun	0.67	18
	RIGHTS OF WAY	Feb	1.60	4
ESFENVALERATE	ALMOND	Jan	2.60	50
		May	0.72	14
	CORN FOR/FOD	May	0.98	20
		Jun	1.30	36
GLYPHOSATE	ALMOND	May	0.96	6
	CORN FOR/FOD	May	59.28	76
		Jun	474.03	658
		Jul	20.80	32
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	18.84	751
	CORN FOR/FOD	May	1.00	50
MALATHION	ALFALFA	Mar	241.72	223
PARAQUAT DICHLORIDE	ALFALFA	Jan	20.76	35
		Feb	43.59	65
PERMETHRIN	CORN FOR/FOD	May	63.84	320
		Jun	35.42	180
TRIFLURALIN	ALFALFA	Apr	370.00	185

Livingston Drain @ Robin Ave

Table 16. Livingston Drain @ Robin Ave pesticide application data for 2007.

Acres of Irrigated Agriculture: 3656				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jul	22.75	196
CHLORPYRIFOS	ALMOND	Jul	15.91	21
	SWEET POTATO	Apr	34.38	19
		May	53.44	28
	WALNUT	May	6.00	3
		Jul	6.00	3
COPPER HYDROXIDE	ALMOND	Jan	2828.60	854
		Feb	56.24	69
		Mar	9.17	18
COPPER OXIDE (OUS)	ALMOND	Jan	114.10	20
		Feb	90.24	160
	GRAPE WINE	Mar	41.95	40
	PEACH	Feb	50.34	10
	WALNUT	May	17.62	3
ESFENVALERATE	ALMOND	Jan	11.13	239
		Feb	0.91	18
		Jul	11.19	316
	PEACH	Feb	0.51	10
		Jun	6.10	120
		Jul	1.22	25
GLYPHOSATE	ALMOND	Mar	21.61	36
		Apr	14.56	17
LAMBDA-CYHALOTHRIN	ALMOND	May	15.04	600
		Jul	3.88	138
	PEACH	May	4.85	176
		Jun	1.32	56
METHIDATHION	ALMOND	Jan	600.00	600
PARAQUAT DICHLORIDE	ALMOND	Jan	21.30	29
		Feb	36.23	107
		Mar	115.77	140
		Apr	89.98	80
		May	95.97	126
		Jun	115.82	114
		Jul	200.03	487
	GRAPE WINE	Mar	13.84	13
		Jun	13.50	13
	PEACH	May	2.57	10

Acres of Irrigated Agriculture: 3656				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
PERMETHRIN	ALMOND	Jan	5.75	37
		Jul	119.62	600
TRIFLURALIN	ALMOND	Jul	20.06	20

Merced River @ Santa Fe

Table 17. Merced River @ Santa Fe pesticide application data for 2007.

Acres of Irrigated Agriculture: 27795				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	TOMATILLO	Jun	0.32	7
BIFENTHRIN	ALMOND	Jun	15.63	250
		Jul	88.53	900
	CORN FOR/FOD	Jul	197.93	356
CARBARYL	CORN FOR/FOD	May	25.00	50
CHLORPYRIFOS	ALMOND	Jan	1584.29	853
		Jun	3.00	5
		Jul	1.00	5
	CORN FOR/FOD	May	440.44	316
	GRAPE WINE	Feb	460.15	244
	WALNUT	May	68.89	37
		Jul	60.60	30
		Oct	9.97	8
COPPER HYDROXIDE	ALMOND	Jan	6499.62	1105
		Feb	325.15	282
		Mar	327.26	533
	GRAPE WINE	Apr	359.00	313
	PEACH	Mar	974.21	604
	STONE FRUIT	Feb	111.90	52
	WALNUT	Mar	70.61	12
		Apr	1038.50	176
		May	620.61	115
COPPER OXIDE (OUS)	ALMOND	Jan	1568.93	296
		Feb	1036.17	988
		Mar	424.74	405
COPPER SULFATE (BASIC)	ALMOND	Jan	12270.58	1202
		Feb	8424.96	1104
		Mar	4110.56	845
	PEACH	Feb	441.00	90
		Mar	569.87	116
DIAZINON	ALMOND	Jan	232.18	117
DIMETHOATE	CORN FOR/FOD	Jul	175.72	356
DIURON	WALNUT	Jan	66.97	67

Acres of Irrigated Agriculture: 27795				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
		Mar	80.00	100
ESFENVALERATE	ALMOND	Jan	31.85	622
		Feb	32.80	660
		May	42.45	445
		Jun	6.84	130
		Jul	53.89	972
	PEACH	May	8.24	162
		Jun	1.63	32
	WALNUT	Jul	7.42	148
GLYPHOSATE	ALMOND	Jan	255.35	224
		Mar	493.95	810
		Apr	1807.47	2646
		May	886.46	1448
		Jun	822.73	1270
		Jul	43.68	28
	CORN FOR/FOD	May	15.79	15
	WALNUT	Jan	34.84	67
		Jun	34.84	67
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	1.50	50
	ALMOND	May	96.58	3868
		Jul	2.56	102
MALATHION	WALNUT	Jul	56.28	12
METHOMYL	CORN FOR/FOD	May	54.45	122
PARAQUAT DICHLORIDE	ALFALFA	Mar	25.98	50
	ALMOND	Jan	1414.14	1419
		Feb	110.20	197
		Mar	467.01	628
		Apr	80.68	85
		May	171.38	177
		Jun	354.38	425
		Jul	34.61	40
	BLUEBERRY	Apr	4.21	4
	GRAPE WINE	Mar	121.82	88
		Apr	211.09	153
		Jun	406.89	287
		Jul	3.46	3
	WALNUT	Feb	10.76	19
		Mar	11.73	28
		May	6.92	12
		Jun	6.92	11
PERMETHRIN	ALMOND	May	171.81	1149

Acres of Irrigated Agriculture: 27795				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	CORN FOR/FOD	Jun	50.16	418
PHOSMET	PEACH	May	325.43	116
SIMAZINE	ALMOND	Jan	1128.89	1293
		Feb	282.91	421
		Mar	10.26	66
		Apr	1557.89	3032
		May	434.41	1377
		Jun	72.62	591
	GRAPE WINE	Jan	101.63	61
		Apr	12.36	36
	WALNUT	Jan	66.65	67
		Mar	199.82	100
TRIFLURALIN	ALMOND	Apr	111.33	111
		May	172.50	192
		Jun	566.66	565
	GRAPE WINE	Jan	1340.72	518
		Apr	18.05	18

Miles Creek @ Reilly Rd

Table 18. Miles Creek @ Reilly Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 9663				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
ALDICARB	COTTON	Mar	668.70	973
		Apr	41.25	55
		May	33.08	49
		Jun	1037.40	494
BIFENTHRIN	ALMOND	Aug	0.00	41
	CORN FOR/FOD	Apr	3.04	65
	SQUASH WINTER	May	1.89	19
		Jul	0.89	9
CARBARYL	TOMATO	Jun	81.25	65
CARBOFURAN	ALFALFA	Mar	58.71	110
COPPER HYDROXIDE	ALMOND	Jan	516.48	160
	WALNUT	Mar	123.20	20
		Apr	123.20	20
COPPER OXIDE (OUS)	PRUNE	Jan	570.52	85
CYFLUTHRIN	ALFALFA	Mar	22.90	526
	COTTON	Jul	21.86	652
	TOMATO	Jun	4.26	95
CYPERMETHRIN	COTTON	Jun	1.80	37
DIAZINON	PRUNE	May	75.00	100
		Jun	135.75	172
DIMETHOATE	ALFALFA	Mar	10.71	43
		Apr	36.04	73
	CORN FOR/FOD	Aug	0.00	60
	TOMATO	May	46.61	95
		Jun	45.57	95
DIURON	ALFALFA	Jan	243.68	228
		Feb	136.43	131
	RIGHTS OF WAY	Jan	19.99	5
ESFENVALERATE	ALMOND	Mar	0.37	130
		May	1.95	50
		Jul	3.68	58
	PRUNE	Jan	21.02	415
	TOMATO	May	2.60	68
		Jun	1.72	48

Acres of Irrigated Agriculture: 9663				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
FENPROPATHRIN	TOMATO	Jul	14.56	93
		Aug	0.00	79
GLYPHOSATE	ALFALFA	Jan	13.00	10
		Jun	10.40	10
	ALMOND	Jan	188.74	121
		Feb	240.78	189
		May	209.62	165
		Jun	742.88	411
		Jul	20.80	10
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Aug	0.00	51
	COTTON	Sep	0.00	122
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	16.82	572
	CORN FOR/FOD	Mar	6.05	20
		Jul	0.35	15
	COTTON	May	2.15	120
	TOMATO	Jun	0.55	20
		Sep	0.00	33
MALATHION	ALFALFA	Mar	1064.54	1108
METHOMYL	ALFALFA	Jul	124.20	276
		Aug	0.00	260
		Sep	0.00	217
	CORN FOR/FOD	Jul	63.00	140
		Sep	0.00	380
	SUDANGRASS	Jul	28.80	64
OXAMYL	TOMATO	May	79.65	136
		Jun	49.78	80
PARAQUAT DICHLORIDE	ALFALFA	Jan	109.36	174
		Feb	149.46	242
	ALMOND	Jan	7.25	18
		Feb	113.13	272
		Mar	51.81	218
		Apr	158.25	216
		May	5.44	24
		Jul	4.14	5
		Aug	0.00	94
		Sep	0.00	262
	CORN FOR/FOD	Feb	58.47	96
	COTTON	Feb	123.04	202
		Mar	39.45	38
	PISTACHIO	Jun	6.92	9
	UNCULTIVATED AG	May	4.14	2

Acres of Irrigated Agriculture: 9663				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	WALNUT	Apr	44.99	78
PERMETHRIN	ALMOND	Jul	51.04	160
		Aug	0.00	389
	CORN FOR/FOD	Apr	30.39	152
	PISTACHIO	Apr	33.89	85
		Jun	21.18	85
		Aug	0.00	40
SIMAZINE	ALMOND	Jan	134.27	99
		Feb	35.61	89
TRIFLURALIN	ALFALFA	Feb	1060.00	530
	TOMATO	Mar	69.95	93
		Apr	27.28	60
		May	13.54	27
		Jul	1.72	14
		Aug	0.00	13

Mustang Creek @ East Ave

Table 19. Mustang Creek @ East Ave pesticide application data for 2007.

Acres of Irrigated Agriculture: 12399				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	ALMOND	Jul	50.00	800
	CORN FOR/FOD	Jun	109.88	138
		Jul	143.42	180
CHLORPYRIFOS	ALMOND	Jan	594.68	320
		Jul	600.25	343
	CORN FOR/FOD	May	318.16	318
		Jul	105.54	150
		Aug	130.15	170
COPPER HYDROXIDE	ALMOND	Jan	4019.85	1016
		Feb	634.65	620
	GRAPE WINE	Apr	2059.89	1794
COPPER OXIDE (OUS)	ALMOND	Feb	79.87	14
		Mar	1405.33	1713
COPPER SULFATE (BASIC)	ALMOND	Jan	7.38	100
DIAZINON	ALMOND	Jan	158.75	80
DIMETHOATE	CORN FOR/FOD	Jun	68.08	138
		Jul	88.87	180
ESFENVALERATE	ALMOND	Jan	51.96	200
		Jul	453.03	1494
	PEACH	May	5.59	110
FENPROPATHRIN	GRAPE WINE	Jul	594.17	1443
GLYPHOSATE	ALMOND	Jan	876.03	1711
		Apr	491.39	945
		May	680.20	470
		Jun	670.04	1385
		Jul	807.77	305
		Aug	566.55	425
	CORN FOR/FOD	Jun	540.79	520
		Jul	5.79	3
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	138.64	110
		Mar	680.81	680
		Apr	640.76	360
		May	201.50	160
		Jun	941.12	690
		Jul	1036.15	722
		Aug	161.20	80
	GRAPE WINE	Jan	67.68	54

Acres of Irrigated Agriculture: 12399				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
	UNCUL NON-AG	Mar	558.42	200
GLYPHOSATE, POTASSIUM SALT	ALMOND	Jan	397.20	288
		Feb	39.28	21
		Apr	192.40	93
		Jun	37.24	20
		Jul	126.61	42
	CORN FOR/FOD	Aug	234.46	170
	GRAPE WINE	Apr	1962.57	969
		May	568.88	309
LAMBDA-CYHALOTHRIN	ALMOND	Jan	1.66	76
		May	9072.80	1667
		Jul	10975.08	843
PARAQUAT DICHLORIDE	ALMOND	Jan	305.41	616
		Feb	483.15	940
		Mar	124.59	180
		Apr	651.74	757
		May	53.54	52
		Jun	493.16	475
	GRAPE WINE	May	80.18	78
PERMETHRIN	ALMOND	May	70855.40	1483
		Jun	1825.57	1450
		Jul	6734.35	6065
SIMAZINE	ALMOND	Jan	198356.51	2028
		Feb	343.80	998
		Apr	23049.02	1685
		May	52576.39	516
		Jun	103685.14	1008
TRIFLURALIN	ALMOND	Apr	74.94	150
		May	653.91	652
		Jun	935.74	933
		Jul	74.94	150

Prairie Flower Drain @ Crows Landing Rd

Table 20. Prairie Flower Drain @ Crows Landing Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 4079				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	CORN FOR/FOD	Jul	129223.74	674
		Aug	213.50	255
CARBARYL	CORN FOR/FOD	May	10.00	20
		Jun	72.50	170
DIMETHOATE	CORN FOR/FOD	Jul	233.32	564
		Aug	126.80	255
	TOMATO PROCESS	Jul	75.54	153
DIURON	ALFALFA	Feb	204.67	105
	CORN FOR/FOD	Jul	0.42	11
ESFENVALERATE	TOMATO PROCESS	Jul	50974.81	153
GLYPHOSATE	CORN FOR/FOD	Jun	170.07	207
		Jul	165.34	230
		Aug	46.80	60
GLYPHOSATE, ISOPROPYLAMINE SALT	CORN FOR/FOD	Jun	330.06	326
		Jul	303.88	304
GLYPHOSATE, POTASSIUM SALT	CORN FOR/FOD	May	179606.02	172
		Jun	80531.39	589
		Jul	55.17	40
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	3479.76	663
	CORN FOR/FOD	Jun	2.99	120
MALATHION	ALFALFA	Mar	192.46	190
METHOMYL	CORN FOR/FOD	Jul	92.70	232
PARAQUAT DICHLORIDE	ALFALFA	Feb	70.16	105
TRIFLURALIN	ALFALFA	Feb	214.00	107
		Apr	302.00	151
	TOMATO PROCESS	Jun	63.94	153

Silva Drain @ Meadow Dr

Table 21. Silva Drive @ Meadow Dr pesticide application data for 2007.

Acres of Irrigated Agriculture: 68				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
BIFENTHRIN	CORN FOR/FOD	Jul	40.12	56
DIMETHOATE	CORN FOR/FOD	Jul	27.65	56
PARAQUAT DICHLORIDE	ALMOND	Feb	19.97	34
SIMAZINE	ALMOND	Feb	9.66	34
		Mar	5.28	34

South Slough @ Quinley Rd

Table 22. South Slough @ Quinley Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 1136				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
(S)-CYPERMETHRIN	ALFALFA	Mar	1.30	33
	TOMATO	Jun	2.96	78
		Jul	1.48	31
ALDICARB	COTTON	Apr	99.75	133
BIFENTHRIN	ALMOND	Jun	4.90	70
	CORN FOR/FOD	Jul	67.99	80
CARBARYL	TOMATO PROCESS	Apr	134.00	67
CHLORPYRIFOS	ALFALFA	Mar	9.76	16
COPPER HYDROXIDE	ALMOND	Jan	96.84	25
		Feb	16.14	35
COPPER SULFATE (PENTAHYDRATE)	RICE	May	1381.05	93
CYFLUTHRIN	COTTON	Jun	10.35	266
		Jul	10.35	266
		Aug	5.54	133
DIMETHOATE	CORN FOR/FOD	Jul	25.58	80
DIURON	ALFALFA	Feb	48.24	33
ESFENVALERATE	ALMOND	May	2.49	62
GLYPHOSATE	ALMOND	Feb	25.63	38
LAMBDA-CYHALOTHRIN	ALFALFA	Mar	1.55	55
MALATHION	ALFALFA	Mar	2461.25	55
PARAQUAT DICHLORIDE	ALFALFA	Jan	37.17	54
	ALMOND	Apr	15.23	11
		May	15.23	11
		Jun	15.23	11
PERMETHRIN	ALMOND	Jun	6.38	20
	CORN FOR/FOD	Apr	84.75	561
SIMAZINE	ALMOND	Jan	44.36	23
TRIFLURALIN	COTTON	Jun	66.44	133
	TOMATO	May	63.94	85
		Jun	46.08	107
	TOMATO PROCESS	Mar	22.32	67
		May	11.16	67

Westport Drain @ Vivian Rd

Table 23. Westport Drain @ Vivian Rd pesticide application data for 2007.

Acres of Irrigated Agriculture: 1473				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
AZINPHOS-METHYL	APPLE	May	20.50	21
		Jul	20.50	21
	WALNUT	Jun	16.00	8
BIFENTHRIN	ALMOND	Jul	3.60	36
	CORN FOR/FOD	Jun	7230.14	82
		Jul	12.75	15
CARBARYL	CORN FOR/FOD	May	20.00	40
CHLORPYRIFOS	ALFALFA	Mar	17.57	70
	ALMOND	May	15.95	20
		Jul	128.89	65
	APPLE	Mar	41.01	21
	WALNUT	May	26.02	14
		Jun	52.45	27
		Aug	52.03	28
COPPER HYDROXIDE	ALMOND	Feb	224.02	301
		Mar	115.40	286
	PEACH	Jan	231.00	30
	PEACH PROCESSNG	Jan	369.60	48
	WALNUT	Mar	8.44	14
		Apr	212.13	53
COPPER OXIDE (OUS)	ALMOND	Jan	25.17	6
DIMETHOATE	ALFALFA	Mar	1844.64	180
	CORN FOR/FOD	Jun	40.48	82
		Jul	4.92	15
ESFENVALERATE	ALMOND	May	13.96	286
		Jul	304915.97	572
	CORN FOR/FOD	Jun	0.29	7
	PEACH PROCESSNG	Jun	2.44	48
	WALNUT	May	0.36	14
		Jun	0.36	14
		Jul	0.36	14
FENPROPATHRIN	APPLE	May	7729.76	21
		Jul	3864.88	21

Acres of Irrigated Agriculture: 1473				
Active Ingredient (AI)	**Crop**	**Month Applied**	**Total Pounds AI Applied**	**Total Acres AI Applied**
GLYPHOSATE	ALMOND	Jan	98.80	90
		Mar	16.64	16
		May	9.92	5
		Jun	30.94	229
		Jul	32.15	40
	CORN FOR/FOD	May	67.60	80
		Jun	110.24	126
GLYPHOSATE, ISOPROPYLAMINE SALT	ALMOND	Jan	60.10	40
		Feb	52.86	27
		Mar	73.07	69
		Apr	26490.74	75
		May	28.05	25
		Jun	40470.94	114
		Jul	15.90	20
	CORN FOR/FOD	May	35.01	35
		Jun	22.85	23
	PEACH	Feb	26.70	30
	WALNUT	Apr	35.77	28
		Jul	17.89	12
		Aug	21.86	28
GLYPHOSATE, POTASSIUM SALT	ALMOND	Mar	196564.43	153
		May	85976.15	68
		Jul	166298.16	125
		Aug	126386.60	95
	GRAPE, WINE	Feb	284286.71	263
		Apr	122229.15	70
		May	82068.14	47
MALATHION	ALFALFA	Mar	23.09	20
METHOMYL	SUDANGRASS	Jul	9.00	20
PARAQUAT DICHLORIDE	ALMOND	Jan	12.53	32
		Jul	65.34	53
		Aug	22.91	19
	GRAPE, WINE	Jul	68.78	53
	PEACH PROCESSNG	May	24.92	24
PERMETHRIN	ALMOND	Jan	18025.58	131
		Jul	4301.82	31
PHOSMET	WALNUT	Jul	49.00	14
SIMAZINE	ALMOND	Mar	15.92	16
TRIFLURALIN	ALFALFA	Apr	15.00	8